GENERAL

A0.01	COVER
A0.03	GENERAL NOTES

CIVIL

CV-01	COVER SHEET
EX-01	EXISTING CONDITIONS MAP
EX-02	EXISTING CONDITIONS MAP
EC-01	DEMOLITION AND TESC PLAN
EC-02	TESC NOTES AND DETAILS
SP-01	SITE IMPROVEMENT PLAN
SP-02	SITE IMPROVEMENT NOTES AND DETAILS
SP-03	SITE IMPROVEMENT NOTES AND DETAILS
SP-04	SITE IMPROVEMENT NOTES AND DETAILS
CG-01	GRADING PLAN
SD-01	STORM DRAINAGE PLAN
SD-02	STORM DRAINAGE NOTES AND DETAILS
UT-01	WATER AND SEWER PLAN
UT-02	WATER AND SEWER NOTES AND DETAILS
UT-03	WATER AND SEWER NOTES AND DETAILS

ARCHITECTURAL

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A3.01	SECOND FLOOR PLAN
A3.20	ROOF PLAN
A4.00	EXTERIOR ELEVATIONS
A5.00	BUILDING SECTIONS
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A6.00	DETAILS - EXTERIOR
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A6.45	DETAILS - FLASHING/ PENETRATION
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A8.00	ENLARGED PLANS - STAIRCASE
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E4.00	ONE-LINE DIAGRAM
F1.00	FIRST FLOOR PLAN - FIRE ALARM
L0.10	SITE PLAN - LIGHTING
L1.00	FIRST FLOOR PLAN - LIGHTING
L2.00	SECOND FLOOR PLAN - LIGHTING
L3.00	LIGHTING DETAILS
T1.00	FIRST FLOOR PLAN - TELECOMM
T2.00	SECOND FLOOR PLAN - TELECOMM
T3.10	TELECOMM DETAILS CONT.

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C2	BUILDING SHEET 1
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C4	PLANE IDENTIFICATION PLAN
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F2	BASE PLATE DETAILS
E1	PRIMARY FRAMING SHAKEOUT PLAN
E2	CROSS SECTION AT LINE 1
E3	CROSS SECTION AT LINE 2, 3 & 4
E4	CROSS SECTION AT LINE 5
E5	CROSS SECTION AT LINE 6
E6	CROSS SECTION AT LINE 7
E7	ROOF FRAMING PLAN
E8	FRAMING ELEVATION - ENDWALL AT LINE 1
E9	FRAMING ELEVATION - SIDEWALL AT LINE E
E10	FRAMING ELEVATIONS - ENDWALL AT LINE 6
E11	FRAMING ELEVATION - ENDWALL AT LINE 7
E12	FRAMING ELEVATION - SIDEWALL AT LINE A
D1	GENERAL DETAILS
D2	GENERAL DETAILS
D3	GENERAL DETAILS
D4	GENERAL DETAILS
D5	PRIMARY DETAILS
D6	PRIMARY DETAILS
D7	PRIMARY DETAILS
D8	ROOF FRAMING DETAILS
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D10	WALL FRAMING DETAILS
D11	WALL FRAMING DETAILS
D12	WALL FRAMING DETAILS
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S2	ROOF LINER PLAN
S3	SHEETING ELEVATION - ENDWALL AT LINE 1
S4	SHEETING ELEVATION - SIDEWALL AT LINE E
S5	SHEETING ELEVATION - ENDWALL AT LINE 6
S6	SHEETING ELEVATION - ENDWALL AT LINE 7
S7	SHEETING ELEVATION AT LINE A
SD1	ROOF SHEETING DETAILS
SD2	ROOF SHEETING DETAILS
SD3	ROOF SHEETING DETAILS
SD4	ROOF SHEETING DETAILS
SD5	ROOF SHEETING DETAILS
SD6	ROOF SHEETING DETAILS
SD7	ROOF SHEETING DETAILS
SD8	ROOF SHEETING DETAILS
SD9	ROOF SHEETING DETAILS
SD10	ROOF SHEETING DETAILS
SD11	ROOF SHEETING DETAILS
SD12	WALL SHEETING DETAILS
SD13	WALL SHEETING DETAILS
SD14	WALL SHEETING DETAILS
SD15	WALL SHEETING DETAILS
SD16	LINER OR MISC SHEETING DETAILS

STRUCTURAL

S1.00	GENERAL NOTES
S1.01	GENERAL NOTES
S1.02	GENERAL NOTES
S1.03	GENERAL NOTES
S1.04	GENERAL NOTES
S1.05	GENERAL NOTES
S3.00	FOUNDATION PLAN
S3.01	SECOND FLOOR FRAMING PLAN
S4.00	FOUNDATION DETAILS
S5.00	SLAB ON GRADE DETAILS
S7.00	STEEL FRAMING DETAILS
S7.01	FLOOR FRAMING DETAILS
S7.03	COLD FORMED STEEL DETAILS
S8.01	COLD FORMED STEEL DETAILS

ATTACHMENTS

- PRE-ENGINEERED METAL BUILDING STRUCTURAL DESIGN CALCULATIONS
- STRUCTURAL CALCULATIONS

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER
11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

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A25-105 PRINTED 10/3/2025 3:00:58 PM

COVER
A0.01

NISQUALLY VOCATIONAL CENTER
11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

OWNER	NISQUALLY INDIAN TRIBE 11940 BILLY FRANK JR BLVD S OLYMPIA, WA 98513 (360) 350-2463 CONTACT: ELIZABETH GLENN EMAIL: GLENN.ELIZABETH@NISQUALLY-NSN.GOV
ARCHITECT	FREIHEIT ARCHITECTURE 505 106TH AVE NE, SUITE 302 BELLEVUE, WA 98004 (425) 827-2100 CONTACT: CHRIS AMONSON EMAIL: CAMONSON@FREIHEITARCH.COM
GEOTECHNICAL	QUALITY GEO NW, PLLC 4631 WHITMAN LN SE, SUITE D LACEY, WA 98513 (360) 878-9705 CONTACT: LUKE MCCANN, L.E.G. EMAIL: LUKE@QUALITYGEONW.COM
CIVIL	LDC 20210 142ND AVE NE WOODINVILLE, WA 98072 (425) 806-1869 CONTACT: ROSS JARVIS EMAIL: RJARVIS@LDCCORP.COM
STRUCTURAL	PCS STRUCTURAL SOLUTIONS 1011 WESTERN AVENUE, SUITE 810 SEATTLE, WA 98104 (206) 292-5076 CONTACT: JARED PLANK EMAIL: JPLANK@PCS-STRUCTURAL.COM
ELECTRICAL	REYES ENGINEERING 1420 5TH AVE, SUITE 2200 SEATTLE, WA 98101 (503) 771-1986 CONTACT: FLAVIANO REYES JR. EMAIL: FREYES@REYESENG.COM
PRE-ENGINEERED METAL BUILDING	ABS ADVANCED BUILDING STRUCTURE (971) 267-7910 CONTACT: RICK BROCKWAY EMAIL: RICK@ABSBLDGS.COM

GENERAL NOTES

CONSTRUCTION

1. ALL CONSTRUCTION SHALL COMPLY WITH THE ***2021 INTERNATIONAL BUILDING CODE*** AS ADOPTED BY THE ***NISQUALLY INDIAN TRIBE***, STATE REGULATIONS FOR BARRIER FREE DESIGN, ***2021 WA STATE ENERGY CODE***, AND ALL APPLICABLE LOCAL CODES, ORDINANCES, AND STANDARDS. IN CASE OF ANY CONFLICT WHERE THE METHODS OR STANDARDS OF INSTALLATION OF THE MATERIALS SPECIFIED DO NOT EQUAL OR EXCEED THE REQUIREMENTS OF THE LAWS OR ORDINANCES, THE LAWS OR ORDINANCES SHALL GOVERN. NOTIFY THE ARCHITECT OF ALL CONFLICTS.
2. SECURE RELEVANT CITY AND STATE APPROVALS RELATING TO FIRE, CONSTRUCTION, LABOR, HEALTH AND LICENSING. CONTRACTOR SHALL FURTHER POST ALL BONDS AND SECURE ALL INSURANCE REQUIRED BY LAW OR CONTRACT, FORWARDING PROOF OF SUCH ACTIONS TO THE LANDLORD PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. WORK NOT INCLUDED IN THIS CONTRACT SHALL BE MARKED "NIC" OR SPECIFICALLY ASSIGNED TO ANOTHER PARTY.
4. CONTRACTOR SHALL VISIT THE SITE, REVIEW THE DRAWINGS AS SUBMITTED BY THE ARCHITECT, AND BECOME THOROUGHLY FAMILIAR WITH THE SITE CONDITIONS PRIOR TO BIDDING OR CONSTRUCTION.
5. ALL WORK SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURERS LATEST RECOMMENDATIONS OR WRITTEN DIRECTIONS.
6. WHERE CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
7. WHERE DEVICES OR ITEMS OR PARTS THEREOF ARE REFERRED TO IN SINGULAR, IT IS INTENDED THAT SUCH SHALL APPLY TO AS MANY SUCH DEVICES, ITEMS OR PARTS AS ARE REQUIRED TO PROPERLY COMPLETE THE WORK.
8. VERIFY ALL "BUILDING STANDARDS" WITH BUILDING OWNER PRIOR TO BEGINNING ANY WORK. HOWEVER, THERE SHALL BE NO DEVIATIONS WHATSOEVER FROM THE CONTRACT DOCUMENTS WITHOUT THE ARCHITECT'S WRITTEN APPROVAL THEREOF. THE CONTRACTOR AGREES TO DEFEND, INDEMNIFY, AND HOLD THE ARCHITECT HARMLESS FROM ANY CLAIMS ARISING AS A RESULT OF UNAPPROVED CHANGES.
9. LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THIS WORK.
10. VERIFY AND CONFORM TO ALL REQUIREMENTS OF ALL UTILITY COMPANIES UNLESS OTHERWISE NOTED IN THE PLANS OR SPECIFICATIONS.
11. ALL DEBRIS SHALL BE REMOVED FROM PREMISES AND ALL AREAS SHALL BE LEFT IN A CLEAN (BROOM) CONDITION AT ALL TIMES.
12. PROTECT ADJACENT WORK AND REPAIR ANY DAMAGE AT CONTRACTOR'S OWN EXPENSE.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY IN THE AREA OF WORK IN ACCORDANCE WITH ALL APPLICABLE SAFETY CODES.
14. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE BUILDING OWNER/ARCHITECT/ENGINEER HARMLESS FOR INJURY OR DEATH TO PERSONS OR FOR DAMAGE TO PROPERTY CAUSED BY THE NEGLIGENCE OF THE CONTRACTOR, HIS AGENTS, EMPLOYEES, OR SUBCONTRACTORS.
15. APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY ANY WORKERS. ALL CONSTRUCTION SETS SHALL REFLECT THE SAME INFORMATION AS WELL AS ALL REVISIONS, ADDENDA, AND CHANGE ORDERS. THE CONTRACTOR SHALL ALSO MAINTAIN IN GOOD CONDITION, ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS, ON THE PREMISES AT ALL TIMES WHICH ARE TO BE UNDER THE CARE OF THE JOB SUPERINTENDENT.
16. MAINTAIN ALL EXIT PATHWAYS DURING CONSTRUCTION.
17. PROVIDE SECURITY OF THE TENANT SUITE WHILE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETED.
18. PATCH AND REPAIR ALL EXISTING SURFACES AS REQUIRED BY DEMOLITION AND NEW CONSTRUCTION TO RECEIVE NEW SCHEDULED FINISHES. ALL SURFACES ARE TO HAVE "LIKE-NEW" APPEARANCE.
19. AT COMPLETION OF THE WORK, REMOVE ALL DEBRIS FROM THE SITE, LEAVING SPACE CLEAN, WASH ALL WINDOWS AND GLASS, POLISH ALL HARDWARE AND FIXTURES. REPLACE AND PATCH AREAS OF CEILING DAMAGED DUE TO LIGHTING INSTALLATION OR MECHANICAL ADJUSTMENT.
20. COORDINATE CONSTRUCTION SCHEDULING WITH THE BUILDING OWNER TO ALLOW ONGOING OPERATION OF THE FACILITY DURING CONSTRUCTION.
21. MINIMIZE DISRUPTIONS OF BUILDING OCCUPANTS DUE TO NOISE, ODOR, FUMES, OR VIBRATION. AT THE END OF CONSTRUCTION THE CONTRACTOR SHALL COMPLETELY CLEAN ALL AREAS SOILED BY CONSTRUCTION ACTIVITIES INCLUDING THOSE IN WHICH NO WORK WAS DONE.
22. LATHING, PLASTER, AND GYPSUM WALL BOARD SYSTEMS SHALL CONFORM TO CHAPTER 25 OF THE ***2021 IBC***.
23. ALL GLASS AND GLAZING SHALL COMPLY WITH CHAPTER 24 OF THE ***2021 IBC*** AND THE US PRODUCT SAFETY COMMISSION: SAFETY STANDARDS FOR ARCHITECTURAL GLAZING MATERIALS (42 FR 1426: 16 CFR PART 1201).
24. VERIFY ALL DOOR AND WINDOW ROUGH OPENING DIMENSIONS WITH DOOR AND WINDOW MANUFACTURERS.
25. PROVIDE BLOCKING AS REQUIRED FOR WALL AND CEILING MOUNTED ITEMS.
26. PROVIDE GALVANIC ISOLATION BETWEEN DISSIMILAR METALS.
27. STUD HEIGHT AND SPACING LIMITATION OF STEEL FRAMING COMPONENTS SHOULD BE IN COMPLIANCE WITH ASTM C 754 FOR MAXIMUM DEFLECTION AND MINIMUM LATERAL LOADING REQUIREMENTS.
28. INVESTIGATE AND VERIFY LOCATIONS OF EXISTING STRUCTURAL, PLUMBING, MECHANICAL, AND ELECTRICAL ELEMENTS AND OTHER EXISTING CONDITIONS AND NOTIFY THE ARCHITECT OF ANY AND ALL DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
29. DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONSTRUCTION DRAWING SHOULD BE CALLED TO THE ATTENTION OF THE ARCHITECT.
30. OFFSET STUDS WHERE REQUIRED SO THAT FINISH WALL SURFACES WILL BE FLUSH.
31. CONSTRUCT WALLS PLUMB AND SQUARE WITH EXISTING STRUCTURE AND NEW CONSTRUCTION UNLESS NOTED OTHERWISE.
32. COORDINATION: THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION AND COORDINATION OF THE WORK OF ALL TRADES TO ASSURE COMPLIANCE WITH THE DRAWINGS.
33. ANY DEVIATIONS FROM DIMENSIONED LOCATIONS MUST BE APPROVED BY THE ARCHITECT.
34. ALL DEMOLISHED MATERIALS TO BE RECYCLED TO AN APPROVED RECYCLE FACILITY.
35. FOR PROJECTS IN WASHINGTON STATE, THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF PUGET SOUND AIR POLLUTION CONTROL AGENCY REGARDING INSPECTION, CERTIFICATION AND NOTIFICATION.
36. THE CONTRACTOR SHALL ENSURE THIS PROJECT AND ALL CONSTRUCTION ACTIVITIES RELATED THERETO CONFORM WITH ALL LOCAL , REGIONAL, AND/OR REMOVAL CODES REGARDING ASBESTOS CONTAINING MATERIALS.

DIMENSIONS

1. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING SITE CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONDITIONS ADVERSELY AFFECTING THE DESIGN PRIOR TO PROCEEDING WITH THE WORK.
2. DIMENSIONS OF PLANS ARE TYPICAL TO THE CENTERLINE OF COLUMNS AND FACE OF WALL STUD, UNLESS NOTED OTHERWISE. DOOR AND CASED OPENINGS WITHOUT LOCATION DIMENSIONS ARE TO BE FOUR (6) INCHES FROM THE FACE OF THE ADJACENT PARTITION OR CENTERED BETWEEN PARTITIONS.
3. DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL USE DIMENSIONS SHOWN ON THE DRAWINGS AND ACTUAL FIELD MEASUREMENTS. NOTIFY THE ARCHITECT IF DISCREPANCIES ARE FOUND.

PLUMBING, MECHANICAL & ELECTRICAL

1. MECHANICAL & ELECTRICAL CONTRACTORS SHALL BE RESPONSIBLE TO MAINTAIN COMPLIANCE WITH APPLICABLE CODES AND STANDARDS AND OBTAIN ALL NECESSARY PERMITS AND APPROVALS.
2. MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE BIDDER DESIGN/BUILD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE CORRESPONDING PERMITS FOR WORK. THE PROPOSED SYSTEM DESIGN & METHOD OF OPERATION FOR ALL ROOMS SHALL BE REVIEWED AND APPROVED BY THE TENANT PRIOR TO THE START OF ANY WORK.
3. WHERE APPLICABLE, STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL, AND FIRE PROTECTION DRAWINGS ARE SUPPLEMENTARY TO THESE DRAWINGS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ALL DISCREPANCIES BETWEEN THE CONSULTANTS' DRAWINGS WITH A WRITTEN REQUEST FOR CLARIFICATION. ANY WORK INSTALLED IN CONFLICT WITH THESE DRAWINGS OR SPECIFICATIONS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE BUILDING OWNER, TENANT, OR ARCHITECT.
4. ALL CABLING AND WIRING NOT IN CONDUITS OR FULL SURROUND CABLE TRAYS SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DEVELOPMENT RANGE OF LESS THAN 50.
5. ALL EXPOSED MATERIAL & PIPING IN RETURN AIR PLENUM MUST MEET FS 25.
6. ALL PLUMBING AND HVAC PIPE AND DUCTWORK IN PLENUM SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DEVELOPMENT RANGE OF LESS THAN 50.

SUBMITTALS AND WARRANTY

1. SUBMIT A LIST OF PROPOSED PRODUCT SUBMITTALS AND SHOP DRAWINGS TO THE OWNER FOR APPROVAL PRIOR TO START OF CONSTRUCTION.
2. ALL PRODUCTS AND MATERIALS SPECIFIED IN THE DRAWINGS (WITH EXCEPTION TO SPECIFIC FINISH COLORS AND FLOORING) ARE INTENDED TO BE ON AN "OR EQUAL" BASIS. ANY PROPOSED SUBSTITUTIONS MUST BE SUBMITTED TO THE ARCHITECT IN WRITING FOR APPROVAL WITHOUT DELAY OF SCHEDULE.
3. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER COMPLETION, UNLESS OTHERWISE SPECIFIED, AND SHALL BE SO STATED IN CONTRACTOR'S WRITTEN PROPOSAL AND AGREEMENT. ALL REPAIRS, CORRECTIONS, DISCREPANCIES, ETC., MUST BE MADE WITHOUT ANY ADDITIONAL COST TO THE OWNER, AND WITHIN FIVE (5) DAYS AFTER NOTICE IS GIVEN.

FIRE PROTECTION

1. FIRE PROTECTION DRAWINGS ARE TO BE SUBMITTED UNDER SEPARATE PERMIT.
2. IF NECESSARY, PROVIDE FIRE PROTECTION AT ALL PENETRATIONS OF FIRE RELATED ELEMENTS AS REQUIRED BY CODE.
3. FIRE EXTINGUISHERS: VERIFY LOCATION, TYPE, AND SIZE PER FIRE MARSHAL REQUIREMENTS. CONTRACTOR TO PROVIDE ALL TEMPORARY AND PERMANENT FIRE EXTINGUISHERS REQUIRED UNDER NFPA 10 MOST RECENT EDITION AND APPROVED BY THE FIRE MARSHAL. CONFIRM ACCEPTABILITY OF LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. PROVIDE FINISHED CABINETS TO MATCH BUILDING STANDARD FOR EXTINGUISHERS AT ALL EXPOSED LOCATIONS.
4. FIRE EXTINGUISHERS AND CABINETS SHOULD BE LOCATED SO THAT THE TOP OF THE EXTINGUISHER OR CABINET IS NO HIGHER THAN 48" AFF AND THE TOP OF THE EXTINGUISHER OR CABINET HANDLE IS AT LEAST 36" AFF.
5. AT SEMI-RECESSED FIRE EXTINGUISHER CABINETS WRAP ADDITIONAL LAYER(S) OF TYPE 'X' GYPSUM WALL BOARD INTO THE CABINET CAVITY TO MAINTAIN SPECIFIED FIRE RATED REQUIREMENT. REFER TO WALL CONSTRUCTION LEGEND FOR ADDITIONAL INFORMATION.
6. PROVIDE AND INSTALL FIRE EXTINGUISHER SIGNAGE (5"X6") ABOVE EACH FIRE EXTINGUISHER OR CABINET WITHIN THE SCOPE OF THE TENANT IMPROVEMENT. MOUNT AT 84" AFF UNLESS OTHERWISE REQUIRED.
7. EXIT SIGNS AND EXIT ILLUMINATION SHALL CONFORM TO THE ***2021 IBC AND NISQUALLY INDIAN TRIBE FIRE MARSHAL*** REQUIREMENTS. CONTRACTOR TO PROVIDE AND INSTALL EMERGENCY LIGHTING AND EXIT LIGHTING AS REQUIRED BY THE ***NISQUALLY INDIAN TRIBE FIRE AND BUILDING DEPARTMENTS***. CONFIRM ACCEPTABILITY OF LOCATIONS WITH THE BUILDING OWNER BEFORE INSTALLATION. CONTRACTOR SHALL PROVIDE AND INSTALL AUDIBLE ALARMS IN ACCORDANCE WITH IBC ARTICLE 9. CONTRACTOR SHALL PROVIDE AND INSTALL VISIBLE ALARM SIGNALS AS REQUIRED BY ADA GUIDELINES. CONTRACTOR SHALL PROVIDE AND INSTALL ALL SMOKE DETECTORS AND SMOKE DETECTION AS REQUIRED UNDER ARTICLE 9 OF THE IBC. THE INSTALLATION OF THE ABOVE NOTED SYSTEM SHALL INCLUDE THE CONNECTION TO AND/OR MODIFICATION OF THE EXISTING BUILDING SYSTEMS, AS NECESSARY.
8. EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
9. FLAMMABLE LIQUIDS SHALL NOT BE PLACED, STORED, OR DISPENSED IN THIS OCCUPANCY EXCEPT AS PROVIDED IN NFPA STANDARD 30 AND THE ***2021 INTERNATIONAL FIRE CODE***. PERMIT MAY BE REQUIRED.
10. ALL DRAPES, HANGINGS, CURTAINS, AND ALL OTHER DECORATIVE MATERIAL, INCLUDING CHRISTMAS TREES THAT WOULD TEND TO INCREASE THE FIRE AND PANIC HAZARD SHALL BE MADE FROM NONFLAMMABLE MATERIAL, OR SHALL BE TREATED AND MAINTAINED IN A FIRE RETARDANT CONDITION BY MEANS OF A FLAME RETARDANT SOLUTION OR PROCESS APPROVED BY THE FIRE MARSHAL. PROVIDE A CERTIFICATION TO THIS EFFECT. EXIT DOORS, EXIT LIGHTS, AND FIRE EXTINGUISHER LOCATIONS SHALL NOT BE CONCEALED OR OBSTRUCTED BY ANY DECORATIVE MATERIAL. MINIMUM FLAME SPREAD CLASSIFICATION OF INTERIOR FINISHES SHALL BE PER ***TABLE 803.13, SECTION 803.13 OF THE 2021 IBC***.
11. ALL REQUIRED FIRE DOORS SHALL BEAR A LABEL FROM A RECOGNIZED AGENCY SHOWING THE SPECIFIC RATING.

CEILING

1. REFLECTED CEILING PLAN IS FOR THE GENERAL INFORMATION OF THE CONTRACTOR. EXACT LOCATIONS SHOULD BE VERIFIED.

DOOR

1. ALL DOOR HARDWARE TO MEET REQUIREMENTS OF ***2021 IBC*** AND OWNER'S BUILDING REQUIREMENTS.

FINISH AND MATERIALS

1. SUBMIT FINISH SAMPLES TO TENANT AND OWNER FOR APPROVAL PRIOR TO ORDERING MATERIALS.
2. INTERSECTION OF SCHEDULED FLOORING MATERIALS ARE TO OCCUR AT CENTERLINE OF DOOR WHEN IN A FULLY CLOSED POSITION UNLESS NOTED OTHERWISE.
3. PROVIDE APPROPRIATE TRANSITION MATERIAL AS REQUIRED WHERE DISSIMILAR FLOORING MATERIALS INTERSECT.

PROJECT DATA

PROJECT ADDRESS:	11940 BILLY FRANK JR BLVD SE OLYMPIA, WA, 98513
JURISDICTION:	AHJ: NISQUALLY INDIAN TRIBE ZONING: THURSTON COUNTY
PARCEL NUMBER:	21833010000
ZONING:	MR (MILITARY RESERVATION)
OCCUPANCY CLASSIFICATION:	B, F-1
TYPE OF CONSTRUCTION:	VB
SPRINKLERED:	YES
NUMBER OF STORIES:	2
SQ. FT. OF BUILDING:	FIRST FLOOR: 7,893 SF SECOND FLOOR: 4,679 SF TOTAL: 12 572 SF

LEGAL DESCRIPTION

SECTION 33 TOWNSHIP 18 RANGE 1E THAT PTN NW LYING NORTHERLY OF N ROW LN OF YELM HWY SE AND SWLY OF SW ROW LN OF OLYMPIA-YELM RD BEING ST HWY 510 (FORMERLY 5-1) ALSO THAT PTN IN NW AND SW NE AND

DESCRIPTION OF WORK

INCLUDES THE BUILDING FOUNDATION; PRE-ENGINEERED METAL BUILDING (PEMB) PRIMARY STRUCTURAL FRAME AND SHELL; INDEPENDENT SECOND FLOOR FRAMING (APPROX. 60% OF BUILDING FOOTPRINT); PRE-ENGINEERED METAL STAIRS, COMPLETE WITH TREADS, RAILINGS, AND GUARDRAILS; ELEVATOR PIT, ASSOCIATED PIT ELEMENTS, AND HOISTWAY BEAM; COMPLETE BUILDING ENVELOPE, UTILITY SERVICE TO BUILDING, EXTERIOR PENETRATIONS AND EXTERIOR LIGHTING J-BOXES; ALL EXTERIOR DOORS AND WINDOWS; AND ALL SITE WORK, INCLUDING DRIVEWAY, SIDEWALKS, PARKING, LANDSCAPING, AND SITE LIGHTING.

SEPARATE SUBMITTALS

THE FOLLOWING PORTIONS OF THE PROJECT WILL BE APPLIED FOR UNDER SEPARATE PERMITS:

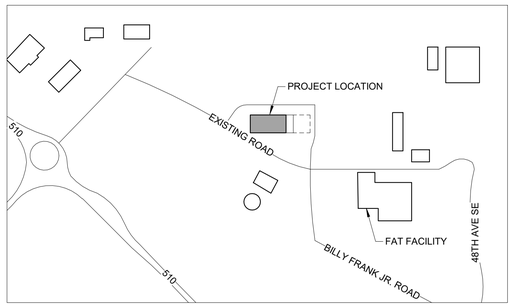
1. HVAC SYSTEM (DUCTING, DISTRIBUTION, CONTROLS, AND ASSOCIATED STRUCTURAL)
2. LINE VOLTAGE ELECTRICAL SYSTEM WORK
3. LIFE SAFETY SYSTEMS (HORNS, STROBES & FIRE ALARM/SPRINKLER IMPROVEMENTS)
4. LOW VOLTAGE ELECTRICAL SYSTEMS. (TELEPHONE/DATA/SECURITY/INTERCOM)
5. PLUMBING (WATER, SANITARY, NATURAL GAS)
6. SIGNAGE

APPLICABLE CODES

NATIONAL:
2021 INTERNATIONAL BUILDING CODE W/ WASHINGTON STATE AMENDMENTS (51-50 WAC)
2021 INTERNATIONAL EXISTING BUILDING CODE
2021 INTERNATIONAL FIRE CODE W/ WASHINGTON STATE AMENDMENTS (51-54 WAC)
2021 INTERNATIONAL MECHANICAL CODE W/ WASHINGTON STATE AMENDMENTS (51-52 WAC)
2017 ICC A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

REGIONAL:
2021 WASHINGTON STATE ENERGY CODE (51-11 WAC)
2021 WASHINGTON STATE ADMINSTRATIVE CODE (WAC)

VICINITY MAP



FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER

11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

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GENERAL NOTES

A0.03

NISQUALLY TRIBE
VOC BUILDING
CONSTRUCTION DOCUMENTS

SURVEY INFORMATION

HORIZONTAL DATUM

NAD 83(2011) WASHINGTON NORTH STATE PLANE COORDINATES PER GPS OBSERVATIONS

VERTICAL DATUM

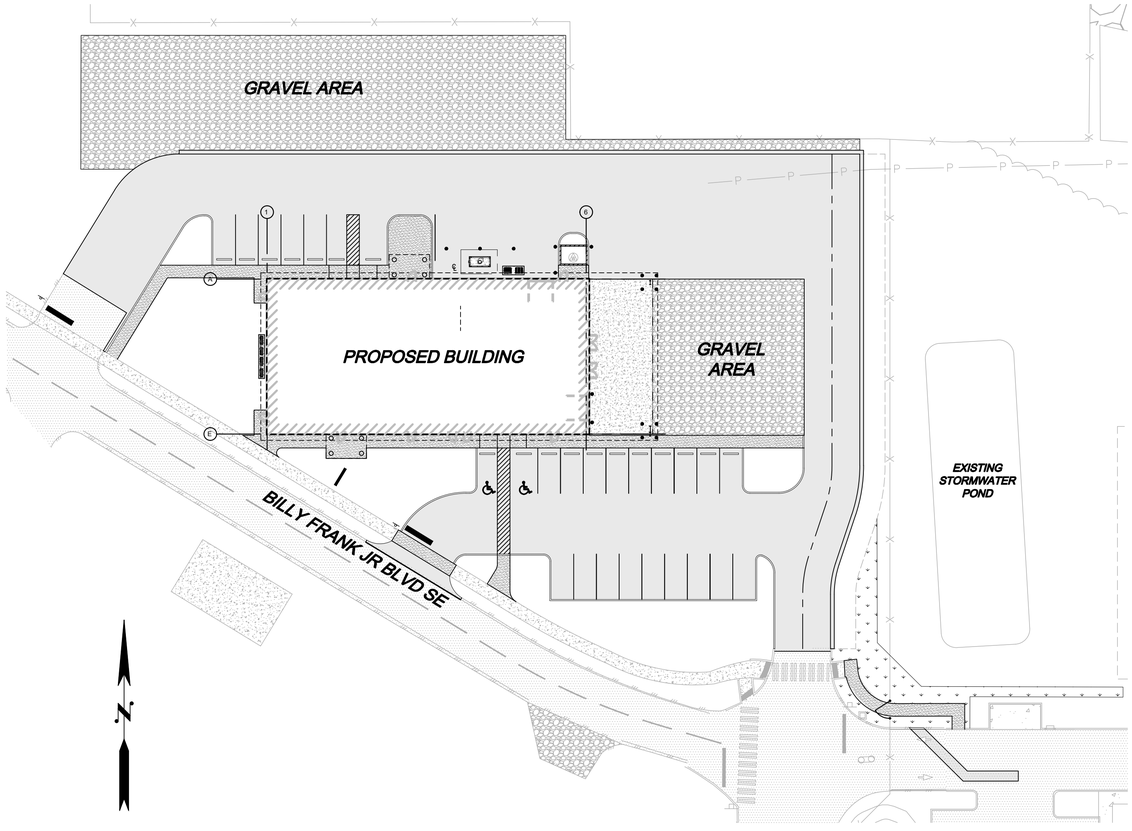
NAVD 88 PER WSDOT MONUMENT NO. 8132
DESCRIPTION: BRASS DISK
LOCATION: INNER CONCRETE OVERSIZE LOAD RING OF A ROUND-ABOUT OF SR 510 AND YELM HWY INTERSECTION, 12.1 METERS @ 205 DEGREES FROM THE APPROXIMATE CENTERLINE OF SR 510, 5.9 METERS @ 255 DEGREES FROM A ONE WAY SIGN WITH A METAL POST AND A WITNESS STICKER AND 5.8 METERS @ 5.8 METERS @ 300 DEGREES FROM THE APPROXIMATE EXTENDED CENTERLINE OF YELM HIGHWAY SE.
ELEVATION:260.47'

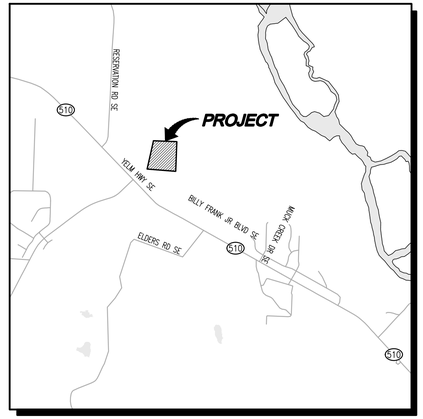
EQUIPMENT & PROCEDURES

METHOD OF SURVEY:
SURVEY PERFORMED BY FIELD TRAVERSE
INSTRUMENTATION:
LEICA MS-50 ROBOTIC TOTAL STATION WITH DATA COLLECTOR AND LEICA GS-16 GPS MAINTAINED IN ADJUSTMENT TO MANUFACTURES SPECIFICATIONS AS REQUIRED BY WAC 332-130-100
PRECISION:
MEETS OR EXCEEDS STATE STANDARDS WAC 332-130-090

SURVEY NOTES:

1.) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT EXPRESS RECERTIFICATION BY THE LAND SURVEYOR RECORD.
2.) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED. THIS SURVEY WAS PERFORMED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT PURPORT TO ENCUMBER TITLE OR USE OF SUBJECT PROPERTY.
3.) THIS SURVEY WAS CONDUCTED ON 06/23/2026.





VICINITY MAP
SCALE: 1"=2000'

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PROJECT INFORMATION

TAX PARCELS:	21833010000
SITE ADDRESS:	11940 BILLY FRANK JUNIOR BLVD SE OLYMPIA, WA 98513
SITE AREA:	7,797,240 SF 179 AC
CURRENT ZONING:	MR MILITARY RESERVATION
PROPOSED ZONING:	MR MILITARY RESERVATION
PROPOSED LAND USE:	EDUCATION
WATER:	TRIBAL OWNED
SEWER:	TRIBAL OWNED
POWER:	PUGET SOUND ENERGY
GAS:	PUGET SOUND ENERGY
TELEPHONE:	CENTURYLINK
CABLE:	XFINITY/VERIZON
SCHOOL DISTRICT:	NORTH THRUSTON
FIRE DISTRICT:	LACEY

CONTACT LIST

OWNER:
NISQUALLY INDIAN TRIBE
11940 BILLY FRANK JR BLVD S
OLYMPIA, WA 98513
CONTACT: ELIZABETH GLENN
PHONE: (360) 350-2463
EMAIL:glenn.elizabeth@nisqually-nsn.gov

ARCHITECT:
FREIHEIT ARCHITECTURE
505 106TH AVENUE NE, SUITE 302
BELLEVUE, WA 98004
CONTACT: ADRIAN HO AIA
EMAIL: yho@freiheitarch.com
PHONE: (425) 827-2100

CIVIL ENGINEER:
LDC, INC.
321 CLEVELAND AVE SE SUITE 209
TUMWATER, WA 98501
CONTACT: ROSS JARVIS, PE, ASSOC. DBIA
PHONE: (360) 634-2065
FAX: (425) 482-2893
EMAIL: rjarvis@ldccorp.com

SURVEYOR:
LDC, INC.
20210 142ND AVENUE NE
WOODINVILLE, WA 98072
CONTACT: VINCENT TOWNSEND, PLS
PHONE: (425) 806-1869
FAX: (425) 482-2893
EMAIL: vtownsend@ldccorp.com

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Kent
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F 425.482.2893

NISQUALLY INDIAN TRIBE
NISQUALLY TRIBE VOC BUILDING
COVER SHEET

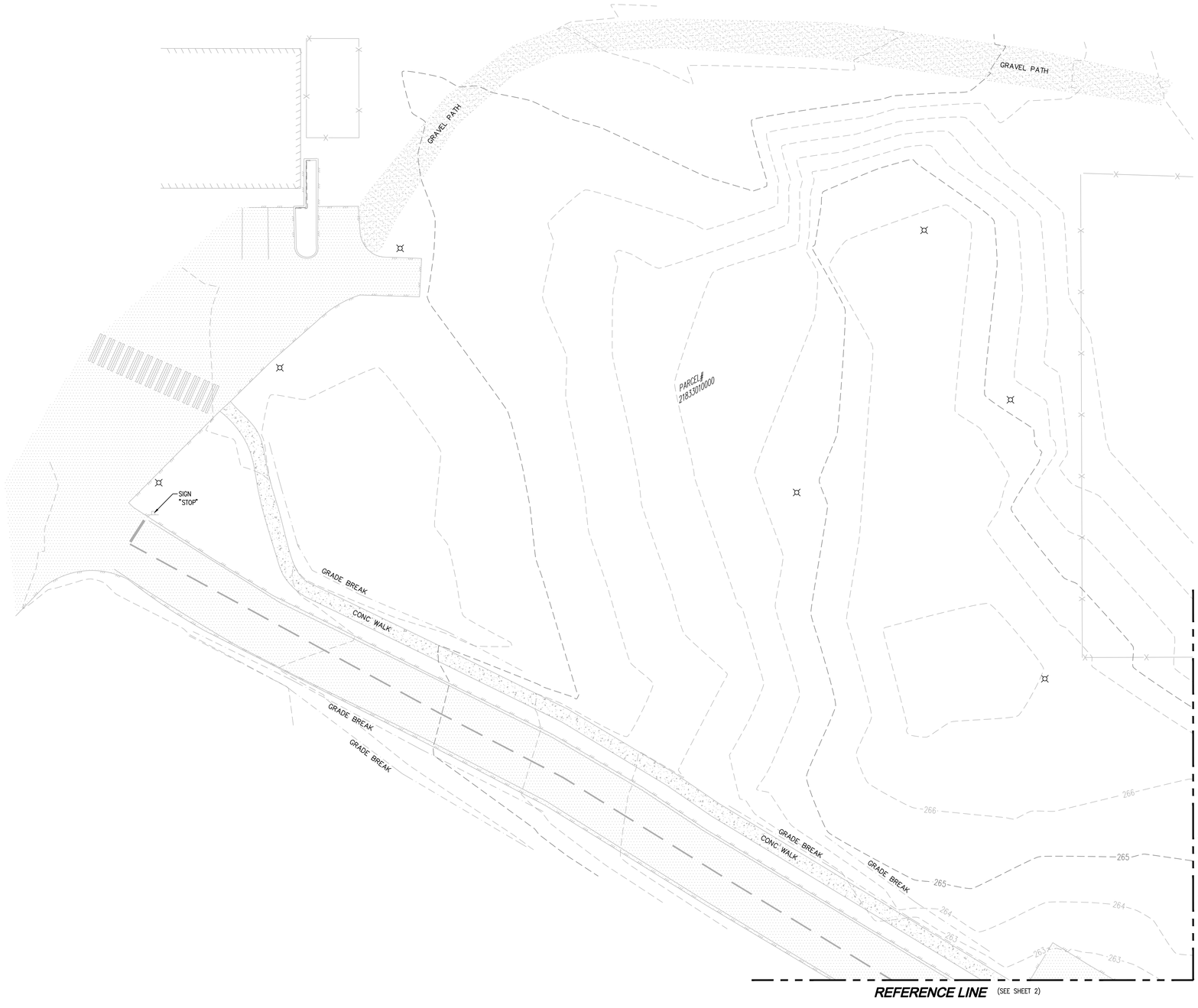
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/19/2024

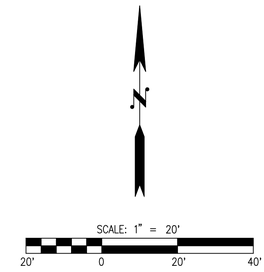
JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 CV-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

CV-01

SHEET 1 OF 17

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 CV-01.dwg Plotted: Oct 01, 2026 - 1:21pm





LEGEND

- EXITING ROADWAY CENTERLINE STRIPE
- EXISTING FACE OF CURB
- EXISTING CHAINLINK FENCE
- EXISTING CONCRETE SIDEWALK
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING BUILDING
- EXISTING TREE STUMP
- EXISTING MONITORING WELL
- EXISTING LIGHT STANDARD
- EXISTING SIGN POST

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NISQUALLY TRIBE VOC BUILDING

EXISTING CONDITIONS MAP

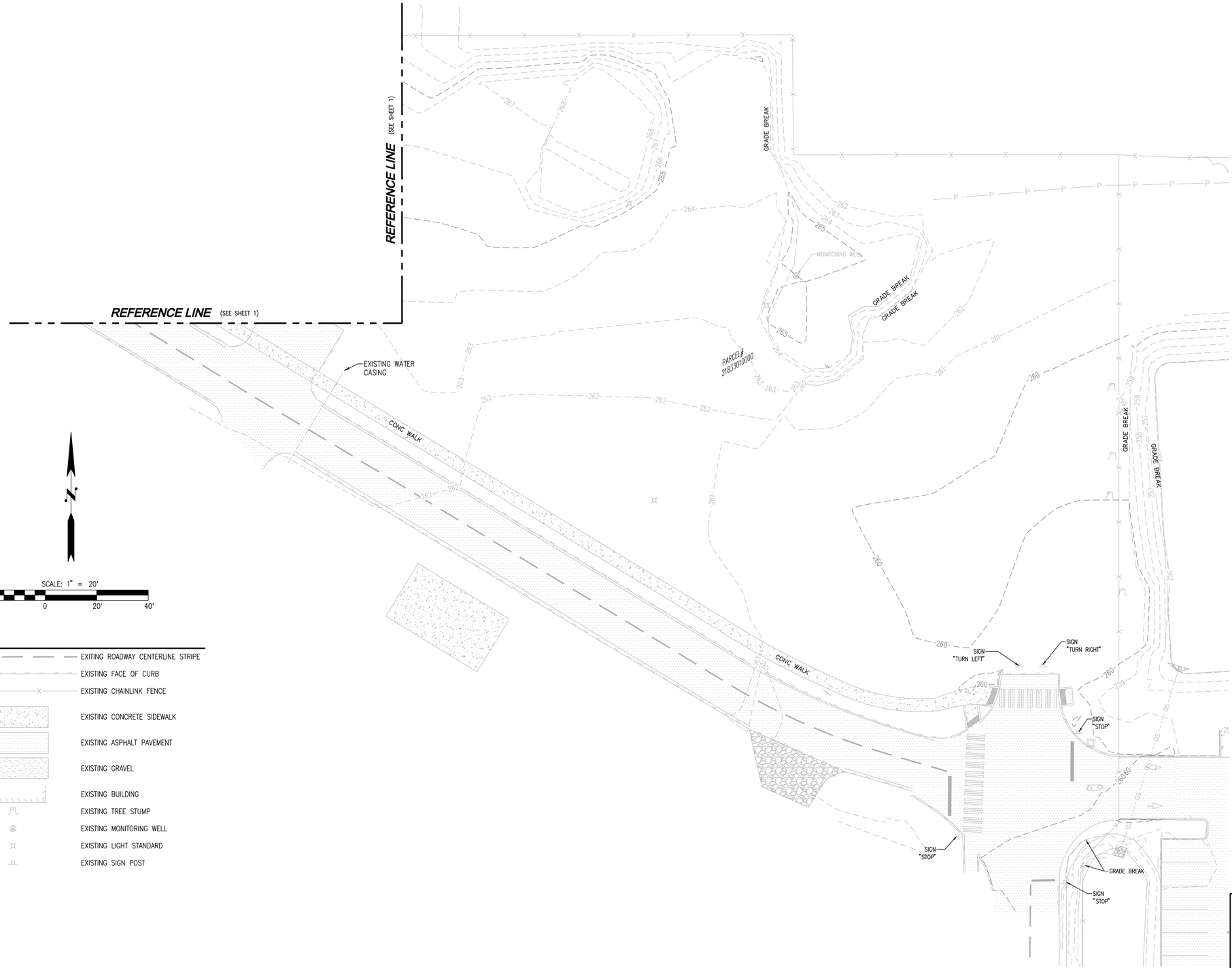
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/01/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 EX-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

EX-01

SHEET **2** OF **17**

Drawing: P:\Civil\2025\25-183 nisqually tribe vocational center\Drawings\construction\C25-183 EX-01.dwg Plotted: Oct 01, 2026 - 1:22pm



LEGEND

- EXITING ROADWAY CENTERLINE STRIPE
- EXISTING FACE OF CURB
- EXISTING CHAINLINK FENCE
- EXISTING CONCRETE SIDEWALK
- EXISTING ASPHALT PAVEMENT
- EXISTING GRAVEL
- EXISTING BUILDING
- EXISTING TREE STUMP
- EXISTING MONITORING WELL
- EXISTING LIGHT STANDARD
- EXISTING SIGN POST

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EXISTING CONDITIONS MAP

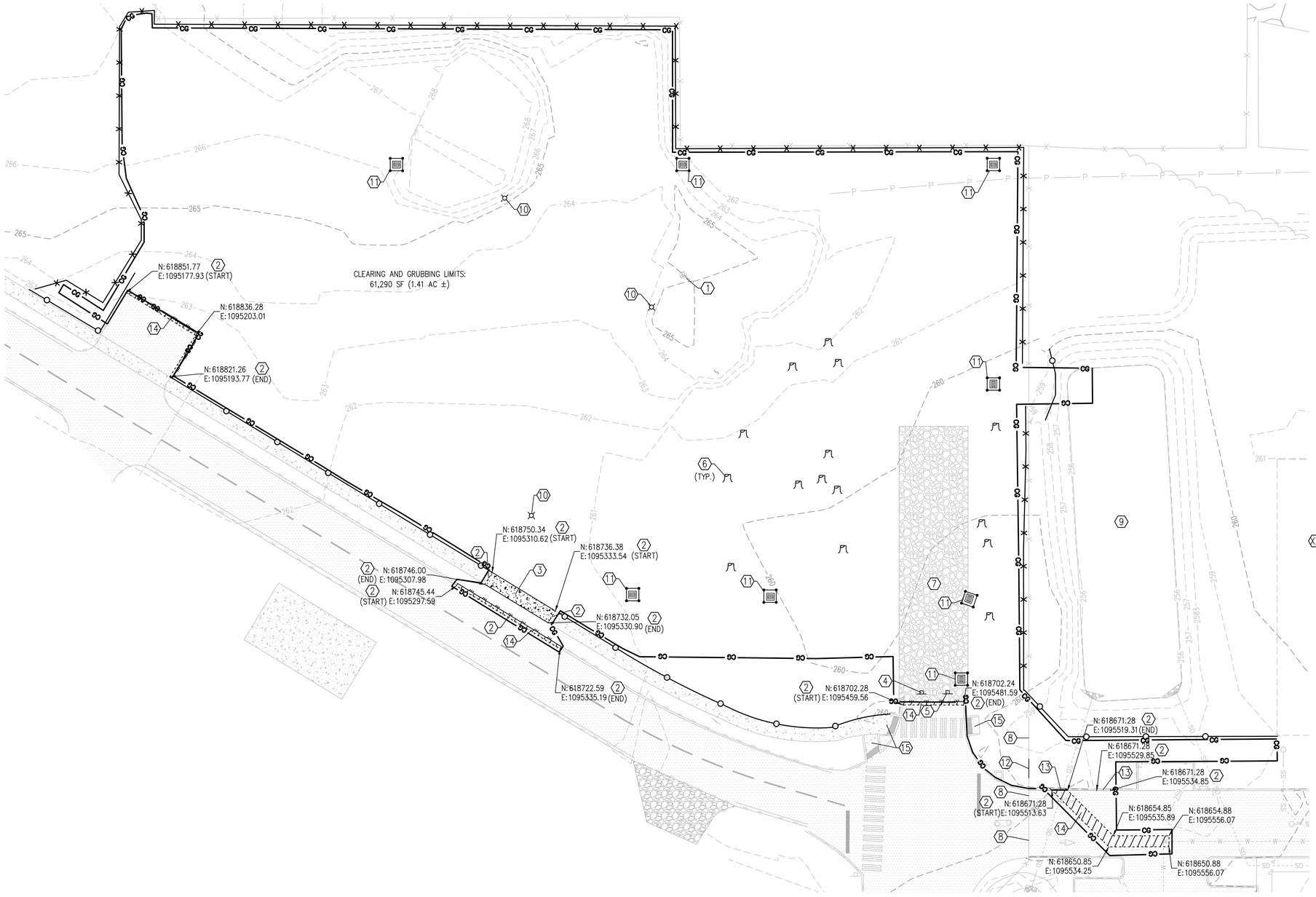
ROSS D. JARVIS STATE OF WASHINGTON 43668 REGISTERED PROFESSIONAL ENGINEER 09/19/2024

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 EX-02
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

EX-02

SHEET 3 OF 17

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 EX-02.dwg Plotted: Oct 01, 2026 - 1:22pm



SCALE: 1" = 20'

20' 0 20' 40'

LEGEND

- CLEARING LIMITS
- SILT FENCE PER DETAIL ON SHEET EC-02
- STRAW WATTLES PER DETAIL ON SHEET EC-02
- STABILIZED CONSTRUCTION ENTRANCE PER STD DETAIL ON SHEET EC-02
- STORM DRAIN INLET PROTECTION PER DETAIL ON SHEET EC-02
- SAWCUT
- ASPHALT PAVEMENT REMOVAL
- CEMENT CONCRETE REMOVAL
- EXISTING TREE STUMP (TBR)

DEMOLITION AND TESC NOTES

1. PROTECT IN-PLACE EXISTING MONITORING WELL
2. SAWCUT
3. REMOVE AND DISPOSE OF EXITING CONCRETE SIDEWALK
4. REMOVE AND DISPOSE OF EXISTING "TURN LEFT" SIGN AND POST
5. REMOVE AND DISPOSE OF EXISTING "TURN RIGHT" SIGN AND POST
6. REMOVE AND DISPOSE OF EXISTING TREE STUMP AND ROOT BALL
7. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE
8. PROTECT EXISTING GATE AND FENCE
9. PROTECT IN-PLACE EXISTING STORMWATER POND
10. REMOVE AND DISPOSE OF EXISTING LIGHT STANDARD
11. INSTALL STORM DRAIN INLET PROTECTION PER DETAIL ON SHEET EC-02
12. REMOVE PORTION OF EXISTING FENCE FOR PROPOSED MAIN GATE. SEE SHEET SP-01 FOR ADDITIONAL INFORMATION.
13. REMOVE EXISTING CURB
14. REMOVE EXISTING ASPHALT PAVING AND BASE COURSE
15. PROTECT IN-PLACE EXISTING RAMP

NOTE

INSTALL STRAW WATTLES ON ALL CURB INLETS WITHIN PROJECT VACINITY

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DEMOLITION AND TESC PLAN

ROSS D. JARVIS STATE OF WASHINGTON 43668 REGISTERED PROFESSIONAL ENGINEER 09/15/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 EC-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

EC-01

SHEET 4 OF 17

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 EC-01.dwg Plotted: Oct 01, 2026 - 1:22pm

GENERAL EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL FOLLOW EROSION CONTROL PRACTICES OUTLINED IN THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON AND THE SWPPP.

2. EROSION CONTROL MEASURES ARE NOT LIMITED TO THE ITEMS ON THESE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION CONTROL MEASURES. NO SILTATION OF EXISTING OR PROPOSED DRAINAGE FACILITIES SHALL BE ALLOWED. CARE SHALL BE TAKEN TO PREVENT MIGRATION OF SILTS TO OFF-SITE PROPERTIES.

3. EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE BEGINNING OF CONSTRUCTION. THE PROJECT ENGINEER AND THE REVIEWING AGENCY SHALL INSPECT AND APPROVE THE INSTALLATION OF EROSION CONTROL MEASURES PRIOR TO BEGINNING CONSTRUCTION.

   A. INSTALL INLET SEDIMENTATION AS SPECIFIED AT ALL CATCH BASIN LOCATIONS IMMEDIATELY UPON ARRIVAL AT PROJECT/CONSTRUCTION SITE.

   B. STABILIZED CONSTRUCTION ENTRANCE SHALL CONFORM TO DETAIL ON SHEET EC-02, STABILIZED CONSTRUCTION ENTRANCE. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT ALL INGRESS/EGRESS POINTS TO CONSTRUCTION SITE.

4. ALL EROSION/SEDIMENTATION CONTROL FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION, MAINTENANCE, REPLACEMENT, AND ADDITIONS TO THE SYSTEM AS REQUIRED BY THE OWNER, ENGINEER, OR THE NISQUALLY TRIBE.

5. THE CONTRACTOR SHALL MAKE A DAILY SURVEILLANCE OF ALL EROSION CONTROL MEASURES AND MAKE ANY NECESSARY REPAIRS OR ADDITIONS TO THE EROSION CONTROL MEASURES AS REQUIRED. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS DETERMINED NECESSARY BY THE INSPECTOR AND/OR PROJECT ENGINEER. FAILURE TO COMPLY WITH ALL LOCAL AND STATE EROSION CONTROL REQUIREMENTS MAY RESULT IN CIVIL PENALTIES BEING LEVIED AGAINST THE CONTRACTOR.

6. PRIOR TO CLEARING AND GRADING THE CONTRACTOR SHALL PROTECT TREES TO BE SAVED WITH HIGH VISIBILITY FENCING AT THE ROOT PROTECTION DELINEATION OR OTHERWISE PROTECTED AS DIRECTED BY THE ENGINEER, CITY STAFF, OR OWNERS REPRESENTATIVE. CLEARING AND GRADING LIMITS SHALL BE STAKED IN THE FIELD PRIOR TO EXCAVATION.

7. ALL STORM DRAINAGE INLETS RECEIVING RUNOFF FROM THE PROJECT DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER WILL BE FILTERED BEFORE ENTERING THE CONVEYANCE SYSTEM.

8. ALL OFF-SITE CATCH BASINS IMMEDIATELY ADJACENT TO THE PROPOSED SITE SHALL BE PROTECTED FROM SILTATION.

9. THE CONSTRUCTION OF TRENCHES (E.G., PIPES, UNDERGROUND UTILITY LINES AND STRUCTURES) SHALL BE SUBJECT TO THE FOLLOWING CRITERIA:

   A. NO MORE THAN 300 FEET OF TRENCH ON A DOWNSLOPE OF MORE THAN FIVE PERCENT SHALL BE OPENED AT ONE TIME.

   B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

10. TRENCH DEWATERING DEVICES SHALL BE DISCHARGED IN A MANNER THAT WILL NOT ADVERSELY AFFECT STREAMS, DRAINAGE SYSTEMS, OR OFF-SITE PROPERTIES.

11. TRACKING OF SOIL, MUD, OR DEBRIS OFF-SITE IS NOT ALLOWED. SOIL, MUD, OR DEBRIS TRACKED ONTO A PUBLIC ROADWAY, SHALL BE REMOVED BY THE END OF THAT WORKING DAY. TO PREVENT THE TRACKING OF SOIL, MUD, OR DEBRIS ONTO PUBLIC ROADWAYS, SWEEPING OR WASHING OF THE VEHICLE'S TIRES MAY BE REQUIRED PRIOR TO ENTERING A PUBLIC ROADWAY.

12. ALL DISTURBED AREAS SHALL BE HYDROSEEDED WITH EROSION CONTROL SEED MIX. INCLUDING BUT NOT LIMITED TO ROADWAY EMBANKMENTS, SHOULDERS, UTILITY EASEMENTS, STAGING AREAS, CONSTRUCTED WETLANDS AND CUT/FILL SLOPES.

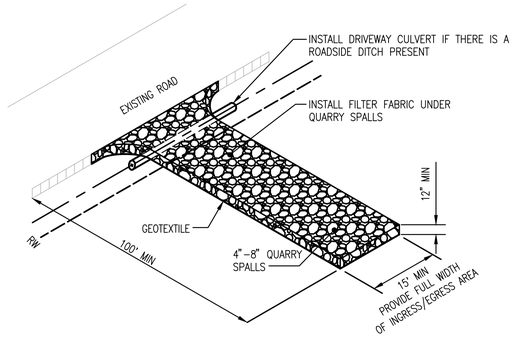
13. ALL SEEDED OR SODDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE VEGETATIVE COVERAGE IS COMPLETE. AREAS SHALL BE REPAIRED, RESEEDED, AND FERTILIZED AS REQUIRED.

14. DROP-IN CATCH BASIN FILTERS MAY BE USED IN PLACE OF OTHER STANDARD INLET PROTECTION PRACTICES. THIS INLET PROTECTION TECHNOLOGY CAN BE USED IN SITUATIONS WHERE RIGHT-OF-WAY FLOODING WOULD BE PROBLEMATIC.

15. TO MAINTAIN FUNCTION, THE CONTRACTOR SHALL REMOVE AND CLEAN OR REPLACE FILTERS AFTER EACH STORM EVENT. CONTACT THE JURISDICTION TO DETERMINE ITS ACCEPTANCE OF SPECIFIC FILTER PRODUCTS, PRIOR TO INSTALLATION.

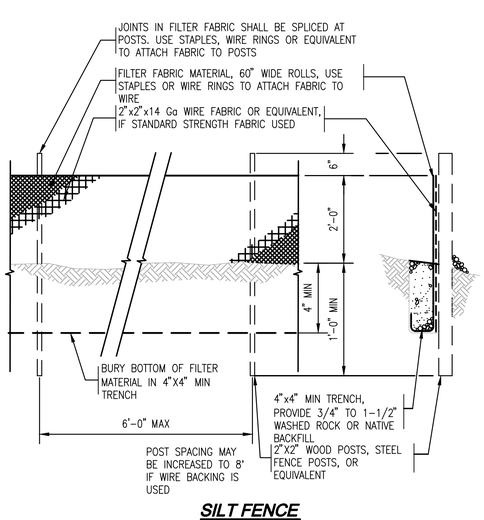
16. NO MATERIAL SHALL BE STOCKPILED ON PAVEMENT WITHOUT AUTHORIZATION FROM THE PROJECT ENGINEER OR OWNERS REPRESENTATIVE WHICH WILL BE CONDITIONAL ON IMPLEMENTATION OF A PROCEDURE TO PREVENT SEDIMENT TRANSPORT.

17. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED OR AFTER THE MEASURES ARE NO LONGER NEEDED. SEDIMENT COLLECTED IN TRAPS, PONDS, OR SILT FENCE SHALL BE REMOVED AND DISPOSED IN AN APPROVED MANNER OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM SEDIMENT REMOVAL SHALL BE PERMANENTLY STABILIZED WITHIN SEVEN (7) DAYS.

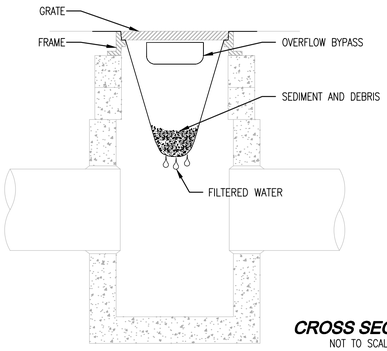


NOTES:
1. DRIVEWAY SHALL MEET THE REQUIREMENTS OF THE PERMITTING AGENCY.
2. IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD

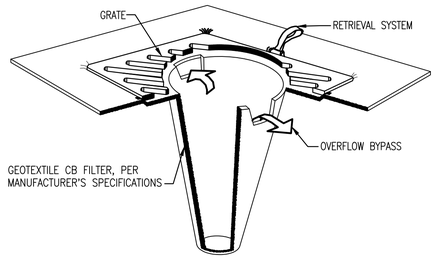
STABILIZED CONSTRUCTION ENTRANCE
NTS



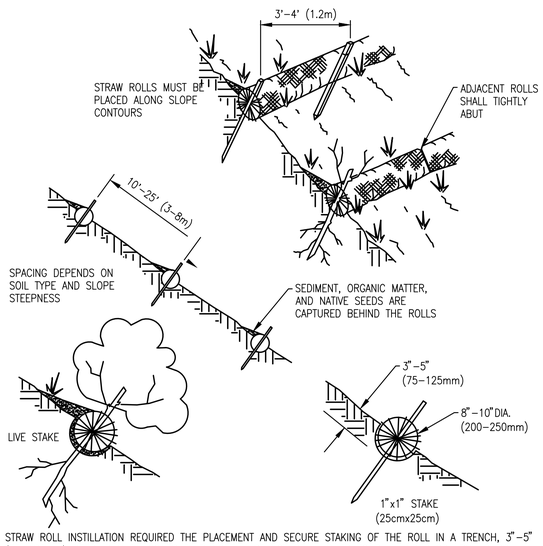
SILT FENCE
NTS



CROSS SECTION
NOT TO SCALE



STORM DRAIN INLET PROTECTION w/ CB FILTERS
NTS



1. STRAW ROLL INSTILLATION REQUIRED THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" (75-125mm) DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

STRAW WATTLE
NOT TO SCALE

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TESC NOTES AND DETAILS

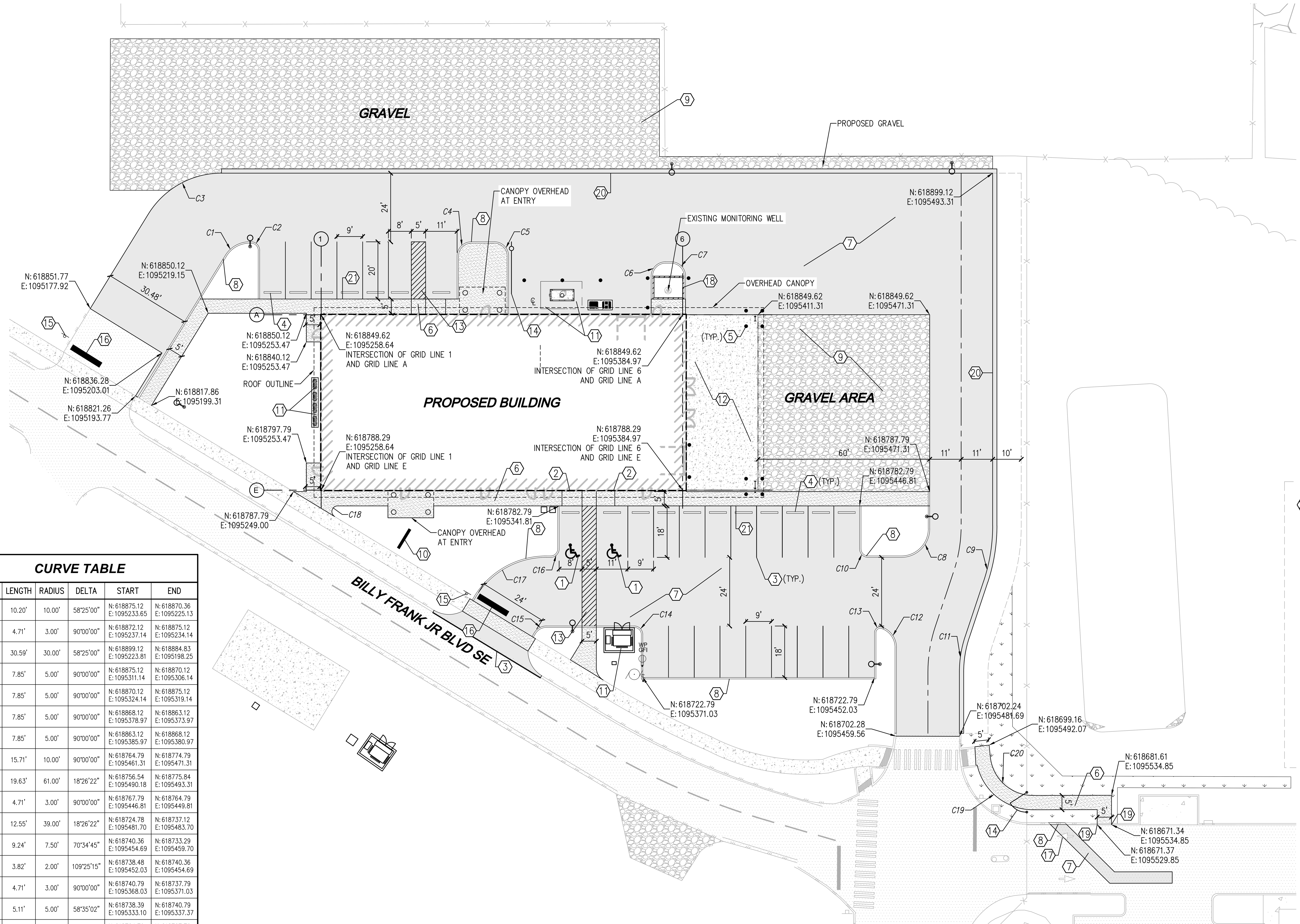
ROSS D. JARVIS — STATE OF WASHINGTON — 43668 — REGISTERED PROFESSIONAL ENGINEER — 09/15/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 EC-02
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

EC-02

SHEET 5 OF 17

Drawing: P:\Civil\2025\25-183 nisqually tribe vocational center\Drawings\construction\C25-183 EC-02.dwg Plotted: Oct 01, 2026 - 1:22pm



SCALE: 1" = 20'

20' 0 20' 40'

LEGEND

- RIGHT OF WAY
- R.O.W. CENTER LINE
- PARCEL LINE
- PROPERTY/LOT LINE
- BUILDING SETBACK LINE
- GENERAL EASEMENT LINE
- PROPOSED BUILDING
- PROPOSED CEMENT CONCRETE INTEGRAL CURB AND WALK PER DETAIL ON SHEET SP–02
- PROPOSED ASPHALT PAVEMENT PER DETAIL ON SHEET SP–02
- PROPOSED CONCRETE PAVEMENT PER DETAIL ON SHEET SP–02
- PROPOSED GRAVEL PER DETAIL ON SHEET SP–02
- PROPOSED CEMENT CONCRETE BARRIER CURB PER DETAIL ON SHEET SP–02
- RESTORE EXISTING LANDSCAPE TO MATCH CURRENT CONDITIONS OR BETTER

XX CONSTRUCTION NOTES

1. PROPOSED ACCESSIBLE PARKING STALL, SEE DETAILS ON SHEET SP–02
2. PROPOSED ADA PARKING SIGN ADHERED TO FACE OF BUILDING.
3. 4" WIDE WHITE PAINT STRIPE, SEE DETAIL ON SHEET SP–02
4. PROPOSED PRECAST CONCRETE WHEELSTOP, SEE DETAIL ON SHEET SP–02
5. PROPOSED BOLLARD PER DETAIL ON SHEET SP–02
6. PROPOSED CEMENT CONCRETE SIDEWALK PER DETAIL ON SHEET SP–02
7. PROPOSED PARKING LOT ASPHALT PAVING PER DETAIL ON SHEET SP–02.
8. PROPOSED CEMENT CONCRETE BARRIER CURB PER DETAIL ON SHEET SP–02.
9. PROPOSED GRAVEL PAVING PER DETAIL ON SHEET SP–02.
10. PROPOSED MONUMENT SIGN BY OTHERS.
11. PROPOSED ELECTRICAL / MECHANICAL EQUIPMENT BY OTHERS.
12. PROPOSED CONCRETE PAVING PER DETAIL ON SHEET SP–02
13. PROPOSED 45–DEGREE PAINT STRIPING PER DETAIL ON SHEET SP–02.
14. INSTALL MAN–GATE AND FENCE POSTS (AS–NEEDED) PER ARCHITECTURAL PLANS.
15. PROPOSED STOP SIGN, POST AND FOUNDATION PER DETAIL ON SHEET SP–02.
16. PROPOSED STOP BAR PER DETAIL ON SHEET SP–02.
17. REPAINT DIRECTIONAL ARROW PER DETAIL ON SHEET SP–03
18. BIDDER DESIGNED CMU WALL
19. 45–DEGREE CURB TAPER
20. INSTALL ASPHALT WEDGE CURB PER DETAIL ON SHEET SP–03
21. INSTALL INTEGRAL CURB/WALK PER DETAIL ON SHEET SP–02

CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	START	END
C1	10.20'	10.00'	58°25'00"	N:618875.12 E:1095233.65	N:618870.36 E:1095225.13
C2	4.71'	3.00'	90°00'00"	N:618872.12 E:1095237.14	N:618875.12 E:1095234.14
C3	30.59'	30.00'	58°25'00"	N:618899.12 E:1095223.81	N:618884.83 E:1095198.25
C4	7.85'	5.00'	90°00'00"	N:618875.12 E:1095311.14	N:618870.12 E:1095306.14
C5	7.85'	5.00'	90°00'00"	N:618870.12 E:1095324.14	N:618875.12 E:1095319.14
C6	7.85'	5.00'	90°00'00"	N:618868.12 E:1095378.97	N:618863.12 E:1095373.97
C7	7.85'	5.00'	90°00'00"	N:618863.12 E:1095385.97	N:618868.12 E:1095380.97
C8	15.71'	10.00'	90°00'00"	N:618764.79 E:1095461.31	N:618774.79 E:1095471.31
C9	19.63'	61.00'	18°26'22"	N:618756.54 E:1095490.18	N:618775.84 E:1095493.31
C10	4.71'	3.00'	90°00'00"	N:618767.79 E:1095446.81	N:618764.79 E:1095449.81
C11	12.55'	39.00'	18°26'22"	N:618724.78 E:1095481.70	N:618737.12 E:1095483.70
C12	9.24'	7.50'	70°34'45"	N:618740.36 E:1095454.69	N:618733.29 E:1095459.70
C13	3.82'	2.00'	109°25'15"	N:618738.48 E:1095452.03	N:618740.36 E:1095454.69
C14	4.71'	3.00'	90°00'00"	N:618740.79 E:1095368.03	N:618737.79 E:1095371.03
C15	5.11'	5.00'	58°35'02"	N:618738.39 E:1095333.10	N:618740.79 E:1095337.37
C16	4.71'	3.00'	90°00'00"	N:618764.79 E:1095338.81	N:618767.79 E:1095341.81
C17	29.65'	29.00'	58°35'02"	N:618750.90 E:1095312.62	N:618764.79 E:1095337.37
C18	5.19'	2.00'	148°41'57"	N:618779.08 E:1095263.35	N:618782.79 E:1095264.39
C19	27.03'	20.00'	77°25'32"	N:618692.16 E:1095487.92	N:618676.55 E:1095507.47
C20	22.00'	15.00'	84°02'30"	N:618681.55 E:1095507.46	N:618694.97 E:1095492.51

PAVING NOTE

EMULSIFIED ASPHALT GRADE CSS–1 TACK SHALL BE APPLIED TO EDGES OF EXISTING PAVEMENT. ALL JOINTS SHALL BE SEALED USING PAVING ASPHALT AR400W.

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

NO.	DATE	REVISIONS DESCRIPTION	BY

LDC | Surveying Engineering Planning
Woodinville Olympia 321 Cleveland Ave SE, #209 Tumwater, WA 98501 Kent
T 425.806.1869 www.LDCcorp.com F 425.482.2893

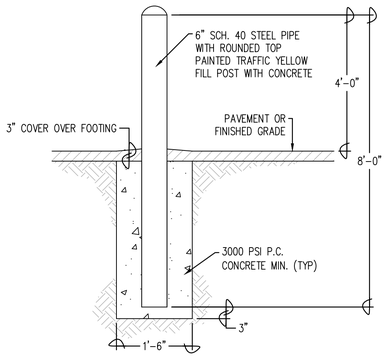
NISQUALLY INDIAN TRIBE
NISQUALLY TRIBE VOC BUILDING
SITE IMPROVEMENT PLAN

ROSS D. JARVIS STATE OF WASHINGTON 43668 REGISTERED PROFESSIONAL ENGINEER 09/18/2026

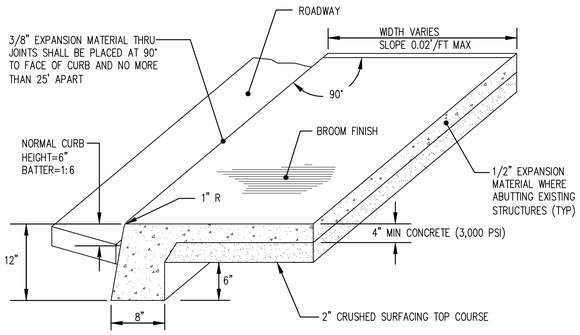
JOB NUMBER:	C25–183
DRAWING NAME:	C25–183 SP–01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SP-01

Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\construction\C25-183 SP-01.dwg Plotted: Oct 01, 2026 - 1:22pm



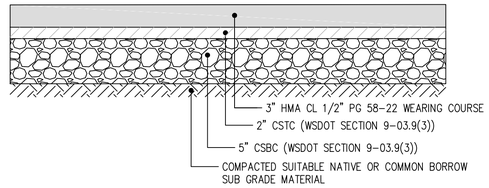
BOLLARD
NOT TO SCALE



NOTES

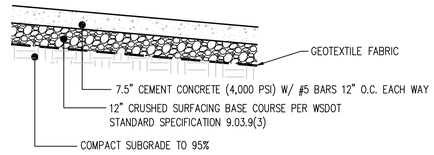
1. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING.
2. CONCRETE SHALL BE TYPE II PORTLAND CEMENT CLASS 3000.
3. BROOM FINISH SHALL BE PERPENDICULAR TO FACE OF CURB.
4. JOINTS SHALL BE TROWEL FINISHED, AFTER BROOMING.
5. INTEGRAL CURB AND WALK SHALL BE USED IN "IN-FILL" TYPE SITUATIONS WHERE NEEDED TO MATCH EXISTING IMPROVEMENTS.
6. ALL EDGES SHALL BE SHIMED.

CEMENT CONCRETE INTEGRAL CURB AND WALK
NOT TO SCALE

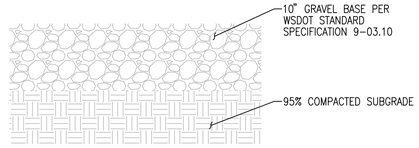


NOTES:
1. CSBC AND STRUCTURAL FILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MDD (ASTM TEST METHOD D1557).
2. DRY SEASON EARTHWORK: STRUCTURAL FILL SHALL CONSIST OF A WELL-GRADED SAND AND GRAVEL WITH A MAXIMUM PARTICLE SIZE OF 6-INCHES AND AT LEAST 75% OF THE MATERIAL PASSING THE 3-INCH SIEVE. IN ADDITION, THE MATERIAL SHOULD CONTAIN LESS THAN 30% FINES AND BE MAINTAINED AT A MOISTURE CONTENT NEAR OPTIMUM. COORDINATE USE OF NATIVE SOILS WITH THE GEOTECHNICAL ENGINEER.
3. WET SEASON EARTHWORK: STRUCTURAL FILL SHALL CONSIST OF GRAVEL BORROW (WSDOT 9-03.14(1)). IN ADDITION, THE MATERIAL SHALL BE MAINTAINED AT A MOISTURE CONTENT NEAR OPTIMUM.

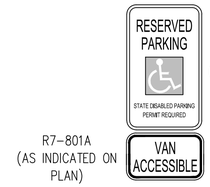
TYPICAL ASPHALT PAVING
NOT TO SCALE



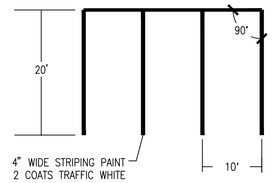
CONCRETE PAVEMENT
NOT TO SCALE



GRAVEL PAVING SECTION
NOT TO SCALE

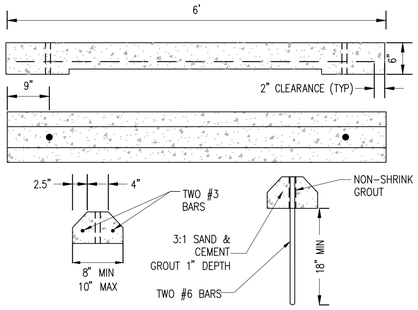


ACCESSIBLE PARKING SIGN
NOT TO SCALE

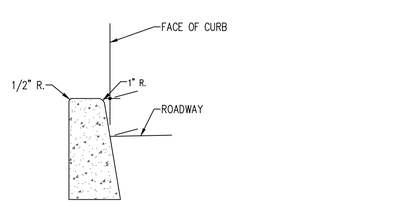


NOTES:
1. SEE SITE PLAN FOR COMPLETE LAYOUT.
2. THESE DETAILS ARE FOR REFERENCE AND DIMENSION CONTROL ONLY.
3. ALL DIMENSIONS ARE TO C/L OF STRIPE UNLESS OTHERWISE INDICATED.

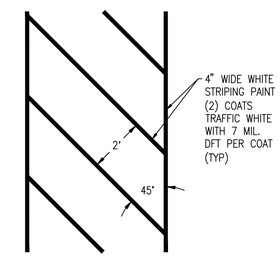
90-DEGREE STRIPING
NOT TO SCALE



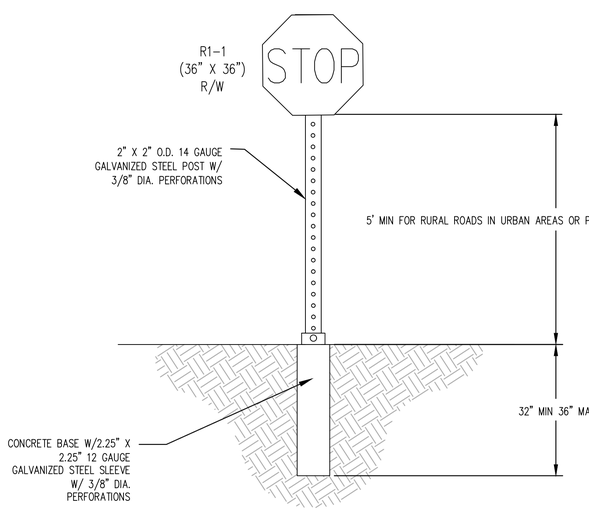
PRECAST CEMENT CONCRETE WHEELSTOP
NOT TO SCALE



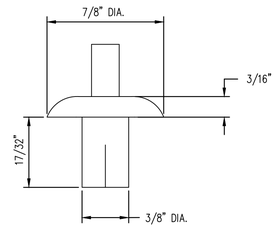
CEMENT CONCRETE BARRIER CURB
NOT TO SCALE



45- DEGREE STRIPING
NOT TO SCALE



CONCRETE BASE, SIGN POST
AND SIGN PLACEMENT



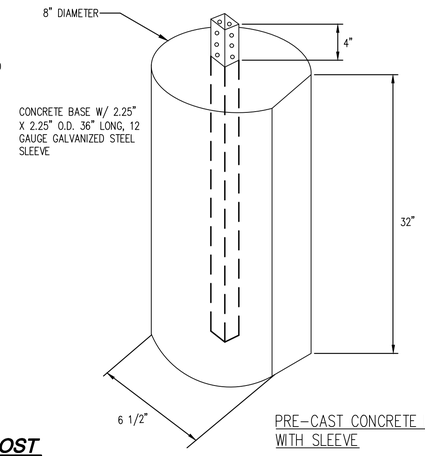
STEEL DRIVE RIVET STANDARDS

NOTE: USE STEEL DRIVE RIVETS TO FASTEN POST TO SLEEVE AND SIGNS TO POST.

MATERIALS: C1006-1008 ALUMINUM KILNED FINE GRADE STEEL.

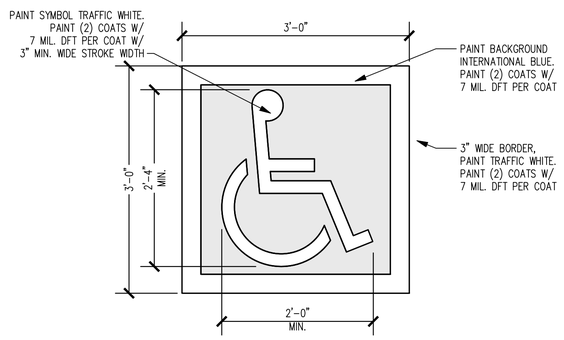
FINISH: ZINC PLATE W/ CHROMATE SEALER.

GRIP RANGE: NOMINAL 3/16" IN A 3/8" DIA. HOLE.



PRE-CAST CONCRETE BASE
WITH SLEEVE

STOP SIGN AND POST
NOT TO SCALE



ADA SYMBOL
NOT TO SCALE

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NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

SITE IMPROVEMENT NOTES AND DETAILS

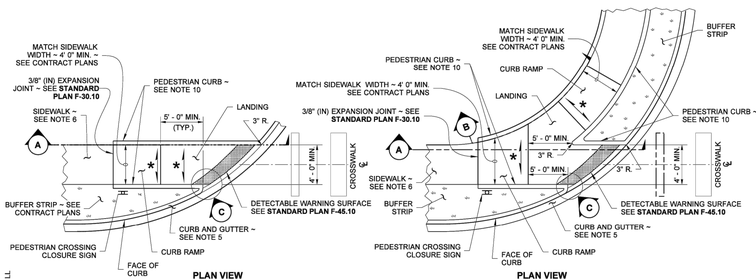
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/18/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 SP-02
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SP-02

SHEET 7 OF 17

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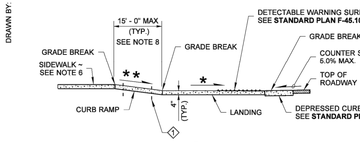


PLAN VIEW
TYPE SINGLE DIRECTION A

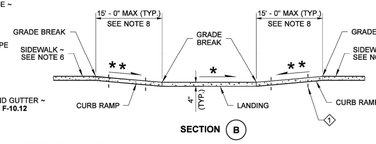
PLAN VIEW
TYPE SINGLE DIRECTION B

NOTES

1. This plan is to be used where pedestrian crossing in one direction is not permitted.
2. At marked crosswalks, the connection between the Landing and the roadway must be contained within the width of the crosswalk markings.
3. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
4. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing or in the Depressed Curb and Gutter where the Landing connects to the roadway.
5. See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb, Gutter and Pedestrian Curb details.
6. See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
7. The Bid Item "Cement Concrete Curb Ramp Type ___" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
8. The Curb Ramp length is not required to exceed 15 feet (unless shown otherwise in the Contract Plans). When applying the 15-foot max. length (measured from back of sidewalk) the running slope of the curb ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the sidewalk over a horizontal distance of 15 feet.
9. Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14.**
10. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will not be material to retain.



SECTION (A)



SECTION (B)
(ALONG INSIDE RADIUS AT BACK OF WALKWAY)

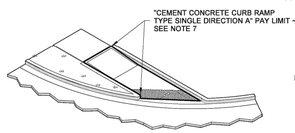
1 CONTRACTION JOINT (TYP.) ~ SEE **STANDARD PLAN F-30.10** FOR CURB RAMP LENGTHS GREATER THAN 8' - 0" PROVIDE CONTRACTION JOINT EQUALLY SPACED 4' - 0" MIN. OC.

LEGEND

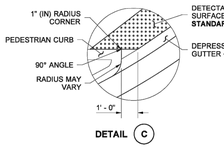
SLOPE IN EITHER DIRECTION

* 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX.)

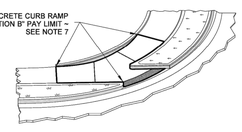
** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX.) SEE NOTE 7



ISOMETRIC VIEW
TYPE SINGLE DIRECTION A
PAY LIMIT



DETAIL (C)



ISOMETRIC VIEW
TYPE SINGLE DIRECTION B
PAY LIMIT

Zeller, Scott
Jun 24 2016 7:21 AM

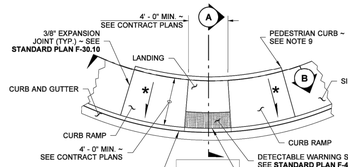
SINGLE DIRECTION CURB RAMP

STANDARD PLAN F-40.16-03

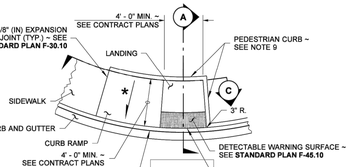
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Jun 29 2016 2:29 PM
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL

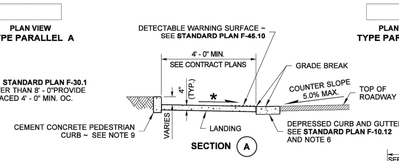


PLAN VIEW
TYPE PARALLEL A

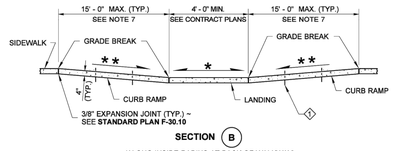


PLAN VIEW
TYPE PARALLEL B

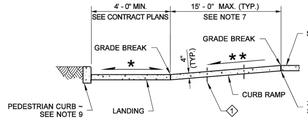
1 CONTRACTION JOINT (TYP.) ~ SEE **STANDARD PLAN F-30.1** FOR CURB RAMP LENGTHS GREATER THAN 8' - 0"PROVIDE CONTRACTION JOINT EQUALLY SPACED 4' - 0" MIN. OC.



SECTION (A)



SECTION (B)
(ALONG INSIDE RADIUS AT BACK OF WALKWAY)



SECTION (C)
(ALONG INSIDE RADIUS AT BACK OF WALKWAY)

LEGEND

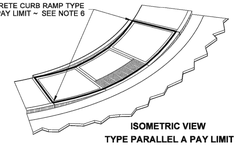
SLOPE IN EITHER DIRECTION

* 1.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (2% MAX.)

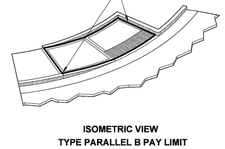
** 7.5% OR FLATTER RECOMMENDED FOR DESIGN/FORMWORK (8.3% MAX.) ~ SEE NOTE 7

NOTES

1. At marked crosswalks, the connection between the landing and the roadway must be contained within the width of the crosswalk markings.
2. Where "GRADE BREAK" is called out, the entire length of the grade break between the two adjacent surface planes shall be flush.
3. Do not place Gratings, Junction Boxes, Access Covers, or other appurtenances on any part of the Curb Ramp or Landing, or in the Depressed Curb and Gutter where the Landing connects to the roadway.
4. See Contract Plans for the curb design specified. See **Standard Plan F-10.12** for Curb, Curb and Gutter, Depressed Curb and Gutter, and Pedestrian Curb details.
5. See **Standard Plan F-30.10** for Cement Concrete Sidewalk Details. See Contract Plans for width and placement of sidewalk.
6. The Bid Item "Cement Concrete Curb Ramp Type ___" does not include the adjacent Curb, Curb and Gutter, Depressed Curb and Gutter, Pedestrian Curb, or Sidewalks.
7. The Curb Ramp length is not required to exceed 15 feet (unless otherwise shown in the Contract Plans). When applying the 15-foot max. length, the running slope of the curb ramp is allowed to exceed 8.3%. Use a single constant slope from bottom of ramp to top of ramp to match into the sidewalk over a horizontal distance of 15 feet. Do not include abutting landing(s) in the15-foot max. measurement. When a ramp is constructed on a radius, the 15-foot max. length is measured on the inside radius along the back of the walkway.
8. Curb Ramps and Landings shall receive a broom finish. See **Standard Specifications 8-14.**
9. Pedestrian Curb may be omitted if the ground surface at the back of the Curb Ramp and/or Landing will be at the same elevation as the Curb Ramp or Landing and there will be no material to retain.



ISOMETRIC VIEW
TYPE PARALLEL A PAY LIMIT



ISOMETRIC VIEW
TYPE PARALLEL B PAY LIMIT

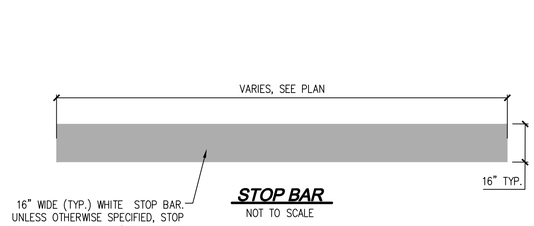
Zeller, Scott
Jun 24 2016 7:19 AM

PARALLEL CURB RAMP

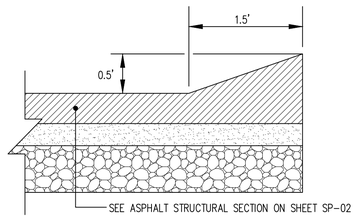
STANDARD PLAN F-40.12-03

SHEET 1 OF 1 SHEET

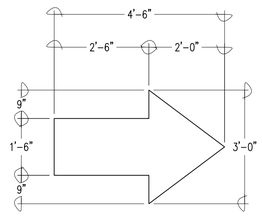
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Carpenter, Jeff
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STATE DESIGN ENGINEER
Washington State Department of Transportation



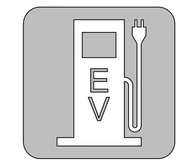
STOP BAR
NOT TO SCALE



ASPHALT WEDGE CURB
NOT TO SCALE



DIRECTIONAL ARROW
NOT TO SCALE



ELECTRIC VEHICLE PARKING SYMBOL
NOT TO SCALE

ELECTRIC VEHICLE PARKING ONLY

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www.LDCcorp.com

NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

SITE IMPROVEMENT NOTES AND DETAILS

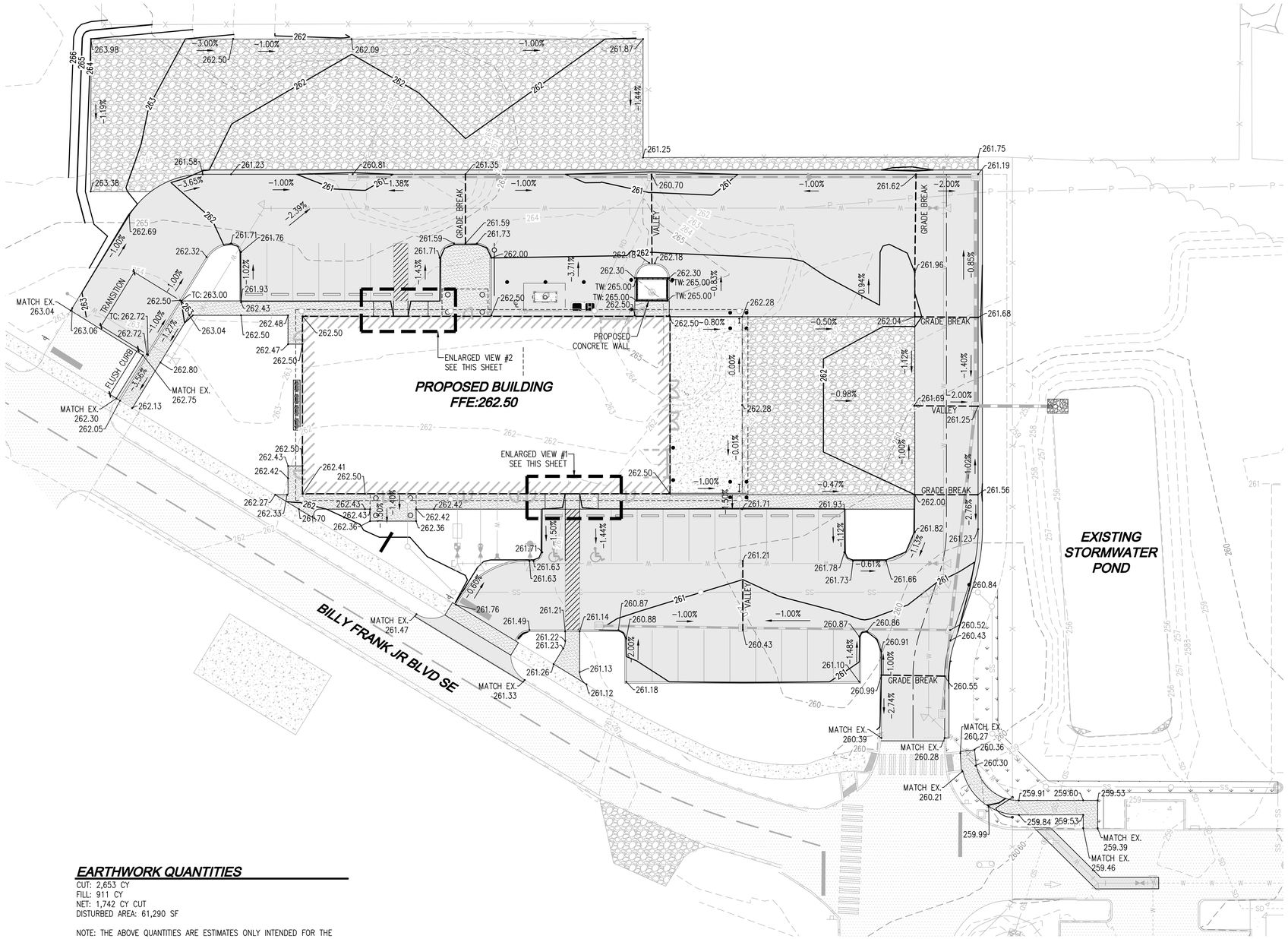
ROSS D. JARVIS
STATE OF WASHINGTON
43688
REGISTERED PROFESSIONAL ENGINEER
09/16/2026

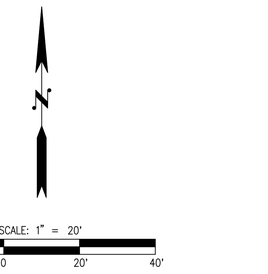
JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 SP-03
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SP-03

SHEET **8** OF **17**

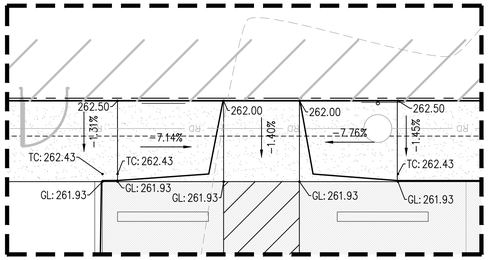
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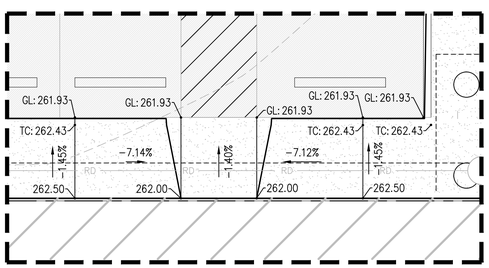


LEGEND

- XXX.XX — SPOT ELEVATION
- X.XX% — SLOPE ARROW
- XX — EXISTING CONTOURS
- XX — PROPOSED CONTOURS
- GRADE BREAK LINE



ENLARGED VIEW #1
SCALE 1"=5'



ENLARGED VIEW #2
SCALE 1"=5'

EARTHWORK QUANTITIES

CUT: 2,653 CY
FILL: 911 CY
NET: 1,742 CY CUT
DISTURBED AREA: 61,290 SF

NOTE: THE ABOVE QUANTITIES ARE ESTIMATES ONLY INTENDED FOR THE PERMITTING PROCESS. DO NOT USE FOR BID PURPOSES.

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

REVISIONS

NO.	DATE	DESCRIPTION	BY

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Planning
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Olympia
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Tumwater, WA 98501
Kent
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www.LDCcorp.com
F 425.482.2893

NISQUALLY INDIAN TRIBE
NISQUALLY TRIBE VOC BUILDING
GRADING PLAN

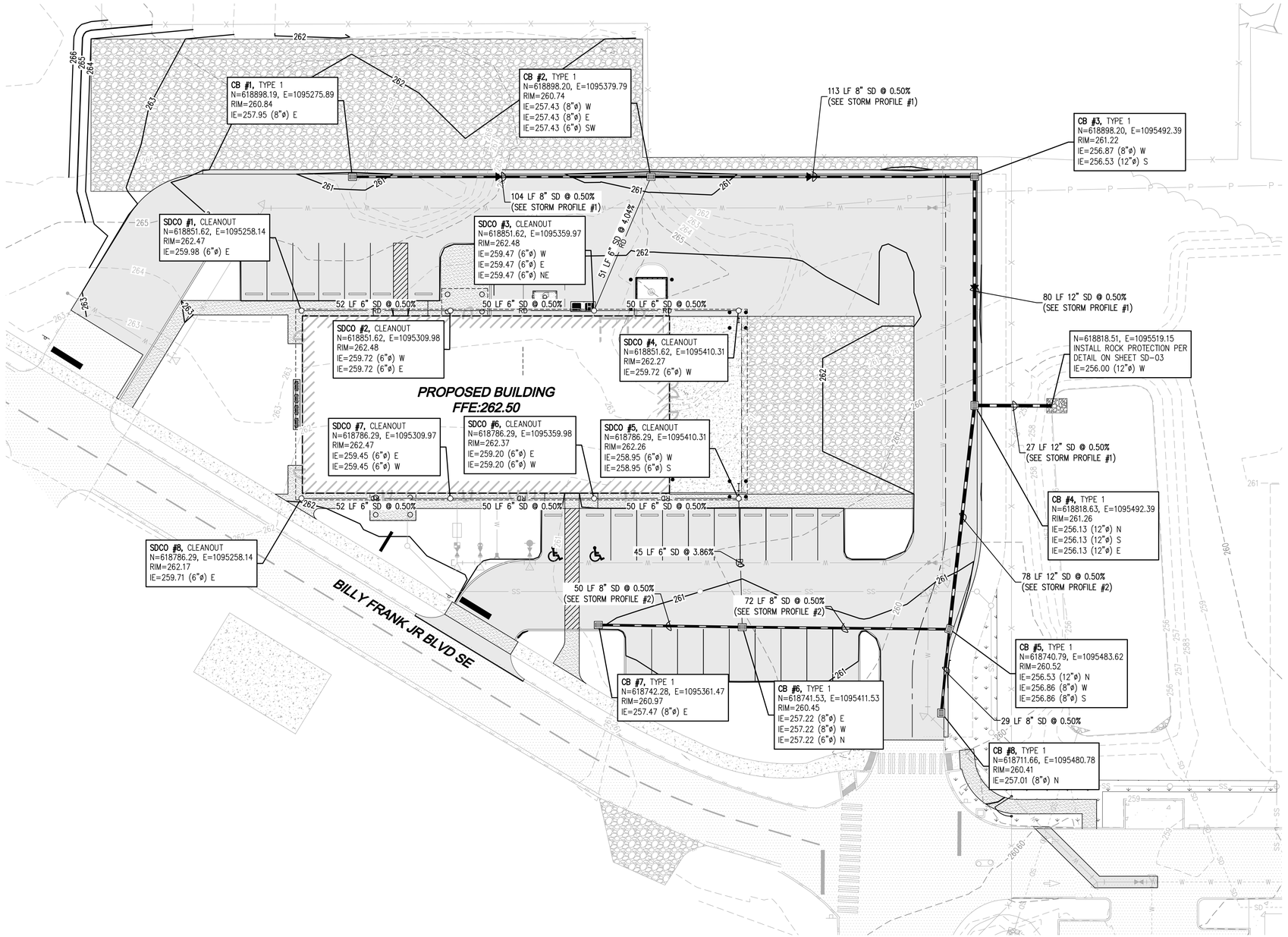
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/01/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 CG-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

CG-01

SHEET 9 OF 17

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 CG-01.dwg Plotted: Oct 01, 2026 - 1:23pm



LEGEND

- STORM DRAIN CLEANOUT PER DETAIL ON SHEET SD-03
- TYPE 1 CATCH BASIN WITH VANED GRATE PER WSDOT STD. PLAN B-5.20-03 ON SHEET SD-03
- ADS N-12 PVC STORM PIPE, UNLESS OTHERWISE NOTED
- RD — ASTM D3034 SDR35 PVC DRAIN LINE
- ROCK PROTECTION PER DETAIL ON SHEET SD-03

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STORM DRAINAGE PLAN

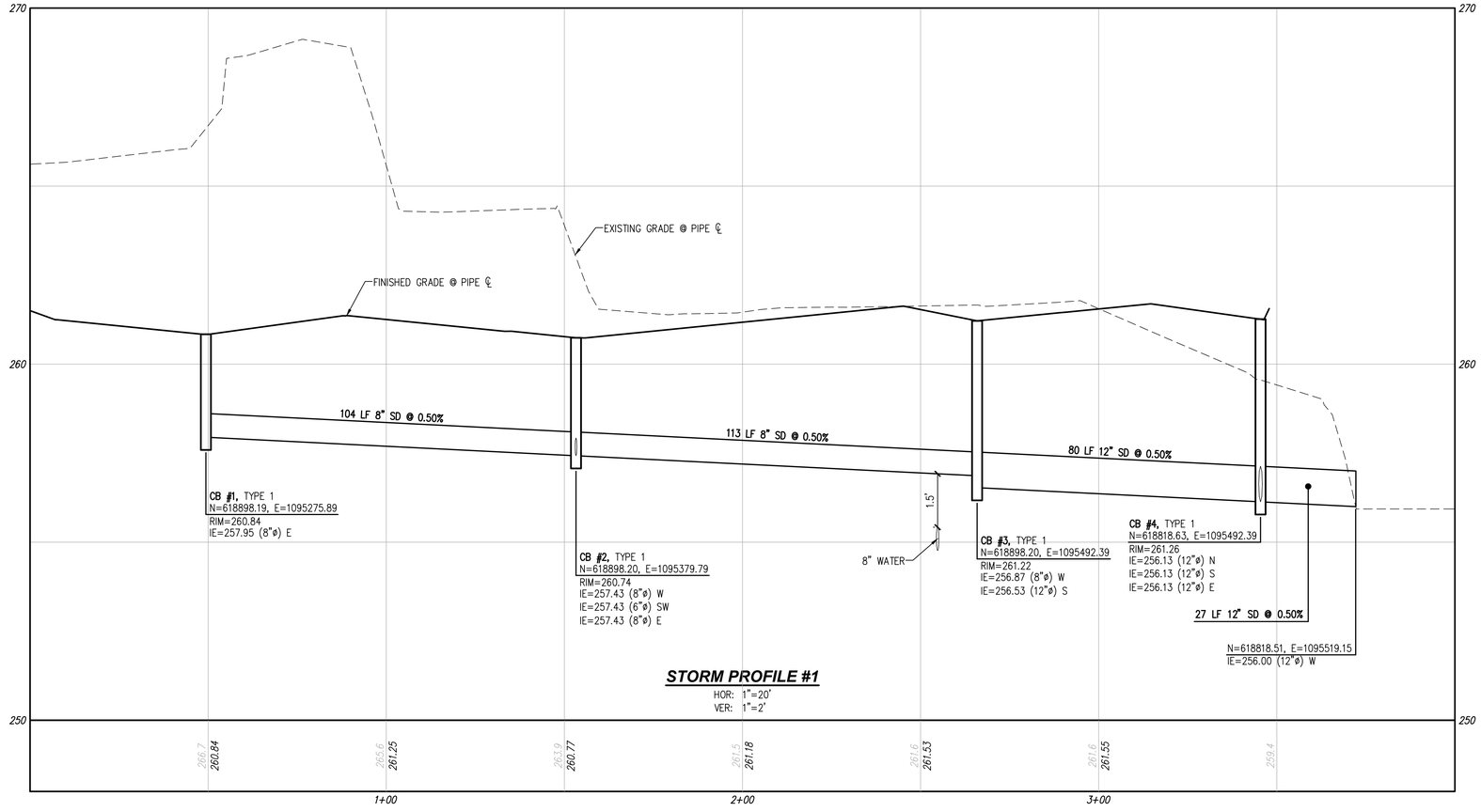
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
03/19/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 SD-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SD-01

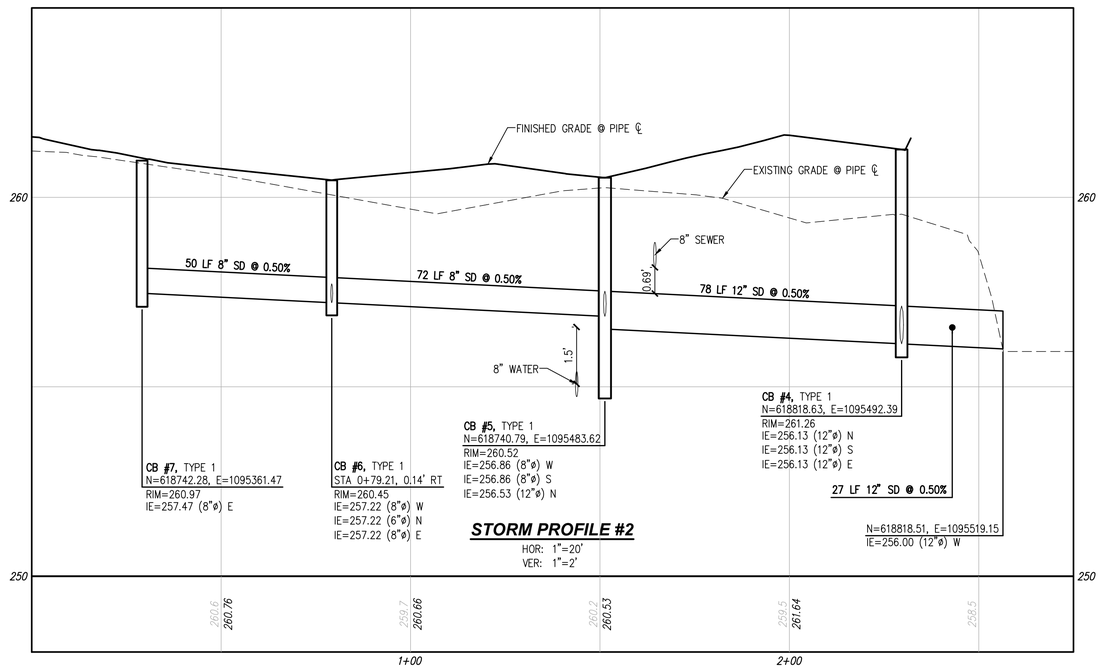
SHEET 10 OF 17

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 SD-01.dwg Plotted: Oct 01, 2026 - 1:23pm



STORM PROFILE #1

HOR: 1"=20'
VER: 1"=2'



STORM PROFILE #2

HOR: 1"=20'
VER: 1"=2'

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NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

STORM DRAINAGE PROFILES

ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/19/2024

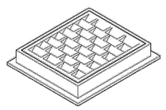
JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 SD-02
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SD-02

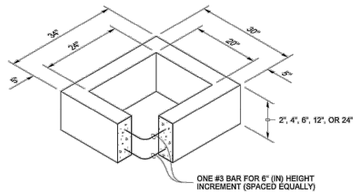
SHEET 11 OF 17

Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\construction\C25-183 SD-02.dwg Plotted: Oct 01, 2026 - 1:24pm

DRAWN BY: FERN LIDDELL



FRAME AND VANED GRATE



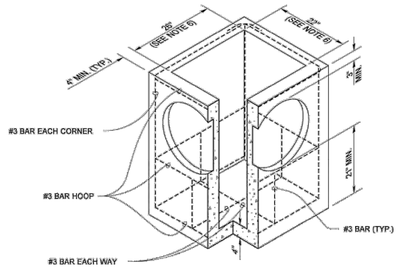
RECTANGULAR ADJUSTMENT SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER (INCHES)
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP * (STD. SPEC. SECT. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. SECT. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. SECT. 9-05.12(2))	15"

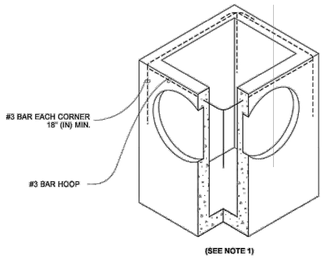
* CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the **ALTERNATIVE PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 20" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the **Precast Base Section**.
7. All pickup holes shall be grouted full after the basin has been placed.



PRECAST BASE SECTION



ALTERNATIVE PRECAST BASE SECTION

Julie Heilman
2020.09.01 07:52:50 -07'00'

CATCH BASIN TYPE 1

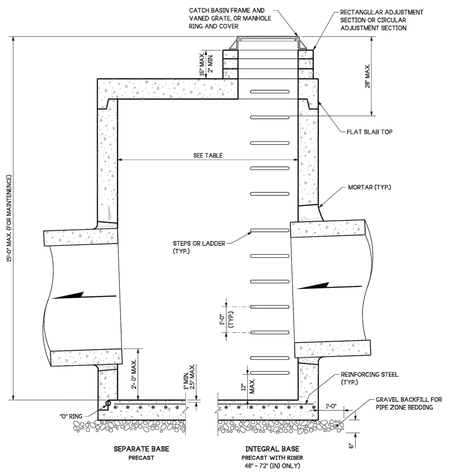
STANDARD PLAN B-5.20-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Roark, Steve Digitally signed by Roark, Steve Date: 2020.09.09 09:45:23 -07'00'
STATE DESIGN ENGINEER
Washington State Department of Transportation

NOTES:

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
5. Pipe allowances will vary depending on the pipe material used. Contact the Region Hydraulics Engineer for assistance.



SEPARATE BASE
PRECAST

INTEGRAL BASE
PRECAST WITH RISER
48" - 72" (IN) ONLY)

CATCH BASIN DIMENSIONS				
CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES					
CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ① PP ④	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	30"	30"
54"	30"	36"	30"	36"	36"
60"	36"	42"	36"	42"	42"
72"	42"	54"	42"	48"	48"
84"	54"	60"	54"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

① Corrugated Polyethylene Storm Sewer Pipe (See Standard Specification Section 9-05.20)
② (See Standard Specification Section 9-05.12(1))
③ (See Standard Specification Section 9-05.12(2))
④ Polypropolyne Pipe (See Standard Specification Section 9-05.24)

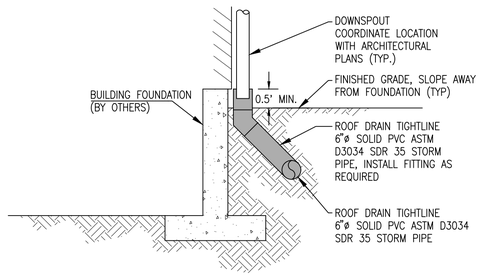
Aug 23, 2023

CATCH BASIN TYPE 2

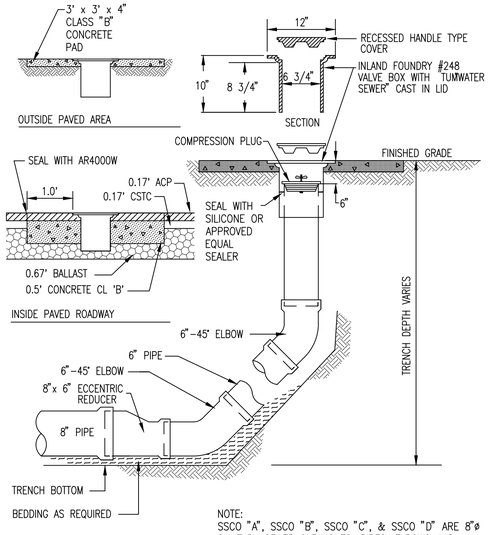
STANDARD PLAN B-10.20-03

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Aug 23, 2023
STATE DESIGN ENGINEER
Washington State Department of Transportation



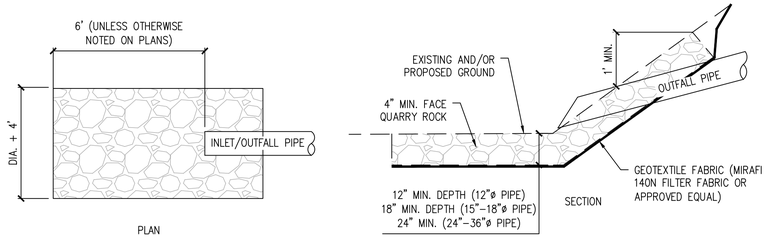
ROOF DRAIN DETAIL
NTS



NOTE:
ALL SEWER PIPE SHALL BE ASTM 3034 SDR 35.

NOTE:
SSCO "A", SSCO "B", SSCO "C", & SSCO "D" ARE 8"ø SANITARY SEWER CLEANOUTS; PIPES, ELBOWS AND PLUG SHOWN HEREON ARE TO BE 8"ø. VALVE BOX AND LID TO FIT ACCORDINGLY

6" CLEANOUT
NTS



ROCK PROTECTION
NOT TO SCALE

REVISIONS			
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Tumwater, WA 98501
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NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

STORM DRAINAGE NOTES AND DETAILS

ROSS D. JARVIS
STATE OF WASHINGTON
43868
REGISTERED PROFESSIONAL ENGINEER
03/9/2026

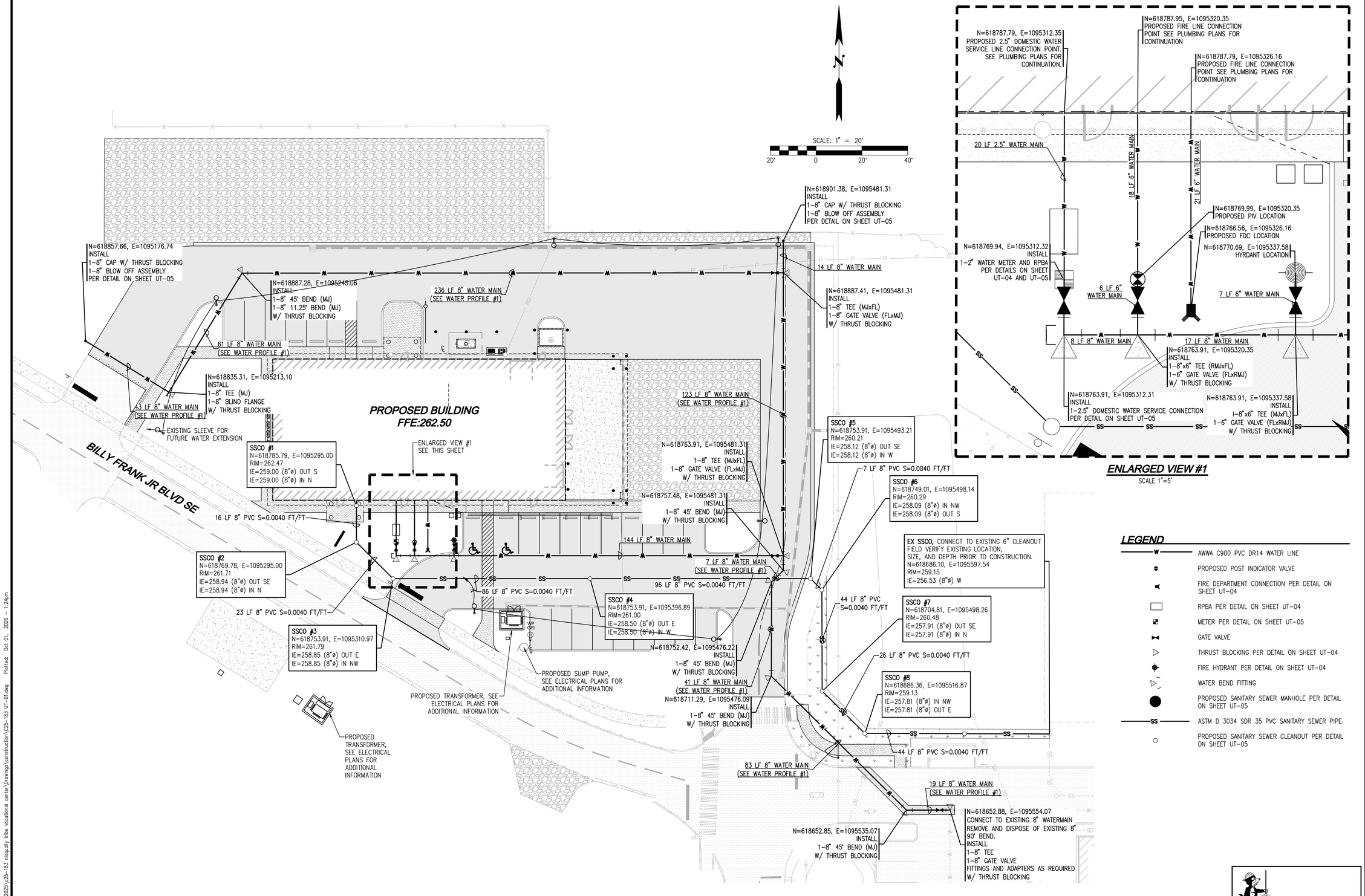
JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 SD-03
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

SD-03

SHEET 12 OF 17

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Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\construction\C25-183 SD-03.dwg Plotted: Oct 01, 2026 - 1:24pm



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NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

WATER AND SEWER PLAN

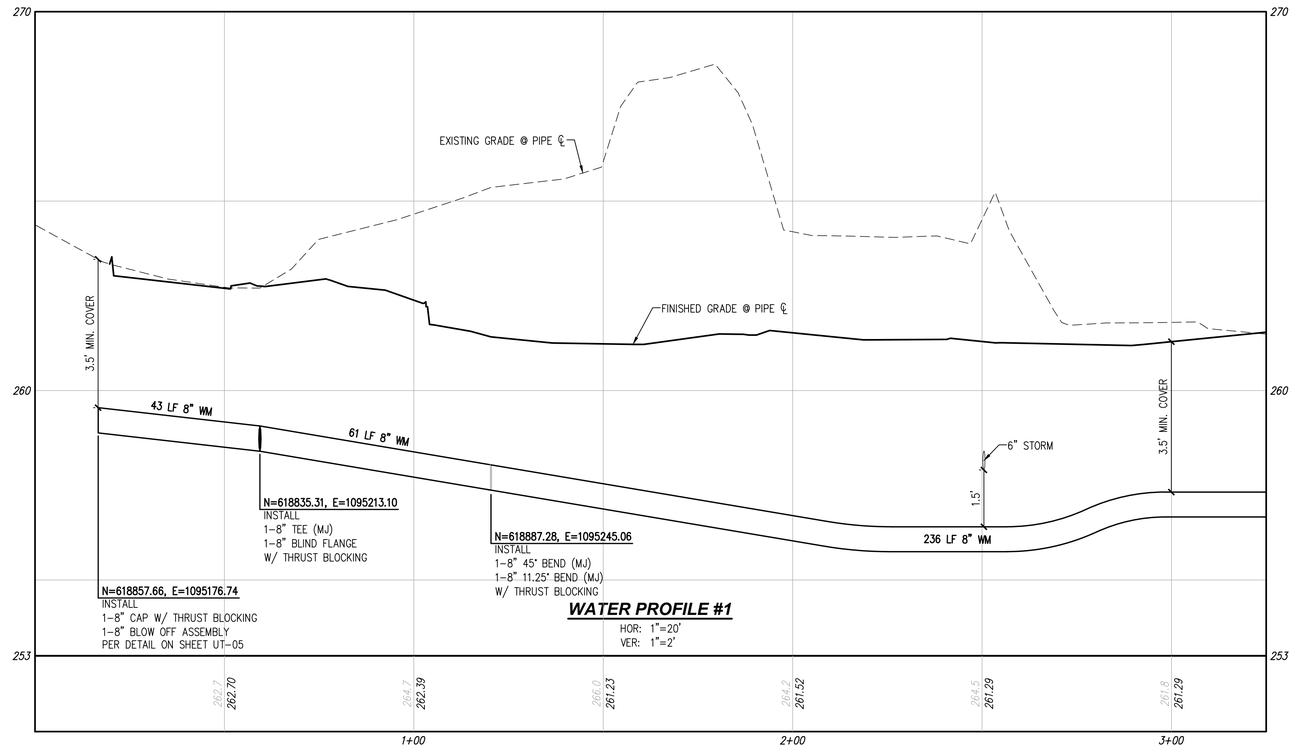
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/19/2024

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 UT-01
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

UT-01

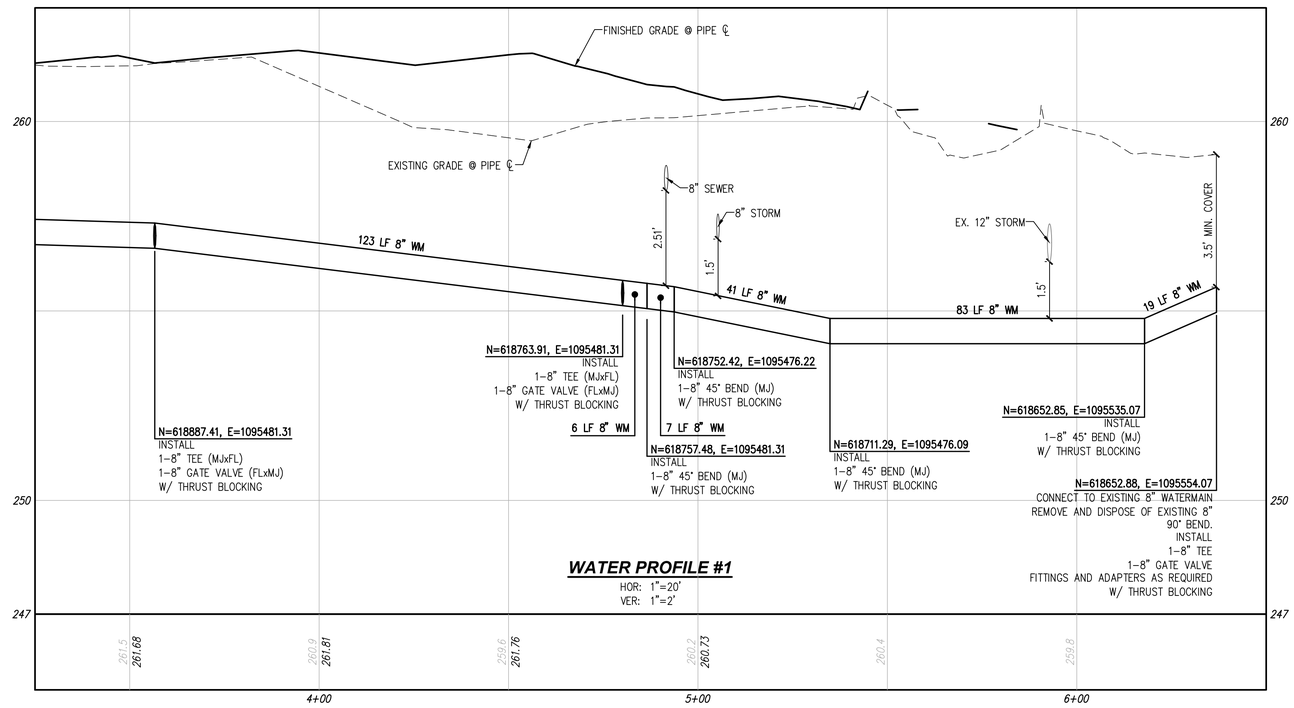
SHEET 13 OF 17

Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\Construction\C25-183 UT-01.dwg Plotted: Oct 01, 2026 - 1:24pm



WATER PROFILE #1

HOR: 1"=20'
VER: 1"=2'



WATER PROFILE #1

HOR: 1"=20'
VER: 1"=2'

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Utilities Underground Location Center

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NISQUALLY TRIBE VOC BUILDING

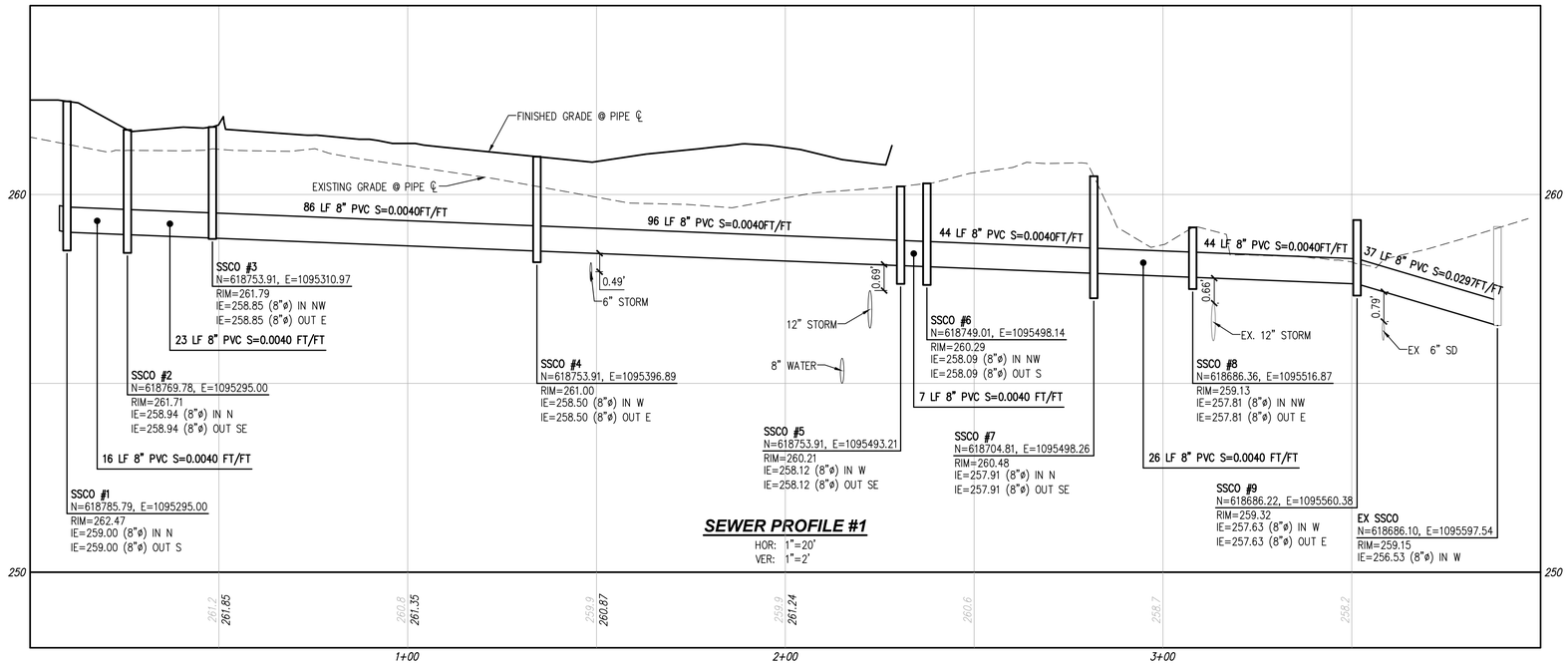
WATER PROFILE

ROSS D. JARVIS
STATE OF WASHINGTON
43688
REGISTERED PROFESSIONAL ENGINEER
09/16/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 UT-02
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

UT-02

Drawing: P:\Civil\2025\C25-183 nisqually tribe vocational center\Drawings\construction\C25-183 UT-02.dwg Plotted: Oct 01, 2026 - 1:24pm



SEWER PROFILE #1

HOR: 1"=20'
VER: 1"=2'

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Utilities Underground Location Center

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SEWER PROFILE

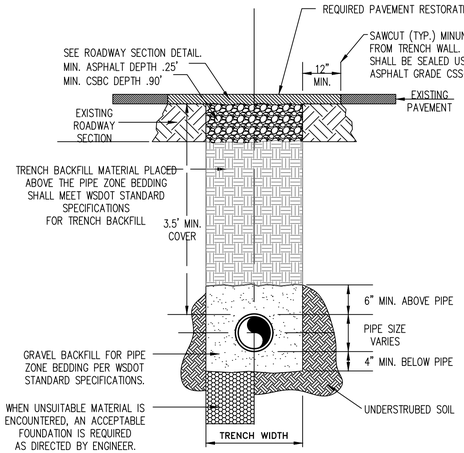
ROSS D. JARVIS
STATE OF WASHINGTON
43868
REGISTERED PROFESSIONAL ENGINEER
09/18/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 UT-03
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

UT-03

SHEET 15 OF 17

Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\construction\C25-183 UT-03.dwg Plotted: Oct 01, 2026 - 1:25pm

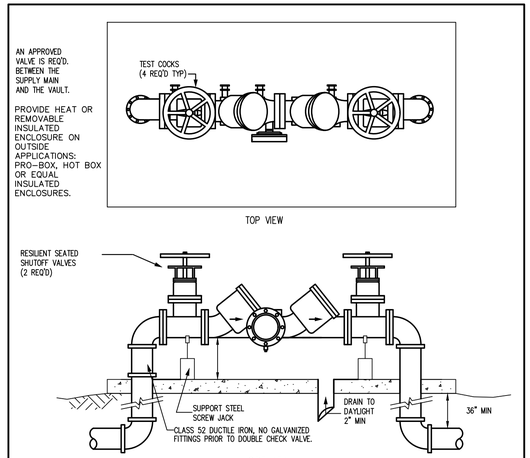


MAXIUM TRENCH WIDTH AT TOP OF PIPE:
I.D. PLUS 30" FOR PIPE 15" AND UNDER.
(1.5XI.D.) PLUS 18" FOR PIPE 18" AND OVER.

GENERAL NOTES:

1. ALL MATERIALS, WORKMANSHIP, AND INSTALLATION SHALL BE IN CONFORMANCE WITH THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION

WATER MAIN TRENCH
NTS

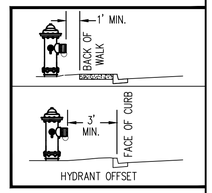


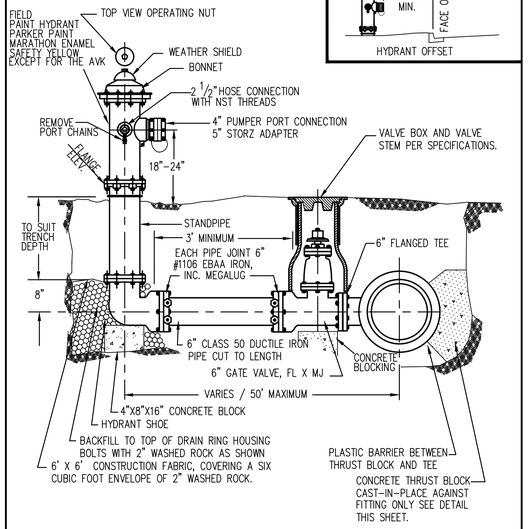
NOTE: ALL ITEMS SHALL COMPLY WITH THE FOLLOWING
- APPROVED BY THE WASHINGTON STATE DEPARTMENT OF HEALTH.
- APPROVED REDUCED PRESSURE BACK FLOW ASSEMBLY TO LAY HORIZONTAL ONLY.
- DESIGNED FOR BACK SIPHONAGE AND BACK PRESSURE.
- THE WATER LINE SHALL BE DISINFECTED, FLUSHED, AND PRESSURE TESTED PRIOR TO INSTALLING THE BACK FLOW ASSEMBLY. THE BACK FLOW ASSEMBLY SHALL BE PROTECTED FROM FREEZING AND FLOODING.
- ALL PIPE, VALVES, AND FITTING JOINTS, FROM SUPPLY MAIN, SHALL BE FLANGED AND RESTRAINED.
- FIRE DEPT. CONNECTION SHALL NOT EXIT THROUGH THE TOP OF THE VAULT.
- ALL ENCLOSURES AND AIR-GAP DRAINS SHALL BE PRE APPROVED PRIOR TO INSTALLATION.
- ALL LOCATIONS SHALL BE PRE APPROVED PRIOR TO INSTALLATION.
- ENCLOSURES SHALL HAVE A MINIMUM OF 5' CLEARANCE FROM ALL STRUCTURES.
- THE BACK FLOW ASSEMBLY SHALL BE TESTED AFTER INSTALLATION AND PRIOR TO ACCEPTANCE AND ALSO YEARLY THEREAFTER BY A CERTIFIED BACK FLOW ASSEMBLY TESTER OR A CROSS CONNECTION SPECIALIST. TEST RESULTS SHALL BE SENT TO THE THE ARCHITECTURAL AND ENGINEERING TEAM.
- FIRE SERVICES REQUIRE DETECTOR TYPE BACK FLOW PROTECTION ASSEMBLIES.
- CONTRACTOR SHALL PROVIDE "HOTBOX" SUBMITTAL TO CIVIL ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

(ABOVE GROUND INSTALLATION)

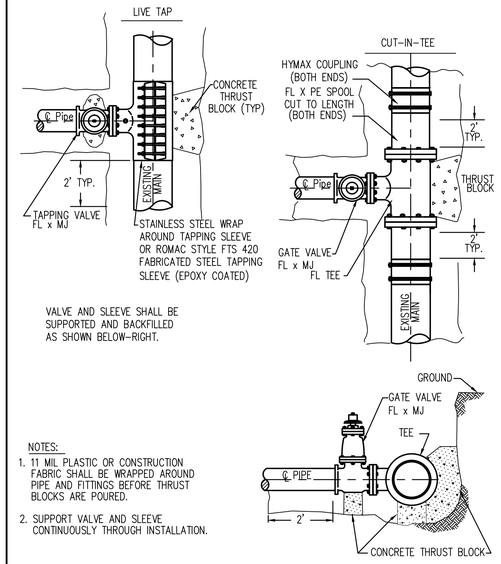
REDUCED PRESSURE BACK FLOW

NOTES
1. HYDRANTS SHALL BE LOCATED WITH A MINIMUM THREE FOOT RADIUS UNOBSTRUCTED WORKING AREA PROVIDED AROUND ALL HYDRANTS, AND IN NO CASE SHALL BE LOCATED IN SIDEWALK.
2. HYDRANT SHALL BE PER PROJECT SPECIFICATIONS.





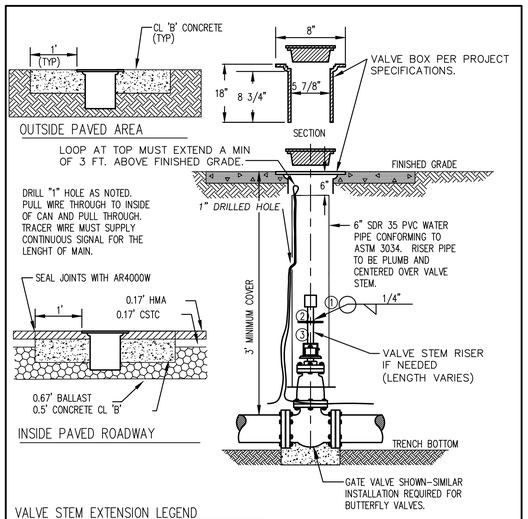
FIRE HYDRANT



VALVE AND SLEEVE SHALL BE SUPPORTED AND BACKFILLED AS SHOWN BELOW-RIGHT.

NOTES:
1. 11 MIL PLASTIC OR CONSTRUCTION FABRIC SHALL BE WRAPPED AROUND PIPE AND FITTINGS BEFORE THRUST BLOCKS ARE POURED.
2. SUPPORT VALVE AND SLEEVE CONTINUOUSLY THROUGH INSTALLATION.

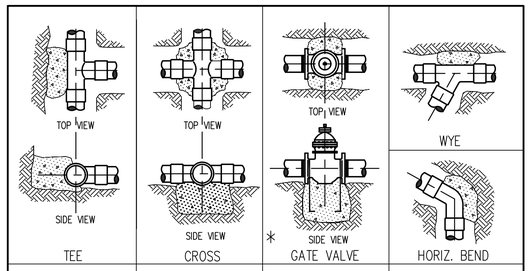
CONNECTION TO EXISTING MAIN



VALVE STEM EXTENSION LEGEND
1. VALVE OPERATING NUT OR 1 7/8" X 1 7/8" X 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.
2. 3/16" THICK X 5 1/5" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.
3. 2"X2"X 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

NOTE:
1. ALL WELDS TO SHAFT SHALL BE FILLET WELD ALL AROUND, AS SPECIFED ABOVE

STANDARD VALVE BOX



NOTES:
1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. PLASTIC BARRIER SHALL BE PLACED BE-TWEEN ALL THRUST BLOCKS & FITTINGS.
3. ANCHOR REBAR SHALL BE #5 ON 12" DIA. AND LESS WITH 30" IMBEDMENT, #5 ON 16"-24" DIAMETER WITH 36" IMBEDMENT.
4. PLUGS TO BE MINIMUM OF 5' FROM TEE, WYE, CROSS ON VALVE.

* IF IN THE OPINION OF THE ENGINEER THE VALVE IS ON A SLOPE AND/OR THE COVER ON THE PIPE WOULD APPLY UPWARD THRUST, THEN THRUST BLOCKING WILL BE REQUIRED.

STANDARD BLOCKING DETAIL

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

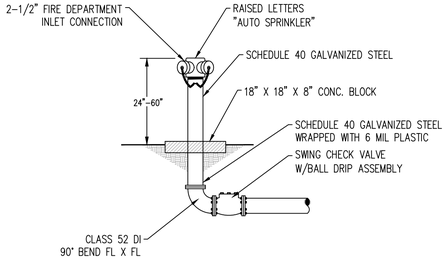
NOTES:
1. BLOCKING SHALL BE CEMENT CONCRETE CLASS "B" POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTING SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
2. TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):
   EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL
   32,000 LBS 3000 LB/S.F. = 10.7 S.F. OF AREA
3. AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.
4. BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

THRUST LOADS



FIRE DEPARTMENT CONNECTION
NOT TO SCALE

Call 2 Business Days Before You Dig
811 or 1-800-424-5555
Utilities Underground Location Center

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www.LDCorp.com
F 425.482.2893

NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

WATER AND SEWER NOTES AND DETAILS

ROSS D. JARVIS STATE OF WASHINGTON 43868 REGISTERED PROFESSIONAL ENGINEER 09/16/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 UT-04
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

UT-04

SHEET 16 OF 17

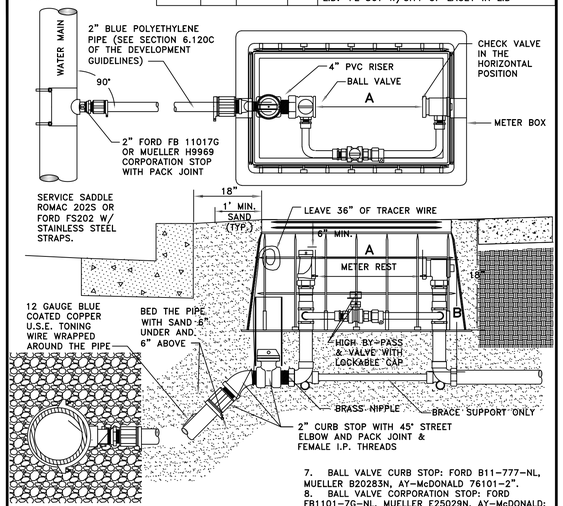
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GENERAL SANITARY SEWER NOTES

1. THE CONTRACTOR SHALL VERIFY DIA, LENGTH, CONDITION, PIPE TYPE, SLOPE AND VERTICAL AND HORIZONTAL ALIGNMENT OF THE EXISTING ALIGNMENT OF THE PROPOSED POINT OF CONNECTION PRIOR TO CONNECTION AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS NECESSARY TO COMPLETE THIS WORK.
3. STATIONS AND OFFSETS FOR MANHOLES ARE CALLED OUT TO CENTER OF STRUCTURE.
4. MAINTAIN 10' MINIMUM HORIZONTAL AND 1.5' MINIMUM VERTICAL SEPARATION FROM WATER MAINS.
5. PIPE LENGTHS CALLED OUT FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

THE WATER MAIN IS LOCATED 6' FROM THE CENTERLINE OF THE ROAD ON THE NORTH OR EAST SIDE.

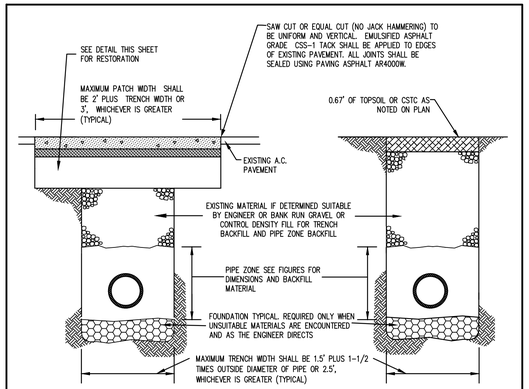
METER SIZE	LINE SIZE	A	B	METER BOX IN PLANTER ONLY
2"	2"	17 1/4"	15"	CHRISTY SYNERTECH BOX & LID BOX: FL 36T-18 LID: FL 36T W/CITY OF LACEY IN LID



GENERAL NOTES:
1. METER BOXES SHALL NOT BE INSTALLED IN CONCRETE OR CONCRETE DRIVEWAYS. WHEN NECESSARY CREATE PLANTERS FOR METER BOX INSTALLATION.
2. STAINLESS STEEL INSERTS ARE REQUIRED FOR ALL PACK JOINTS.
3. THE SETTER ANGLE STOP SHALL BE A MINIMUM OF 1" ABOVE BOTTOM OF METER BOX. INSIDE OF BOX SHALL BE CLEAN OF EXCESS SAND OR DEBRIS.
4. FILL THE ENTIRE AREA AROUND AND UNDER THE METER BOX WITH A MINIMUM 1' OF SAND.
5. ALL BRASS AND COPPER SHALL BE LOW LEAD COMPLIANT.
6. COPPER METER SETTERS, HIGH BY-PASS STYLE: FORD V8H 77-15HB, MUELLER B2423-29900012-2, AY-McDONALD 20-R71SWDFF775.
7. BALL VALVE CURB STOP: FORD B11-777-NL, MUELLER B20283N, AY-McDONALD 76101-2".
8. BALL VALVE CORPORATION STOP: FORD FB1101-7G-NL, MUELLER E25029N, AY-McDONALD: 74704B-33-2".

DG6-3.1.DWG

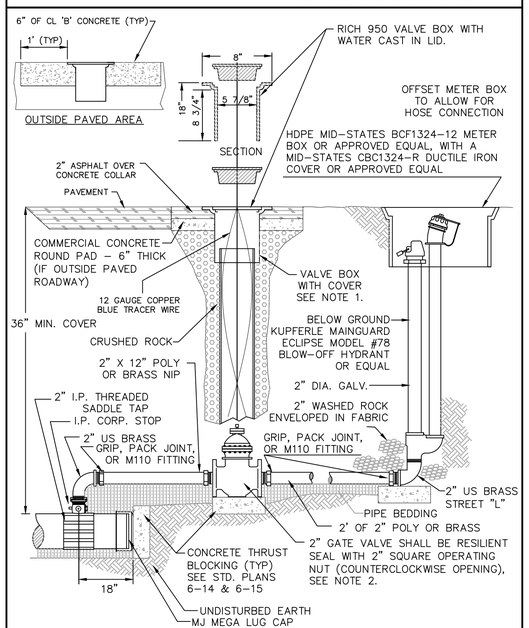
2" METER SERVICE W/ HIGH BYPASS



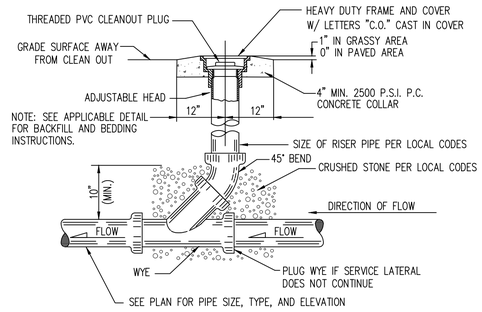
NOTES:
1. ALL MATERIALS EXCEPT A.C.P. AND BEDDING MATERIAL SHALL BE COMPACTED IN 6-INCH MAXIMUM LIFTS TO 95% DENSITY.
2. PIPE ZONE BEDDING SHALL CONFORM TO SECTION 9-03.12(3) OF WSDOT/APWA STANDARD SPECIFICATIONS EXCEPT 100% SHALL PASS 1".
3. COMPACTION: BEDDING AND BACKFILL WITHIN THE PIPE ZONE SHALL BE COMPACTED TO 95% MAX. AS DETERMINED BY ASTM D1557. BACKFILL ABOVE THE PIPE ZONE SHALL BE COMPACTED TO 85% IN UNPAVED AREA, AND 95% IN PAVED OR SHOULDER AREAS AS DETERMINED BY ASTM D1557.
4. ALL MATERIALS, WORKMANSHIP, AND INSTALLATION SHALL BE IN CONFORMANCE WITH THE MOST CURRENT WSDOT STANDARD SPECIFICATIONS.
5. FOR LONGITUDINAL TRENCH CUTS WITHIN TRAVEL LANE, REQUIRE MINIMUM OF ONE LANE OVERLAY IN ADDITION TO TRENCH PATCH DETAIL FOR CONCRETE AND ASPHALT ROADWAYS. ADDITIONAL OVERLAY MAY BE REQUIRED DEPENDING ON LOCATION AND TRENCHING WIDTH. SEE SECTION 4B.180 TRENCH BACKFILL AND 4B.175 PAVEMENT RESTORATION FOR DETAIL REQUIREMENTS.

TRENCH-PAVEMENT RESTORATION DETAIL

NOTE:
INSTALL TONE WIRE AND CAUTION TAPE ALONG ALL NEW SEWER & WATER LINES



2" BLOW-OFF ASSEMBLY FOR DEAD END



SANITARY SEWER CLEANOUT

NOT TO SCALE

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NISQUALLY INDIAN TRIBE

NISQUALLY TRIBE VOC BUILDING

WATER AND SEWER NOTES AND DETAILS

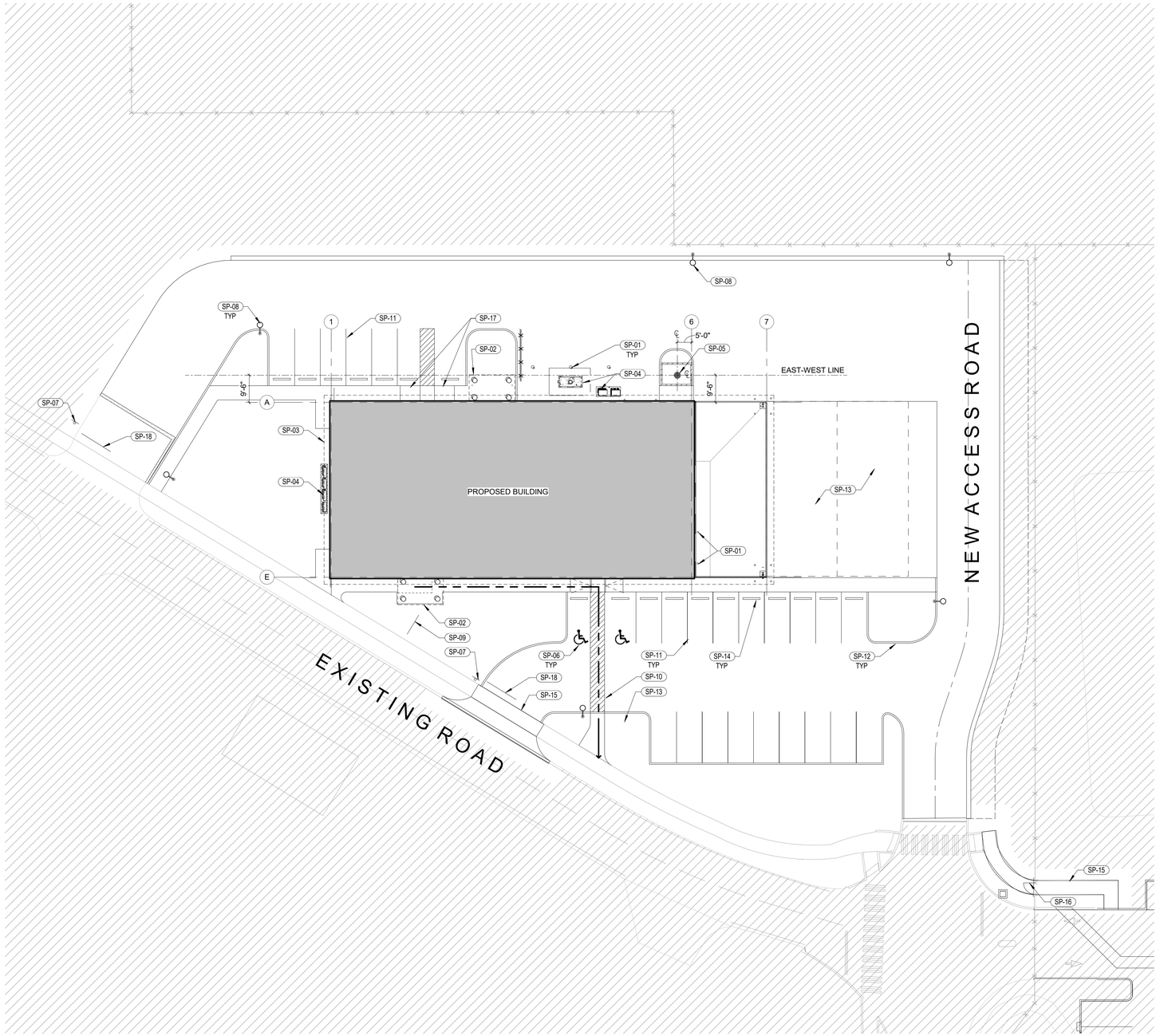
ROSS D. JARVIS
STATE OF WASHINGTON
43668
REGISTERED
PROFESSIONAL ENGINEER
09/18/2026

JOB NUMBER:	C25-183
DRAWING NAME:	C25-183 UT-05
DESIGNER:	RJ
DRAFTING BY:	SO
DATE:	SEPTEMBER 2026
SCALE:	AS NOTED
JURISDICTION:	NISQUALLY

UT-05

SHEET 17 OF 17

Drawing: P:\Civil\2025\c25-183 nisqually tribe vocational center\Drawings\construction\C25-183 UT-05.dwg Plotted: Oct 01, 2026 - 1:25pm



1 A2.00 **ARCHITECTURAL SITE PLAN**
Scale: 1" = 20'-0"

0 10' 20' 40' N

GENERAL NOTES - ARCHITECTURAL SITE PLAN

1. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION
2. HORIZONTAL CONTROL PLANS PER CIVIL
3. CURB, GUTTER AND STREET TYPES AND LOCATIONS PER CIVIL
4. POINT OF CONNECTION TO OFF-SITE UTILITIES PER CIVIL. CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS
5. TRAFFIC MARKINGS PER CIVIL, INCLUDES PARKING STALL SIZES
6. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING. MAINTAIN ACCESSIBLE SLOPES AS REQUIRED
7. PROVIDE TEMPORARY CONSTRUCTION PROTECTION FOR PEDESTRIAN ACCESS

KEYNOTES - ARCHITECTURAL SITE PLAN

SP-01	6" STEEL PIPE BOLLARD; PER CIVIL
SP-02	OUTLINE OF ENTRY CANOPY ABOVE
SP-03	OUTLINE OF ROOF ABOVE
SP-04	PROPOSED MECHANICAL EQUIPMENT LOCATION; PER MECHANICAL
SP-05	MONITORING WELL LOCATION. PROTECT DURING CONSTRUCTION
SP-06	PAINTED ACCESSIBLE SYMBOL; PER CIVIL
SP-07	PROPOSED STOP SIGN WITH STEEL POST AND PRE-CAST CONCRETE BASE; PER CIVIL
SP-08	SITE LIGHTING LOCATION; PER ELECTRICAL
SP-09	MONUMENT SIGN ON CONCRETE BASE
SP-10	45 DEGREE PAINTED TRAFFIC STRIPING; PER CIVIL
SP-11	90 DEGREE PAINTED TRAFFIC STRIPING; PER CIVIL
SP-12	PROPOSED 6" CEMENT CONCRETE INTEGRAL CURB; PER CIVIL
SP-13	PROPOSED GRAVEL PAVING AREA FOR FUTURE EXPANSION; PER CIVIL
SP-14	PRECAST CEMENT CONCRETE WHEELSTOP; PER CIVIL
SP-15	NEW SIDEWALK; PER CIVIL
SP-16	MAN-GATE AND FENCE POSTS (AS NEEDED) TO MATCH EXISTING FENCE
SP-17	FUTURE ACCESSIBLE PARKING SPACE
SP-18	PROPOSED STOP BAR PER CIVIL

PARKING SUMMARY

TYPE	REQUIRED	PROVIDED
STANDARD:	--	25
ACCESSIBLE:	--	1
ACCESSIBLE VAN:	--	1

LEGEND - ARCHITECTURAL SITE PLAN

NO WORK THIS AREA

FENCE

ACCESSIBLE ROUTE

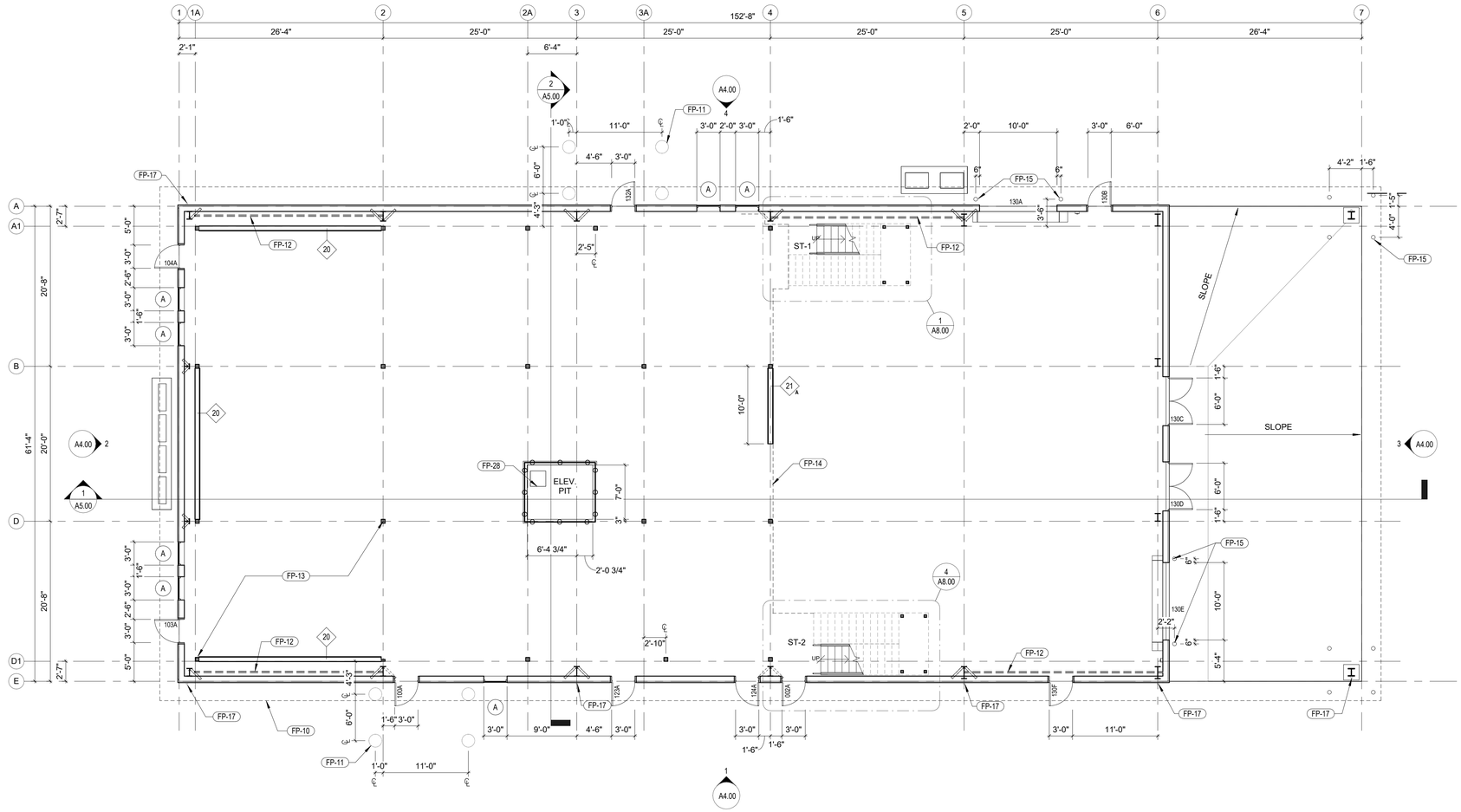
FREIHEIT ARCHITECTURE

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ISSUE LIST
BID SET 10.02.2026

A2-176 PRINTED 10/2/2026 12:57:26 PM

ARCHITECTURAL SITE PLAN
A2.00



1 A3.00 **FIRST FLOOR PLAN**
Scale: 1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES - FLOOR PLAN

1. ALL DIMENSIONS ARE FROM FACE OF STUD UNLESS NOTED OTHERWISE
2. WATER RESISTANT GWB TO BE USED AT ALL WET AREAS
3. PRIOR TO COMPLETION OF CONSTRUCTION, CLEAN ALL SURFACES INCLUDING, BUT NOT LIMITED TO, WINDOWS, STOREFRONTS, SWITCH &OUTLET PLATES, HVAC GRILLES, CEILING GRID, RESTROOM FIXTURES & ACCESSORIES. RESTORE ANY OF THE ABOVE TO LIKE-NEW GOOD WORKING CONDITION AS REQUIRED

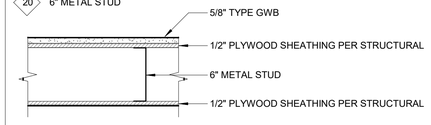
KEYNOTES - FLOOR PLAN

FP-10	OUTLINE OF ROOF ABOVE
FP-11	CONCRETE BASE FOR ENTRANCE CANOPY PIERS
FP-12	BRACE FRAME TIE ROD
FP-13	HHS COLUMN PER STRUCTURAL
FP-14	OUTLINE FOR FLOOR ABOVE
FP-15	BOLLARDS PER CIVIL
FP-17	DOWNSPOUT
FP-28	SUMP PIT PER PLUMBING

WALL SCHEDULE

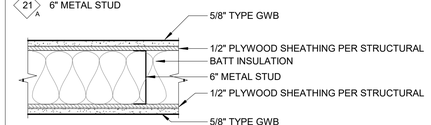
METAL STUD SHEATHING WALL

20 — 6" METAL STUD



EXTEND TO UNDERSIDE OF SECOND FLOOR STRUCTURE

21 A — 6" METAL STUD



EXTEND TO UNDERSIDE OF SECOND FLOOR STRUCTURE

LEGEND - FLOOR PLAN

- NEW WALL CONSTRUCTION
- TEMPORARY FALL PROTECTION REMOVED AT PHASE 2
- 01.1 A — WALL TAG - SEE SCHEDULE
- 100A — DOOR TAG - SEE SCHEDULE
- A — WINDOW TAG - SEE SCHEDULE

FREIHEIT ARCHITECTURE

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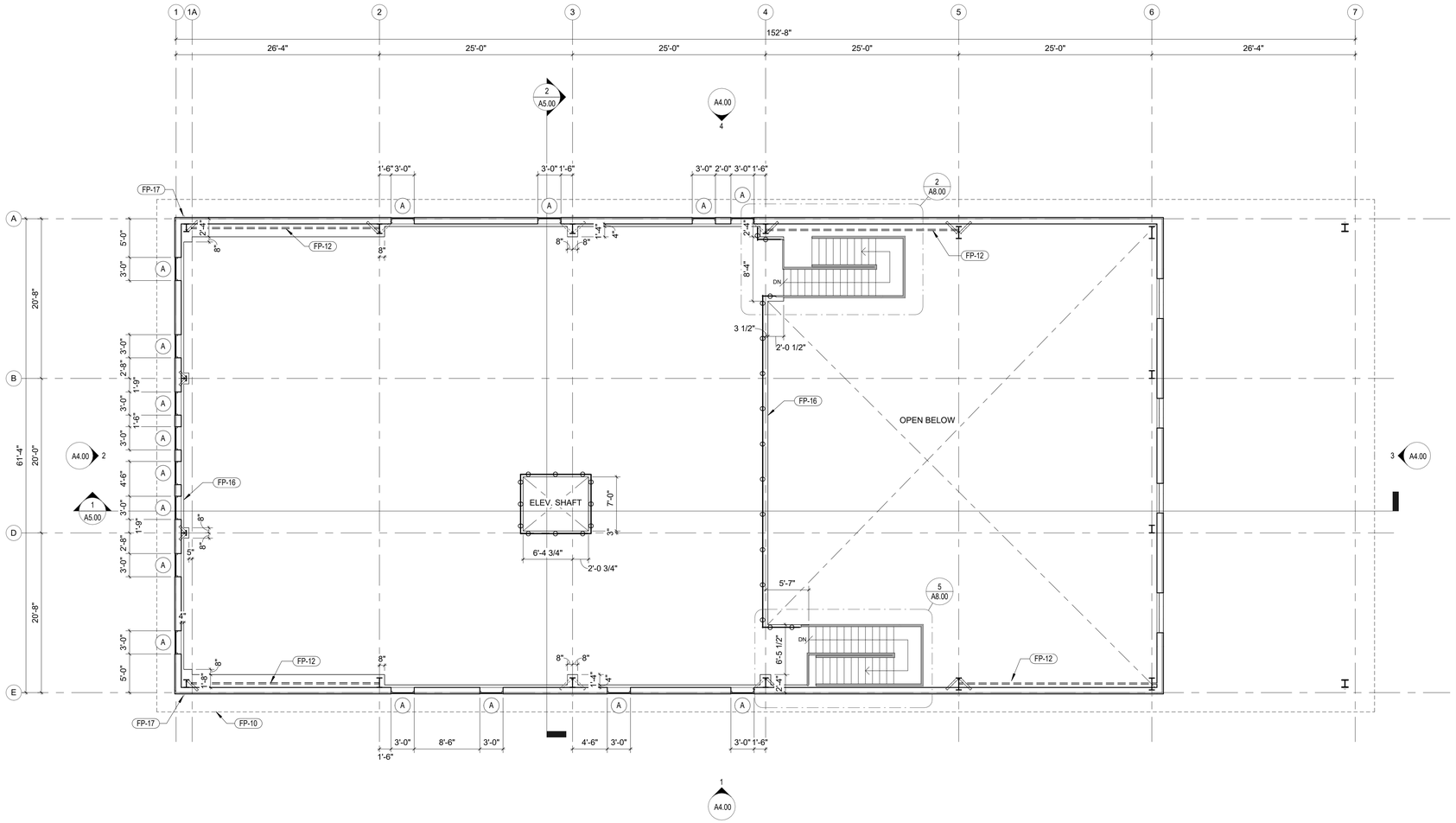
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AS-TR PRINTED:10/2/2026 12:07:27 PM

FIRST FLOOR PLAN

A3.00



1 A3.01 **SECOND FLOOR PLAN**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

GENERAL NOTES - FLOOR PLAN

1. ALL DIMENSIONS ARE FROM FACE OF STUD UNLESS NOTED OTHERWISE
2. WATER RESISTANT GWB TO BE USED AT ALL WET AREAS
3. PRIOR TO COMPLETION OF CONSTRUCTION, CLEAN ALL SURFACES INCLUDING, BUT NOT LIMITED TO, WINDOWS, STOREFRONTS, SWITCH &OUTLET PLATES, HVAC GRILLES, CEILING GRID, RESTROOM FIXTURES & ACCESSORIES. RESTORE ANY OF THE ABOVE TO LIKE-NEW GOOD WORKING CONDITION AS REQUIRED

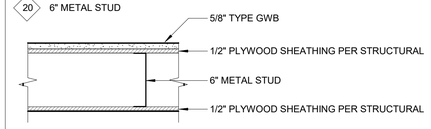
KEYNOTES - FLOOR PLAN

FP-10	OUTLINE OF ROOF ABOVE
FP-12	BRACE FRAME TIE ROD
FP-16	SLAB EDGE
FP-17	DOWNSPOUT

WALL SCHEDULE

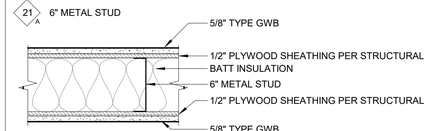
METAL STUD SHEATHING WALL

20 — 6" METAL STUD



EXTEND TO UNDERSIDE OF SECOND FLOOR STRUCTURE

21 A — 6" METAL STUD



EXTEND TO UNDERSIDE OF SECOND FLOOR STRUCTURE

LEGEND - FLOOR PLAN

- NEW WALL CONSTRUCTION
- TEMPORARY FALL PROTECTION REMOVED AT PHASE 2
- 01.1 A — WALL TAG - SEE SCHEDULE
- 100A — DOOR TAG - SEE SCHEDULE
- A — WINDOW TAG - SEE SCHEDULE

FREIHEIT ARCHITECTURE

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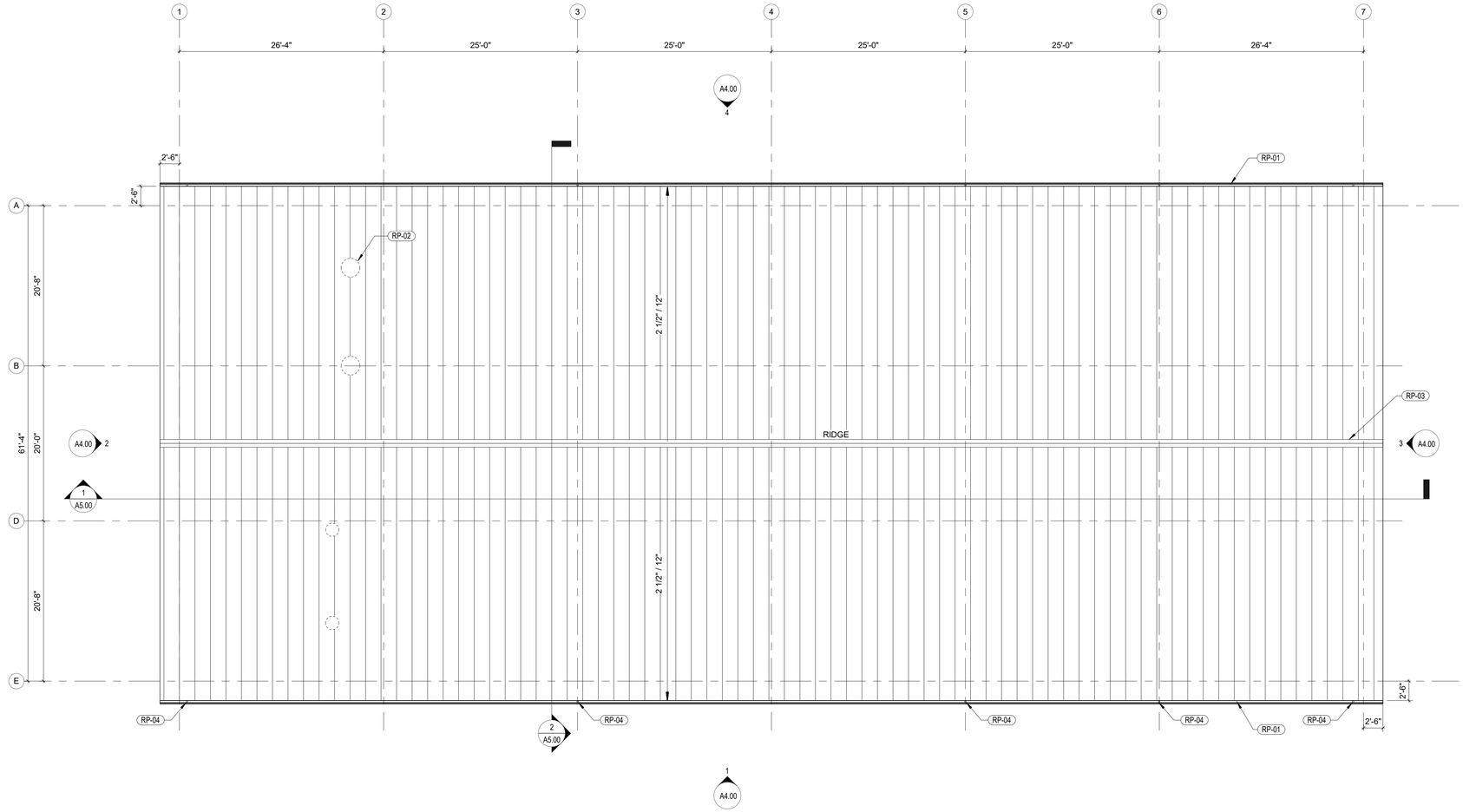
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SECOND FLOOR PLAN

A3.01



1 A3.20 **ROOF PLAN**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

KEYNOTES - ROOF PLAN

RP-01	PRE-FINISHED METAL GUTTER
RP-02	ROOF HOOD VENT
RP-03	STEEL RIDGE CAP
RP-04	DOWNSPOUT

LEGEND - ROOF PLAN

ROOF PANEL PROVIDED BY PRE ENGINEER METAL BUILDING- BRICK RED PAINT FINISH

FREIHEIT ARCHITECTURE

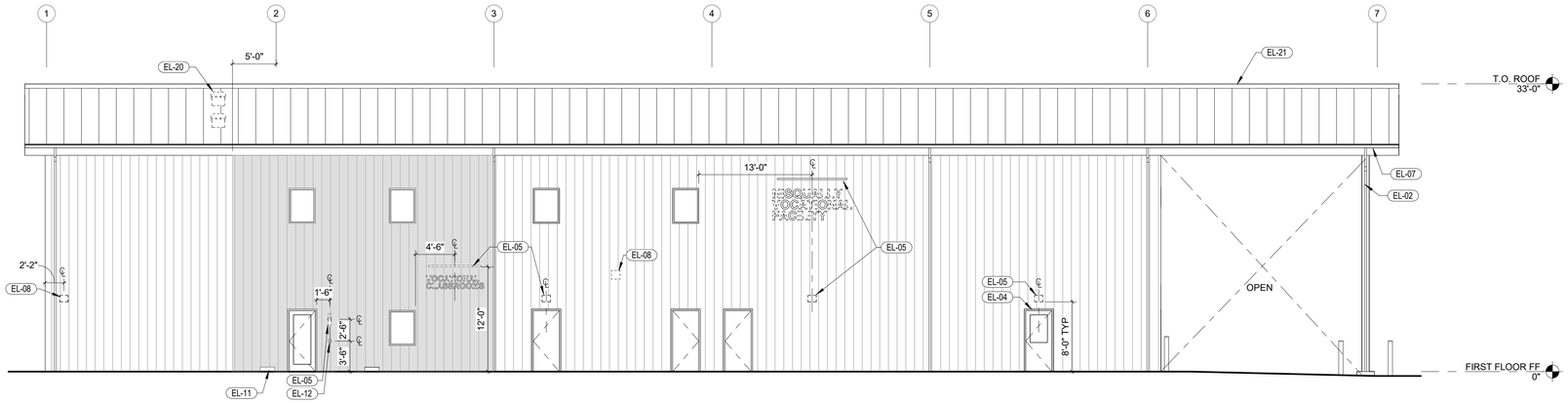
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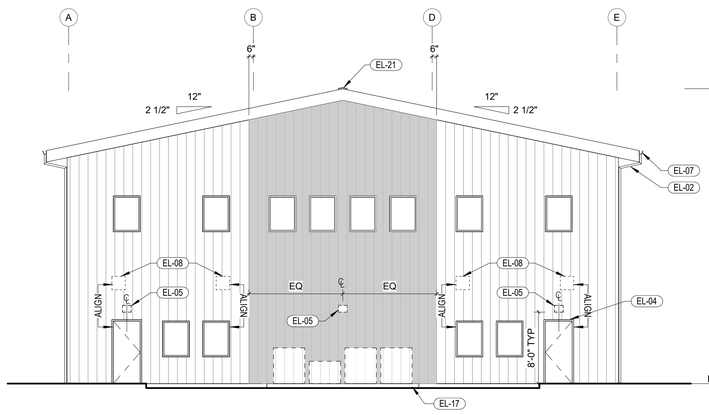
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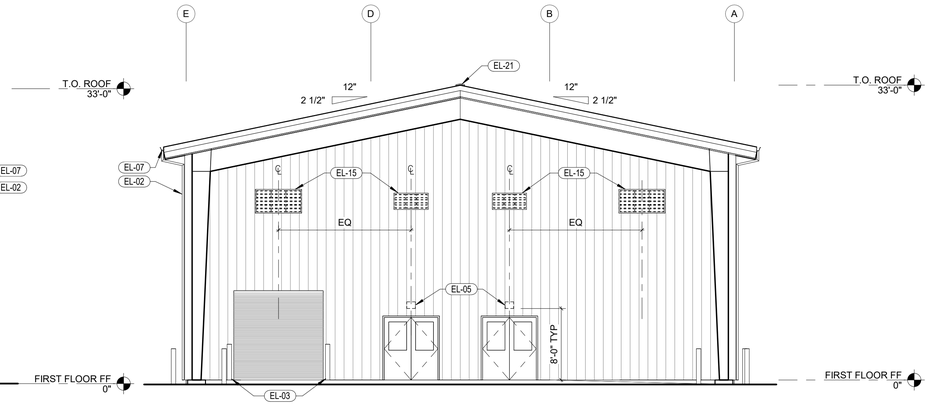
ROOF PLAN
A3.20



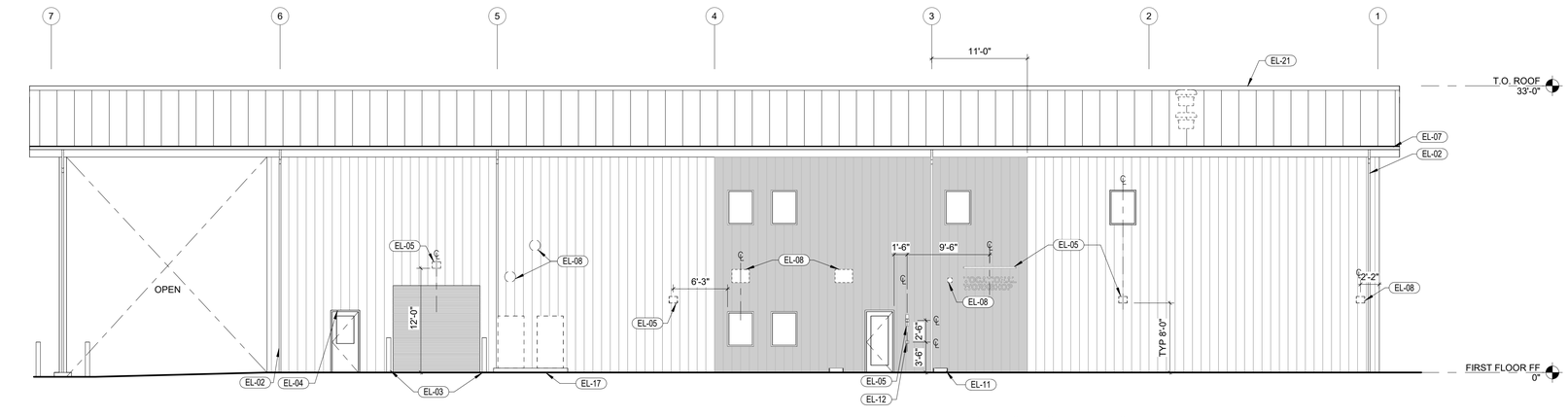
1 / A4.00 **EXTERIOR ELEVATION - SOUTH**
Scale: 1/8" = 1'-0"



2 / A4.00 **EXTERIOR ELEVATION - WEST**
Scale: 1/8" = 1'-0"



3 / A4.00 **EXTERIOR ELEVATION - EAST**
Scale: 1/8" = 1'-0"



4 / A4.00 **EXTERIOR ELEVATION - NORTH**
Scale: 1/8" = 1'-0"

GENERAL NOTES - EXTERIOR ELEVATIONS

1. FIELD VERIFY ALL ROUGH OPENINGS PRIOR TO ORDERING SYSTEMS
2. SEE ***A6.45*** FOR TYPICAL FLASHING SEQUENCE
3. REFER TO MECHANICAL FOR ADDITIONAL LOUVER REQUIREMENTS
4. SIGNAGE LOCATIONS ARE APPROXIMATE. REFER TO SIGNAGE DRAWINGS FOR SIZE, MATERIALS, AND POWER REQUIREMENTS
5. SEE SECTIONS FOR VERTICAL DIMENSIONS

GENERAL NOTES - GLAZING

1. FIELD VERIFY ALL ROUGH OPENINGS PRIOR TO ORDERING WINDOWS
2. MATERIALS AND COLORS PER WINDOW SCHEDULE LEGEND OR APPROVED SIMILAR
3. GLAZING SHALL BE LABELED WITH RATED U-FACTOR, SHGC, VT, AND LEAKAGE RATING

ENVELOPE FENESTRATION PERCENTAGE

	FACADE AREA	GLAZING AREA	PERCENTAGE
EAST ELEVATION:	1,750 SF	25 SF	1.43 %
SOUTH ELEVATION:	3,163 SF	67 SF	2.12 %
WEST ELEVATION:	1,750 SF	145 SF	8.29 %
NORTH ELEVATION	3,163 SF	80 SF	2.53 %
TOTAL:	**9,926 SF**	**317 SF**	**3.19 %**

NOTES:
1. TOTAL VERTICAL FENESTRATION AREA TO NOT EXCEED 30% OF THE TOTAL BUILDING GROSS ABOVE-GRADE WALL AREA.
2. TOTAL VERTICAL FENESTRATION AREA TO NOT EXCEED 40% OF THE TOTAL BUILDING GROSS ABOVE-GRADE WALL AREA IF COMPLYING WITH WSEC C402.4.1.1.1 OR C402.4.1.1.2 FOR THE PURPOSE OF PRESCRIPTIVE COMPLIANCE WITH SECTION C402.1.4.

KEYNOTES - ELEVATION

EL-02	DOWNSPOUT
EL-03	BOLLARD PER CIVIL
EL-04	METAL FLASHING SEE DETAIL 1/A6.45
EL-05	J-BOX FOR FUTURE LIGHT FIXTURES
EL-07	METAL GUTTER
EL-08	INTAKE / EXHAUST PER MECHANICAL
EL-09	8' LINEAR WALL MOUNTED LIGHT FIXTURES
EL-10	6' LINEAR WALL MOUNTED LIGHT FIXTURES
EL-11	CONCRETE BASE FOR ENTRANCE CANOPY
EL-12	AUTOMATIC DOOR OPERATOR ACTUATOR
EL-13	METAL WALL MOUNTED SIGNAGE; 12" LETTERING, 4" BETWEEN ROWS; COORDINATE "TEXT" WITH OWNER
EL-14	METAL WALL MOUNTED SIGNAGE; 8" LETTERING, 4" BETWEEN ROWS; COORDINATE "TEXT" WITH OWNER
EL-15	LOUVERS PER MECHANICAL
EL-17	CONCRETE PAD FOR FUTURE MECHANICAL UNIT
EL-18	WALL MOUNTED LIGHT FIXTURES
EL-19	MECHANICAL UNIT PER MECHANICAL
EL-20	ROOF HOOD VENT
EL-21	STEEL RIDGE CAP

LEGEND - EXTERIOR ELEVATION

METAL PANEL PROVIDED BY PRE ENGINEER METAL BUILDING - CHARCOAL GRAY

METAL PANEL PROVIDED BY PRE ENGINEER METAL BUILDING - FOX GRAY

X' - X" ELEVATION MARK (RELATIVE)

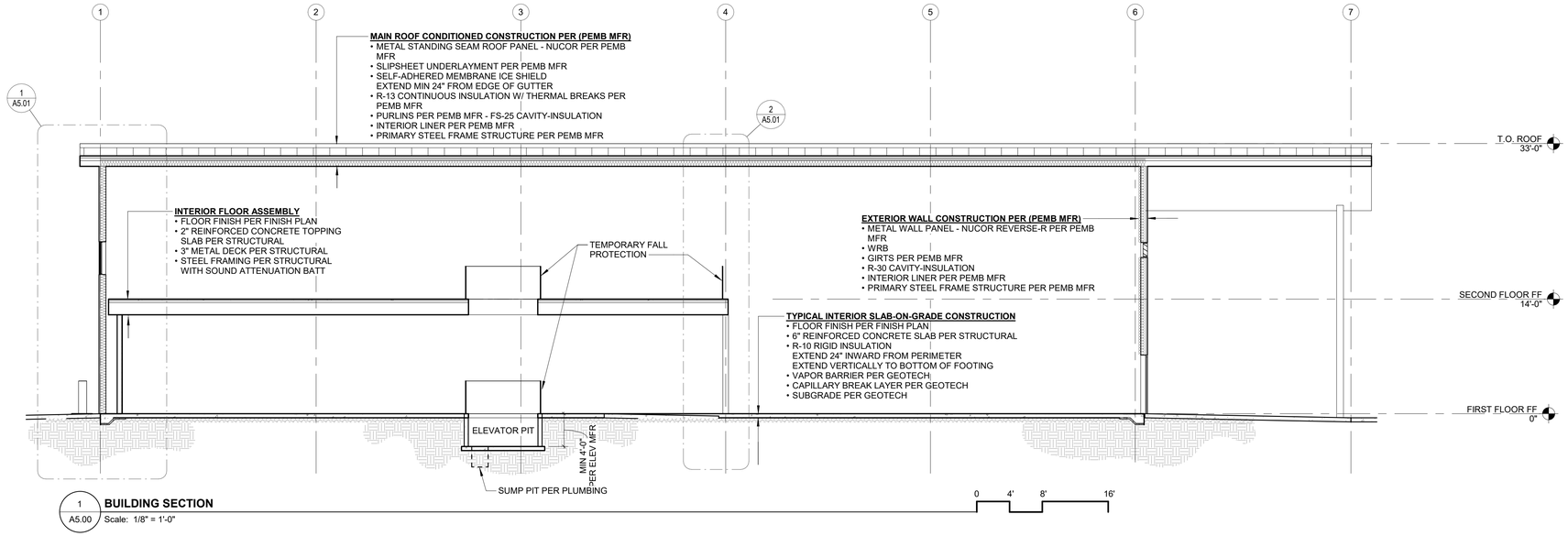
FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER
11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

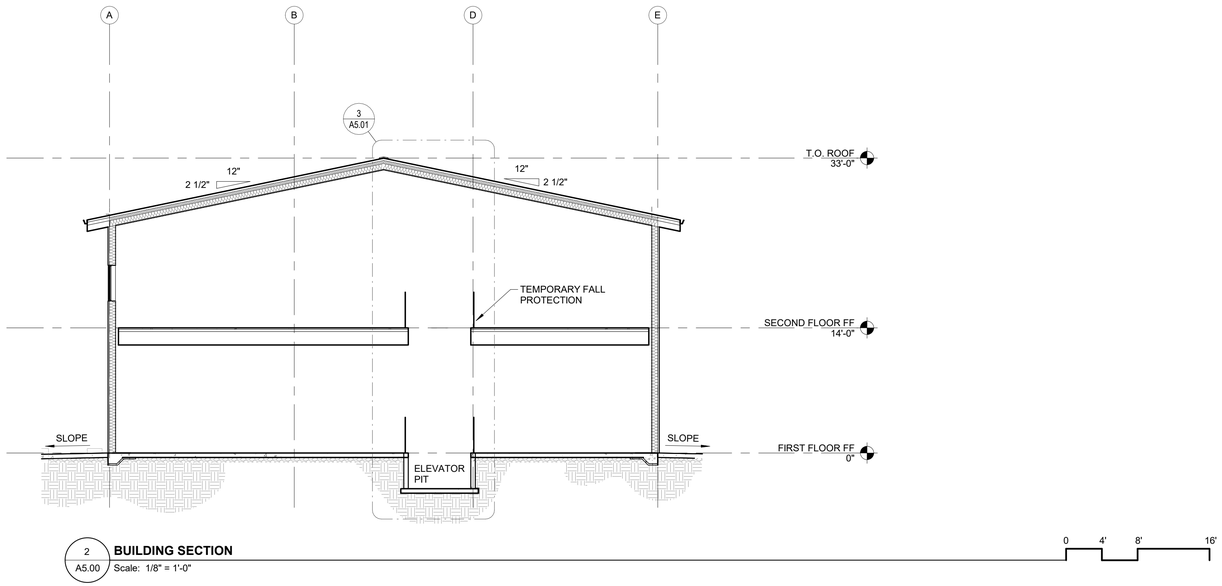
ISSUE LIST
BID SET 10.02.2026

AS-176 PRINTED:10/2/2026 12:57:28 PM

EXTERIOR ELEVATIONS
A4.00



1 A5.00 **BUILDING SECTION**
Scale: 1/8" = 1'-0"



2 A5.00 **BUILDING SECTION**
Scale: 1/8" = 1'-0"

LEGEND - BUILDING SECTION

NEW ASSEMBLY

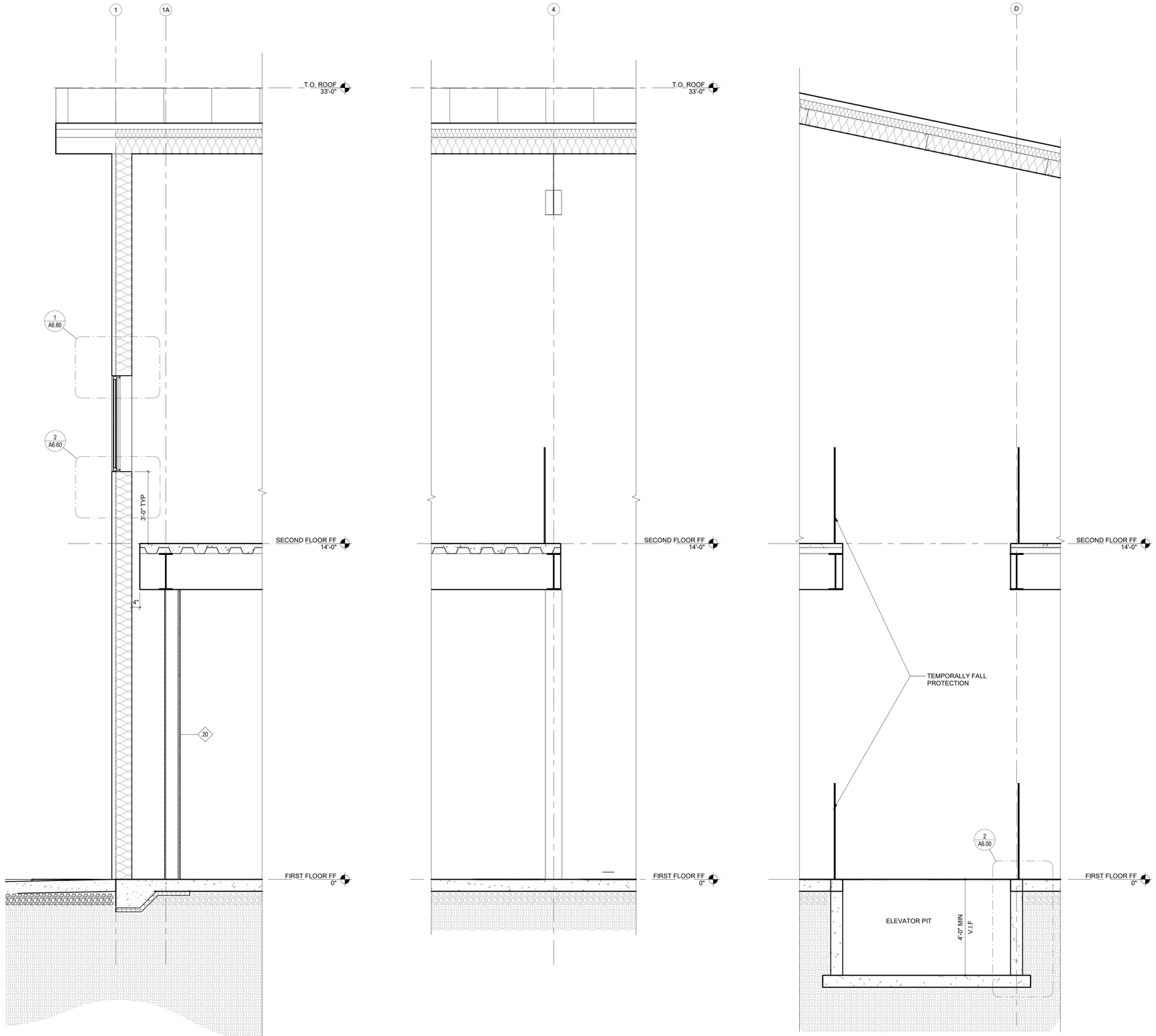
FREIHEIT ARCHITECTURE

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ISSUE LIST
BID SET 10.02.2026

A2c-T6 PRINTED 10/2/2026 12:37:28 PM

BUILDING SECTIONS
A5.00



1 A5.01 **WALL SECTION**
Scale: 1/2" = 1'-0"

2 A5.01 **WALL SECTION**
Scale: 1/2" = 1'-0"

3 A5.01 **WALL SECTION**
Scale: 1/2" = 1'-0"

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER

11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

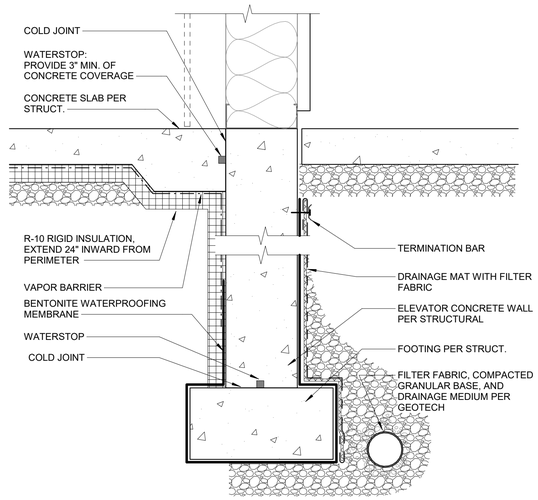
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A5-101 PRINTED 10/2/2026 12:57:29 PM

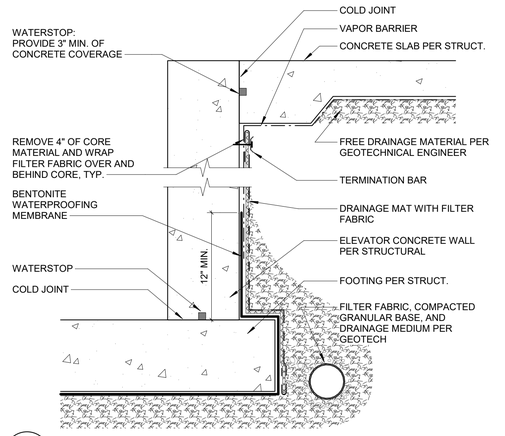
WALL SECTIONS

A5.01



1 / A6.00 **FOUNDATION AT PERIMETER**

Scale: 1 1/2" = 1'-0"



2 / A6.00 **ELEVATOR PIT WATERPROOFING**

Scale: 1 1/2" = 1'-0"

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER

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OLYMPIA, WA 98513

ISSUE LIST

BID SET	10.02.2026

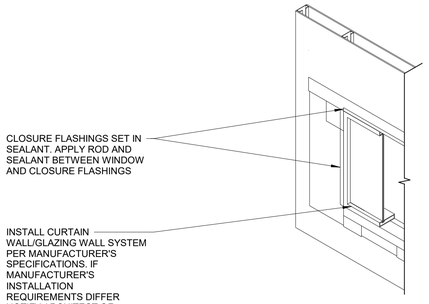
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DETAILS - EXTERIOR

A6.00

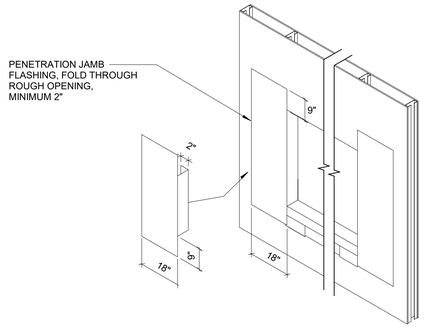
NOTES:
1. WRAP DOOR OPENINGS SIMILAR TO STEPS A THROUGH J
2. STEPS A, B, C, AND D ARE NOT REQUIRED IF THERE IS NO WEATHER RESISTIVE BARRIER FROM BELOW
3. SEE ARCHITECTURAL DETAILS FOR HEAD FLASHING
4. SEAL ALL PENETRATIONS OF PANS AND PENETRATION FLASHING
5. AT STOREFRONT AND EXTERIOR DOORS, OMIT STEPS A, B, D, AND I

13 / A6.40 **PENETRATION FLASHING NOTES**
Scale: 1/4" = 1'-0"

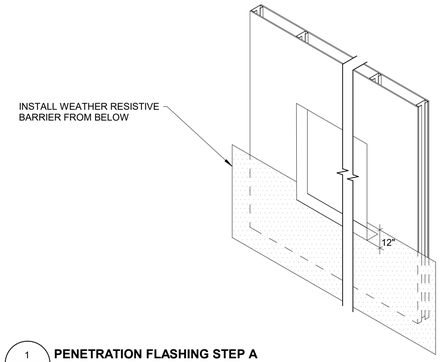


NOTE:
1. PROVIDE NON-CONTINUOUS SHIMS AT SILL. PROVIDE CONTINUOUS SHIM BEHIND HEAD AND JAMB IF REQUIRED BY MANUFACTURER

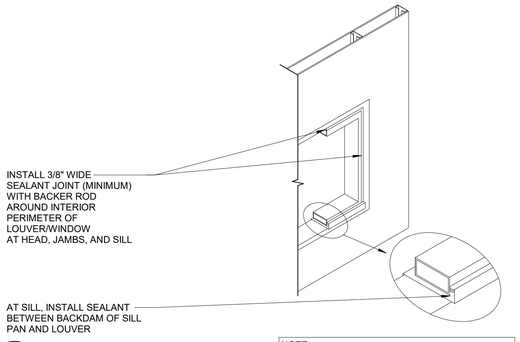
9 / A6.40 **PENETRATION FLASHING STEP I**
Scale: 1/4" = 1'-0"



5 / A6.40 **PENETRATION FLASHING STEP E**
Scale: 1/4" = 1'-0"

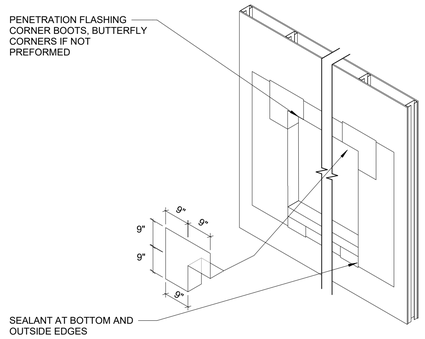


1 / A6.40 **PENETRATION FLASHING STEP A**
Scale: 1/4" = 1'-0"

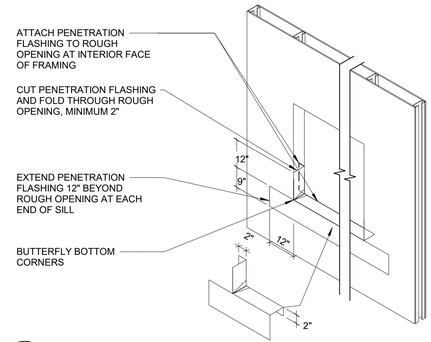


NOTE:
1. VIEW OF LOUVER/WINDOW FROM INTERIOR

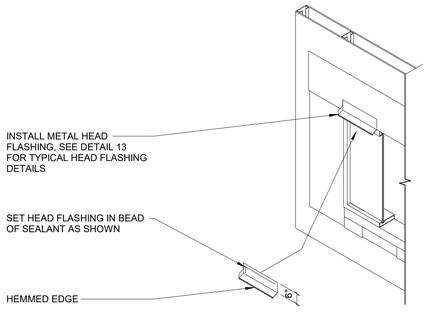
10 / A6.40 **PENETRATION FLASHING STEP J**
Scale: 1/4" = 1'-0"



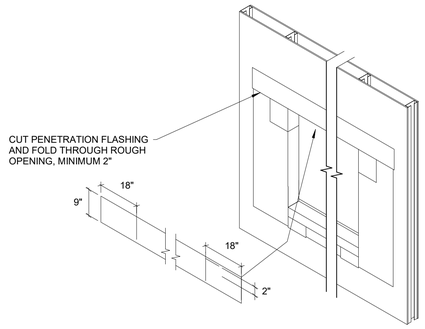
6 / A6.40 **PENETRATION FLASHING STEP F**
Scale: 1/4" = 1'-0"



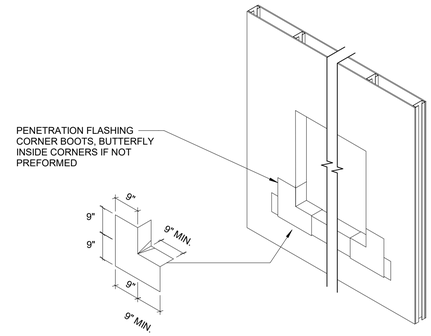
2 / A6.40 **PENETRATION FLASHING STEP B**
Scale: 1/4" = 1'-0"



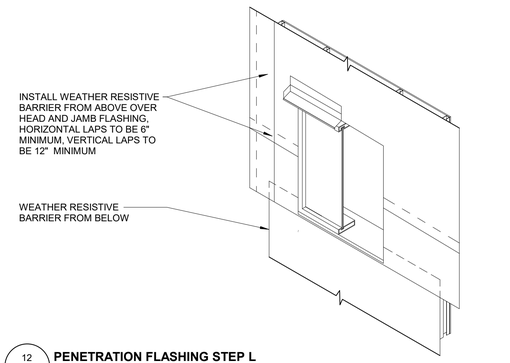
11 / A6.40 **PENETRATION FLASHING STEP K**
Scale: 1/4" = 1'-0"



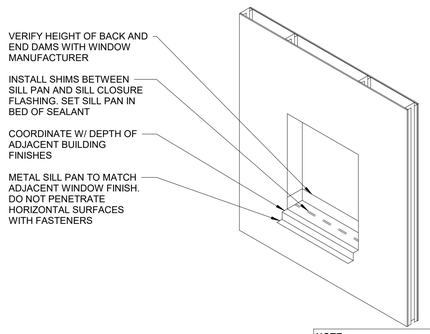
7 / A6.40 **PENETRATION FLASHING STEP G**
Scale: 1/4" = 1'-0"



3 / A6.40 **PENETRATION FLASHING STEP C**
Scale: 1/4" = 1'-0"

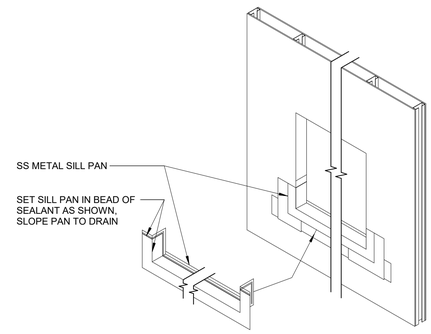


12 / A6.40 **PENETRATION FLASHING STEP L**
Scale: 1/4" = 1'-0"



NOTE:
1. GC TO COORDINATE SEQUENCING AND INSTALLATION WITH ALL TRADES

8 / A6.40 **PENETRATION FLASHING STEP H**
Scale: 1/4" = 1'-0"



4 / A6.40 **PENETRATION FLASHING STEP D**
Scale: 1/4" = 1'-0"

FREIHEIT ARCHITECTURE

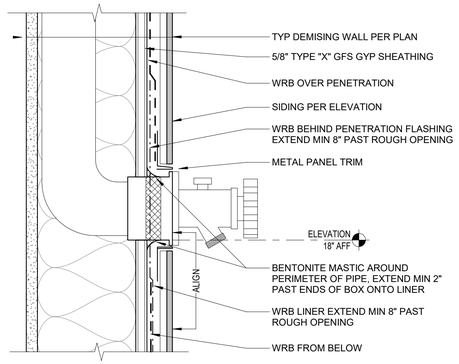
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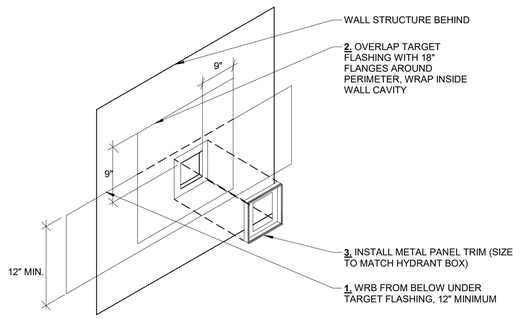
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DETAILS - PENETRATION & FLASHING SEQUENCE

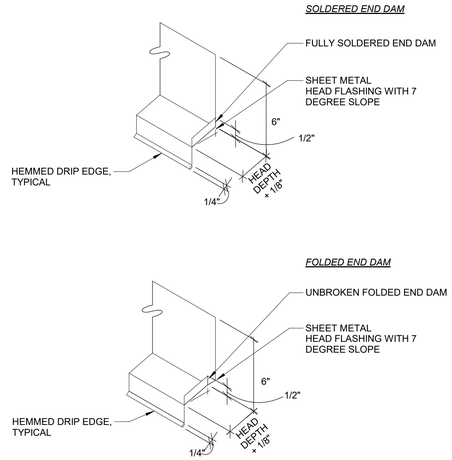
A6.40



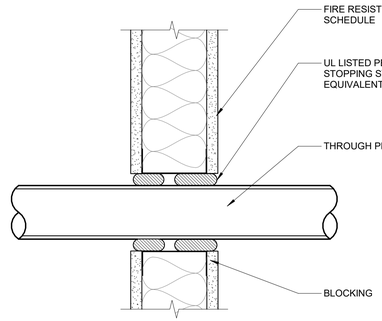
7 A6.45 **HOSE BIB PENETRATION**
Scale: 3" = 1'-0"



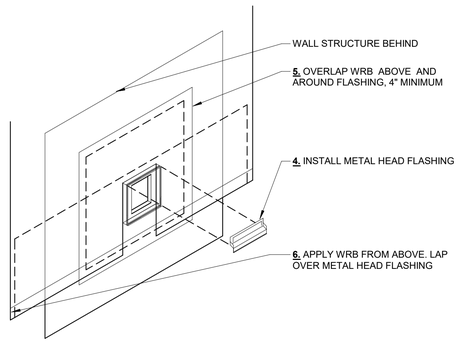
4 A6.45 **HOSEBIB FLASHING DETAIL PART 1**
Scale: 3" = 1'-0"



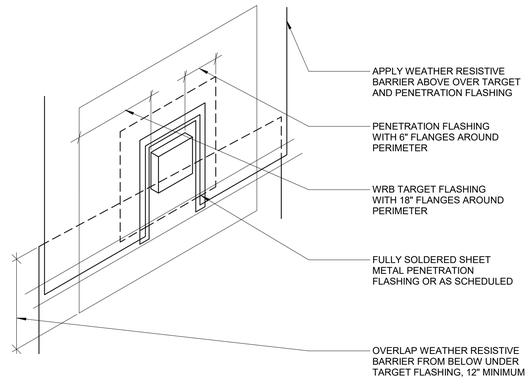
1 A6.45 **TYPICAL HEADER FLASHING**
Scale: 3/4" = 1'-0"



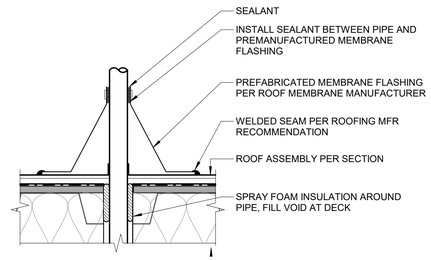
8 A6.45 **WALL PENETRATION FIRESTOP**
Scale: 3" = 1'-0"



5 A6.45 **HOSEBIB FLASHING DETAIL PART 2**
Scale: 3" = 1'-0"



2 A6.45 **TARGET FLASHING DETAIL**
Scale: 3" = 1'-0"



3 A6.45 **TYPICAL BOOT FLASHING**
Scale: 1 1/2" = 1'-0"

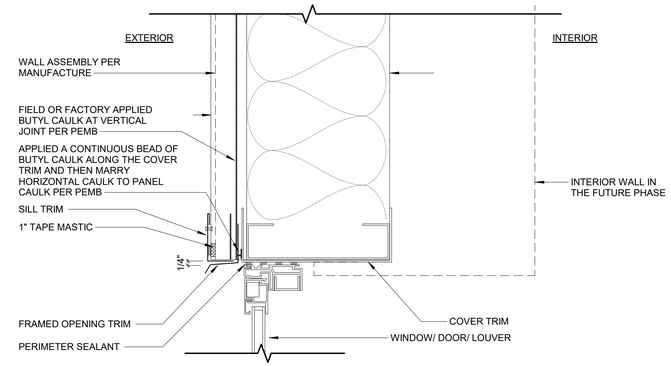
FREIHEIT ARCHITECTURE

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ISSUE LIST
BID SET 10.02.2026

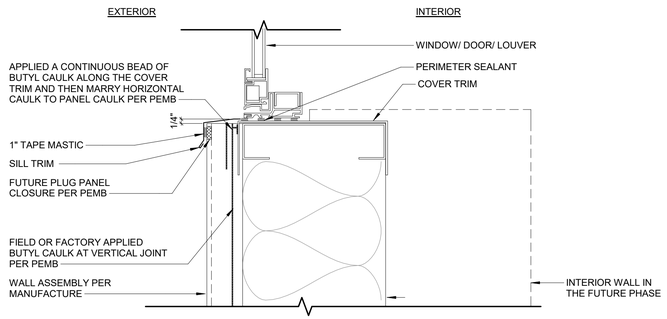
AS-176 PRINTED: 10/2/2026 12:57:29 PM

DETAILS - FLASHING/ PENETRATION
A6.45



1 / A6.60 **SIDE JOINT OF PANEL - HEADER DETAIL**

Scale: 3" = 1'-0"



2 / A6.60 **SIDE JOINT OF PANEL - SILL DETAIL**

Scale: 3" = 1'-0"

FREIHEIT ARCHITECTURE

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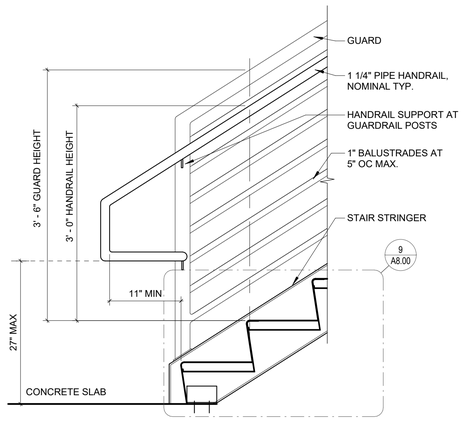
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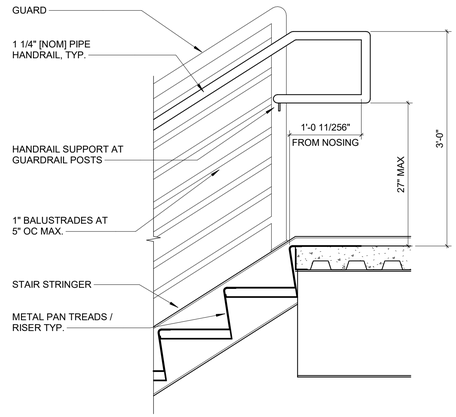
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DETAILS - WINDOWS

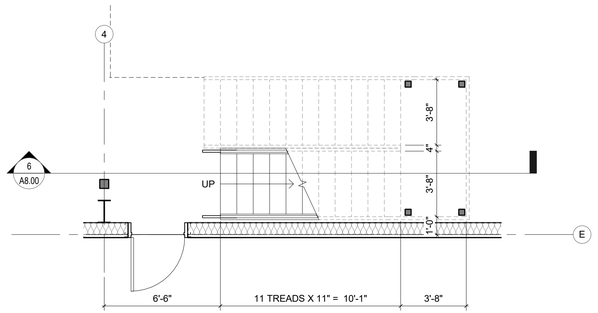
A6.60



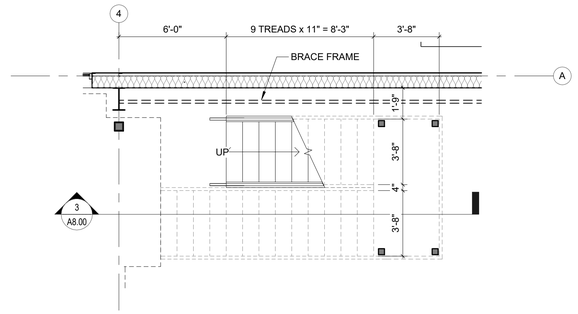
10 A8.00 **STAIR SECTION AT FLOOR**
Scale: 1" = 1'-0"



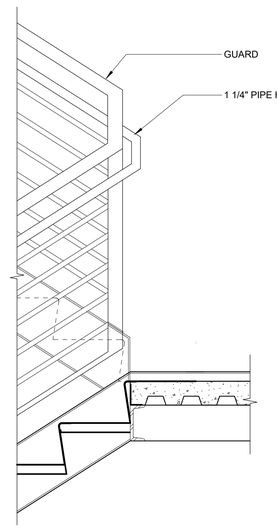
7 A8.00 **ALT. SECTION AT TOP FLOOR**
Scale: 1" = 1'-0"



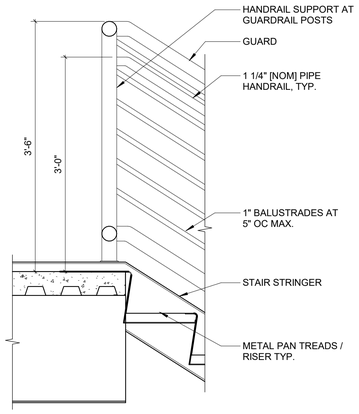
4 A8.00 **STAIRCASE 2 FIRST FLOOR PLAN**
Scale: 1/4" = 1'-0"



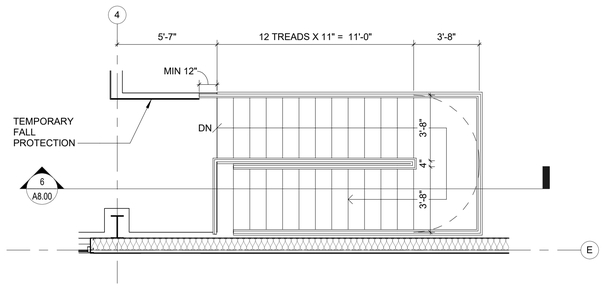
1 A8.00 **STAIRCASE 1 FIRST FLOOR PLAN**
Scale: 1/4" = 1'-0"



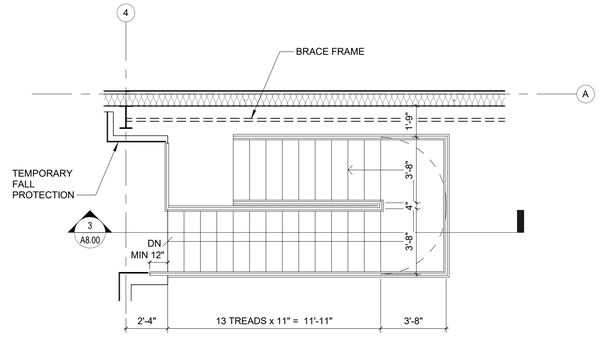
11 A8.00 **STAIR SECTION AT FLOOR OR LANDING**
Scale: 1" = 1'-0"



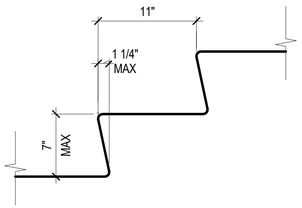
8 A8.00 **STAIR SECTION AT TOP FLOOR**
Scale: 1" = 1'-0"



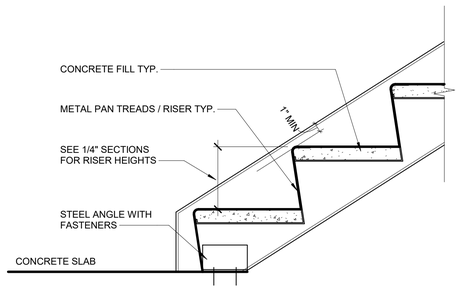
5 A8.00 **STAIRCASE 2 SECOND FLOOR PLAN**
Scale: 1/4" = 1'-0"



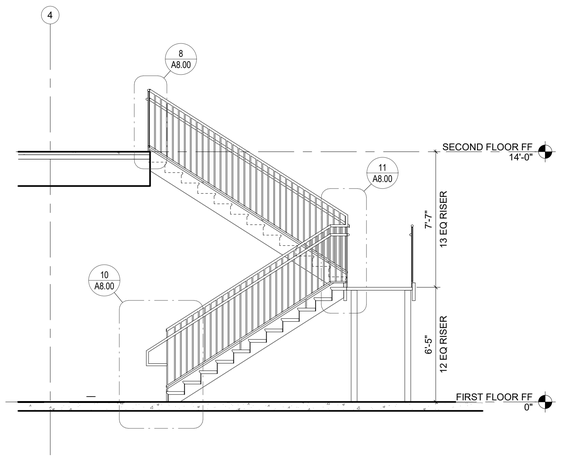
2 A8.00 **STAIRCASE 1 SECOND FLOOR PLAN**
Scale: 1/4" = 1'-0"



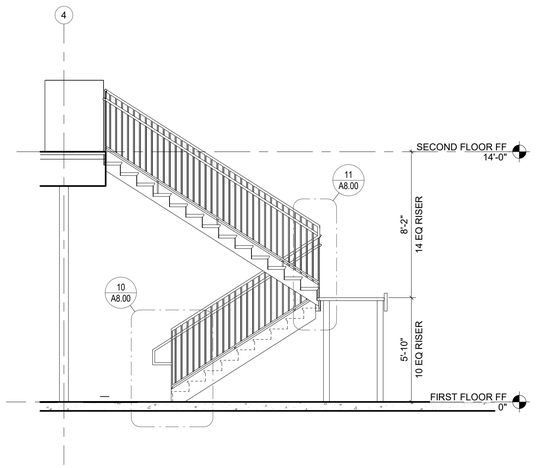
12 A8.00 **TREAD REQUIREMENTS**
Scale: 1 1/2" = 1'-0"



9 A8.00 **CONCRETE FILLED PAN STAIR TREAD**
Scale: 1 1/2" = 1'-0"



6 A8.00 **STAIRCASE 2 SECTION**
Scale: 1/4" = 1'-0"



3 A8.00 **STAIRCASE 1 SECTION**
Scale: 1/4" = 1'-0"

FREIHEIT ARCHITECTURE

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ENLARGED PLANS - STAIRCASE

A8.00

DOOR SCHEDULES

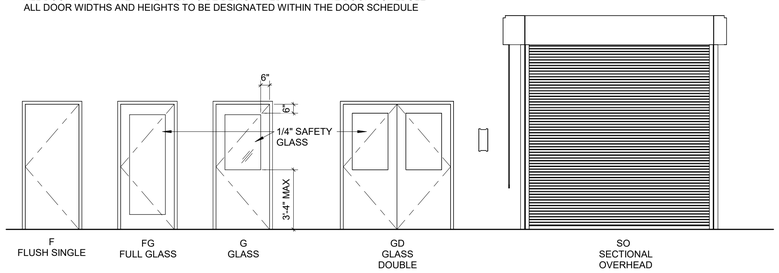
DOOR NO	LOCATION	TYPE	WIDTH	HEIGHT	THICKNESS	DOOR MATERIAL	DOOR FINISH	FRAME MATERIAL	FRAME FINISH	FIRE RATING	HARDWARE	NOTES
FIRST FLOOR FF												
002A		F	3'-0"	7'-0"	1 3/4"	HM	PAINTED	HM	PAINTED	--	HS-1	
100A		FG	3'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-1	
103A		F	3'-0"	7'-0"	1 3/4"	HM	PAINTED	HM	PAINTED	--	HS-1	
104A		F	3'-0"	7'-0"	1 3/4"	HM	PAINTED	HM	PAINTED	--	HS-1	
123A		F	3'-0"	7'-0"	1 3/4"	HM	PAINTED	HM	PAINTED	--	HS-1	
124A		F	3'-0"	7'-0"	1 3/4"	HM	PAINTED	HM	PAINTED	--	HS-1	
130A		SO	10'-0"	10'-0"	PER MANUF	PER MANUF	FF	PER MANUF	FF		PER MANUF.	
130B		G	3'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-1	
130C		GD	6'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-2	
130D		GD	6'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-2	
130E		SO	10'-0"	10'-0"	PER MANUF	PER MANUF	FF	PER MANUF	FF		PER MANUF.	
130F		G	3'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-1	
132A		FG	3'-0"	7'-0"	1 3/4"	HM/GLASS	PAINTED	HM	PAINTED	--	HS-1	

WINDOW SCHEDULES

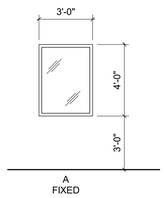
TYPE	WIDTH	HEIGHT	SILL HEIGHT	FRAME MATERIAL	FRAME FINISH EXTERIOR	FRAME FINISH INTERIOR	NOTE
A	3'-0"	4'-0"	3'-0"	VINYL	FF	FF	

DOOR TYPES

ALL DOOR AND FRAME MATERIALS TO BE DESIGNATED WITHIN THE DOOR SCHEDULE
ALL DOOR WIDTHS AND HEIGHTS TO BE DESIGNATED WITHIN THE DOOR SCHEDULE



WINDOW TYPES



DOOR HARDWARE

HS-1 (EXTERIOR HM DOOR W/ KEYPAD)
1 1/2 PAIR BUTT HINGES
1 SURFACE MOUNTED CLOSER
1 KEYPAD SET
1 SET WEATHERSTRIPPING
1 DOOR SHOE
1 THRESHOLD
1 DOOR STOP
1 SET PANIC HARDWARE

HS-2 (EXTERIOR DOUBLE DOOR W/ KEYPAD)
2 SET 1/2 PAIR BUTT HINGES
1 SET SELF-LATCHING FLUSH BOLT
1 CYLINDER LOCKSET (INTERCHANGEABLE CORE)
1 KEYPAD SET
2 SURFACE MOUNTED CLOSERS WITH STOP (INTERIOR MOUNTED)
1 ASTRAGAL
1 DOUBLE DOOR THRESHOLD
1 SET SEALS
2 DOOR SWEEPS
2 KICK PLATES
2 SETS PANIC HARDWARE

GENERAL NOTES - DOORS

1. HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOORS SHALL HAVE A LEVER OR OTHER SHAPE TO PERMIT OPERATION BY WRIST OR ARM PRESSURE AND WILL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING TO ALL DOOR HARDWARE TO MEET REQUIREMENTS OF **2021 IBC WITH WASHINGTON STATE AMENDMENTS** AND OWNER'S BUILDING REQUIREMENTS
2. ALL FIRE-RATED DOORS AND FRAMES SHALL COMPLY WITH THE **2021 IBC WITH WASHINGTON STATE AMENDMENTS**
3. EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. ALL LOCKING DOORS TO HAVE SINGLE-ACTION LEVER RELEASE / SELF-RELEASING DEAD BOLTS
4. DOOR THRESHOLD SHALL NOT EXCEED 1/2" IN HEIGHT
5. HARDWARE TO MATCH BUILDING STANDARD TYPE AND FINISH
6. MAXIMUM DOOR OPENING PRESSURES ARE LIMITED TO 8.5 LBS AT EXTERIOR DOORS AND 5.0 LBS AT INTERIOR DOORS
7. VERIFY ALL DOOR SWINGS, HARDWARE, AND KEYING REQUIREMENTS. SUBMIT KEYING SCHEDULE AND HARDWARE SPECS FOR DESIGNER APPROVAL
8. PROVIDE ACCESSIBLE RESTROOM SIGNAGE W/ TACTILE CHARACTERS. SIGNAGE SHALL BE INSTALLED 48" - 60" ABOVE FINISHED FLOOR PER CODE. RESTROOM SIGNAGE SHALL COMPLY WITH **2021 IBC WITH WASHINGTON STATE AMENDMENTS** AND ICC/ANSI. **SEE DETAIL 2/A6.90**
9. MAIN EXTERIOR DOOR OR DOORS TO HAVE A READILY VISIBLE READABLE SIGN POSTED ON THE EGRESS SIDE ON OR ADJACENT TO THE DOOR STATING: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. THE SIGN SHALL BE IN LETTERS 1 INCH HIGH ON A CONTRASTING BACKGROUND
10. ALL GLAZING IN DOORS AND RELITES TO BE TEMPERED GLASS AND SHALL MEET THE SAFETY GLAZING REQUIREMENT OF THE **2021 IBC WITH WASHINGTON STATE AMENDMENTS** AND OWNER'S BUILDING REQUIREMENTS
11. PROVIDE 1/4" MAXIMUM CLEARANCE BETWEEN DOOR AND FLOOR FINISH MATERIAL
12. ALL DOOR FRAMES TO HAVE MITERED CORNERS

GENERAL NOTES - WINDOWS

1. PROVIDE FLASHING AT HEAD & SILL - CONTINUOUS SILICONE SEALANT, INSIDE AND OUT AT PERIMETER OF WINDOW FRAME

GENERAL NOTES - DOOR HARDWARE

1. PROVIDE STANDARD WEIGHT COMMERCIAL DOOR HINGES
2. ALL DOORS WITH CLOSERS TO HAVE BALL BEARING HINGES
3. PROVIDE ALL NECESSARY ITEMS FOR DOORS, INCLUDING: BUTTS, LATCH & LOCKSETS, CLOSERS, DOOR STOPS AND HOLDERS, KICK PLATES, DOOR SILENCERS, THRESHOLDS, SMOKE GASKET AND WEATHER STRIPPING. REFER TO DOOR SCHEDULE
4. ALTERNATE MANUFACTURERS MAY BE SELECTED WITH DESIGNER'S APPROVAL
5. VERIFY ALL HARDWARE MEETS CODE REQUIREMENTS PER JURISDICTION

DOOR HARDWARE TYPES

HS-3 (SINGLE OCCUPANT TOILET)
1 1/2 PAIR BUTT HINGES
1 SURFACE MOUNTED CLOSER
1 LEVER LATCHSET (PRIVACY FUNCTION)
1 DOOR STOP
1 CLOSER
1 SET SEALS
1 AUTOMATIC ACOUSTICAL DOOR BOTTOM

HS-4 (INTERIOR DOOR W/ CARD READER)
1 1/2 PAIR BUTT HINGES
1 SURFACE MOUNTED CLOSER WITH STOP (INTERIOR MOUNTED)
1 LEVER LATCHSET
1 SET SEALS
1 DOOR STOP
1 KICK PLATE

HS-5 (INTERIOR DOUBLE DOOR)
2 1/2 PAIR BUTT HINGES
2 SURFACE MOUNTED CLOSER WITH STOP (INTERIOR MOUNTED)
1 LEVER LATCHSET
1 SET SEALS
2 DOOR SWEEPS
2 DOOR STOP
2 KICK PLATES

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER
11940 BILLY FRANK JR BLVD SE
OLYMPIA, WA 98513

ISSUE LIST

BID SET	10.02.2026

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DOOR SCHEDULE
DOOR HARDWARE

A9.01

ABBREVIATIONS

A	AMPERE (AMP)	JB	JUNCTION BOX
AAF	ABOVE ACCESS FLOOR	KV	KILOVOLT
ABF	AIRBLOWN FIBER	KVA	KILOVOLT AMP
AC	ABOVE COUNTER	KVAR	KILOVOLT AMPS REACTIVE
AFF	ABOVE FINISHED FLOOR	KW	KILOWATT
AHJ	AUTHORITY HAVING JURISDICTION	KWH	KILOWATT HOUR
AIC	AMPS INTERRUPTING CURRENT	LEC	LOCAL EXCHANGE CARRIER
ALT	ALTERNATE	LED	LIGHT EMITTING DIODE
AN	ANALOG	LV	LOW VOLTAGE
ARCH	ARCHITECT / ARCHITECTURAL	MCA	MINIMUM CIRCUIT AMPS
ARM	ARMORED	MCB	MAIN CIRCUIT BREAKER
ATS	AUTOMATIC TRANSFER SWITCH	MCC	MOTOR CONTROL CENTER
AV	AUDIO VISUAL	MDF	MAIN DISTRIBUTION FRAME
AVC	AUDIO VISUAL CONTRACTOR	MDP	MAIN DISTRIBUTION PANEL
BC	BONDING CONDUCTOR	MECH	MECHANICAL
BDF	BUILDING DISTRIBUTION FRAME	MH	MAINTENANCE HOLE
BMS	BUILDING MANAGEMENT SYSTEM	MHz	MEGAHERTZ
BOC	BOTTOM OF CONDUIT	MLO	MAIN LUGS ONLY
BOCT	BOTTOM OF CABLE TRAY	MTS	MANUAL TRANSFER SWITCH
C	CONDUIT	NAC	NOTIFICATION APPLIANCE CIRCUIT (FA)
CATV	(CABLE TV) COMMUNITY ACCESS TELEVISION	NIC	NOT IN CONTRACT
CB	CIRCUIT BREAKER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
CCTV	CLOSED CIRCUIT TELEVISION	OFE	OWNER FURNISHED EQUIPMENT
CF	CELLULAR FLOOR	OFOI	OWNER FURNISHED, OWNER INSTALLED
CKT	CIRCUIT	OSP	OUTSIDE PLANT
CLG	CEILING	PA	PUBLIC ADDRESS
CO	CENTRAL OFFICE	PB	PULL BOX
CPE	CUSTOMER UNIVERSAL ENCLOSURE	PE	PHOTOELECTRIC
CT	CURRENT TRANSFORMER	PF	POWER FACTOR
CU	COPPER	PMV	PROJECT MANAGER VERIFICATION
CUE	CONCRETE UNIVERSAL ENCLOSURE	PNL	PANELBOARD
DAS	DISTRIBUTED ANTENNA SYSTEM	PON	PASSIVE OPTICAL NETWORK
dB	DECIBEL	PVC	POLYVINYL CHLORIDE CONDUIT
DB	DUCT BANK	PWR	POWER
DML	DOUBLE MAIN LUGS	R/W	RIGHT OF WAY
DN	DOWN	RAD	RADIUS
EQ	EQUAL DISTANT	RG	RADIO GRADE
EC	ELECTRICAL CONTRACTOR	SAA	SECUIRTY ALARM ANNUNCIATOR
EF	ENTRANCE FACILITY	SACP	SECURITY ACCESS CONTROL PANEL
EM	EMERGENCY	SDP	SUBDISTRIBUTION PANEL
EMC	ELECTROMAGNETIC COMPATIBILITY	SPD	SURGE PROTECTION DEVICE
EMI	ELECTROMAGNETIC INTERFERER	ST	SHUNT TRIP
EMT	ELECTRIC METALLIC TUBING	STS	STATIC TRANSFER SWITCH
EPO	EMERGENCY POWER OFF	SW	SWITCH
EP	ENTRANCE POINT	TBB	TELECOM BONDING BACKBONE
EP	EXPLOSION PROOF	TBC	TELECOM BONDING CONDUCTOR
ER	EMERGENCY RELEASE	TBD	TO BE DETERMINED
ERRCS	EMERGENCY RESPONDER RADIO COMMUNICATION SYSTEM	TE	TELECOM ENCLOSURE
		TGB	TELECOM GROUNDING BUSBAR
FA	FIRE ALARM	TL	TELECOM MAIN GROUNDING BUSBAR
FAA	FIRE ALARM ANNUNCIATOR	TMGB	TELECOM OUTLET
FACP	FIRE ALARM CONTROL PANEL	TO	TAMPERPROOF
FLA	FULL LOAD AMPS	TP	TELECOM ROOM
FO	FIBER OPTIC	TR	TELEPHONE TERMINAL BOARD
FSD	FIRE SMOKE DAMPER	TTB	TELEPHONE TERMINAL CABINET
GC	GENERAL CONTRACTOR	TTC	TELEVISION / DIGITAL DISPLAY
GFI	GROUND FAULT INTERRUPTER	TV	TRANSIENT VOLTAGE SURGE SUPPRESSOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TVSS	TYPICAL
GHz	GIGAHERTZ	TYP	UNDER COUNTER
GND	GROUND	UC	UNDERGROUND
GRC	GALVANIZED RIGID CONDUIT	UG	UNLESS OTHERWISE NOTED
GRD	GROUND	UON	UNINTERRUPTIBLE POWER SUPPLY
GRS	GALVANIZED RIGID STEEL CONDUIT	UPS	VOLTAGE
HH	HANDHOLE	V	VOLT AMPERES
HP	HORSEPOWER	VA	VAPORPROOF
HPS	HIGH PRESSURE SODIUM	VP	WATTS
HV	HIGH VOLTAGE	W	WORK AREA OUTLET
HZ	HERTZ	WAO	WIRELESS ACCESS POINT
IBC	INTERNATIONAL BUILDING CODE	WAP	WEATHERPROOF
IDF	INTERMEDIATE DISTRIBUTION FRAME	WP	TRANSFORMER
IG	ISOLATE GROUND	XFMR	TRANSFORMER SWITCH
IR	INTERRUPTING RATING	XFSW	

NOTE

~~THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS~~
MAY APPEAR ON THIS SHEET THAT DO NOT APPEAR ON THE DRAWINGS.

WORK RESPONSIBILITY

ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN CONDUIT, DEVICES, BOXES, CONDUCTORS, AND TRANSITIONS AROUND OBSTRUCTIONS WHETHER SHOWN ON DRAWINGS OR NOT SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

GENERAL SYMBOLS

XXXX	123	EQUIPMENT DESIGNATOR SEE SCHEDULE.
	E	EXISTING TO REMAIN
	X	EXISTING TO BE REMOVED
	R	EXISTING TO BE RELOCATED
	N	NEW
	#	KEYNOTE

SYMBOLS

POWER

- WALL RECEPTACLE: DUPLEX, QUAD
- SWITCHED WALL RECEPTACLE: DUPLEX, QUAD
- FLOOR RECEPTACLE: DUPLEX, QUAD
- CEILING RECEPTACLE: DUPLEX, QUAD
- WALL RECEPTACLE: MOUNTING HEIGHT
- SPECIAL RECEPTACLE: WALL
- JUNCTION BOX: WALL, FLOOR, CEILING
- FLUSH IN-FLOOR POKE THROUGH DEVICE: POWER, DATA OR A/V, OR COMBO N=# OF DATA PORTS, TYP 2
- SURFACE OUTLET STRIP: DIMENSIONS AS SHOWN
- DISCONNECT SWITCH: FUSED, CIRCUIT BREAKER
- MOTOR STARTER: MAGNETIC, COMBINATION
- MOTOR CONNECTION
- A8-1. PANEL & CIRCUIT NUMBER
- RECEPTACLE ON DROP CORD
- PUSHBUTTON: WALL
- ADA DOOR ASSIST BUTTON: WALL
- WIRE CONCEALED IN FLOOR OR UNDERGROUND
- RACEWAY AND CONDUCTORS REMOVED AS PART OF DEMOLITION
- CONDUIT ELL: UP, DN
- ELECTRICAL DUCT BANK GROUND ROD, 10' LONG, 5/8" DIAMETER, COPPER. BOND TO LOCAL CIRCUIT GROUND CONDUCTOR
- MOTOR OVERLOAD SWITCH
- ELECTRICAL DISTRIBUTION CABINET
- ELECTRICAL DISTRIBUTION PANEL: SURFACE, RECESSED
- ELECTRICAL TRANSFORMER

LIGHTING

- PHOTOCELL: CEILING, WALL MOUNTED
- DUAL TECHNOLOGY, OCCUPANCY SENSOR: CEILING MOUNTED, ULTRASONIC DUAL TECHNOLOGY, VACANCY SENSOR: CEILING MOUNTED
- HA 1. HA = LUMINAIRE TYPE DESIGNATION, 1. = CIRCUIT NUMBER SINGLE GANG, STRAP MOUNTED CONTROL STATION. LIGHT SWITCH: OS = OCCUPANCY SENSOR, K = KEYED, 3 = 3-WAY LOW VOLTAGE DIMMER / PRESET CONTROL: D TIMER SWITCH: T

SECURITY

- CARD KEY READER STATION (4" SQ. BOX W/SINGLE-GANG RING MOUNT TOP OF READER AT 48" AFF/AFG (BY SECURITY CONTRACTOR)
- EMERGENCY RELEASE STATION
- VIDEO INTERCOM (AIPHONE): STATION, MASTER
- MOTION DETECTOR: WALL, CEILING
- DOOR CONTACT (POSITION) SWITCH (BY SECURITY CONTRACTOR)
- DOOR OPERATOR/ADA RELEASE BUTTON
- PUSH BUTTON: P= PANIC
- ELECTRIC LOCK CONNECTION
- REQUEST TO EXIT SENSOR (BY SECURITY CONTRACTOR)
- ELECTRIC DOOR CONTACT
- CAMERA: CCTV FIXED, PAN-TILT-ZOOM, 360°
- DRP DOOR RELEASE PANEL
- LR LATCH RETRACTION EXIT DEVICE (BY DOOR HARDWARE)
- ES ELECTRIC STRIKE (BY DOOR HARDWARE)
- RX REQUEST TO EXIT SWITCH IN EXIT DEVICE (BY DOOR HARDWARE)
- EP ELECTRONIC POWER TRANSFER (EPT) (BY DOOR HARDWARE)

SYMBOLS

TELECOMMUNICATIONS

- DATA OUTLET: WALL, CEILING, FLOOR
- DATA OUTLET: CABLE/JACK QUANTITY (x2 U.O.N.)
- DATA OUTLET: MOUNTING HEIGHT
- DATA OUTLET: WALL PHONE (x1 CABLE/JACK)
- SYSTEM WALL CLOCK: STANDARD, IP
- WIRELESS ACCESS POINT: WALL, CEILING
- ANALOG SPEAKER: WALL, CEILING
- IP SPEAKER: WALL, CEILING
- SPEAKER-HORN: WALL, CEILING
- PULL CORD
- DOME LIGHT: WALL, CEILING
- 2WS 2-WAY COMM STATION
- 2WM 2-WAY MASTER
- 2WP 2-WAY COMM POWER SUPPLY
- MIC REMOTE PAGING MICROPHONE PANEL
- RCVR WIRELESS DURESS RECEIVER (RATH)

TELECOM PATHWAYS

- CONDUIT
- UNDERGROUND CONDUIT
- AERIAL
- SPLICE
- MH MAINTENANCE HOLE
- VAULT (SUBSCRIPT +-)
- POLES
- RACK (2 POST)
- CABINET: SURFACE, RECESSED
- PB PULL BOX
- V TELECOM UNDERGROUND VAULT
- FSD CABLE PATHWAY FIRESTOPPING DEVICE
- CABLE TRAY: CENTER SUPPORT, OUTER SUPPORTS
- PRIMARY BONDING BUSBAR / SECONDARY BONDING BUSBAR
- TELEPHONE BACKBOARD.

ONE-LINE SYMBOLS

- CONDUCTORS & CONDUIT
- CONDUCTORS & CONDUIT TO BE REMOVED
- CIRCUIT BREAKER, MOLDED CASE SWITCH
- BUS
- ATS
- M METER
- PANEL
- MAIN GROUNDING BAR
- CONNECTION TO GROUND
- TRANSFORMER

SYMBOLS

FIRE ALARM

- FIRE ALARM ADDRESSABLE MANUAL PULL STATION
- FA FIRE ALARM SPEAKER: WALL MOUNTED, CEILING MOUNTED
- FIRE ALARM STROBE: WALL MOUNTED, CEILING MOUNTED
- FIRE ALARM HORN/STROBE: WALL / CEILING
- FIRE ALARM SPEAKER/STROBE: WALL / CEILING
- FIRE ALARM BELL: AUDIBLE ALARM, WALL
- ADDRESSABLE FIRE ALARM SMOKE DETECTOR: CEILING MOUNTED
- PCL PHOTO ELECTRIC SMOKE DETC./CO SENSOR W/ LOW FREQ. SOUNDER BASE
- PCS PHOTO ELECTRIC SMOKE DET./CO SENSOR W/ INTELLIGENT SOUNDER BASE
- FIRE ALARM BEAM SMOKE DETECTOR: CEILING MOUNTED
- FIRE ALARM ZONE ADDRESSABLE MODULE: WALL MOUNTED
- FIRE ALARM HEAT DETECTOR: CEILING MOUNTED
- DUCT SAMPLING TUBE MOUNTED, ADDRESSABLE FIRE ALARM SYSTEM SMOKE DETECTOR. SUPPLIED, WIRED AND PROGRAMMED BY DIVISION 28. DUCT SAMPLING TUBE PLACED AND MOUNTED IN DUCT BY DIVISION 23. DIVISION 28 TO PROVIDE CEILING MOUNTED VISUAL LED SMOKE DETECTOR STATUS LIGHT FOR EACH ADDRESSABLE DUCT SAMPLING TUBE MOUNTED, FIRE ALARM SMOKE DETECTOR. FIRE SMOKE DAMPER CONTROL IS VIA AN ADDRESSABLE FIRE ALARM REMOTE OUTPUT RELAY. FIRE ALARM REMOTE OUTPUT RELAY IS PROVIDED BY DIVISION 28. FIRE ALARM REMOTE OUTPUT RELAY PROGRAMMED BY DIVISION 28 AS DIRECTED BY DIVISION 23. DIVISION 26 CONNECTS FIRE SMOKE DAMPER POWER VIA ADDRESSABLE FIRE ALARM REMOTE OUTPUT RELAY.
- FIRE SPRINKLER SYSTEM: FIRE ALARM VALVE POSITION TAMPER SWITCH, FIRE ALARM FIRE SPRINKLER WATER FLOW SWITCH, FIRE ALARM FIRE SPRINKLER WATER PRESSURE
- FIRE SMOKE DAMPER: FIRE SMOKE DAMPER IS PROVIDED AND INSTALLED BY DIVISION 23. FIRE SMOKE DAMPER POSITIONING MOTOR POWER CONNECTION IS BY DIVISION 26. POWER IS CONTROLLED VIA FIRE ALARM SYSTEM ADDRESSABLE OUTPUT RELAY.
- FACP FIRE ALARM CONTROL PANEL: PROVIDED BY DIVISION 28. FIRE ALARM SYSTEM CONNECTIONS BY DIVISION 28. FIRE ALARM SYSTEM PROGRAMMED BY DIVISION 28. GENERATOR STANDBY POWER ENERGIZATION AND CONNECTION BY DIVISION 26.
- SPRK SPRINKLER CONTROL MODULE
- FAA FIRE ALARM ANNUNCIATOR
- ARM ADDRESSABLE RELAY MODULE
- NPS NOTIFICATION POWER SUPPLY
- AMP EVAC AMPLIFIER
- ELEV ELEVATOR CONTROL MODULE
- ACM ADDRESSABLE CONTROL MODULE

GENERAL NOTES

A. WHERE EXACT DIMENSIONS ARE NOT CALLED FOR, DO NOT SCALE DRAWINGS TO DETERMINE LOCATION OF EQUIPMENT, JUNCTION BOXES, OUTLET BOXES, WIRE WAYS, PANELS, ETC. SEE ARCH FOR EXACT DIMENSIONS.

B. EXACT LOCATIONS OF FLUSH FLOOR BOXES AND FLUSH FLOOR POWER RECEPTACLES SHALL BE AS DIRECTED BY ARCHITECTURAL SPECIFICATIONS & DRAWINGS.

C. POWER CIRCUITS FOR THE AUDIOVISUAL SYSTEMS MUST BE ON THE SAME TRANSFORMER PHASE, BUT NOT ON THE SAME PHASE AS ANY COMPRESSORS, MOTORS, OR LIGHTING DIMMING SYSTEMS. AV SYSTEMS TO BE FED FROM BUILDING SUPPORT UPS.

D. FOR TELECOM OUTLETS WITH 1-5 CABLES, PROVIDE 1"C. TO DOUBLE-GANG DEEP BOX WITH SINGLE-GANG MUD RING AND 2, 4 OR 6 PORT FACEPLATE AS REQUIRED.

E. FOR TELECOM OUTLETS WITH 6-10 CABLES, PROVIDE TWO (2) 1"C. TO DOUBLE-GANG DEEP BOX WITH DOUBLE-GANG MUD RING AND TWO (2) 2, 4 OR 6 PORT FACEPLATES AS REQUIRED.

F. ALL CONDUIT ROUTED UNDER A DRIVABLE SURFACE SHALL BE SCHEDULE 80 PVC.

G. ALL EXIT SIGNS MUST BE LED, GREEN LETTERING AND POWERED ON 24/7/365 AND UNSWITCHED.

H. ALL RECEPTACLES SHALL BE TAMPER RESISTANT.

I. PHASE 1: BID SET: PROVIDE ALL SITE AND EXTERIOR BUILDING ROUGH-IN, ELECTRICAL UTILITY INFRASTRUCTURE, EXTERIOR SITE LIGHTING, (P01)LUMINARIES CIRCUITING, TERMINATIONS, LIGHTING CONTROLS PER WAC ENERGY CODE VIA TEMPORARY SERVICE. PROVIDE JUNCTION BOXES (NEMA 3X) IN EXTERIOR WALL AND UNDER OF ROOF AT THE COVERED WORK AREA FOR FUTURE LIGHTING (LUMINAIRES TO BE PROVIDED IN PHASE 2). PROVIDE CONDUIT STUB-UPS AND CAP AT ROOF FOR FUTURE PV SYSTEM.

J. PHASE 2: REFERENCE SET: PROVIDE ALL SITE AND INTERIOR/EXTERIOR BUILDING CIRCUITING , TERMINATIONS, FEEDER CONDUCTORS, DEVICE, EQUIPMENT AS SHOWN IN DRAWINGS.

SHEET INDEX - ELECTRICAL

E0.01	ELECTRICAL LEGEND & ABBRIVIATIONS	BID SET - PHASE 1	
E1.00	FIRST FLOOR PLAN - POWER	BID SET - PHASE 1	
E3.00	ELECTRICAL DETAILS	BID SET - PHASE 1	
E4.00	ONE- LINE DIAGRAM	BID SET - PHASE 1	
F1.00	FIRST FLOOR PLAN - FIRE ALARM	BID SET - PHASE 1	
L0.10	SITE PLAN - LIGHTING	BID SET - PHASE 1	
L1.00	FIRST FLOOR PLAN - LIGHTING	BID SET - PHASE 1	
L2.00	SECOND FLOOR PLAN - LIGHTING	BID SET - PHASE 1	
L3.00	LIGHTING DETAILS	BID SET - PHASE 1	
T1.00	FIRST FLOOR PLAN - TELECOMM	BID SET - PHASE 1	
T2.00	SECOND FLOOR PLAN - TELECOMM	BID SET - PHASE 1	
E0.10	SITE PLAN - POWER	BID SET - PHASE 1	
T3.10	TELECOMM DETAILS CONT.	BID SET - PHASE 1	
E2.00	SECOND FLOOR PLAN - POWER		REFERANCE SET - PHASE 2
E5.00	PANEL SCHEDULES		REFERANCE SET - PHASE 2
E5.01	PANEL SCHEDULES		REFERANCE SET - PHASE 2
E5.02	MECHANICAL EQUIPEMNT SCHEDULES		REFERANCE SET - PHASE 2
L0.20	LUMINAIRE SCHEDULE & CONTROLS MATRIX		REFERANCE SET - PHASE 2
T3.00	TELECOMM DETAILS		REFERANCE SET - PHASE 2
F2.00	SECOND FLOOR PLAN - FIRE ALARM		REFERANCE SET - PHASE 2

FREIHEIT ARCHITECTURE

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EXPIRES 09/03/2028

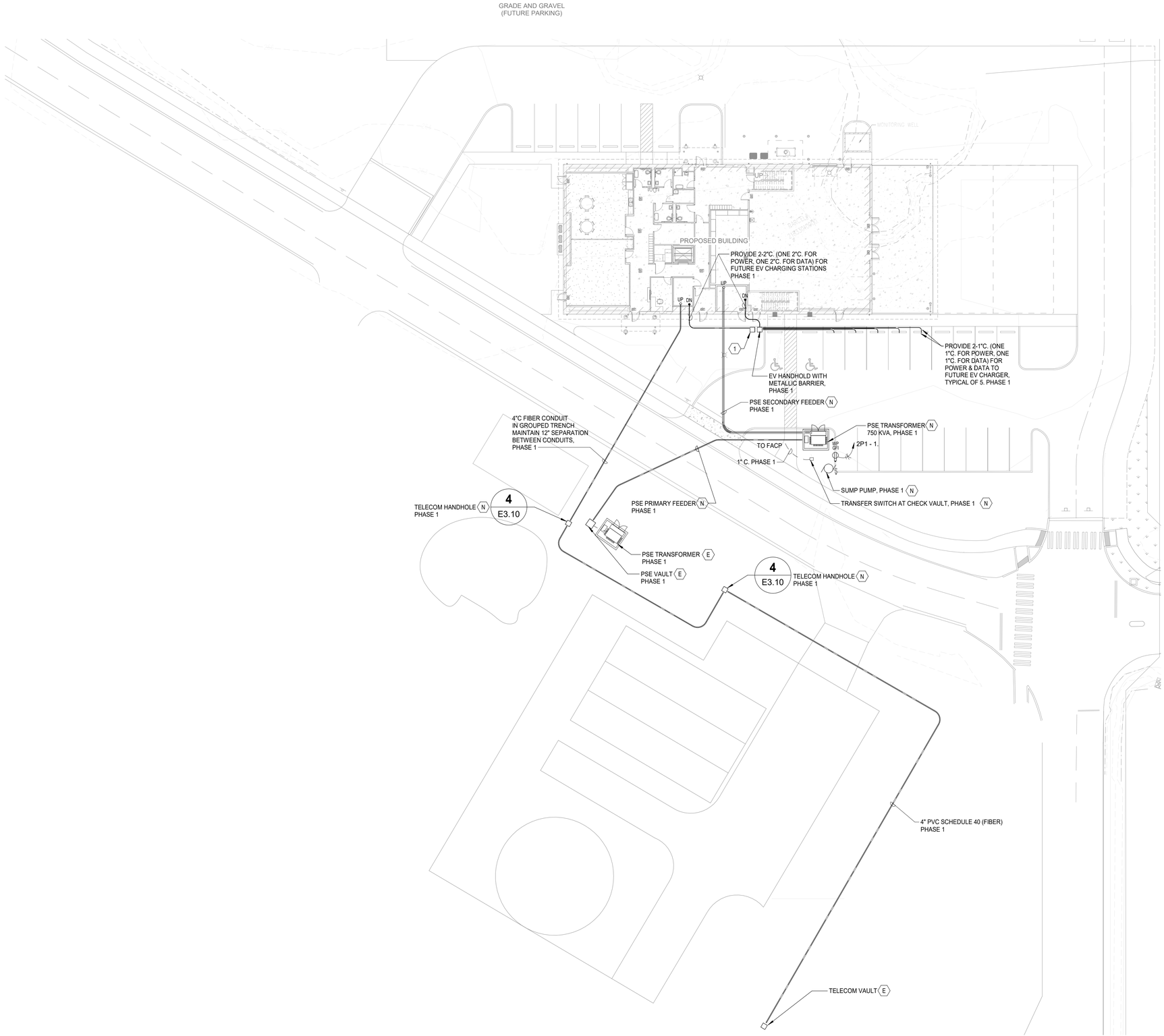
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ELECTRICAL LEGEND & ABBRIVIATIONS

E0.01



1 SITE PLAN - POWER
1" = 20'-0"

0 10' 20' 40'

N

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.

C. FOR ALL UNDERGROUND CONDUIT AND HANDHOLES, MAINTAIN A MINIMUM OF 1.5' OF SEPARATION FROM ALL GAS AND TELECOMMUNICATION LINES AND A MINIMUM OF 5' OF SEPARATION FROM ALL WATER, SEWER, AND STORM LINES. SEE CIVIL DRAWINGS.

D. COMPLY WITH ALL ABOVE GROUND AND UNDERGROUND CLEARANCE REQUIREMENTS PER THE LATEST PSE ESR PRIOR TO TRENCHING. CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENTS OR REWORK OF ANY DAMAGED UTILITIES AND GROUNDING SYSTEMS.

E. ALL CONDUIT SHALL BE A MINIMUM OF 5' FROM BASE OF TREE. COORDINATE FINAL CONDUIT PLACEMENT WITH LANDSCAPE CONSULTANT. ROOT BARRIERS SHALL BE PROVIDED AS DEEMED NECESSARY BY THE LANDSCAPE CONSULTANT.

F. REFER TO LANDSCAPE, CIVIL, AND STRUCTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

G. ALL TRENCHING, VAULT EXCAVATION, SHORING, DEWATERING, BACKFILL, GRAVEL FOR VAULT BASES, AND RESTORATION SHALL BE PROVIDED BY THE CONTRACTOR.

H. FIELD LOCATE UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND GROUNDING PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REWORK OF ANY DAMAGED UTILITIES AND GROUNDING SYSTEMS.

I. BURIED CONDUIT COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF NATIONAL ELECTRICAL CODE ARTICLE 300.5, TABLE 300.5(A), AND PSE STANDARDS.

J. PROVIDE HANDHOLES FOR CONDUITS EXCEEDING 270° IN BENDS, SEE DETAIL 4/T3.10.

KEYED NOTES: (#)

1. PROVIDE (2)2"C. FROM MAIN ELECTRICAL ROOM TO HANDHOLE FOR FUTURE USE. PROVIDE PULL STRING AND END BUSHINGS ON TERMINATED AND STUBBED UP ENDS.

FREIHEIT ARCHITECTURE

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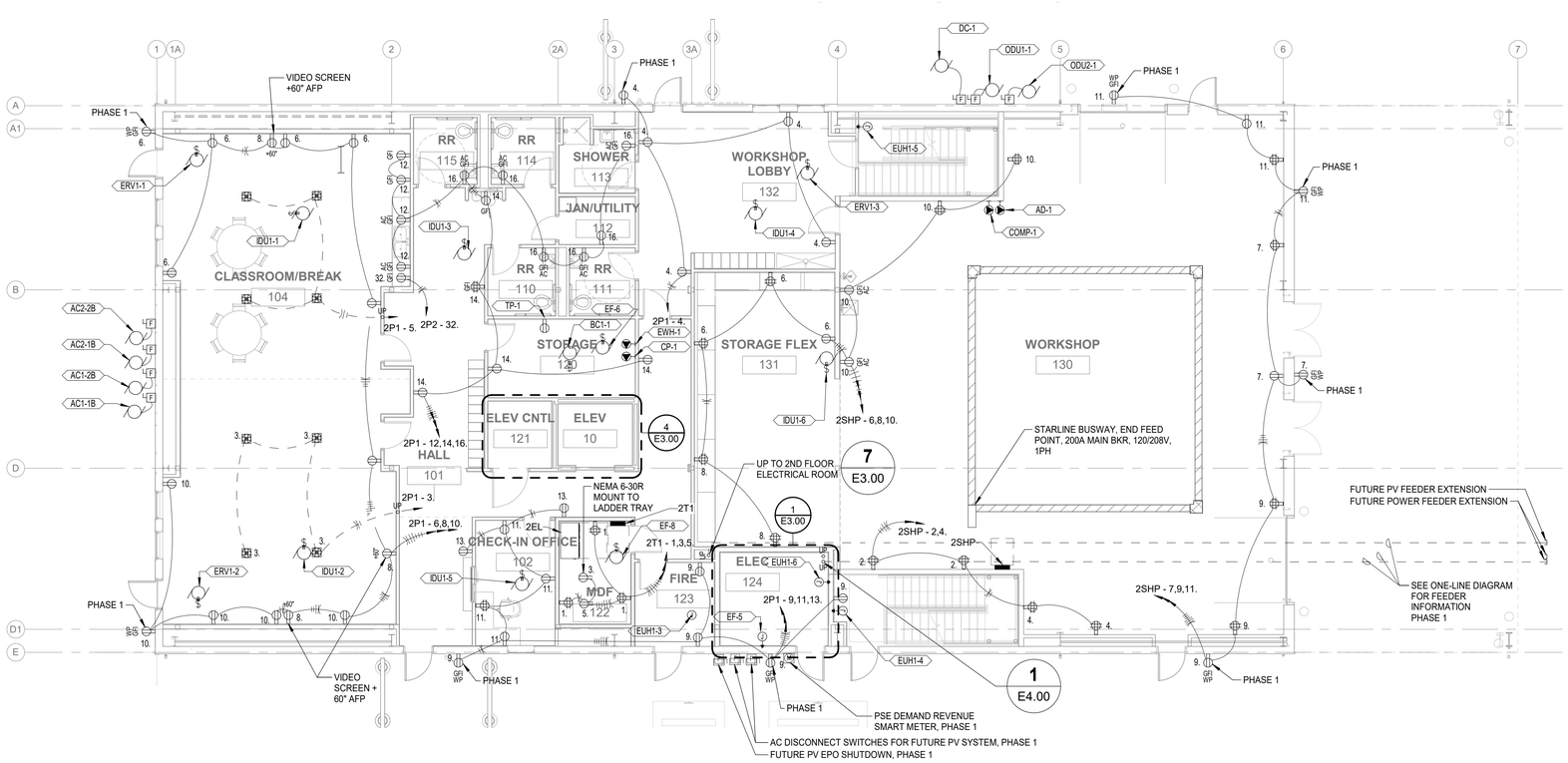
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SITE PLAN - POWER

E0.10



1 E1.00 **FIRST FLOOR PLAN - POWER**

Scale: 1/8" = 1'-0"

0 4' 8' 16'

N

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.

C. FOR ALL UNDERGROUND CONDUIT AND HANDHOLES, MAINTAIN A MINIMUM OF 1.5' OF SEPARATION FROM ALL GAS AND TELECOMMUNICATION LINES AND A MINIMUM OF 5' OF SEPARATION FROM ALL WATER, SEWER, AND STORM LINES. SEE CIVIL DRAWINGS.

D. COMPLY WITH ALL ABOVE GROUND AND UNDERGROUND CLEARANCE REQUIREMENTS PER THE LATEST PSE ESR PRIOR TO TRENCHING. CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND FIELD VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING ANY WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENTS OR REWORK OF ANY DAMAGED UTILITIES AND GROUNDING SYSTEMS.

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F. REFER TO LANDSCAPE, CIVIL, AND STRUCTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

G. ALL TRENCHING, VAULT EXCAVATION, SHORING, DEWATERING, BACKFILL, GRAVEL FOR VAULT BASES, AND RESTORATION SHALL BE PROVIDED BY THE CONTRACTOR.

H. FIELD LOCATE UNDERGROUND PUBLIC AND OWNER UTILITIES OF ALL TRADES AND GROUNDING PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OR REWORK OF ANY DAMAGED UTILITIES AND GROUNDING SYSTEMS.

I. BURIED CONDUIT COVER SHALL MEET OR EXCEED THE REQUIREMENTS OF NATIONAL ELECTRICAL CODE ARTICLE 300.5, TABLE 300.5(A), AND PSE STANDARDS.

J. PROVIDE HANDHOLES FOR CONDUITS EXCEEDING 270° IN-BENDS, SEE DETAIL 1/E-501.

K. REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR ALL DEVICES NOT SHOWN CIRCUITED.

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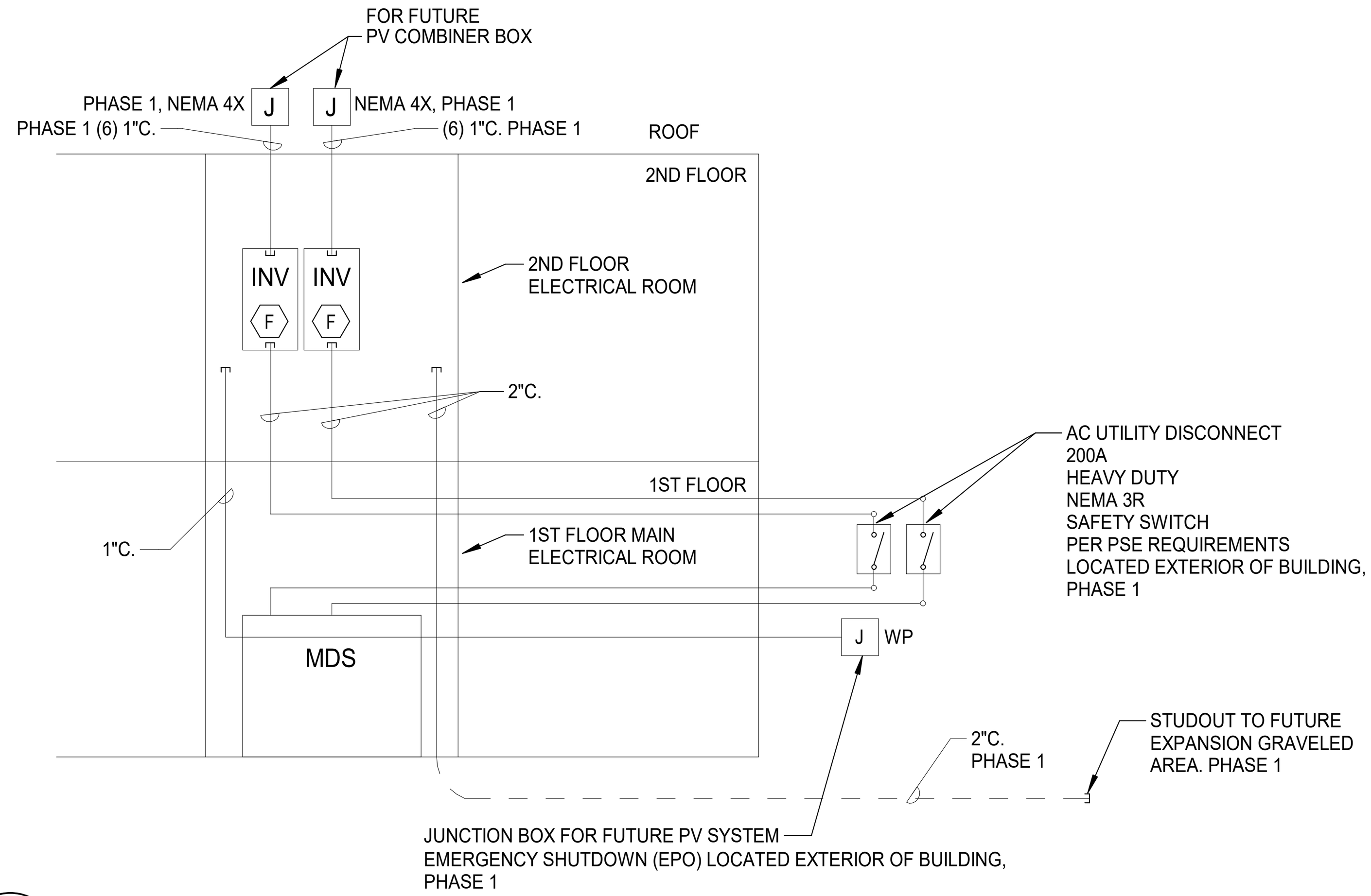
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FIRST FLOOR PLAN - POWER

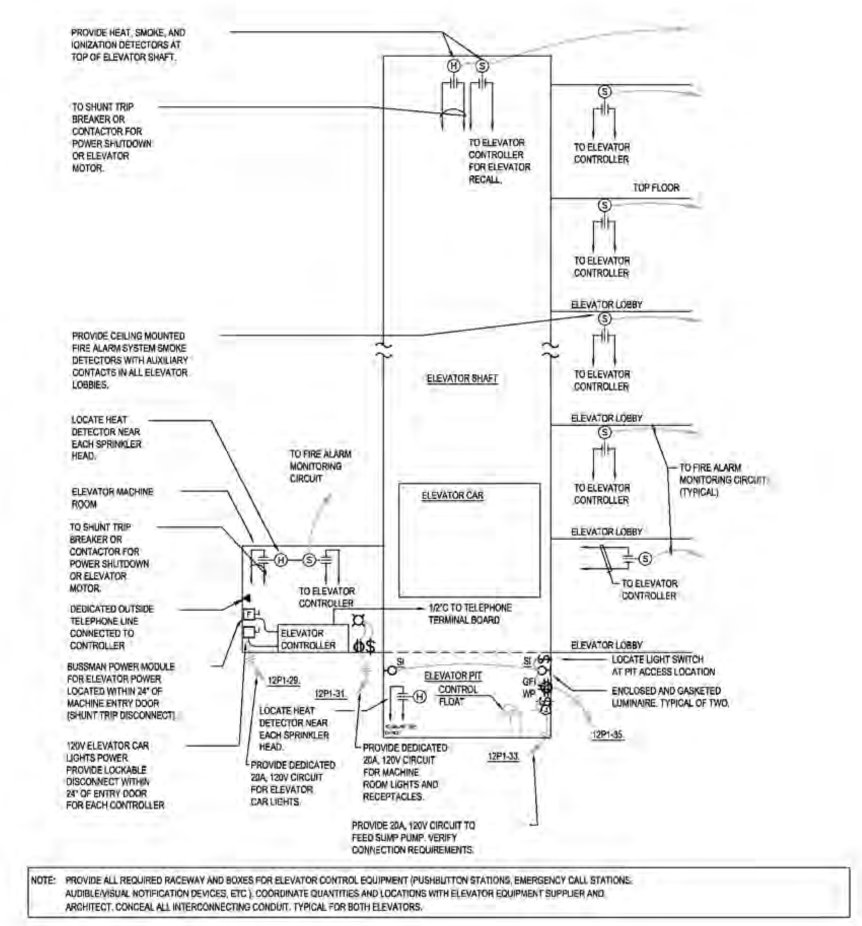
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KEYED NOTES:

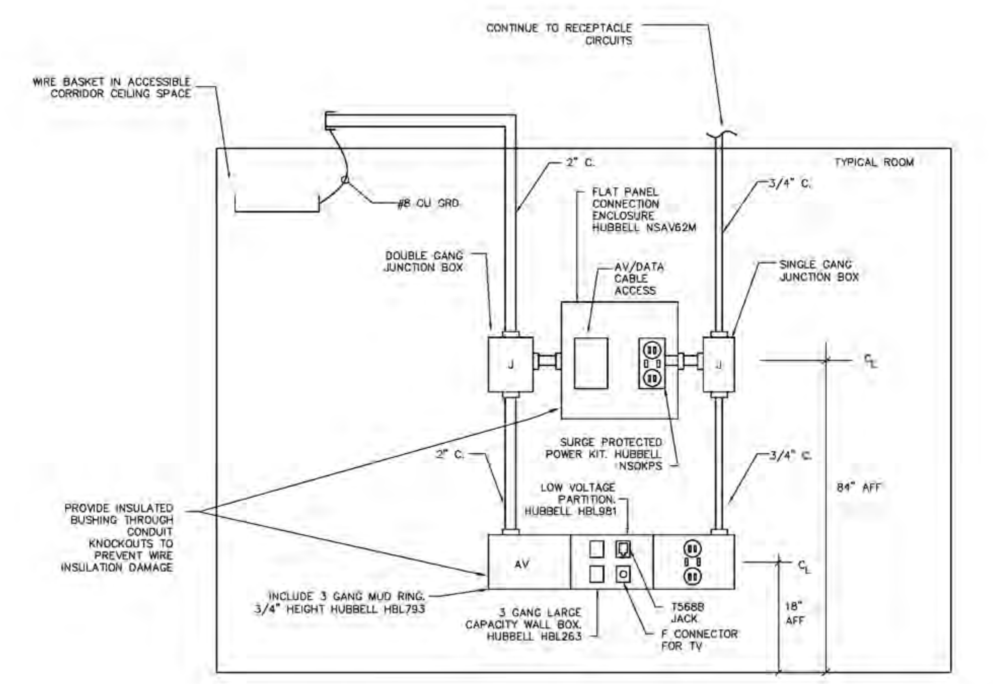
1. PROVIDE FUSED DISCONNECT FOR AUXILIARY CONTACT FOR ELEVATOR CONTROL.
2. PROVIDE DISCONNECT SWITCH FOR ELEVATOR CAB LIGHTS AND CONTROL CLOCKING DEVICE.



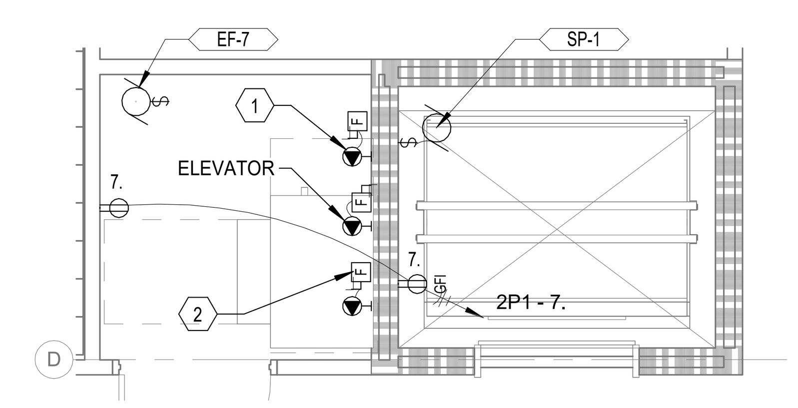
8 / E3.00 **PV READY RISER DIAGRAM**
NOT TO SCALE



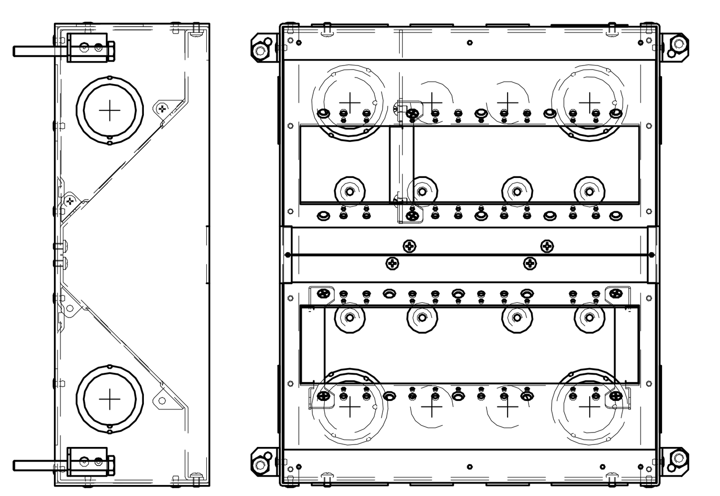
9 / E3.00 **HYDRAULIC ELEVATOR ELECTRICAL DETAIL**
NOT TO SCALE



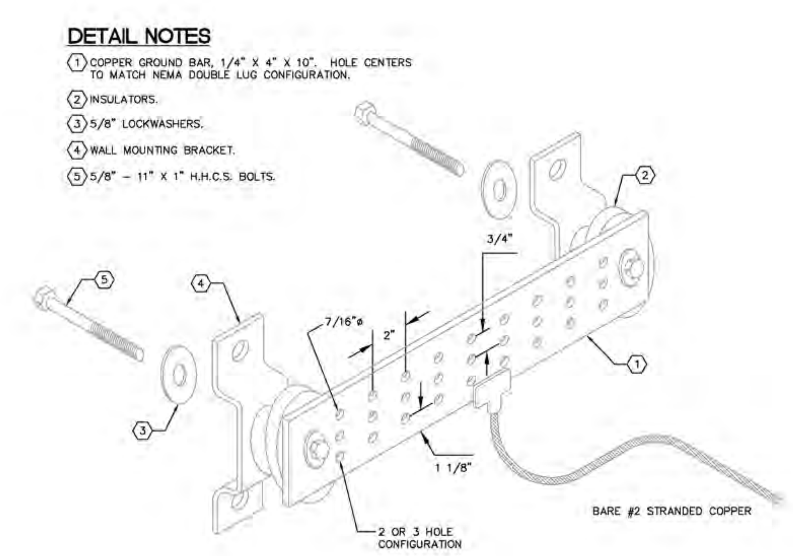
10 / E3.00 **TYPICAL FLAT SCREEN ELEVATION DETAIL**
NOT TO SCALE



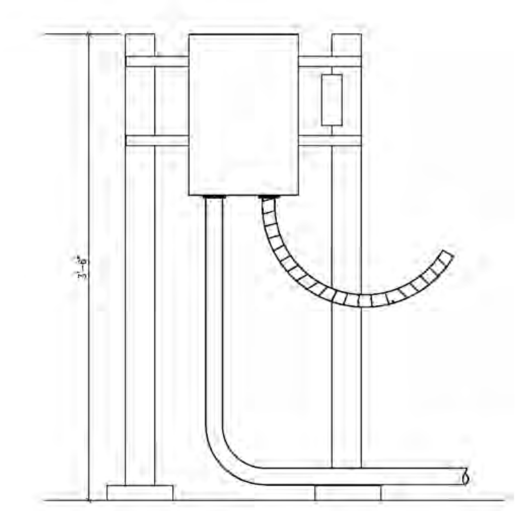
4 / E3.00 **ENLARGED ELEVATOR PLAN - POWER**
Scale: 1/4" = 1'-0"



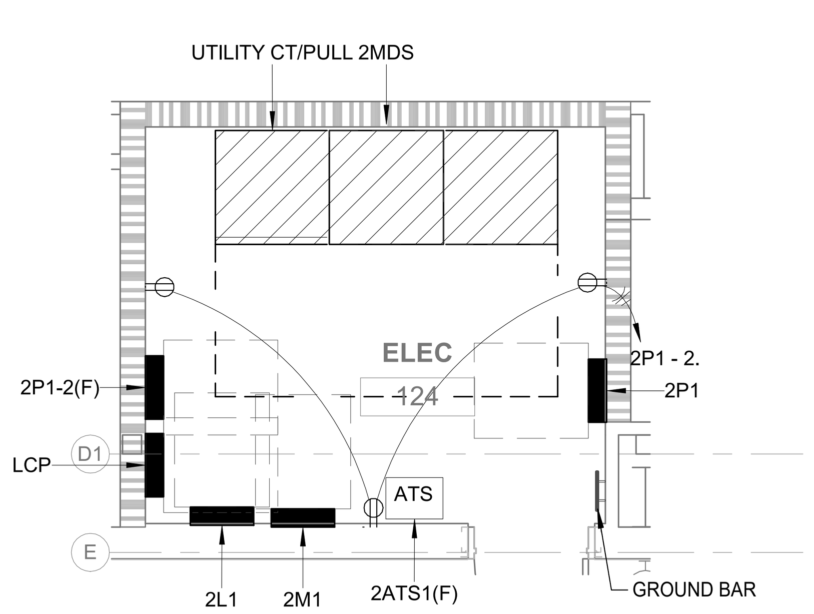
5 / E3.00 **FLOOR BOX**
Scale: N.T.S.



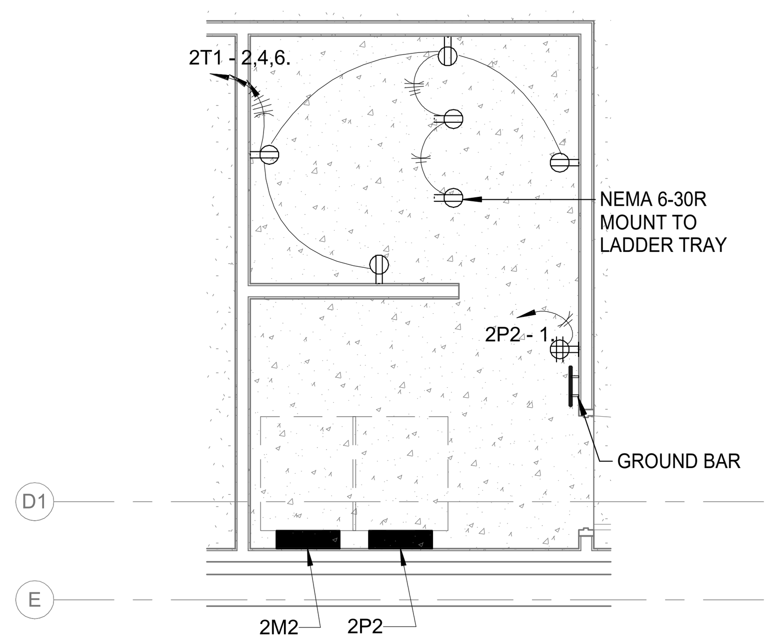
6 / E3.00 **TYPICAL GROUND BAR**
NOT TO SCALE



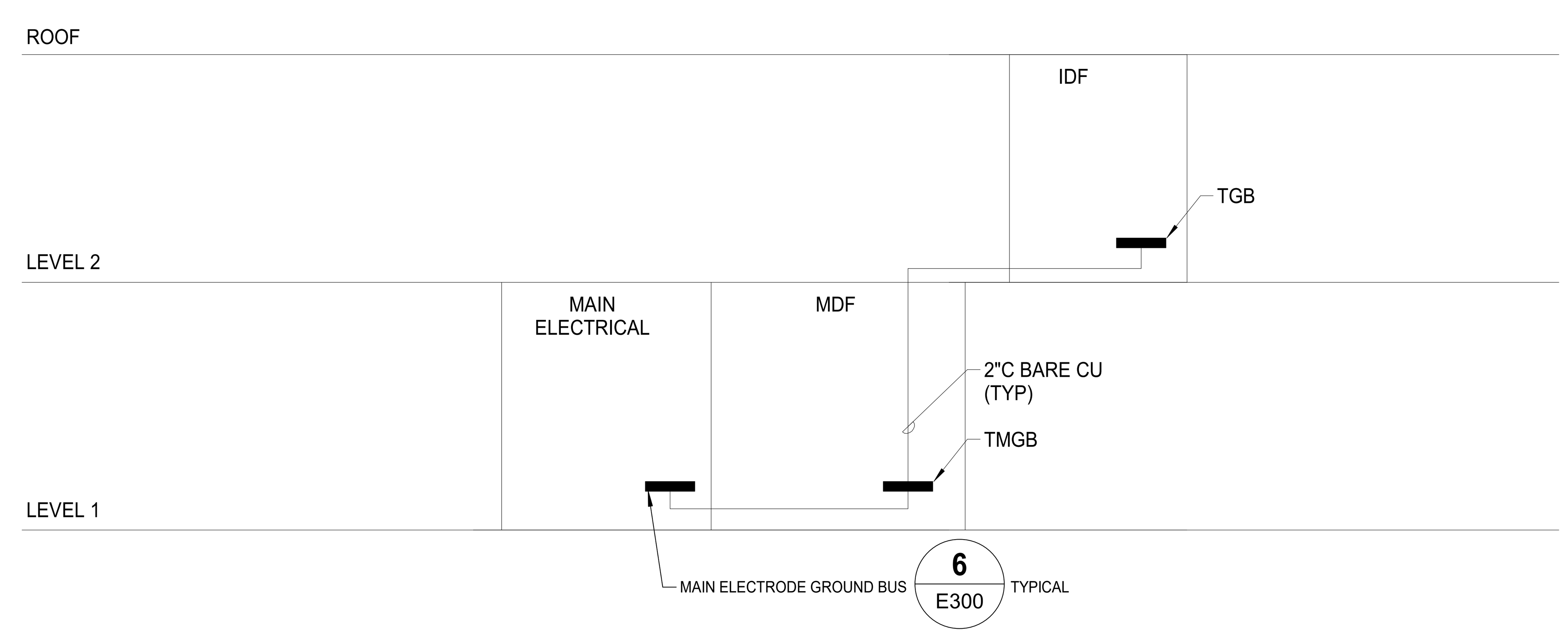
7 / E3.00 **DISCONNECT DETAIL**
NOT TO SCALE



1 / E3.00 **ENLARGED ELEC RM 13 - POWER**
Scale: 1/4" = 1'-0"



2 / E3.00 **ENLARGED ELEC RM 46 - POWER**
Scale: 1/4" = 1'-0"



3 / E3.00 **GROUNDING RISER DIAGRAM**
NOT TO SCALE

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ELECTRICAL DETAILS

E3.00

GENERAL NOTES:

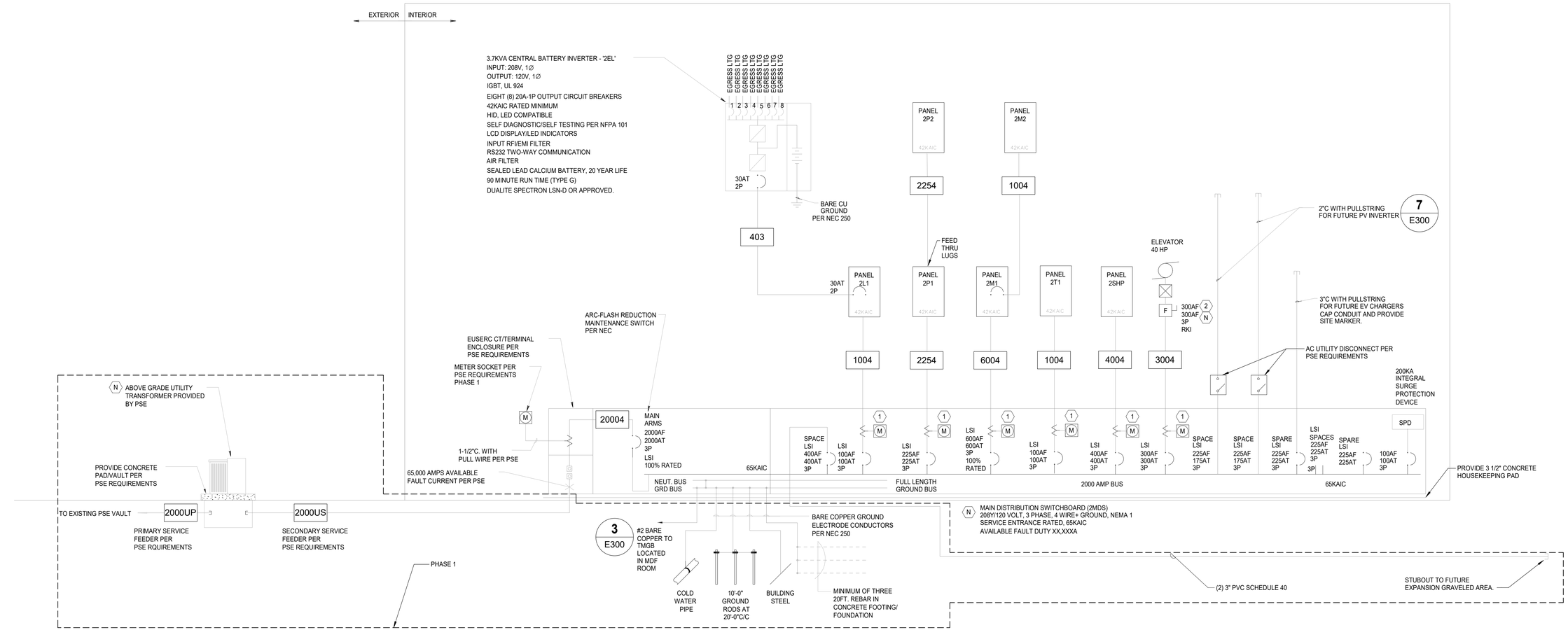
A. FOR ELECTRICAL SYMBOLS LEGEND AND ABBREVIATIONS SEE DRAWINGS E-000.
B. ELECTRICAL SWITCH BOARDS, TRANSFORMERS, PANELS, AND ELECTRICAL EQUIPMENT SHALL BE RATED FOR THE LOCAL SEISMIC ZONE RATING PER IBC, SEISMIC DESIGN CATEGORY C MINIMUM.
C. PROVIDE COORDINATION STUDY FOR LIFE SAFETY CIRCUITS PER NEC 700. COMPLY WITH NEC, STATE AND LOCAL CODES.
D. ALL PANEL BOARDS SHALL BE PROVIDED LSI MAIN BREAKER, (42) 20A-1P BRANCH CIRCUIT BREAKERS. PANELS, ELECTRICAL EQUIPMENT AND OVER CURRENT DEVICES SHALL BE RATED FOR THE AVAILABLE CURRENT. UON.
E. PROVIDE ARC FLASH STUDY STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WASHINGTON.
F. PROVIDE COMPLETE CODE COMPLAINT ELECTRICAL CONNECTIONS TO ALL NEW MECHANICAL UNITS PER MECHANICAL DRAWINGS AND SPECIFICATIONS. PROVIDE NEW FUSED DISCONNECTS FOR ALL NEW MECHANICAL UNITS. OBTAIN MOTOR STARTERS FROM DIVISION 23 AND INSTALL COMPLETE AS REQUIRED. COORDINATE ALL WORK WITH DIVISION 23 CONTRACTOR.
G. REFER TO MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT MOCP, MCA, FLA INFORMATION AND ADDITIONAL ELECTRICAL REQUIREMENTS.
H. PROVIDE SPD IN ALL LIFE SAFETY PANELS.
I. ALL PANELS ARE BOLT-ON, COPPER BUSES, FULL NEUTRAL BUS. DOOR IN DOOR CONSTRUCTION.
J. ALL FEEDERS SHALL BE COPPER CONDUCTORS WITH SEPARATE EQUIPMENT GROUND CONDUCTOR IN EACH FEEDER CONDUIT BONDED TO PANEL/EQUIPMENT GROUND BUS AND TO PANEL/EQUIPMENT ENCLOSURE FOR A COMPLETE GROUNDING SYSTEM.
K. PROVIDE HANDLE TIES AND IDENTIFICATION OR MULTIPLE CIRCUITS IN A RACEWAY PER 2026 NEC 210-4 AND 240-15(B)(1).
L. COMPLY WITH 2026 NEC 408.4.
M. ALL CONDUIT BENDS SHALL BE RIGID GALVANIZED STEEL ELBOWS AND IN COMPLIANCE WITH PSE REQUIREMENTS.
N. SUBMIT MANUFACTURE'S SHOP DRAWINGS OF SWITCHBOARDS AND CT/TERMINAL SECTIONS FOR REVIEW AND APPROVAL BY PSE PRIOR TO FABRICATION. SWITCHBOARD, CT/TERMINAL SECTIONS SHALL COMPLY WITH PSE AND PER "EUSERC" STANDARDS/REQUIREMENTS.

KEYED NOTES: (#)

1. PROVIDE UL LISTED REMOTE DIGITAL POWER MONITORING METER COMPATIBLE WITH POWER DISTRIBUTION EQUIPMENT MANUFACTURER PER WASHINGTON ENERGY CODE AND ASHRAE 90.1 REQUIREMENTS.

2. PROVIDE BUSSMAN POWER MODULE FUSED SWITCH WITH SHUNT TRIP. MOUNT WITHIN 2'-0" FROM DOOR STRIKE.

Feeder Schedule	
Feeder Value	**Feeder Size**
403	3 #10 CU THWN-2, 1 #10 CU GND IN 3/4"C
1004	4 #2 CU THWN, 1 #8 CU GND IN 1 1/4"C
2000UP	ONE 4" PVC SCHEDULE 40 PER PSE REQUIREMENTS
2000US	6 SETS OF: 4 500 KCMIL CU XHHW-2, 1 350 KCMIL CU XHHW-2 GND, IN 4" PVC SCHEDULE 40
2254	4 4/0 CU THWN, 1 #4 CU GND IN 2 1/2"C
3004	4 2/0 CU THWN, 1 #6 CU GND IN 2"C
4004	4 500 KCMIL CU THWN, 1 #3 CU GND IN 4"C
6004	2 SETS OF: 4 350 KCMIL CU THWN, 1 #1 CU GND IN 3"C
20004	6 SETS OF: 4 500 KCMIL CU XHHW-2, 1 350 KCMIL CU XHHW-2 GND, IN 4" PVC SCHEDULE 40 AND (2) SPARE 4" PVC SCHEDULE 40



1 ONE - LINE DIAGRAM
N.T.S

FREIHEIT ARCHITECTURE

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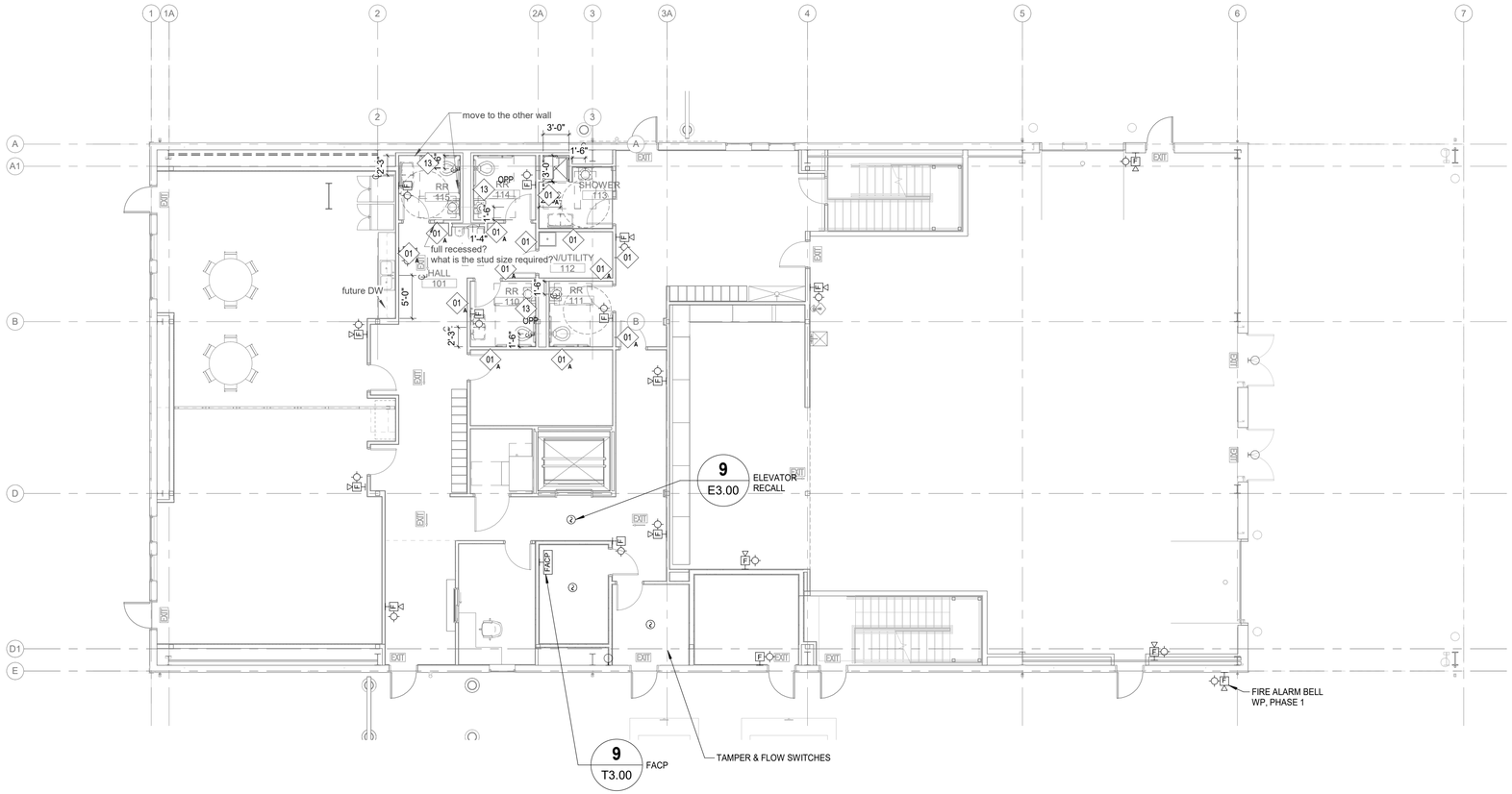
ONE- LINE DIAGRAM

E4.00

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES. FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.



1 F1.00 **FIRST FLOOR PLAN - FIRE ALARM**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

FREIHEIT ARCHITECTURE

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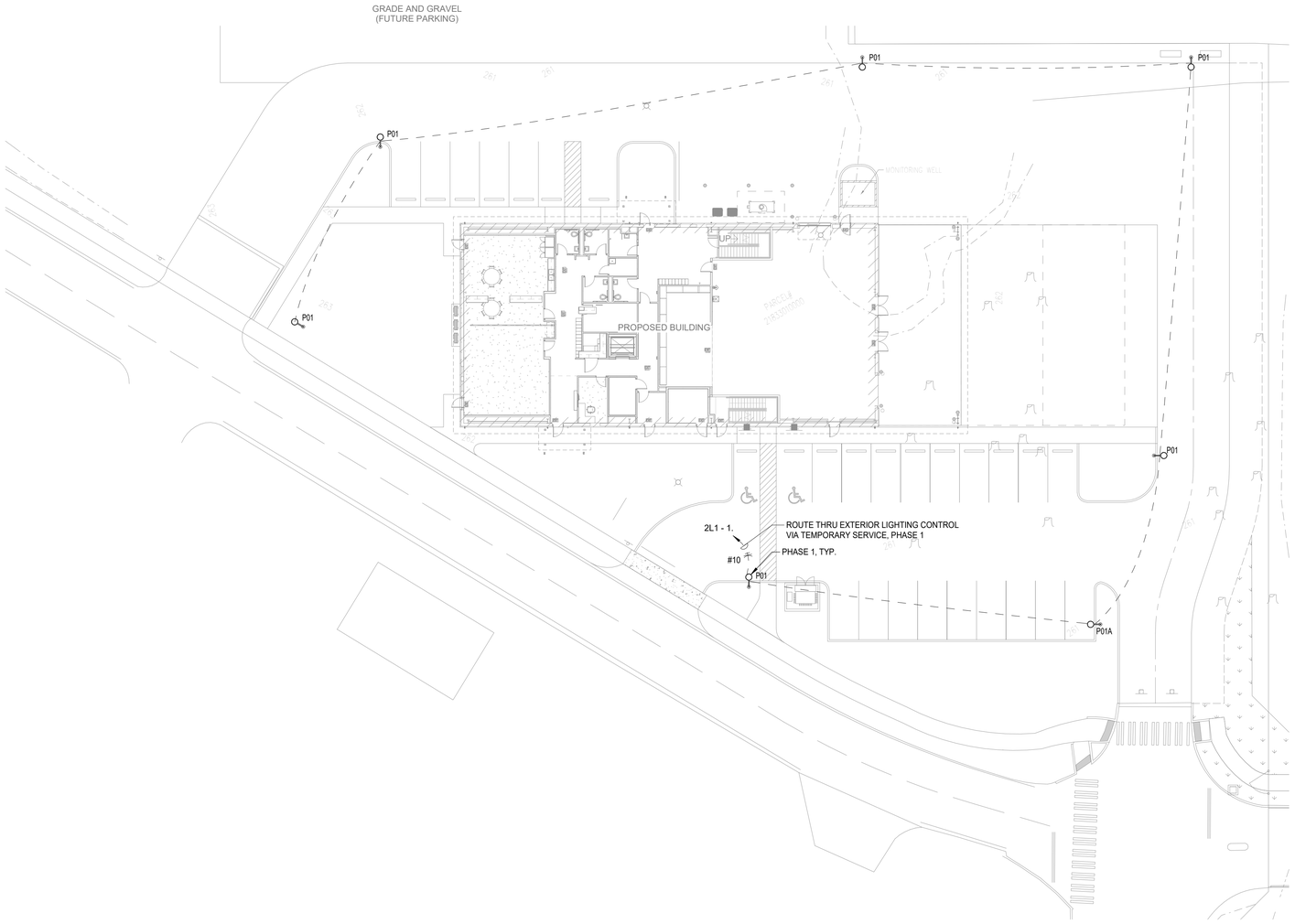
FIRST FLOOR PLAN - FIRE ALARM

F1.00

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.



1 L0.10 **SITE PLAN - LIGHTING**
Scale: 1" = 20'-0"

0 10' 20' 40'

N

FREIHEIT ARCHITECTURE

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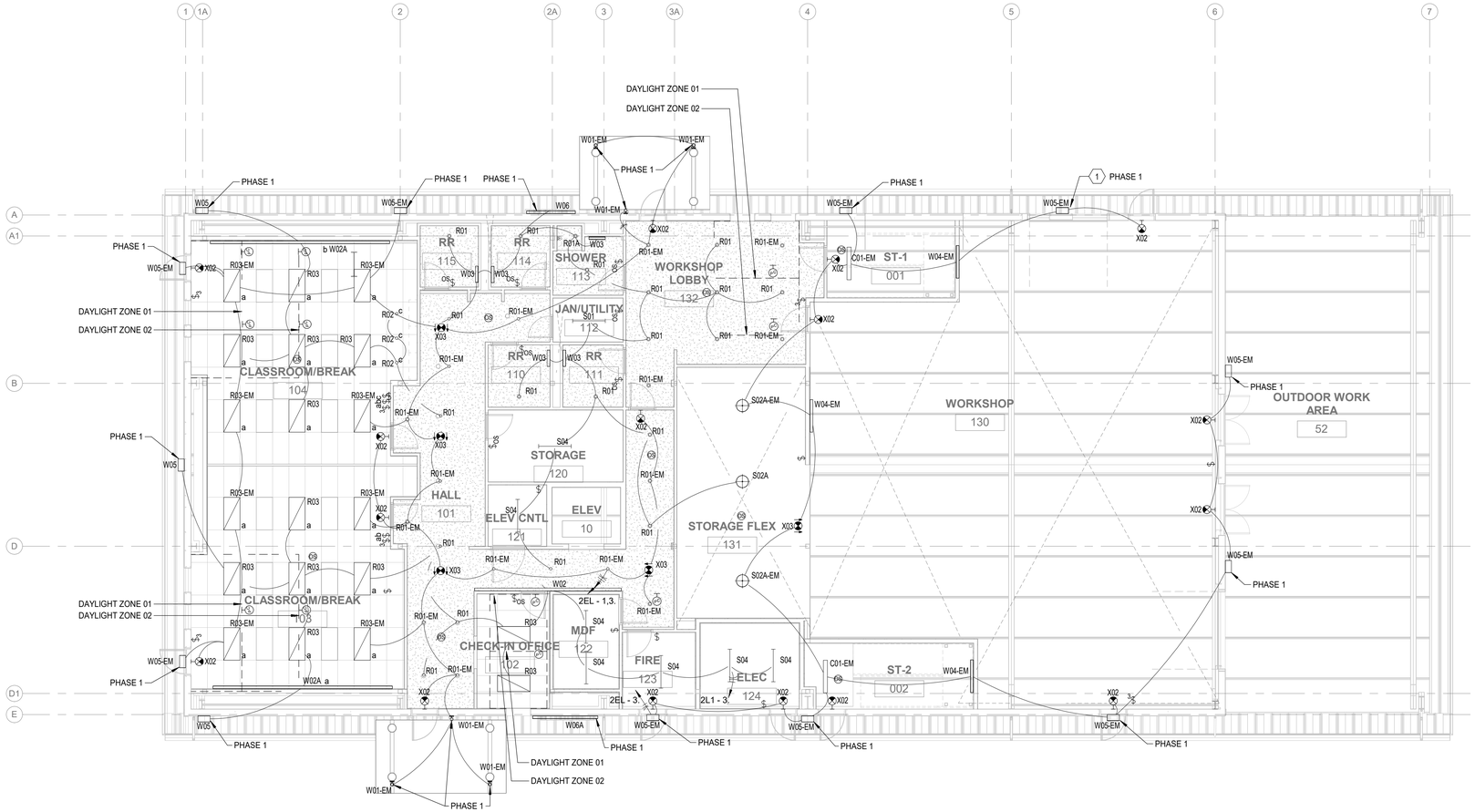
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SITE PLAN - LIGHTING

L0.10



1 L1.00 **FIRST FLOOR PLAN - LIGHT RCP**

Scale: 1/8" = 1'-0"

0 4' 8' 16'

N

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.

C. COORDINATE ALL WALL MOUNTED AND PENDANT FIXTURE HEIGHTS WITH AOR.

D. ALL W05/W05E FIXTURES MOUNTED AT 8'-0" AFF. TO BOTTOM OF FIXTURE, UNLESS OTHERWISE NOTED.

E. COORDINATE ALL S04 MOUNTING LOCATIONS WITH MECHANICAL EQUIPMENT IN SPACE.

F. MOUNT W04-EM FIXTURES SO THAT BOTTOM OF FIXTURE IS AT 8'-0" AFF.

G. W01-EM FIXTURES ARE MOUNTED AT 6'-9" TO BOTTOM OF FIXTURE MINIMUM.

H. W01, W05, W06, W06A ROUGH-IN ONLY IN PHASE 1.

KEYED NOTES: ⬡

1. W05EM FIXTURE TO BE MOUNTED AT +12'-0" AFF. IN THIS LOCATIONS.

FREIHEIT ARCHITECTURE

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FIRST FLOOR PLAN - LIGHTING

L1.00

GENERAL NOTES:

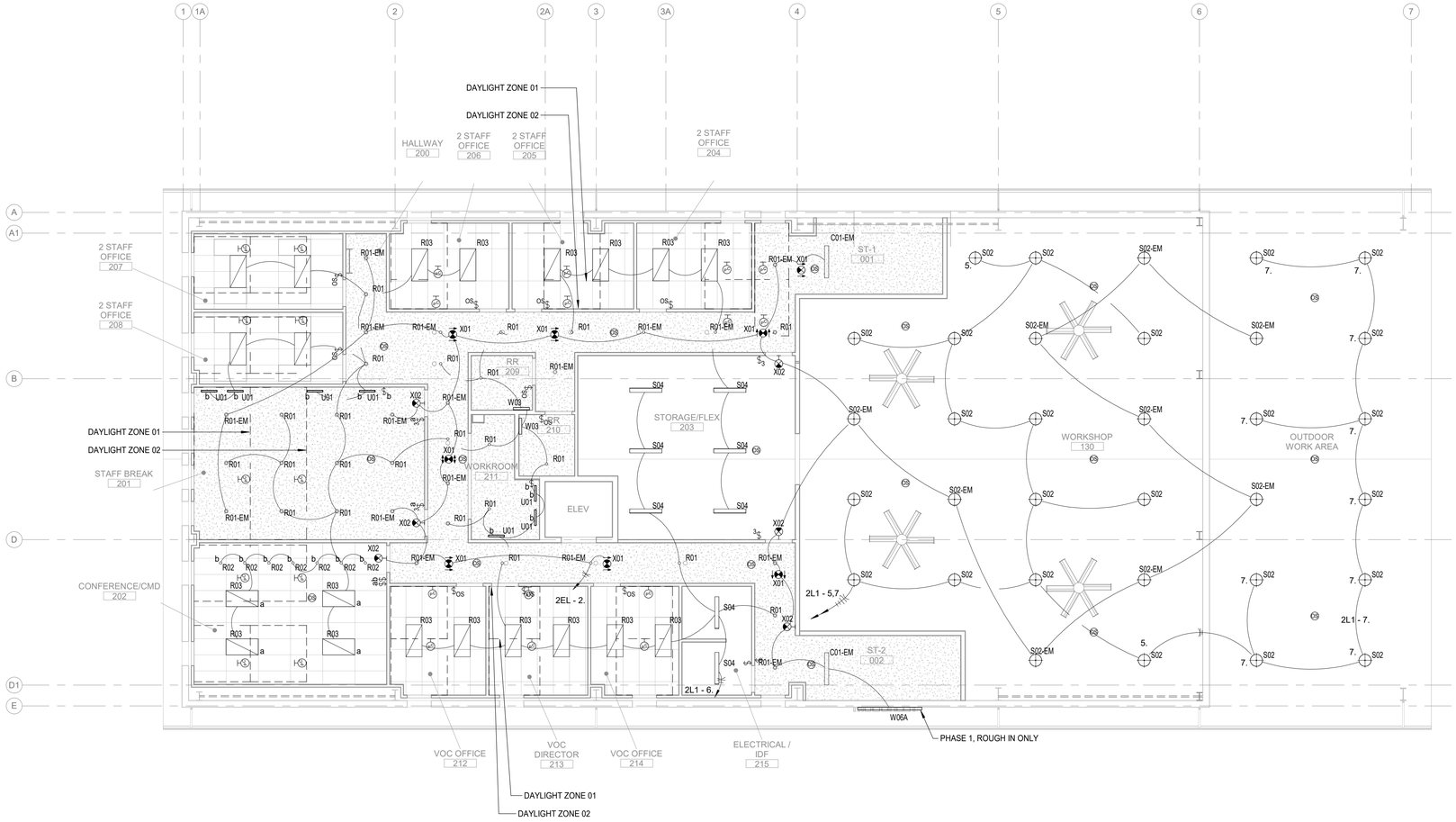
A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.

C. COORDINATE ALL WALL MOUNTED AND PENDANT FIXTURE HEIGHTS WITH AOR.

D. COORDINATE ALL S04 MOUNTING LOCATIONS WITH MECHANICAL EQUIPMENT IN SPACE.

E. MOUNT ALL S02/S02A FIXTURES SO THAT BOTTOM OF FIXTURE IS AT 8'-0" AFF.



1 / L2.00 **SECOND FLOOR PLAN - LIGHTING RCP**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

FREIHEIT ARCHITECTURE

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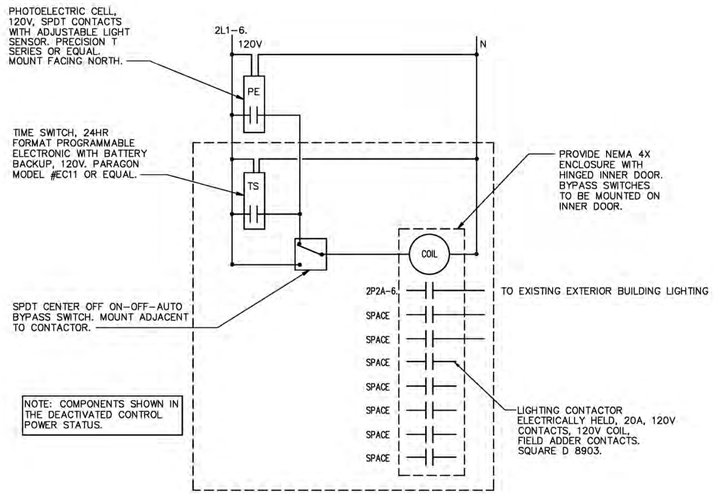
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SECOND FLOOR PLAN - LIGHTING

L2.00



1 / L3.00 **EXTERIOR LIGHTING CONTROL DIAGRAM - PHASE 1**

NOT TO SCALE

FREIHEIT ARCHITECTURE

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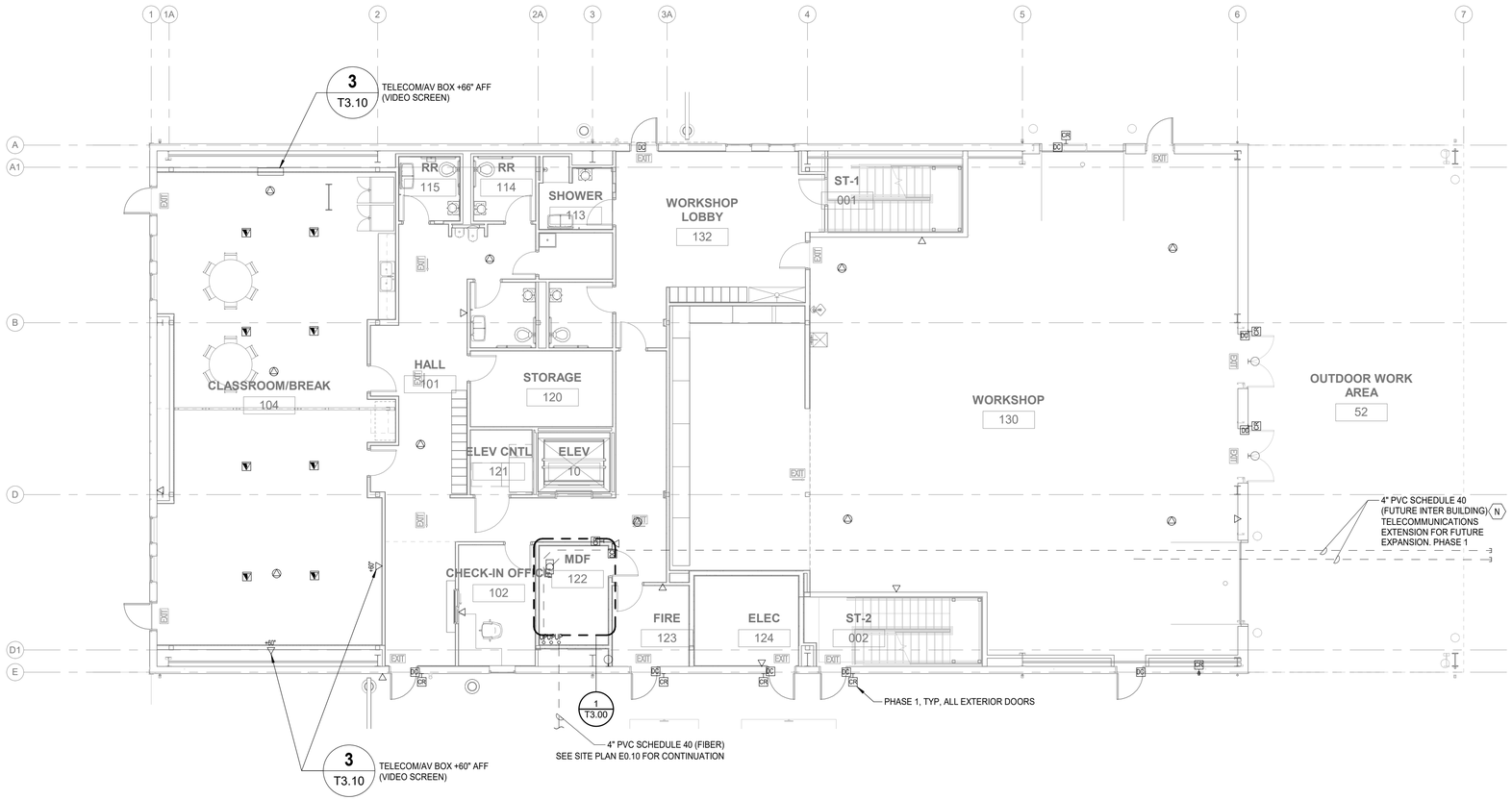
LIGHTING DETAILS

L3.00

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.



1 / T1.00 **FIRST FLOOR PLAN - TELECOMM**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

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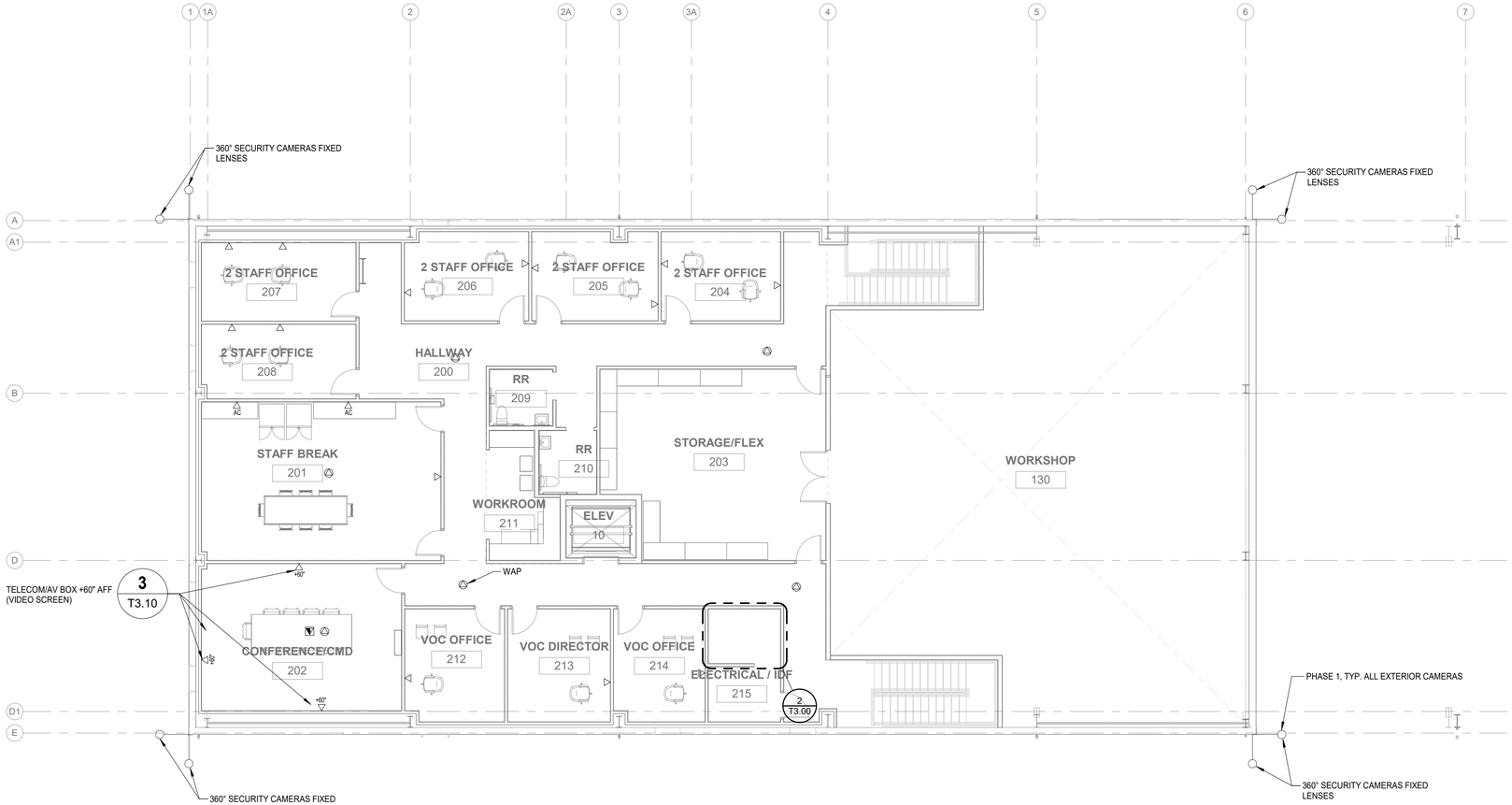
FIRST FLOOR
PLAN - TELECOMM

T1.00

GENERAL NOTES:

A. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPONENT OPERATION REQUIREMENTS.

B. REFER TO ARCHITECTURAL FOR LOCATIONS OF ALL ELECTRICAL, TELECOM AND LIGHTING FIXTURES, FINAL ARRANGEMENT IS TO BE COORDINATED VIA ROOM MOCK UP WITH DIRECTION BY ARCHITECT AND OWNERS REPRESENTATIVE.



1 T2.00 **SECOND FLOOR PLAN - TELECOMM**
Scale: 1/8" = 1'-0"

0 4' 8' 16' N

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FLAVIANO V. REYES JR. STATE OF WASHINGTON 36089 REGISTERED PROFESSIONAL ENGINEER

EXPIRES 09/03/2028

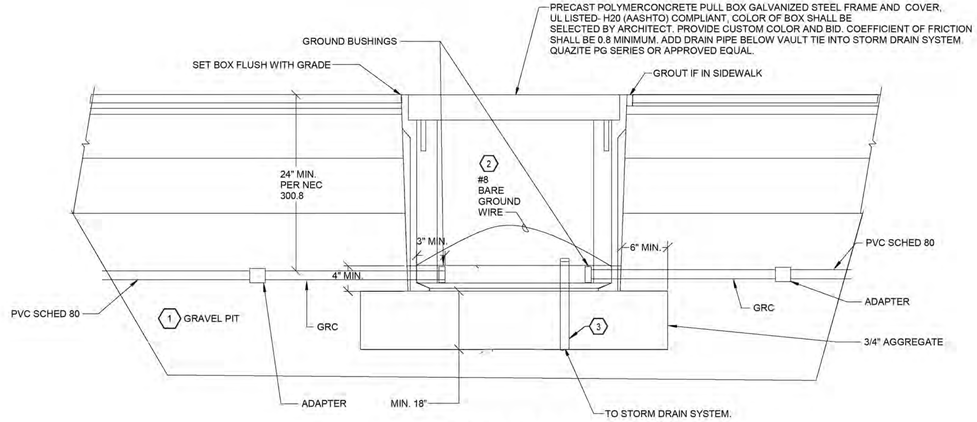
ISSUE LIST

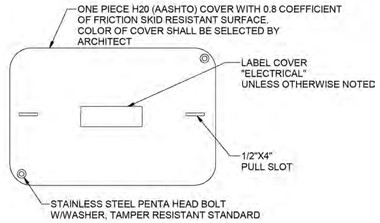
BID SET	10/02/2026

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SECOND FLOOR PLAN - TELECOMM

T2.00





COVER

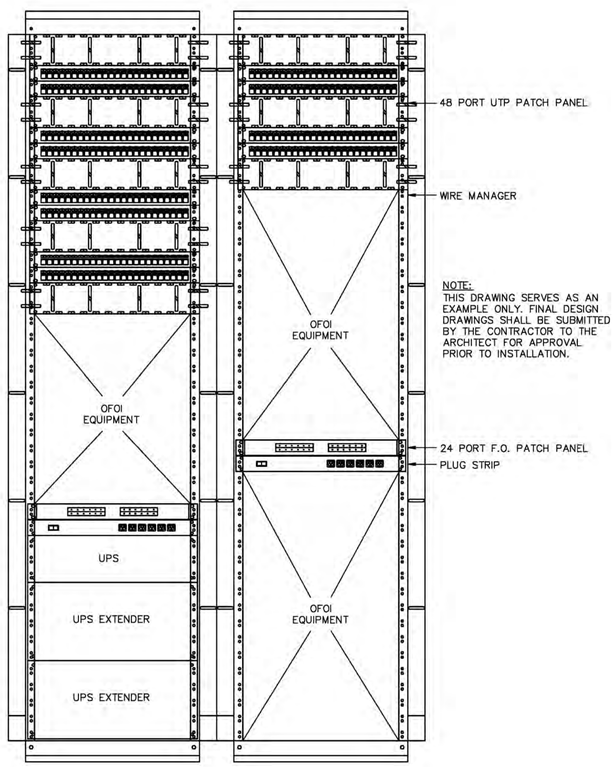
BOX DIMENSIONS

TYPE 1: 30" X 17" X 36"

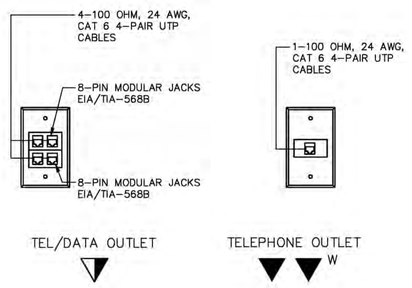
⟨#⟩ KEY NOTES:

1. INSTALL ON 3/4" AGGREGATE WHICH SHALL EXTEND A MINIMUM OF 6" BEYOND ALL SIDES OF BOX AND BE A MINIMUM OF 18" DEEP, BELOW THE BOX.
2. COORDINATE DRILLING OF BOX WITH MANUFACTURER PRIOR TO DRILLING. DRILLED CONDUIT HOLES SHALL NOT EXCEED 26% PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE CUSTOM COLOR IN BID. ADD 1 1/2" DRAIN PIPE BELOW VAULT AND CONNECT TO STORM DRAIN SYSTEM.

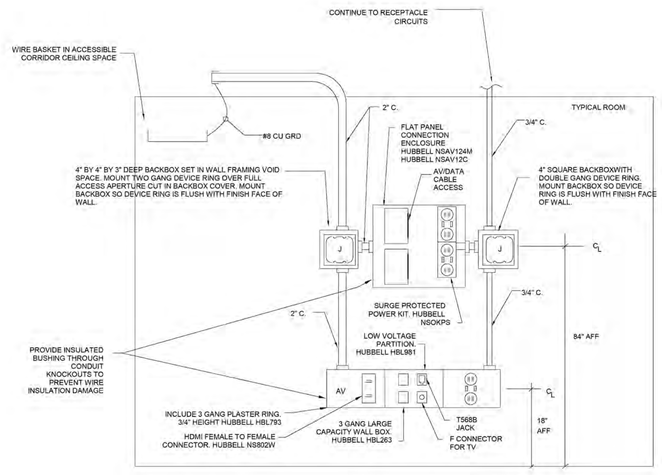
4 / T3.10 **HANDHOLE - PHASE 1**
NOT TO SCALE



1 / T3.10 **TELECOMMUNICATIONS WALL MOUNTED RACK ELEVATION**
NOT TO SCALE



2 / T3.10 **TELECOMMUNICATIONS OUTLET CONFIGURATIONS**
NOT TO SCALE



3 / T3.10 **VIDEO SCREEN ELEVATION**
NOT TO SCALE

FREIHEIT ARCHITECTURE
REYES ENGINEERING
1420 5th Avenue
Suite 2200
Seattle, WA 98101
503.771.1986
Reyeseng.com
Harpreet Gurm
206.229.2145

NISQUALLY TRIBE VOCATIONAL CENTER

FLAVIANO V. REYES JR. STATE OF WASHINGTON 36690 REGISTERED PROFESSIONAL ENGINEER

EXPIRES 09/03/2028

ISSUE LIST

BID SET	10/02/2026

000 PRINTED 10/2/2026 3:56:13 PM

TELECOMM DETAILS CONT.

T3.10

JOB NUMBER

U26H0545A

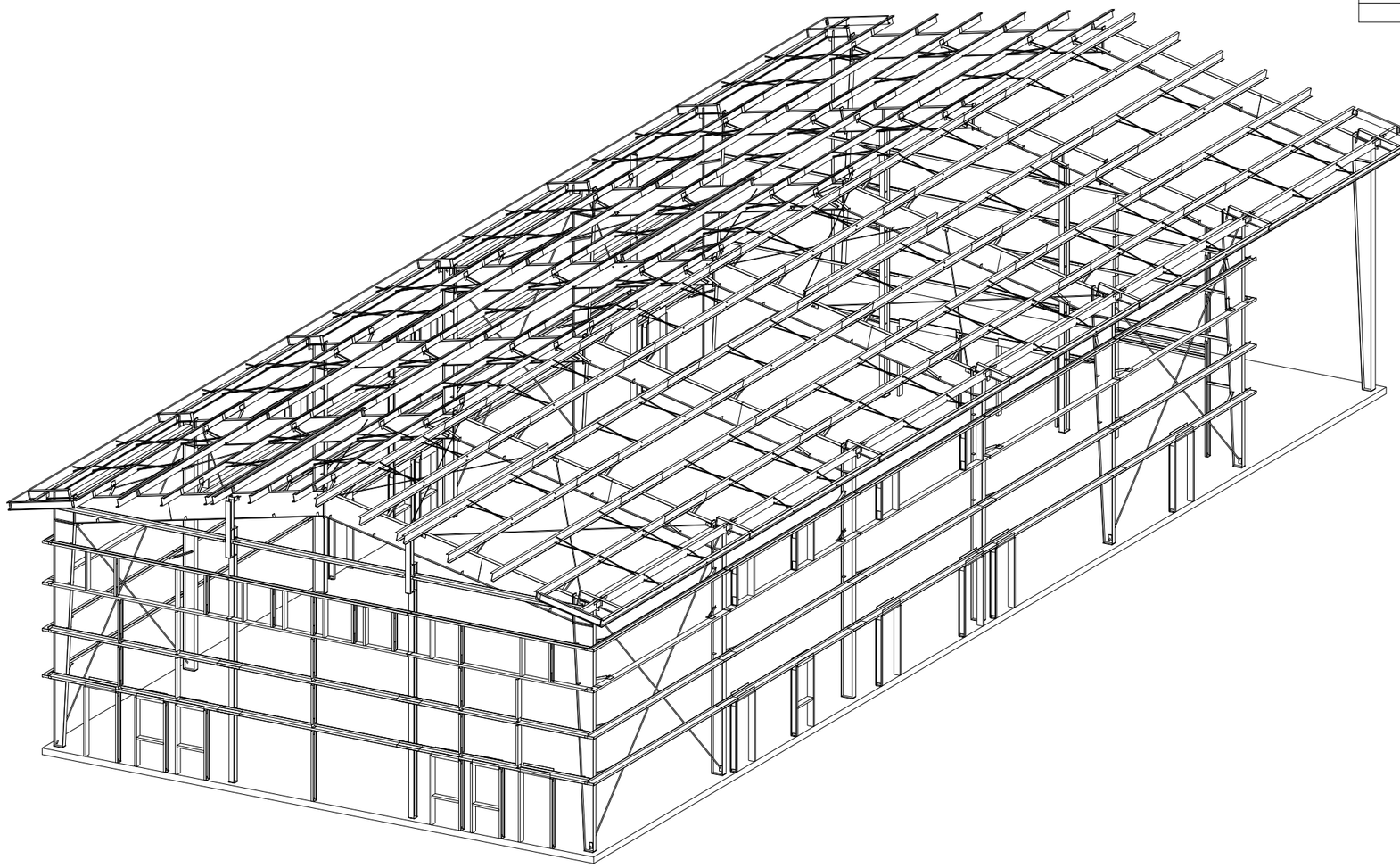
PROJECT NAME

NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS***

COUNTY:

THURSTON

DRAWING TITLE	SHEET NUMBER
COVER SHEETS	C1 ~ C4
ANCHOR ROD PLANS	F1 ~ F2
PLANS AND ELEVATIONS	E1 ~ E12
STRUCTURAL DETAILS	D1 ~ D12
SHEETING PLANS AND ELEVATIONS	S1 ~ S7
SHEETING DETAILS	SD1 ~ SD16



NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:22pm

JOB NUMBER	ADDRESS
U26H0545A	THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

SHEET
C1

DRAWING TITLE
COVERSHEET

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MATERIAL SPECIFICATIONS:

1. PARTS — ASTM DESCRIPTION

STRUCTURAL STEEL PLATE	A529 Gr 55 / A572 Gr 55 / A1011 Gr 55
HOT ROLLED MILL SHAPES	A36 Gr 36 / A529 Gr 50 / A572 Gr 50 / A992 Gr 50
HSS ROUND	A500 Gr B (min 42ksi)
HSS RECTANGULAR	A500 Gr B (min 46ksi)
COLD FORM SHAPES	A653 Gr 55 / A1011 Gr 55
ROOF AND WALL SHEETING	A653 Gr 80 (std. color), Gr 50 (non–std.) / A792 Gr 80 (std. color), Gr 50 (non–std.)
BOLTS	F3125 Gr A325 (std.), Gr A490 (non–std.)
SECONDARY ATTACHMENT BOLTS	A307 Gr A
CABLE	A475 Gr 50, Gr 50(no threads), Gr 55
RODS	A529 Gr 50, Gr 50(no threads), Gr 55 / A572 Gr 50, Gr 50(no threads), Gr 55

2. STRUCTURAL PRIMER NOTE:
SHOP COAT PRIMER IS INTENDED TO PROTECT THE STEEL FRAMING FOR A SHORT PERIOD OF TIME. STORAGE IN EXTREME COLD TEMPERATURES OR WINTER SNOW CONDITIONS, INCLUDING TRANSPORTATION ON SALTED OR CHEMICALLY TREATED ROADS WILL ADVERSELY AFFECT THE DURABILITY AND LONGEVITY OF THE PRIMER. THE COAT OF SHOP PRIMER DOES NOT PROVIDE THE UNIFORMITY OF APPEARANCE, OR THE DURABILITY AND CORROSION RESISTANCE OF A FIELD APPLIED FINISH COAT OF PAINT OVER A SHOP PRIMER. MINOR ABRASIONS TO THE SHOP COAT PRIMER CAUSED BY HANDLING, LOADING, SHIPPING, UNLOADING AND ERECTION ARE UNAVOIDABLE AND ARE NOT THE RESPONSIBILITY OF THE METAL BUILDING MANUFACTURER. METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR THE DETERIORATION OF THE PRIMER OR CORROSION THAT MAY RESULT FROM ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS NOR THE COMPATIBILITY OF THE PRIMER TO ANY FIELD APPLIED COATING.

3. BUILDING ERECTION NOTES:
THE GENERAL CONTRACTOR AND/OR ERECTOR IS RESPONSIBLE TO SAFELY AND PROPERLY ERECT THE METAL BUILDING SYSTEM IN CONFORMANCE WITH THESE DRAWINGS, OSHA REQUIREMENTS AND EITHER MBMA OR CSA S16 STANDARDS PERTAINING TO PROPER ERECTION. TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSEWORK, CRIBBING OR OTHER ELEMENTS FOR ERECTION ARE TO BE DETERMINED, FURNISHED AND INSTALLED BY THE ERECTOR. THESE SUPPORTS MUST SECURE THE STEEL FRAMING, OR PARTLY ASSEMBLED STEEL FRAMING, AGAINST LOADS COMPARABLE IN INTENSITY TO THOSE FOR WHICH THE STRUCTURE WAS DESIGNED IN ADDITION TO LOADS RESULTING FROM THE ERECTION OPERATION. SECONDARY WALL AND ROOF FRAMING (PURLINS, GIRTS AND/OR JOIST) ARE NOT DESIGNED TO FUNCTION AS A WORKING PLATFORM OR TO PROVIDE AS AN ANCHORAGE POINT FOR A FALL ARREST /SAFETY TIE OFF.

4. SPECIAL INSPECTION:
SPECIAL INSPECTIONS AND TESTING THAT MAY BE REQUIRED BY GOVERNMENTAL OR OTHER AUTHORITY DURING CONSTRUCTION AND/OR STEEL FABRICATION (COLLECTIVELY, "INSPECTIONS") ARE NOT THE RESPONSIBILITY OF NBG, AND TO THE EXTENT REQUIRED IT SHALL BE THE RESPONSIBILITY OF THE BUILDER AND/OR OWNER. IN THE EVENT THE INSPECTIONS ARE REQUIRED, THE BUILDER AND/OR OWNER SHALL EMPLOY A THIRD PARTY QUALITY ASSURANCE TESTING AGENCY APPROVED BY THE RELEVANT AUTHORITY. IF SUCH REQUIREMENTS ARE NOT SPECIFICALLY INCLUDED IN NBG SALES DOCUMENTS, NO INSPECTIONS BY NBG OR AT ANY NBG FACILITY SHALL BE MADE. ALL NBG FACILITIES ARE ACCREDITED BY IAS AC472.

5. A325 & A490 BOLT TIGHTENING REQUIREMENTS :
IT IS THE RESPONSIBILITY OF THE ERECTOR TO ENSURE PROPER BOLT TIGHTNESS IN ACCORDANCE WITH APPLICABLE REGULATIONS. FOR PROJECTS IN THE UNITED STATES SEE THE RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS OR FOR PROJECTS IN CANADA, SEE THE CAN/CSA S16 LIMIT STATES DESIGN OF STEEL STRUCTURES FOR MORE INFORMATION.

THE FOLLOWING CRITERIA MAY BE USED TO DETERMINE THE BOLT TIGHTNESS (I.E., "SNUG-TIGHT" OR "FULLY-PRETENSIONED"), UNLESS REQUIRED OTHERWISE BY LOCAL JURISDICTION OR CONTRACT REQUIREMENTS:

A) ALL A490 BOLTS SHALL BE "FULLY-PRETENSIONED".
B) ALL A325 BOLTS IN PRIMARY FRAMING (RIGID FRAMES AND BRACING) MAY BE "SNUG-TIGHT", EXCEPT AS FOLLOWS: "FULLY-PRETENSION"A325 BOLTS IF:
   a) BUILDING SUPPORTS A CRANE SYSTEM WITH A CAPACITY GREATER THAN 5 TONS.
   b) BUILDING SUPPORTS MACHINERY THAT CREATES VIBRATION, IMPACT OR STRESS-REVERSALS ON THE CONNECTIONS. THE ENGINEER-OF- RECORD FOR THE PROJECT SHOULD BE CONSULTED TO EVALUATE FOR THIS CONDITION.
   c) THE PROJECT SITE IS LOCATED IN A HIGH SEISMIC AREA. FOR IBC-BASED CODES, "HIGH SEISMIC AREA" IS DEFINED AS "SEISMIC DESIGN CATEGORY" OF "D", "E", OR "F". SEE THE "BUILDING LOADS" SECTION OF THIS PAGE FOR THE DEFINED SEISMIC DESIGN CATEGORY FOR THIS PROJECT.
   d) ANY CONNECTION DESIGNATED IN THESE DRAWINGS AS "A325-SC". "SLIP-CRITICAL (SC)" CONNECTIONS MUST BE FREE OF PAINT, OIL, OR OTHER MATERIALS THAT REDUCE FRICTION AT CONTACT SURFACES. GALVANIZED OR LIGHTLY RUSTED SURFACES ARE ACCEPTABLE.

C) IN CANADA, ALL A325 AND A490 BOLTS SHALL BE "FULLY PRE-TENSIONED", EXCEPT FOR SECONDARY MEMBERS (PURLINS, GIRTS, OPENING FRAMING, ETC.) AND FLANGE BRACES.

SECONDARY MEMBERS (PURLINS, GIRTS, OPENING FRAMING, ETC.) AND FLANGE BRACE CONNECTIONS MAY ALWAYS BE "SNUG-TIGHT", UNLESS INDICATED OTHERWISE IN THESE DRAWINGS.

6. GENERAL DESIGN NOTES :
1) ALL STRUCTURAL STEEL SECTIONS AND WELDED PLATE MEMBERS ARE DESIGNED IN ACCORDANCE WITH ANSI/AISC 360 "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" OR THE CAN/CSA S16 "LIMIT STATES DESIGN OF STEEL STRUCTURES", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
2) ALL WELDING OF STRUCTURAL STEEL IS BASED ON EITHER AWS D1.1 "STRUCTURAL WELDING CODE – STEEL" OR CAN/CSA W59 "WELDED STEEL CONSTRUCTION (METAL ARC WELDING)", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
3) ALL COLD FORMED MEMBERS ARE DESIGNED IN ACCORDANCE WITH ANSI/AISI S100 OR THE CAN/CSA S136 "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
4) ALL WELDING OF COLD FORMED STEEL IS BASED ON AWS D1.3 "STRUCTURAL WELDING CODE – SHEET STEEL" OR CAN/CSA W59 "WELDED STEEL CONSTRUCTION (METAL ARC WELDING)", AS REQUIRED BY THE SPECIFIED BUILDING CODE.
5) ALL NUCOR BUILDING GROUP FACILITIES ARE IAS AC-472 ACCREDITED FOR DESIGN AND FABRICATION OF METAL BUILDING SYSTEMS. FOR PROJECTS IN CANADA, DESIGN AND FABRICATION ARE DONE ONLY IN FACILITIES THAT ARE ALSO CAN/CSA A660 AND W47.1 CERTIFIED.
6) IF JOISTS ARE INCLUDED WITH THIS PROJECT, THEY ARE SUPPLIED AS A PART OF THE SYSTEMS ENGINEERED METAL BUILDING AND ARE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1926.758 OF OSHA SAFETY STANDARDS FOR STEEL ERECTION, DATED JANUARY 18, 2001.
7) COLUMN BASE PLATES ARE DESIGNED NOT TO EXCEED THE ALLOWABLE BEARING STRESS OF CONCRETE THAT HAS A MINIMUM COMPRESSIVE STRENGTH OF 3000 P.S.I. AT 28 DAYS.

7. GLOSSARY OF ABBREVIATIONS:

APL = A-PANEL FOR THE LINER
APS = A-PANEL FOR THE SOFFIT
APW = A-PANEL FOR THE WALL
A.R. = ANCHOR RODS
BS = BOTH SIDES
B.U. = BUILT-UP
CFR = CONCEALED FASTENED ROOF PANEL
DIA = DIAMETER
FLG = FLANGE
F.S = FAR SIDE
GA. = GAUGE
H.S.B. = HIGH STRENGTH BOLTS
HT. = HEIGHT
LLV = LONG LEG VERTICAL
LSN = LOC SEAM NON-SWAGED ROOF PANELS
LSS = LOC SEAM SWAGED ROOF PANELS
MAX = MAXIMUM
M.B. = MACHINE BOLTS
MBS = METAL BUILDING SUPPLIER
MIN = MINIMUM
N/A = NOT APPLICABLE
NIC = NOT IN CONTRACT
N.S. = NEAR SIDE
O.A.L. = OVERALL LENGTH
O.C. = ON CENTER
PL = PLATE
REQ'D = REQUIRED
REV. = REVISION
RPL = R-PANEL FOR THE LINER
RPR = R-PANEL FOR THE ROOF
RPS = R-PANEL FOR THE SOFFIT
RPW = R-PANEL FOR THE WALL
RRL = REVERSE R-PANEL FOR THE LINER
RRS = REVERSE R-PANEL FOR THE SOFFIT
RRW = REVERSE R-PANEL FOR THE WALL
SL = STEEL LINE
SLV = SHORT LEG VERTICAL
SIM = SIMILAR
SS2 = STANDING SEAM II ROOF PANEL
SS3 = STANDING SEAM 360 ROOF PANEL
TBD = TO BE DETERMINED
TYP = TYPICAL
U.N.O. = UNLESS NOTED OTHERWISE

?? = PART MARK TO BE DETERMINED AND WILL BE UPDATED ON CONSTRUCTION DRAWINGS

BUILDING LOADS:

DESIGN CODE:	IBC 2021
BUILDING END USE:	Other
RISK CATEGORY:	II - Standard Buildings
ROOF LIVE LOAD: NOT REDUCIBLE PER CODE	20 PSF
GROUND SNOW LOAD:	15 PSF
SNOW EXPOSURE FACTOR, CE:	1.00
SNOW IMP. FACTOR, IS:	1.00
RAINFALL INTENSITY:	4.00 IN/HR
SEISMIC INFORMATION:	Ss: 1.500 S1: 0.460
SEISMIC SDS/SD1:	1.200/0.564
SITE CLASS:	D
SEISMIC IMP. FACTOR, IE:	1.00
SEISMIC DESIGN CATEGORY:	D
ANALYSIS PROCEDURE:	Equivalent Lateral Force Procedure
LONG. SFRS:	Ord. Conc. Braced Frame
LAT. SFRS:	Ord. Moment Frame
WIND (MPH): (Vult) / (Vasd)	(97) / (75)
***C & C PRESSURES (PSF):	23 / -28
EXPOSURE:	B
UL90:	YES

BUILDING SPECIFIC LOADING INFORMATION

BLDG.	ROOF DEAD (PSF)*	COLLATERAL DEAD		SNOW COEFFICIENT			SNOW LOAD (PSF)		WIND		TORNADO	SEISMIC		
		Pri (psf)	Sec (psf)	Ct	Cs	W2	Ps	**Pm	Enclosure	GCpi	GCpiT	R	Cs	V (kips)
V&EOC	4.50	10.00	10.00	1.00	0.90	--	9.41	25.00	Part. Encl.	±0.55	--	3.25	0.308	62.71

*PRIMARY STRUCTURAL NOT INCLUDED
**PM IS BASED ON THE MINIMUM ROOF SNOW LOAD CALCULATED PER BUILDING CODE OR THE CONTRACT-SPECIFIED ROOF SNOW LOAD, WHICHEVER IS GREATER. THIS VALUE, PM, IS ONLY APPLIED IN COMBINATION WITH DEAD LOAD AND COLLATERAL LOADS. ROOF SNOW IN OTHER LOADING CONDITIONS IS DETERMINED PER THE SPECIFIED BUILDING CODE.
***DESIGN WIND PRESSURES TO BE USED FOR WALL EXTERIOR COMPONENT AND CLADDING MATERIALS NOT PROVIDED BY METAL BUILDING SUPPLIER

PROJECT NOTES:

1) COLLATERAL DEAD LOADS, UNLESS OTHERWISE NOTED, ARE ASSUMED TO BE UNIFORMLY DISTRIBUTED. WHEN SUSPENDED SPRINKLER SYSTEMS, LIGHTING, HVAC EQUIPMENT, CEILINGS, ETC., ARE SUSPENDED FROM ROOF MEMBERS, CONSULT THE M.B.S. IF THESE CONCENTRATED LOADS EXCEED 500 POUNDS (USING THE WEB MOUNT DETAIL), OR 200 POUNDS (USING THE FLANGE MOUNT DETAIL), OR IF INDIVIDUAL MEMBERS ARE LOADED SIGNIFICANTLY MORE THAN OTHERS.

2) THE DESIGN OF STRUCTURAL MEMBERS SUPPORTING GRAVITY LOADS IS CONTROLLED BY THE MORE CRITICAL EFFECT OF ROOF LIVE LOAD OR ROOF SNOW LOAD, AS DETERMINED BY THE APPLICABLE CODE.

3) **PM IS BASED ON THE MINIMUM ROOF SNOW LOAD CALCULATED PER BUILDING CODE OR THE CONTRACT-SPECIFIED ROOF SNOW LOAD, WHICHEVER IS GREATER. THIS VALUE, PM, IS ONLY APPLIED IN COMBINATION WITH DEAD LOAD AND COLLATERAL LOADS. ROOF SNOW IN OTHER LOADING CONDITIONS IS DETERMINED PER THE SPECIFIED BUILDING CODE.

FOR OCCUPANCY (RISK) CATEGORY I OR II, IBC PROVISIONS INDICATE THAT SINGLE-STORY BUILDINGS SHALL HAVE 'NO DRIFT LIMIT' PROVIDED THAT INTERIOR WALLS, PARTITIONS, CEILINGS AND EXTERIOR WALL SYSTEMS HAVE BEEN DESIGNED TO ACCOMMODATE THE SEISMIC STORY DRIFTS. INTERIOR WALLS, PARTITIONS, CEILINGS OR EXTERIOR WALL SYSTEMS NOT PROVIDED BY THE METAL BUILDING MANUFACTURER SHALL BE DESIGNED AND DETAILED BY OTHERS TO ACCOMMODATE THE SEISMIC STORY DRIFTS. SEISMIC DRIFT VALUES MAY BE OBTAINED FROM THE METAL BUILDING MANUFACTURER. BCL2

THIS BUILDING SYSTEM DESIGN IS BASED ON UNIFORMLY APPLYING THE CONTRACT-SPECIFIED LIVE, SNOW, WIND, SEISMIC, COLLATERAL AND AUXILIARY LOADS. IN addition, THE DESIGN IS BASED ON APPLYING A CODE-DEFINED LIVE LOAD (INCLUDING APPLICABLE REDUCTIONS) AND A CODE-DEFINED SNOW LOAD (BASED ON CONTRACT-SPECIFIED GROUND SNOW) FOR ALL PARTIAL LOADING AND UNBALANCED SNOW LOAD CONDITIONS. BCL4

THIS BUILDING CODE REQUIRES CONSIDERATION OF SNOW SURCHARGES FOR ANY LOWER ROOF OF A STRUCTURE LOCATED WITHIN 20FT OF A HIGHER STRUCTURE. INFORMATION PROVIDED TO THE METAL BUILDING MANUFACTURER DOES NOT INDICATE THE PRESENCE OF A SHADOWING STRUCTURE WITHIN THIS 20FT ENVELOPE, THEREFORE SNOW SURCHARGES HAVE NOT BEEN CONSIDERED IN THE DESIGN. BCL9

THE PROJECT "ENGINEER OF RECORD" (EOR), NOT THE METAL BUILDING MANUFACTURER, IS RESPONSIBLE FOR ASSURING THE SOLAR PANEL ARRAYS WILL BE INSTALLED SO THAT THE PANEL SURFACE IS PARALLEL TO THE ROOF SHEETING AND NO MORE THAN 10 INCHES ABOVE THE ROOF SHEETING. A MINIMUM 1/2 INCH GAP AROUND THE PERIMETER OF EACH SOLAR PANEL OR A 1 INCH GAP BETWEEN ROWS OF PANELS IS REQUIRED. THE SOLAR ARRAY MUST BE LOCATED AT LEAST 1'-8" FROM THE ROOF EDGE. VARIATION FROM THIS FRAMING SETUP WILL REQUIRE THAT ANY ADDITIONAL WIND LOADS BE DEFINED BY THE PROJECT "ENGINEER OF RECORD". RA4

DAMAGING ANY OF THE ROOF COMPONENTS DURING THE SOLAR PANEL INSTALLATION OR USING A CONNECTION THAT WILL HAVE A NEGATIVE LONG-TERM EFFECT ON THE ROOF PANEL FINISH AND/OR THE ROOF COMPONENTS MAY VOID WARRANTIES INCLUDED WITH THIS ROOF SYSTEM. RA6

IF SNOW GUARDS OR OTHER DEVICES INTENDED TO HOLD SNOW AND/OR ICE ACCUMULATION ON THE ROOF SYSTEM ARE TO BE USED ON THIS PROJECT, THEY MUST BE INSTALLED UNDER THE GUIDANCE OF THE PROJECT "ENGINEER OF RECORD" (EOR), NOT THE METAL BUILDING MANUFACTURER, SO AS NOT TO EXCEED THE DESIGN ROOF SNOW LOAD ON THIS PROJECT. RA5

THE DRAWINGS AND THE METAL BUILDING THEY REPRESENT ARE THE PRODUCT OF THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER'S SEAL PERTAINS ONLY TO THE REQUIREMENTS LISTED HEREIN FOR THE MATERIALS DESIGNED AND SUPPLIED BY THE METAL BUILDING MANUFACTURER. THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED OR ENGAGED BY THE METAL BUILDING MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSTRUED AS SUCH.

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MBMA METAL BUILDING MANUFACTURERS ASSOCIATION
IAS ACCREDITED AC472 (E1)
CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:23pm

JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE BUILDING SHEET 1
SHEET C2

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI/	WD	09/30/2026

Main

PRIMER COLOR

PRIMARY: RED
SECONDARY: RED

ROOF SHEETING

TYPE: CFR , 24 GAGE, FINISH: BRICK RED
ROOF PANEL CLIP TYPE: SLIDING (TALL)
THERMAL BLOCKS: YES EPS FOAM SPACERS: N/A
ROOF INSULATION BY MBS: NO
THICKNESS: R-13 (4") IN CAVITY: R-25 (8")
ROOF LINE TRIM COLOR: BRICK RED
GUTTERS COLOR: BRICK RED
DOWNSPOUTS COLOR: BRICK RED

WALL SHEETING

TYPE: REV-R , 26 GAGE, FINISH: CHARCOAL GRAY
WALL INSULATION BY MBS: NO
THICKNESS: THERMAL SPACER TAPE IN CAVITY: R-30 (9 1/4")
WALL CORNER TRIM COLOR: BRICK RED
WALL BASE TRIM COLOR: CHARCOAL GRAY
FRAMED OPENING TRIM COLOR: CHARCOAL GRAY
FRAMED OPENING COVER TRIM COLOR: CHARCOAL GRAY

CEILING LINER PANEL

TYPE: REV-R , 26 GAGE, FINISH: BRICK RED

EAVE EXTENSION

PROJECTION: 2'-6"
TYPE: CFR , 24 GAGE, FINISH: BRICK RED
BUILDING LINE TRIM COLOR: BRICK RED
SOFFIT PANEL TYPE: REV-R , 26 GAGE, FINISH: BRICK RED

RAKE EXTENSION

PROJECTION: 2'-6"
TYPE: CFR , 24 GAGE, FINISH: BRICK RED
BUILDING LINE TRIM COLOR: BRICK RED
SOFFIT PANEL TYPE: REV-R , 26 GAGE, FINISH: BRICK RED

General Notes

MISCELLANEOUS MATERIAL

N/A
N/A
N/A

NBG STANDARD COLORS									
FRAMING / STRUCTUAL PRIMER COLORS			SMP		PVDF				
			COLOR	CODE	COLOR	CODE	COLOR		CODE
COLOR	CODE		BRIGHT WHITE	BW	ARCTIC WHITE	AR	BRITE RED		BT
RED	RP		DRIFTWOOD	DW	DARK BRONZE	DB	WARM WHITE		WW
GRAY	GP		CHARCOAL GRAY	CL	REGAL GRAY	RG	STORM GRAY		ST
GALVANIZED	GZ		FOX GRAY	FG	CYPRESS GREEN	CY	REFLECTIVE WHITE		RF
NO PAINT	NP		SAGEBRUSH TAN	SA	MIDNIGHT BLACK	BL	IMP ONLY	COLONIAL RED	CR
MISC FINISH			BURNISHED SLATE	BS	HARVEST BEIGE	HB	TUFF COTE		CODE
COLOR	CODE		FOREST GREEN	FO	CARBON GRAY	CG	TEXTURED WHITE		TW
GALVALUME PLUS	GM		AZTEC BLUE	AB	ROYAL BLUE	RO	LIGHT STONE		LS
INT. IMP	IGLOO WHITE	IG	BRICK RED	BD	DUNE	DU	LIGHT GRAY		LG

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

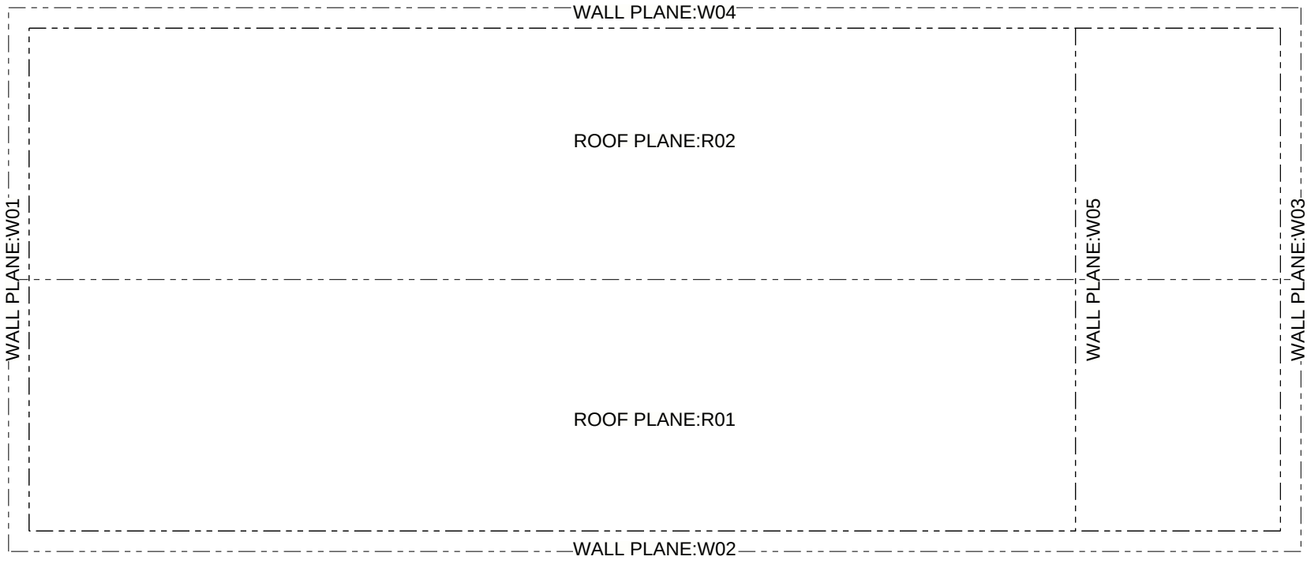
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JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE BUILDING SHEET 2
SHEET C3

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

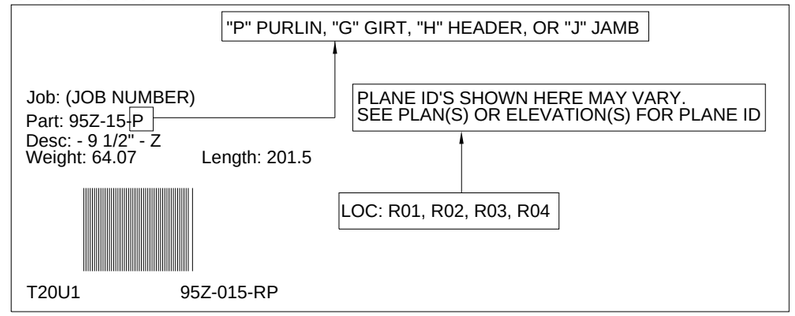
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STATE OF WASHINGTON
42446
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PROFESSIONAL ENGINEER

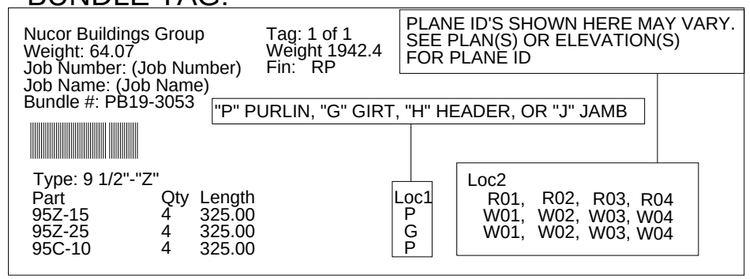


PLANE IDENTIFICATION PLAN

PART TAG:



BUNDLE TAG:



NBG PRIMARY MARK CONVENTION

ECB-2

- E = ENDWALL, R = RIDGID FRAME, M = MISCELLANEOUS, C = CRANE, P = PORTAL
- C = COLUMN, R = RAFTER, B = BEAM, P = PART
- B = BUILT UP, W = WIDE FLANGE, T = TUBE, P = PIPE, H = HOT ROLLED, C = COLD FORM
- COUNTER

SECONDARY MARK NUMBER CONVENTION

80Z-1

- DEPTH: 80 = 8", 95 = 9 1/2", 12 = 12"
- PROFILE: Z = ZEE, C = CEE, S = STRUCTURAL
- COUNTER

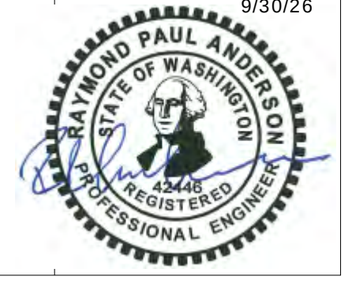
EAVE STRUT MARK NUMBER CONVENTION

80E1-1

- DEPTH: 80 = 8", 95 = 9 1/2", 12 = 12"
- E = EAVE STRUT
- ROOF SLOPE: 1 = 1:12, 2 = 2:12, 3 = 3:12, 4 = 4:12
- COUNTER

NBG BRACING DIAMETER	
RD = ROD BRACING CA= CABLE BRACING	
CODE	DIAMETER
02	1/4"
03	3/8"
04	1/2"
05	5/8"
06	3/4"
07	7/8"
08	1"
09	1 1/8"
10	1 1/4"

9/30/26



MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CWB CERTIFIED
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:25pm

JOB NUMBER U26H0545A

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

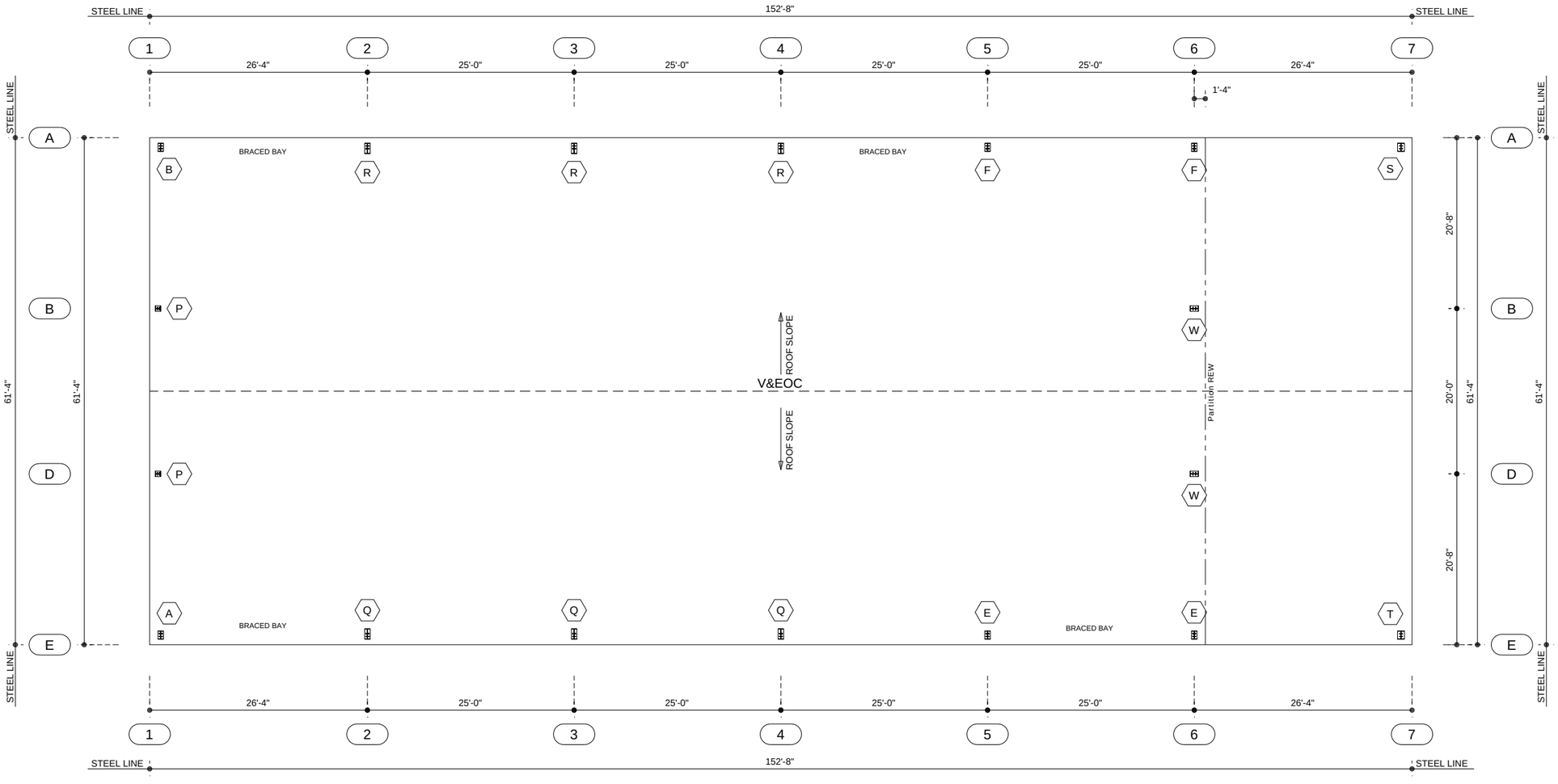
DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE PLANE IDENTIFICATION PLAN

SHEET C4

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

ANCHOR ROD TABLE		
SIZE	QTY	MATERIAL
1.00"	56	F1554 Gr 55
0.75"	16	F1554 Gr 55



ANCHOR ROD PLAN

ANCHOR ROD PLAN GENERAL NOTES

AN1: THE SPECIFIED ANCHOR ROD DIAMETER ASSUMES F1554 GRADE 36 UNLESS NOTED OTHERWISE. ANCHOR ROD MATERIAL OF EQUAL DIAMETER MEETING OR EXCEEDING THE STRENGTH REQUIREMENTS SET FORTH ON THESE DRAWINGS MAY BE UTILIZED AT THE DISCRETION OF THE FOUNDATION DESIGN ENGINEER. ANCHOR ROD EMBEDMENT LENGTH SHALL BE DETERMINED BY THE FOUNDATION DESIGN ENGINEER.

AN2: METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR PROJECT FOUNDATION DESIGN. THE FOUNDATION DESIGN IS THE RESPONSIBILITY OF A REGISTERED PROFESSIONAL ENGINEER, FAMILIAR WITH LOCAL SITE CONDITIONS.

AN3: ANCHOR RODS, NUTS, FLAT WASHERS FOR ANCHOR RODS, EXPANSION BOLTS, AND CONCRETE/MASONRY EMBEDMENT PLATES ARE NOT BY THE METAL BUILDING MANUFACTURER.

AN4: DRAWING IS NOT TO SCALE. SEE DETAILS FOR COLUMN ORIENTATION.

AN5: THE ANCHOR ROD LOCATIONS PROVIDED BY THE METAL BUILDING MANUFACTURER SATISFY PERTINENT REQUIREMENTS FOR THE DESIGN OF THE MATERIALS SUPPLIED BY THE METAL BUILDING MANUFACTURER. IT IS THE RESPONSIBILITY OF THE FOUNDATION ENGINEER TO MAKE CERTAIN THAT SUFFICIENT EDGE DISTANCE IS PROVIDED FOR ALL ANCHOR RODS IN THE DETAILS OF THE FOUNDATION DESIGN.

AN6: THE ANCHOR ROD PLAN INDICATES WHERE THE ANCHOR RODS ARE TO BE PLACED AS WELL AS THE FOOTPRINT OF THE METAL BUILDING. IT IS ESSENTIAL THAT THESE ANCHOR ROD PATTERNS BE FOLLOWED. IF THESE SETTINGS DIFFER FROM THE ARCHITECTURAL FOUNDATION PLANS, THE METAL BUILDING MANUFACTURER MUST BE CONTACTED IMMEDIATELY – BEFORE CONCRETE IS PLACED.

AN7: "SINGLE" CEE COLUMNS SHALL BE ORIENTED WITH THE "TOES" TOWARD THE LOW EAVE UNLESS NOTED OTHERWISE.

AN8: ALL DIMENSIONS ARE OUT TO OUT OF STEEL. IF A CONCRETE NOTCH IS REQUIRED THEN THE REQUIRED DIMENSION SHOULD BE ADDED TO OBTAIN THE OUT TO OUT OF CONCRETE DIMENSIONS.

AN9: FINISHED FLOOR ELEVATION = 100'-0" AND BOTTOM OF BASE PLATES = 100'-0" UNLESS NOTED OTHERWISE.

NUCOR BUILDING SYSTEMS
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09/30/2026 12:05:26pm

JOB NUMBER **U26H0545A**

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PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

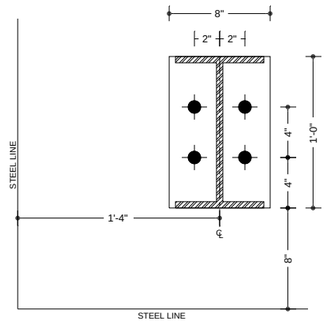
DRAWING TITLE ANCHOR ROD PLAN

SHEET F1

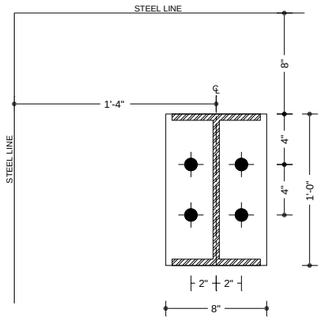
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

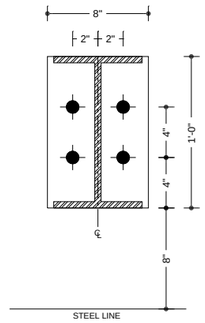
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER



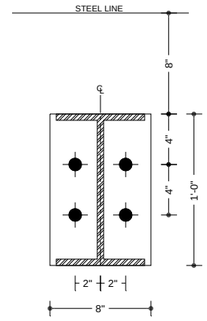
1" AB - 3" REQD. PROJECTION | A



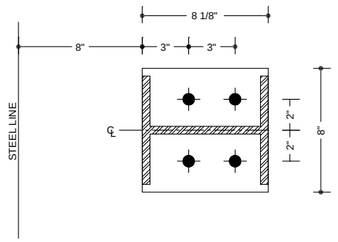
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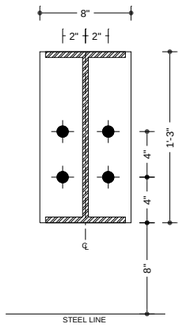
1" AB - 3" REQD. PROJECTION | E



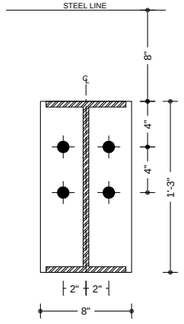
1" AB - 3" REQD. PROJECTION | F



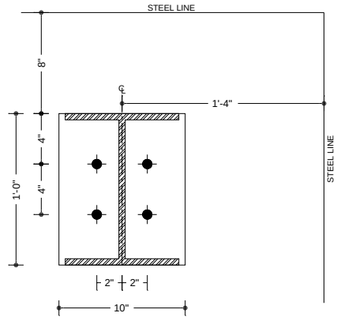
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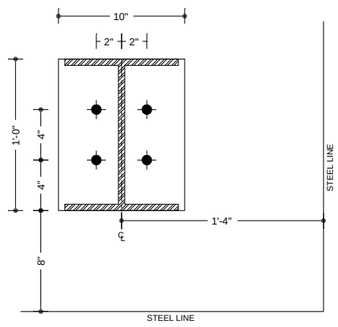
1" AB - 3" REQD. PROJECTION | Q



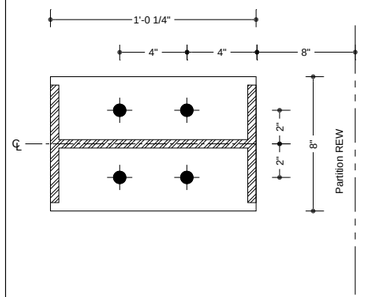
1" AB - 3" REQD. PROJECTION | R



1" AB - 3" REQD. PROJECTION | S

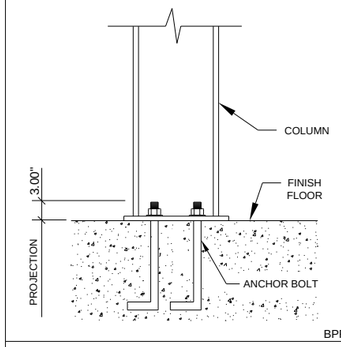


1" AB - 3" REQD. PROJECTION | T



3/4" AB - 3" REQD. PROJECTION | W

BASEPLATE LENGTHS SHOWN IN ANCHOR ROD DETAILS ARE SUBJECT TO BE +/- 1"



TYPICAL COLUMN BASE PLATE DETAIL

MBMA MEMBER
IAS ACCREDITED MFR 0130
CWB CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:27pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

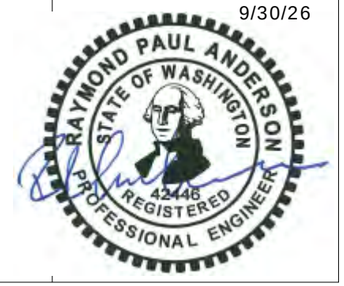
DRAWING STATUS
FOR PERMITS ONLY

DRAWING TITLE
BASE PLATE DETAILS

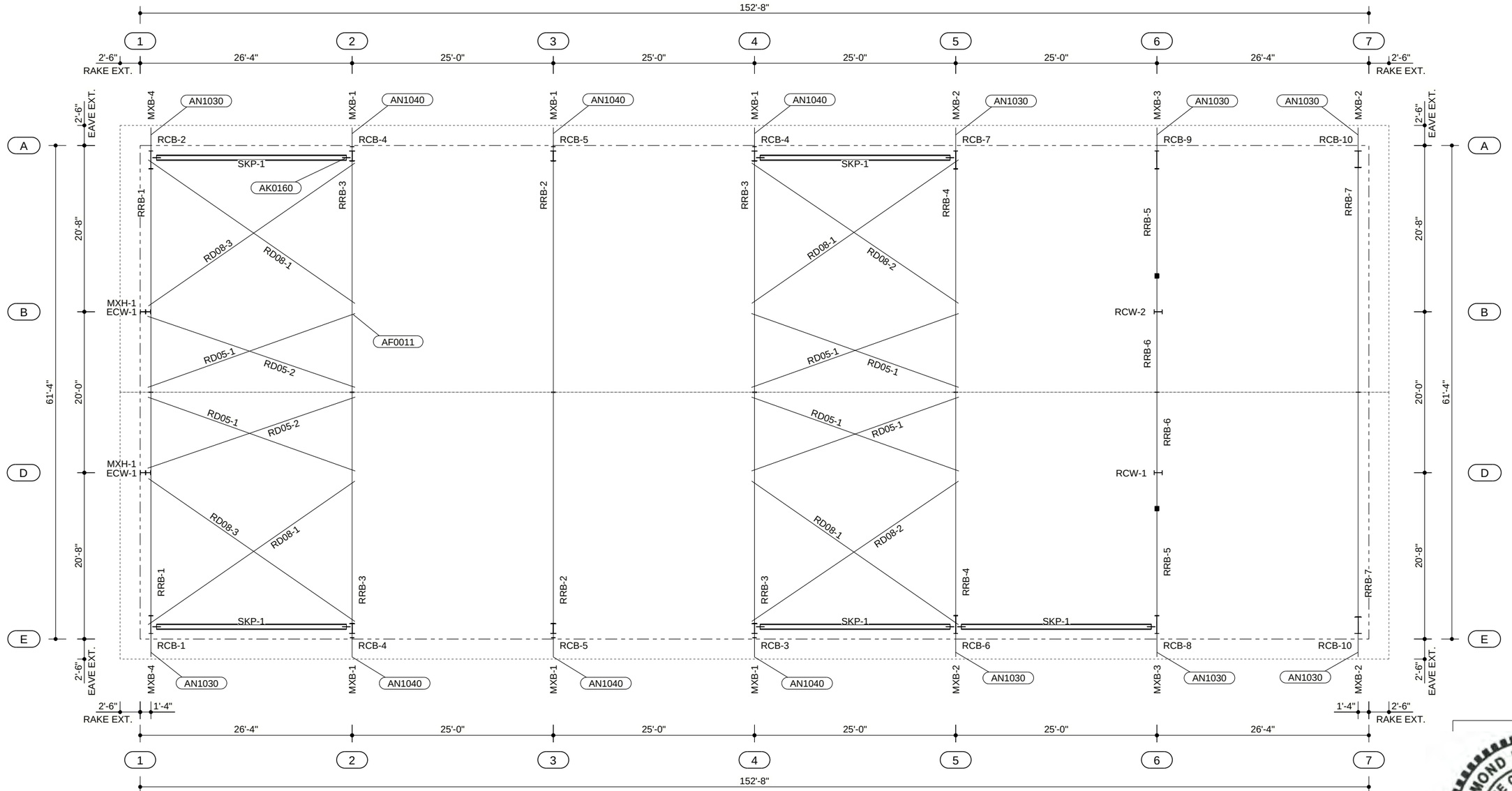
SHEET F2

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26



EAVE EXTENSION BEAM SIZE TABLE						
ASSEMBLY **NAME**	OUTSIDE **FLANGE**	WEB **THICK**	WEB **LENGTH**	STARTING WEB **DEPTH**	ENDING WEB **DEPTH**	INSIDE **FLANGE**
MXB-__	5.00 X 0.25	0.188	VARIES	9.00	9.00	5.00 X 0.25
NOTE: UNITS ARE DECIMAL INCH.						



PRIMARY FRAMING SHAKEOUT PLAN

SHAKEOUT PLAN GENERAL NOTES

SH1: PLACE WELDED METAL TAGGED END OF RAFTER TOWARD LOW EAVE.
RAFTERS CENTERED ON RIDGE: IF NOT SYMMETRICAL, "*" INDICATES THE TAGGED END.
OTHERWISE, THEY ARE SYMMETRICAL AND CAN BE ORIENTED EITHER DIRECTION.
REFERENCE CROSS SECTIONS FOR ORIENTATION OF INTERIOR COLUMNS.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION.
ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:29pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE PRIMARY FRAMING SHAKEOUT PLAN
SHEET E1

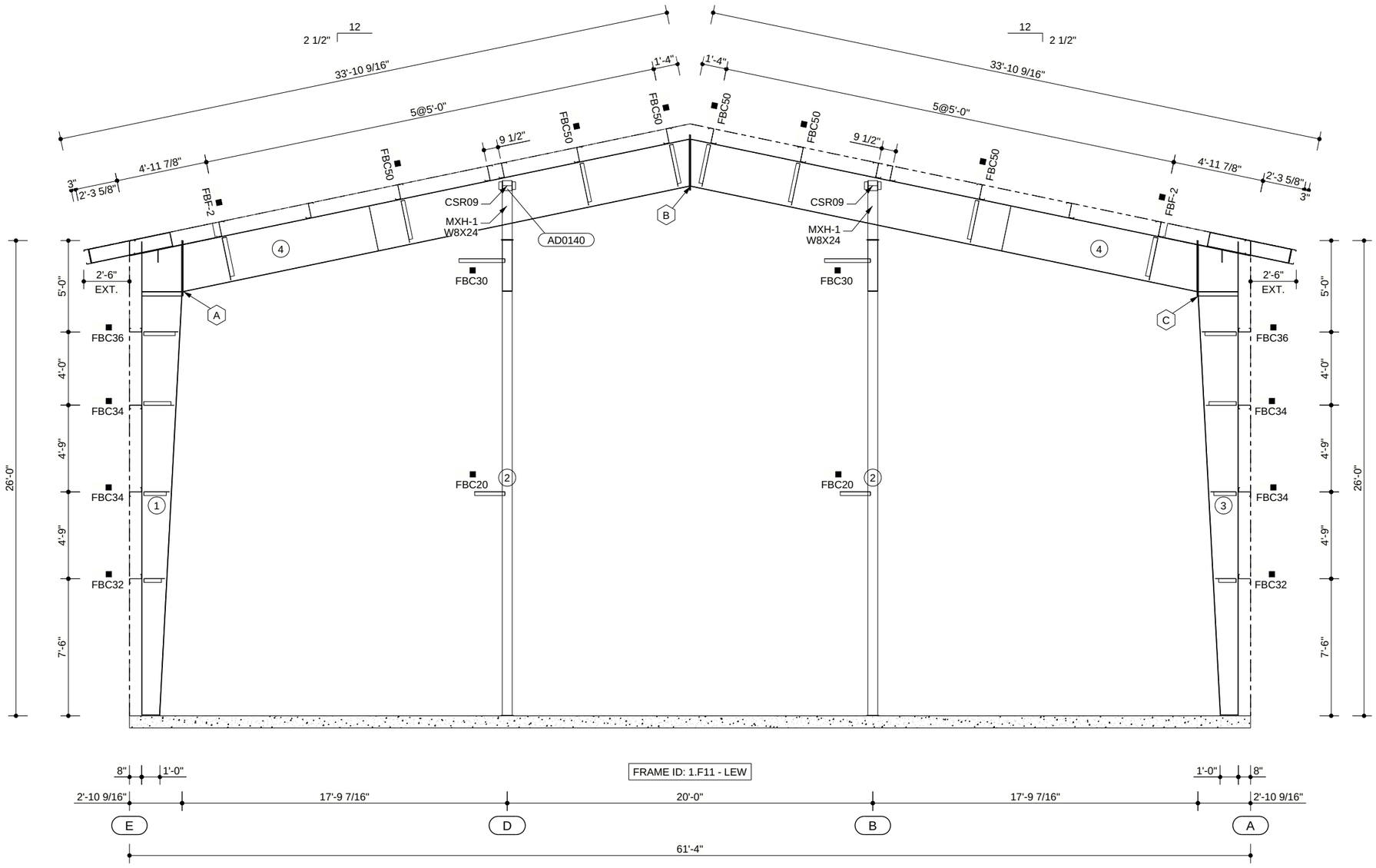
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0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MEMBER SIZE TABLE						
ASSEMBLY NAME	OUTSIDE FLANGE	WEB THICK	WEB LENGTH	STARTING WEB DEPTH	ENDING WEB DEPTH	INSIDE FLANGE
1	6.00 X 0.25	0.220	275.01	11.44	26.00	6.00 X 0.31
		0.220	33.41	26.00	26.00	
2	---	---	---	W8X24	---	---
3	6.00 X 0.25	0.220	275.01	11.44	26.00	6.00 X 0.31
		0.220	33.41	26.00	26.00	
4	6.00 X 0.25	0.150	130.93	30.00	30.00	6.00 X 0.25
		0.150	214.71	30.00	30.00	
NOTE: UNITS ARE DECIMAL INCH.						

SPLICE BOLT TABLE						
SPLICE	BOLTS DESCRIPTION	BOLT #	NUT #	CLEAR TO F.F.	PLATE SIZE	PLATE SIZE
A	(12) 5/8" X 2 1/4" A325	H0610	H0310	23'-2 3/8"	6" X 1/2	6" X 1/2
B	(8) 5/8" X 2 1/4" A325	H0610	H0310	28'-9 1/16"	6" X 1/2	6" X 1/2
C	(12) 5/8" X 2 1/4" A325	H0610	H0310	23'-2 3/8"	6" X 1/2	6" X 1/2



FRAME ID: 1.F11 - LEW

CROSS SECTION AT LINE 1

FRAME CROSS SECTION GENERAL NOTES

FN1: FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHAKEOUT PLAN.
FN2: (2) INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME.
FN3: IF (2) IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.

FN4: FOR EXPANDABLE ENDWALL RIGID FRAMES, IF FLANGE BRACING IS REQUIRED ON BOTH SIDES (2) OF AN EXPANDABLE END FRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.

FN5: "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. COLUMNS AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.

FN6: RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.

FN7: ■ INDICATES FBL01 AND FBN01 CLIPS ARE REQUIRED. REFERENCE FLANGE BRACE DETAILS.

FN8: THE METAL TAG IS WELDED TO THE LONG SIDE OF PIPE & TUBE COLUMNS.

FN9: "##" WITHIN THE SPLICE BOLT TABLE UNDER NUT AND WASHER INDICATES THAT THE NUT AND WASHER ARE PART OF THE TENSION CONTROL BOLT ASSEMBLY SUPPLIED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:32pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE CROSS SECTION AT LINE 1
SHEET E2

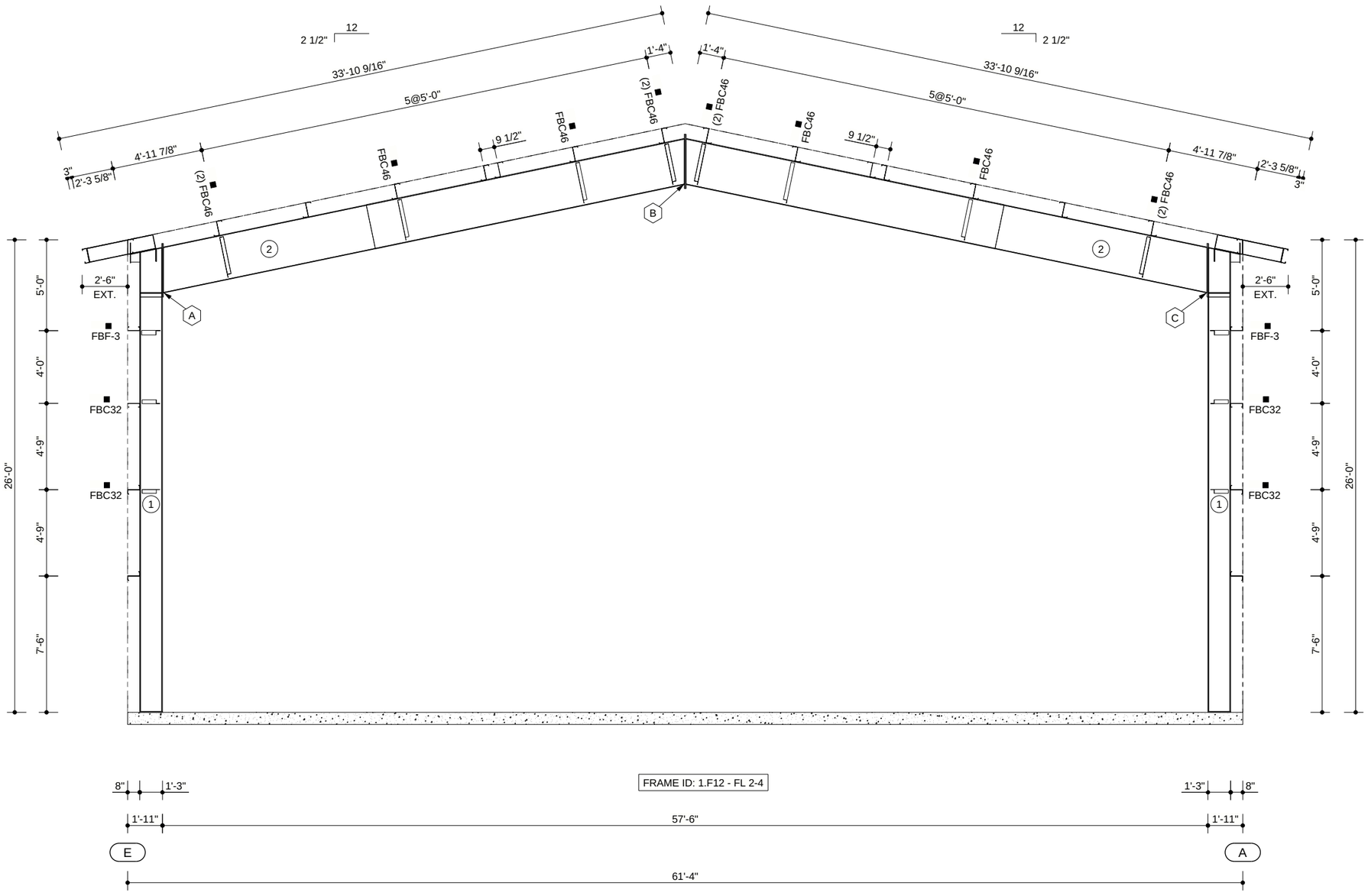
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MEMBER SIZE TABLE						
ASSEMBLY NAME	OUTSIDE FLANGE	WEB THICK	WEB LENGTH	STARTING WEB DEPTH	ENDING WEB DEPTH	INSIDE FLANGE
1	8.00 X 0.50	0.250	273.58	14.00	14.00	8.00 X 0.50
		0.312	32.39	14.00	14.00	
2	6.00 X 0.38	0.164	142.84	29.00	29.00	6.00 X 0.31
	6.00 X 0.50	0.150	214.33	29.00	29.00	6.00 X 0.38
NOTE: UNITS ARE DECIMAL INCH.						

SPLICE BOLT TABLE						
SPLICE	BOLTS DESCRIPTION	BOLT #	NUT #	CLEAR TO F.F.	PLATE SIZE	PLATE SIZE
A	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-0 15/16"	6" X 5/8	N/A
B	(16) 5/8" X 2 1/4" A325	H0610	H0310	28'-9 13/16"	6" X 5/8	6" X 5/8
C	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-0 15/16"	6" X 5/8	N/A



CROSS SECTION AT LINE 2, 3 & 4

FRAME CROSS SECTION GENERAL NOTES

FN1: FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHAKEOUT PLAN.
FN2: (2) INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME.
FN3: IF (2) IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.
FN4: FOR EXPANDABLE ENDWALL RIGID FRAMES, IF FLANGE BRACING IS REQUIRED ON BOTH SIDES (2) OF AN EXPANDABLE END FRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.
FN5: "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. COLUMNS AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.
FN6: RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.
FN7: ■ INDICATES FBL01 AND FBN01 CLIPS ARE REQUIRED. REFERENCE FLANGE BRACE DETAILS.
FN8: THE METAL TAG IS WELDED TO THE LONG SIDE OF PIPE & TUBE COLUMNS.
FN9: "##" WITHIN THE SPLICE BOLT TABLE UNDER NUT AND WASHER INDICATES THAT THE NUT AND WASHER ARE PART OF THE TENSION CONTROL BOLT ASSEMBLY SUPPLIED.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:33pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE CROSS SECTION AT LINE 2, 3 & 4
SHEET E3

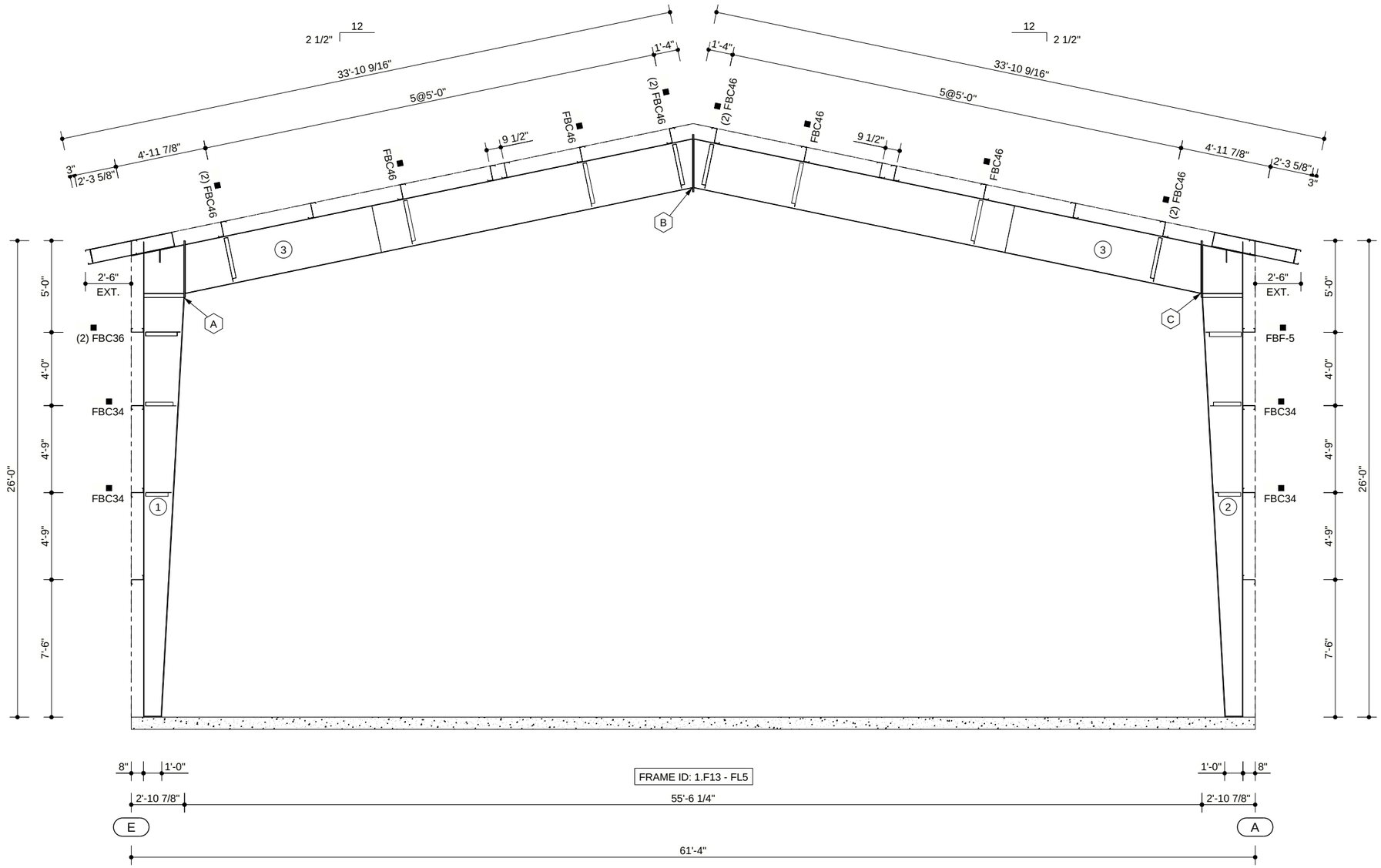
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26



MEMBER SIZE TABLE						
ASSEMBLY **NAME**	OUTSIDE **FLANGE**	WEB **THICK**	WEB **LENGTH**	STARTING WEB **DEPTH**	ENDING WEB **DEPTH**	INSIDE **FLANGE**
1	6.00 X 0.38	0.220	274.16	11.12	26.00	6.00 X 0.50
		0.220	34.29	26.00	26.00	
2	6.00 X 0.38	0.220	274.16	11.13	26.00	6.00 X 0.50
		0.220	34.29	26.00	26.00	
3	6.00 X 0.31	0.164	131.14	31.00	31.00	6.00 X 0.31
		0.150	214.45	31.00	31.00	6.00 X 0.25
NOTE: UNITS ARE DECIMAL INCH.						

SPLICE BOLT TABLE						
SPLICE	**BOLTS DESCRIPTION**	**BOLT #**	**NUT #**	**CLEAR TO F.F.**	**PLATE SIZE**	**PLATE SIZE**
A	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-1 5/16"	6" X 5/8	6" X 1/2
B	(16) 5/8" X 2 1/4" A325	H0610	H0310	28'-7 15/16"	6" X 1/2	6" X 1/2
C	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-1 5/16"	6" X 1/2	6" X 5/8



CROSS SECTION AT LINE 5

FRAME CROSS SECTION GENERAL NOTES

FN1: FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHAKEOUT PLAN.
FN2: (2) INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME.
FN3: IF (2) IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.

FN4: FOR EXPANDABLE ENDWALL RIGID FRAMES, IF FLANGE BRACING IS REQUIRED ON BOTH SIDES (2) OF AN EXPANDABLE END FRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.

FN5: "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. COLUMNS AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.

FN6: RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.

FN7: ■ INDICATES FBL01 AND FBN01 CLIPS ARE REQUIRED. REFERENCE FLANGE BRACE DETAILS.

FN8: THE METAL TAG IS WELDED TO THE LONG SIDE OF PIPE & TUBE COLUMNS.

FN9: "##" WITHIN THE SPLICE BOLT TABLE UNDER NUT AND WASHER INDICATES THAT THE NUT AND WASHER ARE PART OF THE TENSION CONTROL BOLT ASSEMBLY SUPPLIED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:35pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE CROSS SECTION AT LINE 5
SHEET E4

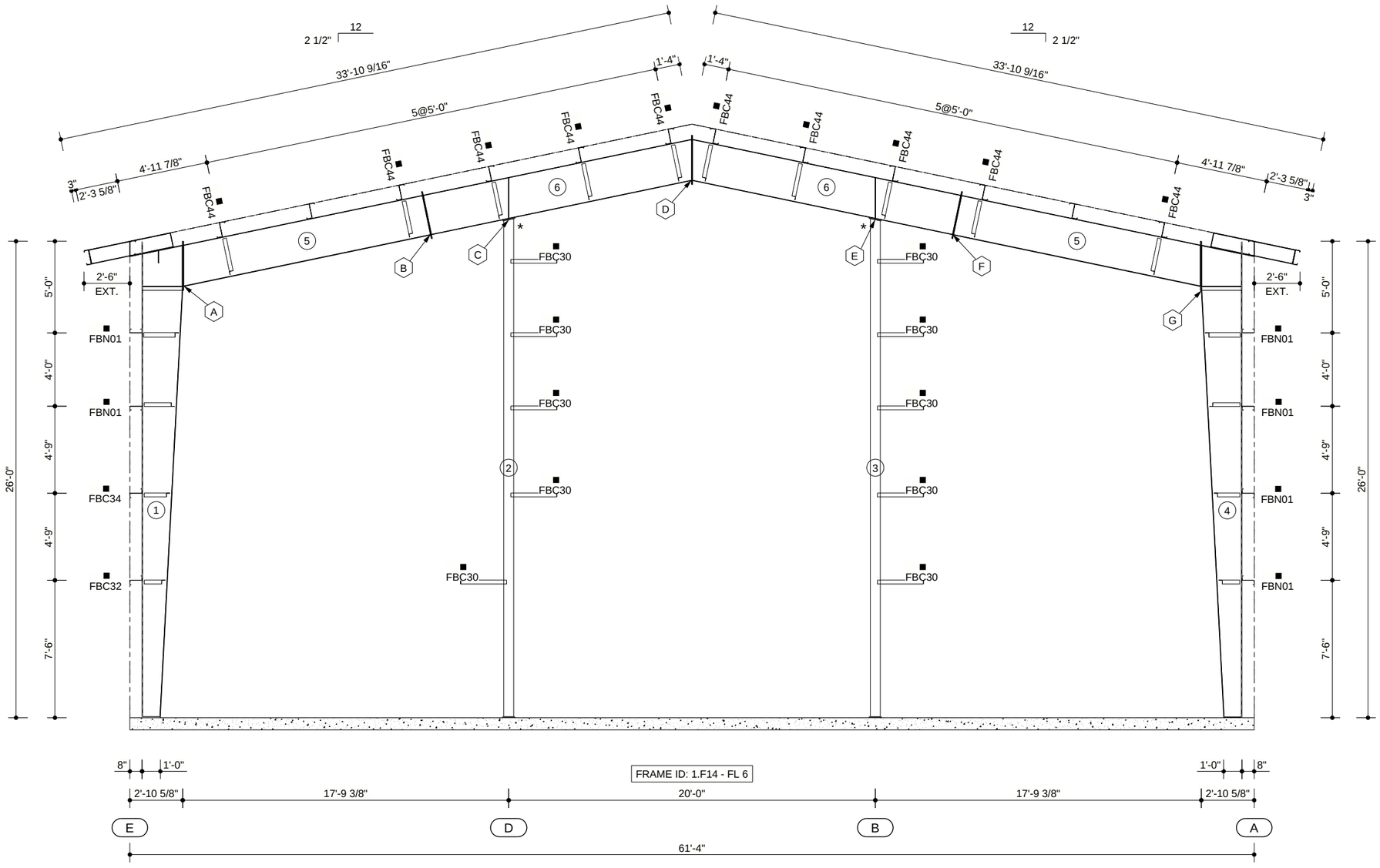
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MEMBER SIZE TABLE						
ASSEMBLY **NAME**	OUTSIDE **FLANGE**	WEB **THICK**	WEB **LENGTH**	STARTING WEB **DEPTH**	ENDING WEB **DEPTH**	INSIDE **FLANGE**
1	6.00 X 0.31	0.188	279.11	11.38	26.00	6.00 X 0.31
		0.188	29.20	26.00	26.00	
2	---	---	---	W12X26	---	---
3	---	---	---	W12X26	---	---
4	6.00 X 0.31	0.188	279.36	11.38	26.00	6.00 X 0.31
		0.188	29.20	26.00	26.00	
5	6.00 X 0.25	0.150	164.90	26.00	26.00	6.00 X 0.31
6	6.00 X 0.25	0.150	179.21	26.00	26.00	6.00 X 0.25
NOTE: UNITS ARE DECIMAL INCH.						

SPLICE BOLT TABLE						
SPLICE	**BOLTS DESCRIPTION**	**BOLT #**	**NUT #**	**CLEAR TO F.F.**	**PLATE SIZE**	**PLATE SIZE**
A	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-6 3/8"	6" X 1/2	6" X 1/2
B	(8) 5/8" X 2 1/4" A325	H0610	H0310	26'-1 11/16"	6" X 3/8	6" X 3/8
C	(4) 5/8" X 2 1/4" A325	H0610	H0310	27'-1 5/16"	8" X 5/8	N/A
D	(8) 5/8" X 2 1/4" A325	H0610	H0310	29'-1 3/16"	6" X 3/8	6" X 3/8
E	(4) 5/8" X 2 1/4" A325	H0610	H0310	27'-1 5/16"	8" X 5/8	N/A
F	(8) 5/8" X 2 1/4" A325	H0610	H0310	26'-1 11/16"	6" X 3/8	6" X 3/8
G	(16) 5/8" X 2 1/4" A325	H0610	H0310	23'-6 3/8"	6" X 1/2	6" X 1/2



CROSS SECTION AT LINE 6

FRAME CROSS SECTION GENERAL NOTES

FN1: FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHAKEOUT PLAN.
FN2: (2) INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME.
FN3: IF (2) IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.

FN4: FOR EXPANDABLE ENDWALL RIGID FRAMES, IF FLANGE BRACING IS REQUIRED ON BOTH SIDES (2) OF AN EXPANDABLE END FRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.

FN5: "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. COLUMNS AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.

FN6: RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.

FN7: ■ INDICATES FBL01 AND FBN01 CLIPS ARE REQUIRED. REFERENCE FLANGE BRACE DETAILS.

FN8: THE METAL TAG IS WELDED TO THE LONG SIDE OF PIPE & TUBE COLUMNS.

FN9: "##" WITHIN THE SPLICE BOLT TABLE UNDER NUT AND WASHER INDICATES THAT THE NUT AND WASHER ARE PART OF THE TENSION CONTROL BOLT ASSEMBLY SUPPLIED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:37pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET E5
DRAWING TITLE CROSS SECTION AT LINE 6

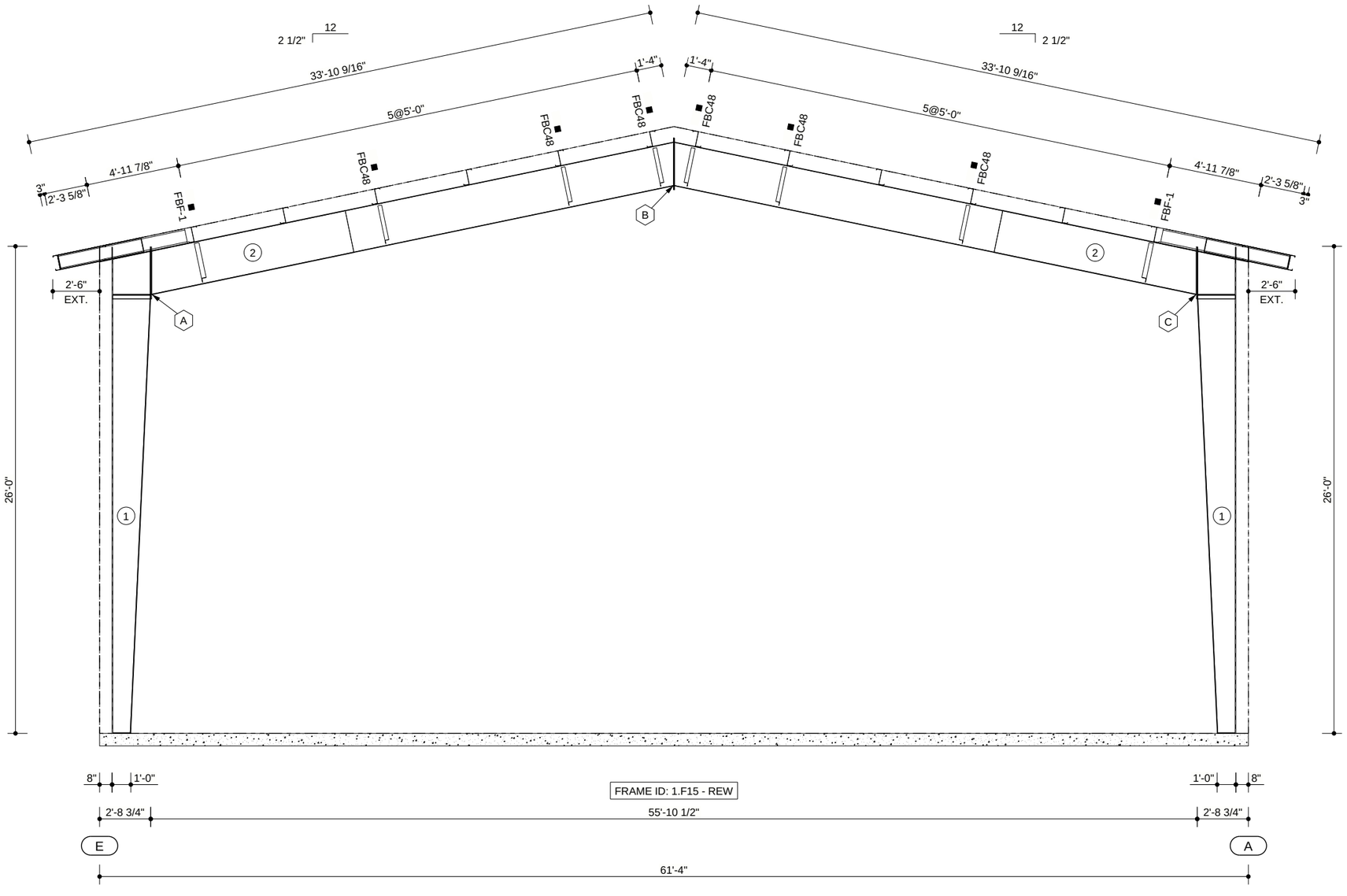
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MEMBER SIZE TABLE						
ASSEMBLY **NAME**	OUTSIDE **FLANGE**	WEB **THICK**	WEB **LENGTH**	STARTING WEB **DEPTH**	ENDING WEB **DEPTH**	INSIDE **FLANGE**
1	10.00 X 0.38	0.220	277.93	11.25	24.00	10.00 X 0.38
		0.220	30.35	24.00	24.00	
2	6.00 X 0.31	0.150	132.30	27.00	27.00	6.00 X 0.31
	6.00 X 0.25	0.150	214.75	27.00	27.00	6.00 X 0.25
NOTE: UNITS ARE DECIMAL INCH.						

SPLICE BOLT TABLE						
SPLICE	**BOLTS DESCRIPTION**	**BOLT #**	**NUT #**	**CLEAR TO F.F.**	**PLATE SIZE**	**PLATE SIZE**
A	(12) 5/8" X 2 1/4" A325	H0610	H0310	23'-5"	10" X 1/2	8" X 1/2
B	(16) 5/8" X 2 1/4" A325	H0610	H0310	29'-0 3/16"	6" X 3/8	6" X 3/8
C	(12) 5/8" X 2 1/4" A325	H0610	H0310	23'-5"	8" X 1/2	10" X 1/2



CROSS SECTION AT LINE 7

FRAME CROSS SECTION GENERAL NOTES

FN1: FOR COLUMN AND RAFTER MARK NUMBERS, SEE SHAKEOUT PLAN.
FN2: (2) INDICATES THAT FLANGE BRACING IS REQUIRED ON BOTH SIDES OF THE FRAME.
FN3: IF (2) IS NOT INDICATED, ONLY ONE FLANGE BRACE IS REQUIRED AND CAN BE LOCATED ON EITHER SIDE OF THE FRAME.
FN4: FOR EXPANDABLE ENDWALL RIGID FRAMES, IF FLANGE BRACING IS REQUIRED ON BOTH SIDES (2) OF AN EXPANDABLE END FRAME, THE OPPOSITE SIDE FLANGE BRACE WILL HAVE TO BE INSTALLED AT THE TIME OF EXPANSION. THESE FLANGE BRACES HAVE BEEN PROVIDED, AS REQUIRED, FOR THIS FUTURE CONDITION.
FN5: "*" INDICATES THE LONG SIDE OF THE INTERIOR COLUMNS. COLUMNS AT THE RIDGE ARE TYPICALLY "FLAT-TOP" COLUMNS, UNLESS INDICATED BY THE "*" SYMBOL.
FN6: RIGID FRAMES SHALL HAVE 50% OF THEIR BOLTS INSTALLED AND TIGHTENED ON BOTH SIDES OF THE WEB ADJACENT TO EACH FLANGE BEFORE THE HOISTING EQUIPMENT IS RELEASED.
FN7: ■ INDICATES FBL01 AND FBN01 CLIPS ARE REQUIRED. REFERENCE FLANGE BRACE DETAILS.
FN8: THE METAL TAG IS WELDED TO THE LONG SIDE OF PIPE & TUBE COLUMNS.
FN9: "###" WITHIN THE SPLICE BOLT TABLE UNDER NUT AND WASHER INDICATES THAT THE NUT AND WASHER ARE PART OF THE TENSION CONTROL BOLT ASSEMBLY SUPPLIED.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:38pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE CROSS SECTION AT LINE 7
SHEET E6

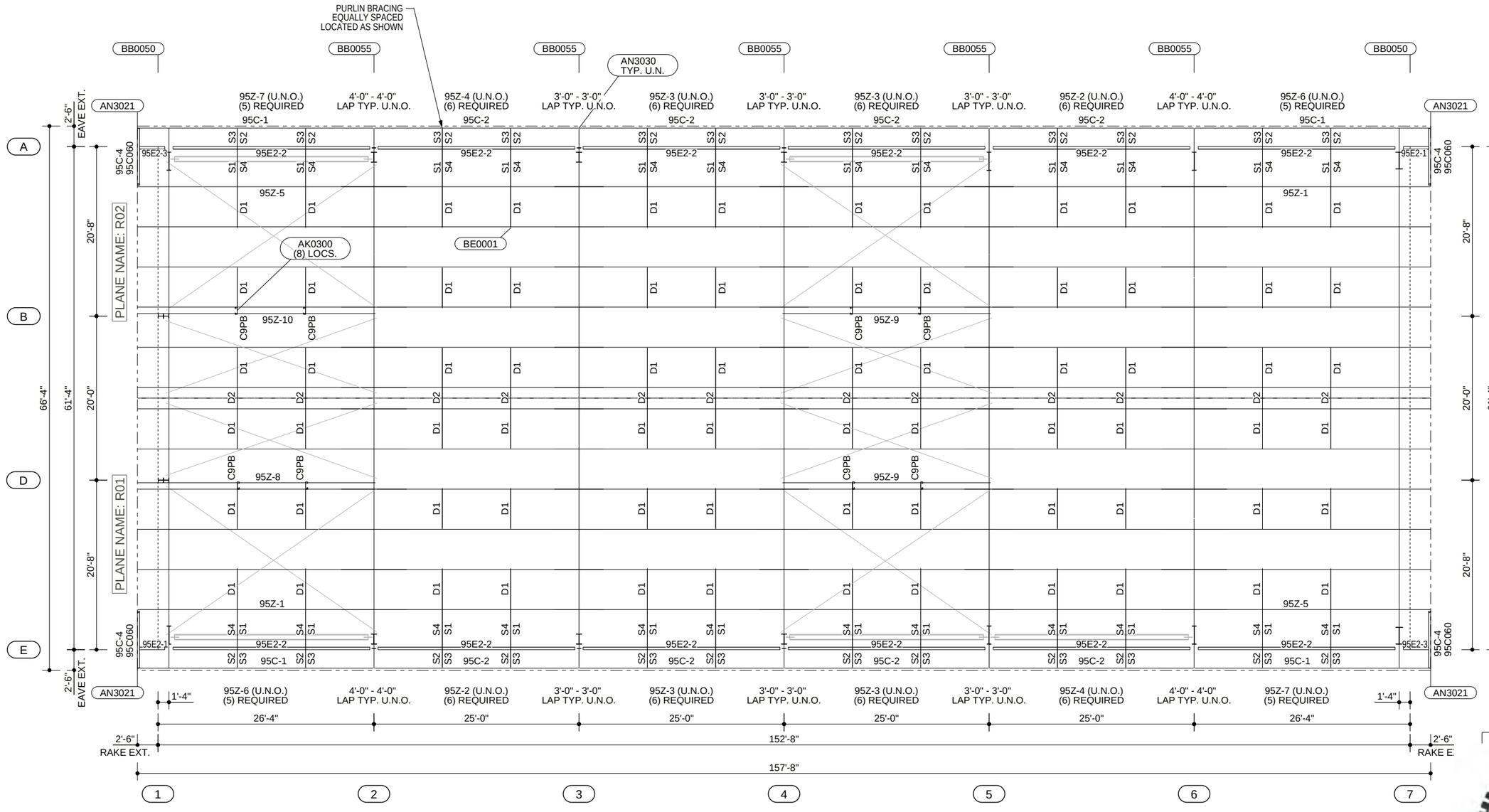
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
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PROFESSIONAL ENGINEER

Part Sizes			
Mark	Profile	Mark	Profile
95C-1	95C060	95Z-4	95Z067
95C-2	95C060	95Z-5	95Z089
95E2-1	95E2099	95Z-6	95Z089
95E2-2	95E2099	95Z-7	95Z089
95E2-3	95E2099	95Z-8	95Z099
95Z-1	95Z089	95Z-9	95Z099
95Z-2	95Z067	95Z-10	95Z099
95Z-3	95Z067		

SHORTENED MARKS	
SHOWN	ACTUAL
D1	(2)PB960
D2	(2)PBX-1
S1	PB960
S2	PBX-2
S3	PBX-3
S4	PBX-4



ROOF FRAMING PLAN

ROOF FRAMING GENERAL NOTES

RN1: PURLIN AND EAVE STRUT BOLT CONN. REQUIREMENTS: A307 & A325 BOLTS ARE USED REFER TO DETAILS FOR SPECIFIC LOCATIONS.
RN2: SEE CROSS SECTIONS FOR MAIN FRAME FLANGE BRACING.
RN3: ▼ INDICATES NESTED PURLIN. SEE DETAIL BM____.
PB1: PB____ INDICATES PURLIN BRACING. SEE ROOF FRAMING DETAILS BE____ FOR MORE INFO.
PB2: PURLIN BRACING ROWS ARE EQUALLY SPACED BETWEEN RAFTERS U.N.O.
PB3: PURLIN BRACE ANGLES LESS THAN 15" LONG REQUIRE FIELD WORK: CUT AND NOTCH TAB TO FIT IN SPACING AS REQUIRED. REFER TO BE0001.
RF1: IN THE ROOF TOP UNIT TABLE, "WIDTH" IS PERPENDICULAR TO THE PURLINS AS MEASURED ON SLOPE (PARALLEL WITH THE ROOF PLANE). THE TRUE WIDTH IS 1" GREATER, TO ALLOW 1/2" CLEARANCE BOTH DIRECTIONS. SEE BK____ DETAILS.
RF2: IN THE ROOF TOP UNIT TABLE, "LENGTH" IS PARALLEL WITH THE PURLINS. THE TRUE LENGTH IS 1" GREATER, TO ALLOW 1/2" CLEARANCE BOTH DIRECTIONS. SEE BK____ DETAILS.
RF3: FRAMED OPENINGS ARE LOCATED TO THE CENTER OF THE OPENING, AND DIMENSIONS ARE PARALLEL WITH THE FLOOR.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

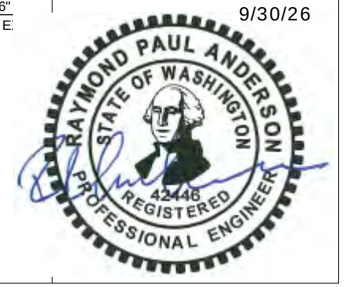
MBMA MEMBER
IAS ACCREDITED MFG 0130
CWB CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:52pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF FRAMING PLAN
SHEET E7

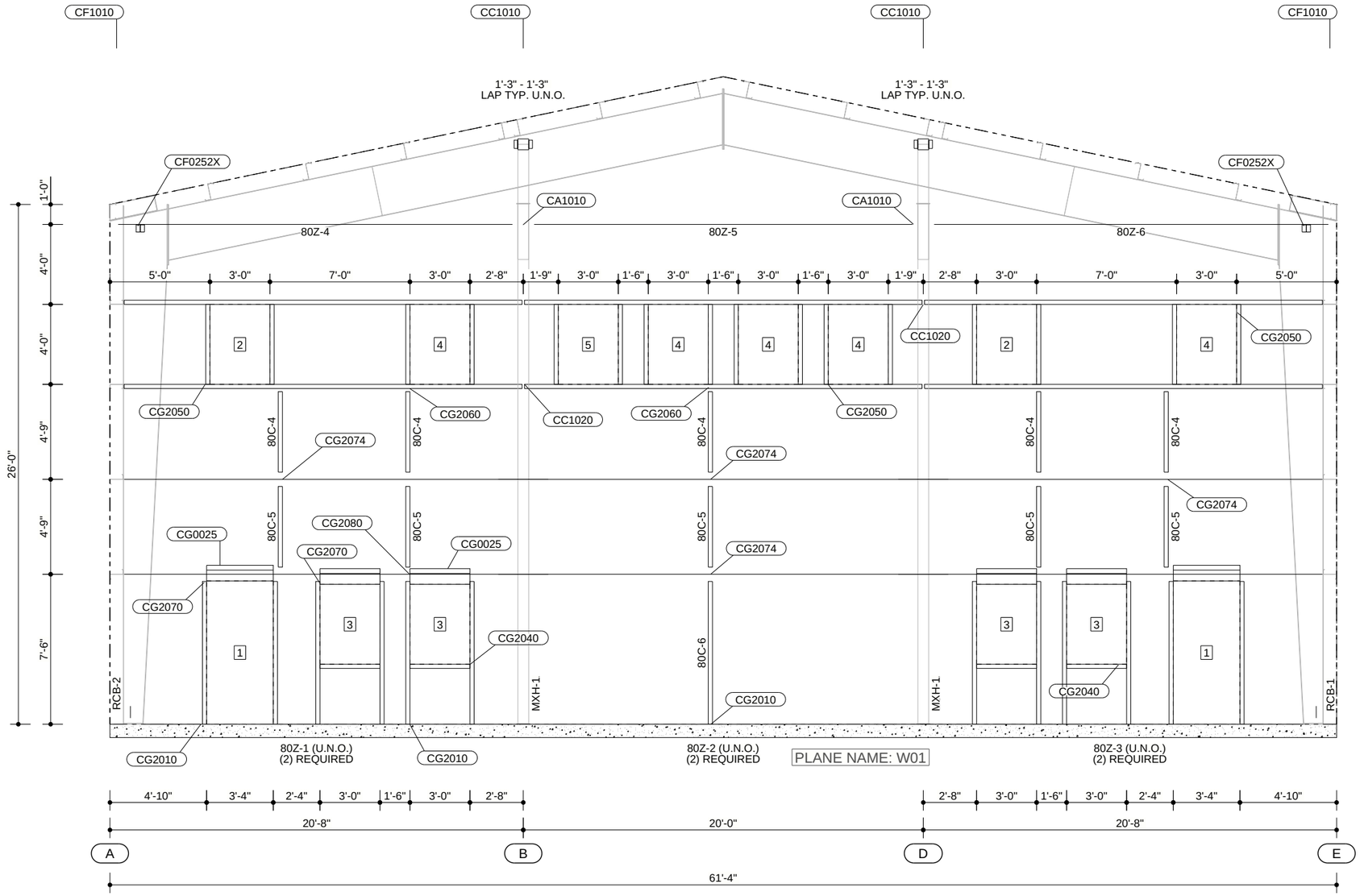
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26



FRAMED OPENING TABLE									
MARK	WIDTH	HEIGHT	HEADER	DRUM SUPPORT	LEFT JAMB	RIGHT JAMB	SILL	SILL HEIGHT	FIELD LOCATED
1	3'-4"	7'-2"	HW8-2 (HW8)	N/A	80C-1 (80C060)	80C-1 (80C060)	N/A	N/A	N
2	3'-0"	4'-0"	80C-7 (80C060)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-7 (80C060)	17'-0"	N
3	3'-0"	4'-0"	HW8-1 (HW8)	N/A	80C-2 (80C060)	80C-2 (80C060)	80C-3 (80C060)	3'-0"	N
4	3'-0"	4'-0"	N/A	N/A	80C-8 (80C060)	80C-8 (80C060)	N/A	17'-0"	N
5	3'-0"	4'-0"	80C-9 (80C060)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-9 (80C060)	17'-0"	N

Part Sizes	
Mark	Profile
80Z-1	80Z060
80Z-2	80Z060
80Z-3	80Z060
80Z-4	80Z067
80Z-5	80Z075
80Z-6	80Z067



FRAMING ELEVATION - ENDWALL AT LINE 1

WALL FRAMING GENERAL NOTES

WN1: SEE CROSS SECTION FOR MAIN FRAME FLANGE BRACING.
WN2: SEE WALL FRAMING DETAILS FOR STANDARD GIRT ORIENTATION DETAIL.
WN3: RD_ INDICATES ROD BRACING. SEE PRIMARY DETAILS FOR ROD BRACING ASSEMBLY.
WN4: CA_ INDICATES CABLE BRACING. SEE PRIMARY DETAILS FOR CABLE BRACING ASSEMBLY.
WN5: CUT AND DRILL GIRTS AS NECESSARY FOR FIELD LOCATED FRAMED OPENINGS.
WN6: AT FLUSH OR INSET GIRT CONDITIONS, FIELD SLOT GIRT WEBS TO ALLOW PASSAGE OF ROD BRACING. SEE PRIMARY DETAILS FOR GUIDELINES.
WN7: DETAIL NUMBERS LISTED ABOVE EACH LINE ARE TYP AT THAT FRAME LINE U.N.O.
WN8: ▼ INDICATES NESTED GIRT. SEE DETAIL CM____.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:55pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET E8
DRAWING TITLE FRAMING ELEVATION - ENDWALL AT LINE 1

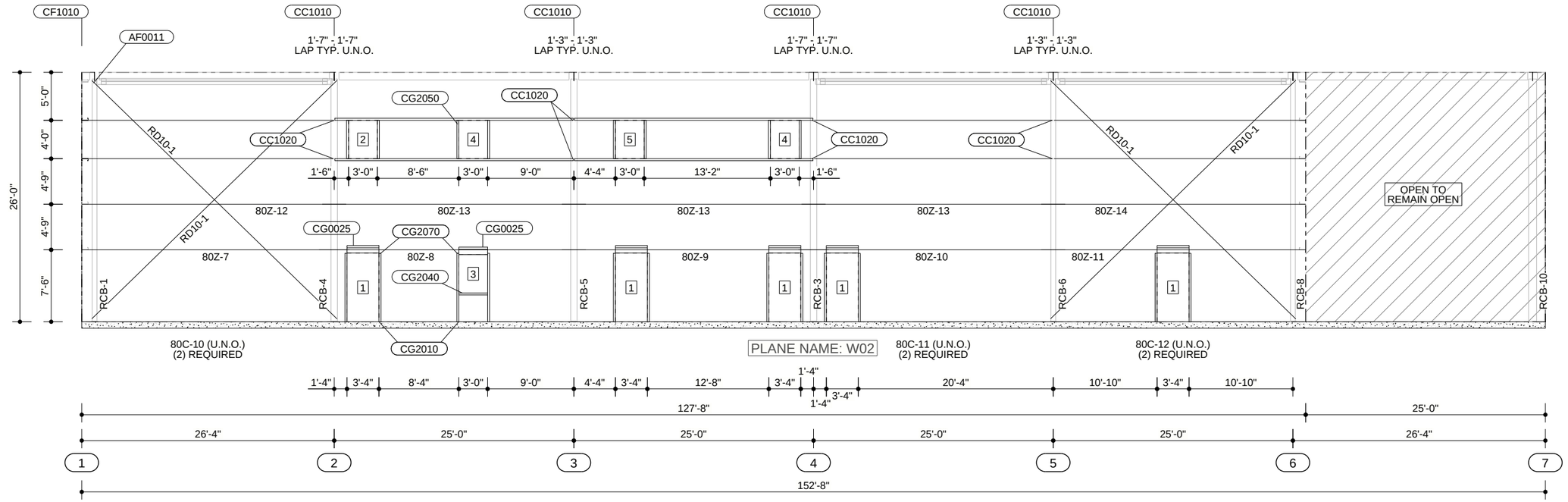
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

Part Sizes			
Mark	Profile	Mark	Profile
80C-10	80C089	80Z-10	80Z060
80C-11	80C089	80Z-11	80Z067
80C-12	80C089	80Z-12	80Z060
80Z-7	80Z067	80Z-13	80Z060
80Z-8	80Z060	80Z-14	80Z060
80Z-9	80Z060		

FRAMED OPENING TABLE									
MARK	WIDTH	HEIGHT	HEADER	DRUM SUPPORT	LEFT JAMB	RIGHT JAMB	SILL	SILL HEIGHT	FIELD LOCATED
1	3'-4"	7'-2"	HW8-2 (HW8)	N/A	80C-1 (80C060)	80C-1 (80C060)	N/A	N/A	N
2	3'-0"	4'-0"	80C-13 (80C089)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-13 (80C089)	17'-0"	N
3	3'-0"	4'-0"	HW8-1 (HW8)	N/A	80C-2 (80C060)	80C-2 (80C060)	80C-3 (80C060)	3'-0"	N
4	3'-0"	4'-0"	N/A	N/A	80C-8 (80C060)	80C-8 (80C060)	N/A	17'-0"	N
5	3'-0"	4'-0"	80C-14 (80C089)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-14 (80C089)	17'-0"	N



FRAMING ELEVATION - SIDEWALL AT LINE E

WALL FRAMING GENERAL NOTES

WN1: SEE CROSS SECTION FOR MAIN FRAME FLANGE BRACING.
WN2: SEE WALL FRAMING DETAILS FOR STANDARD GIRT ORIENTATION DETAIL.
WN3: RD_ INDICATES ROD BRACING. SEE PRIMARY DETAILS FOR ROD BRACING ASSEMBLY.
WN4: CA_ INDICATES CABLE BRACING. SEE PRIMARY DETAILS FOR CABLE BRACING ASSEMBLY.
WN5: CUT AND DRILL GIRTS AS NECESSARY FOR FIELD LOCATED FRAMED OPENINGS.
WN6: AT FLUSH OR INSET GIRT CONDITIONS, FIELD SLOT GIRT WEBS TO ALLOW PASSAGE OF ROD BRACING. SEE PRIMARY DETAILS FOR GUIDELINES.
WN7: DETAIL NUMBERS LISTED ABOVE EACH LINE ARE TYP AT THAT FRAME LINE U.N.O.
WN8: ▼ INDICATES NESTED GIRT. SEE DETAIL CM____.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:05:59pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE FRAMING ELEVATION - SIDEWALL AT LINE E
SHEET E9

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

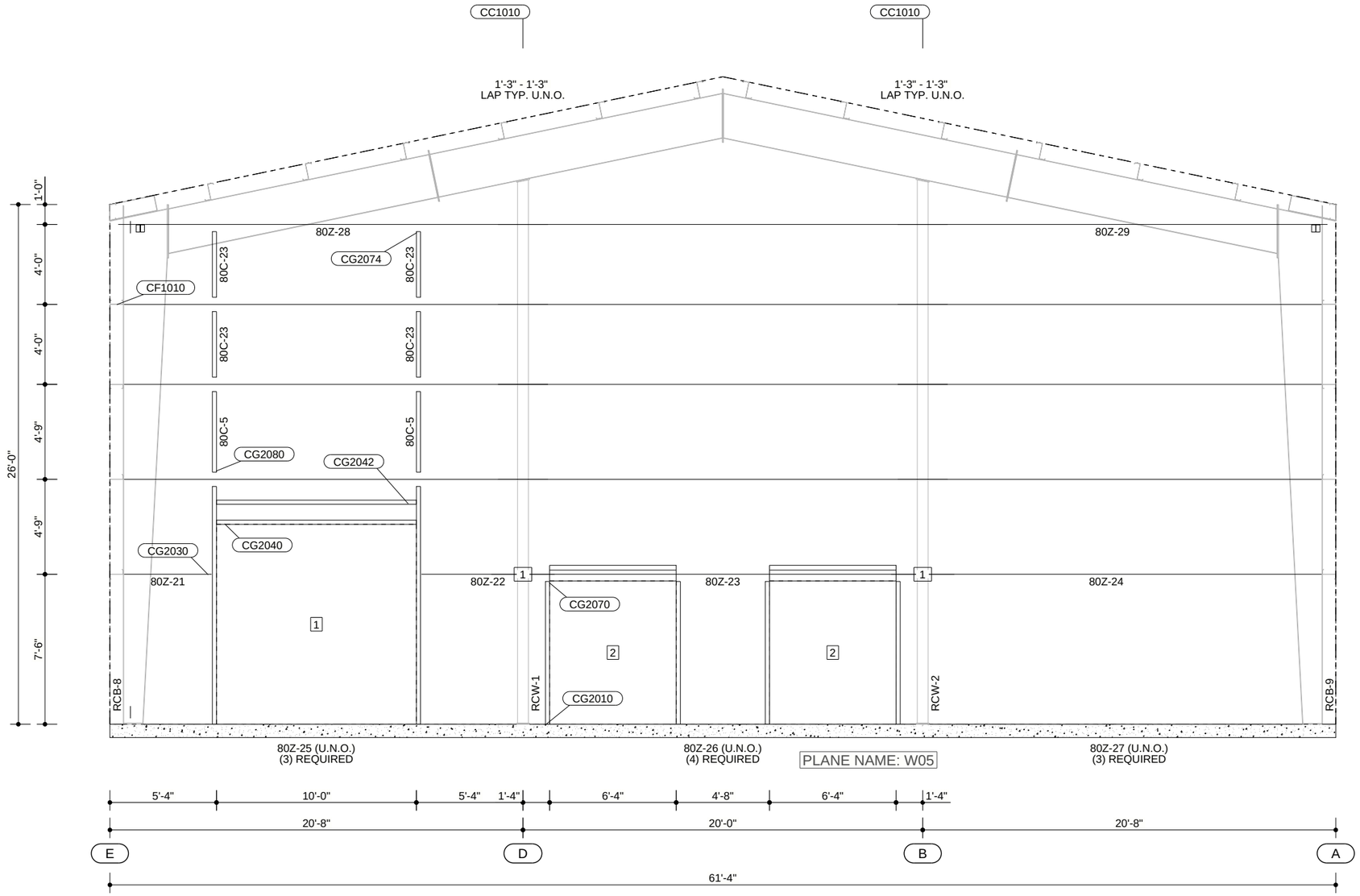
9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

SECONDARY LAP AND BOLT INFORMATION		
MARK	LEFT	RIGHT
1	1'-7"	1'-7"

FRAMED OPENING TABLE									
MARK	WIDTH	HEIGHT	HEADER	DRUM SUPPORT	LEFT JAMB	RIGHT JAMB	SILL	SILL HEIGHT	FIELD LOCATED
1	10'-0"	10'-0"	80C-17 (80C060)	80C-17 (80C060)	80C-22 (80C060)	80C-22 (80C060)	N/A	N/A	N
2	6'-4"	7'-2"	HW8-3 (HW8)	N/A	80C-1 (80C060)	80C-1 (80C060)	N/A	N/A	N

Part Sizes			
Mark	Profile	Mark	Profile
80Z-21	80Z060	80Z-26	80Z060
80Z-22	80Z060	80Z-27	80Z060
80Z-23	80Z060	80Z-28	80Z060
80Z-24	80Z060	80Z-29	80Z060
80Z-25	80Z060		



FRAMING ELEVATION - ENDWALL AT LINE 6 (PARTITION)

WALL FRAMING GENERAL NOTES

WN1: SEE CROSS SECTION FOR MAIN FRAME FLANGE BRACING.
WN2: SEE WALL FRAMING DETAILS FOR STANDARD GIRT ORIENTATION DETAIL.
WN3: RD_ INDICATES ROD BRACING. SEE PRIMARY DETAILS FOR ROD BRACING ASSEMBLY.
WN4: CA_ INDICATES CABLE BRACING. SEE PRIMARY DETAILS FOR CABLE BRACING ASSEMBLY.
WN5: CUT AND DRILL GIRTS AS NECESSARY FOR FIELD LOCATED FRAMED OPENINGS.
WN6: AT FLUSH OR INSET GIRT CONDITIONS, FIELD SLOT GIRT WEBS TO ALLOW PASSAGE OF ROD BRACING. SEE PRIMARY DETAILS FOR GUIDELINES.
WN7: DETAIL NUMBERS LISTED ABOVE EACH LINE ARE TYP AT THAT FRAME LINE U.N.O.
WN8: ▼ INDICATES NESTED GIRT. SEE DETAIL CM____.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

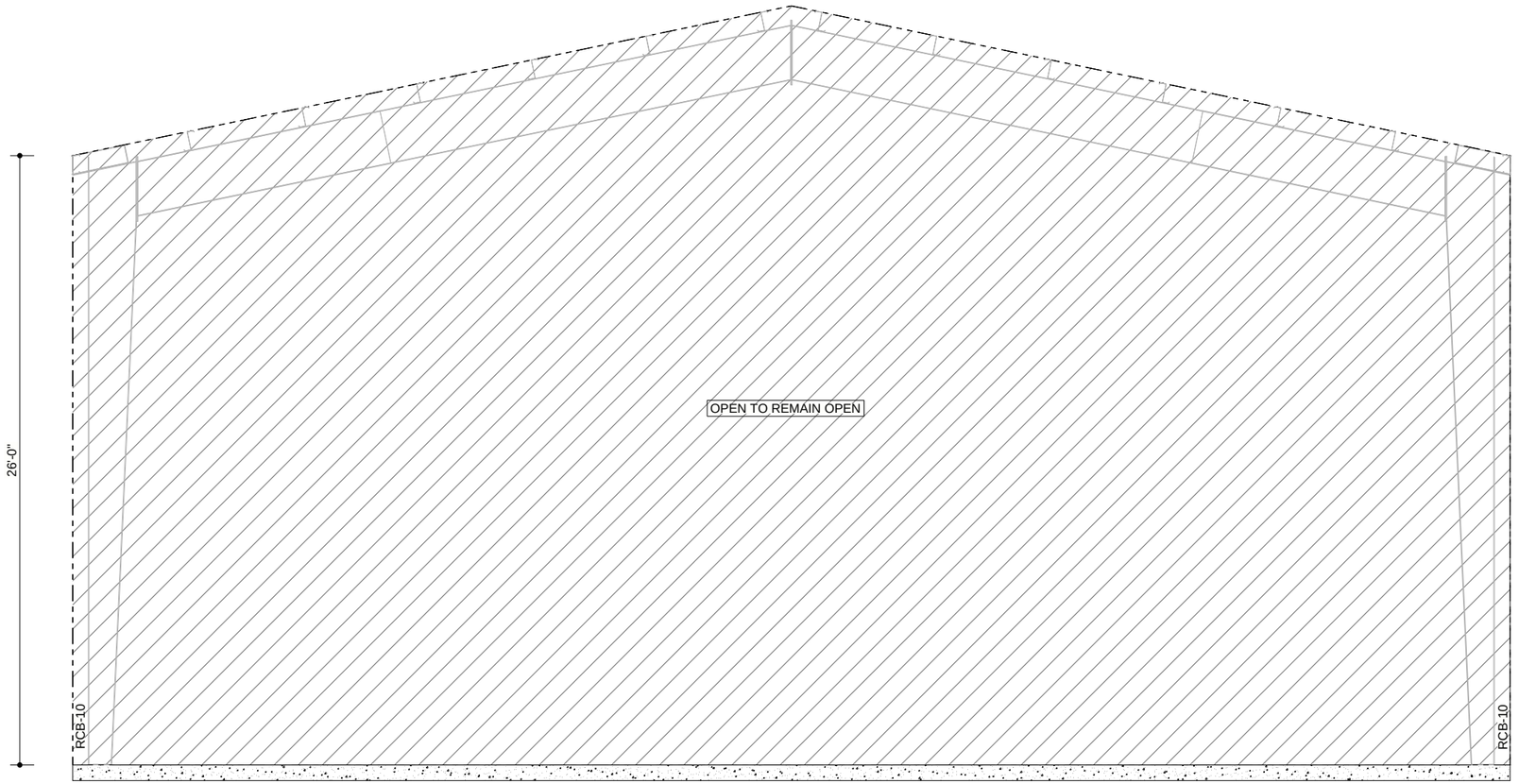
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JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET E10
DRAWING TITLE FRAMING ELEVATION - ENDWALL AT LINE 6

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER



FRAMING ELEVATION - ENDWALL AT LINE 7

JOB NUMBER	U26H0545A
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	FOR PERMITS ONLY
DRAWING TITLE	FRAMING ELEVATION - ENDWALL AT LINE 7
SHEET	E11

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

09/30/2026 12:06:03pm

9/30/26

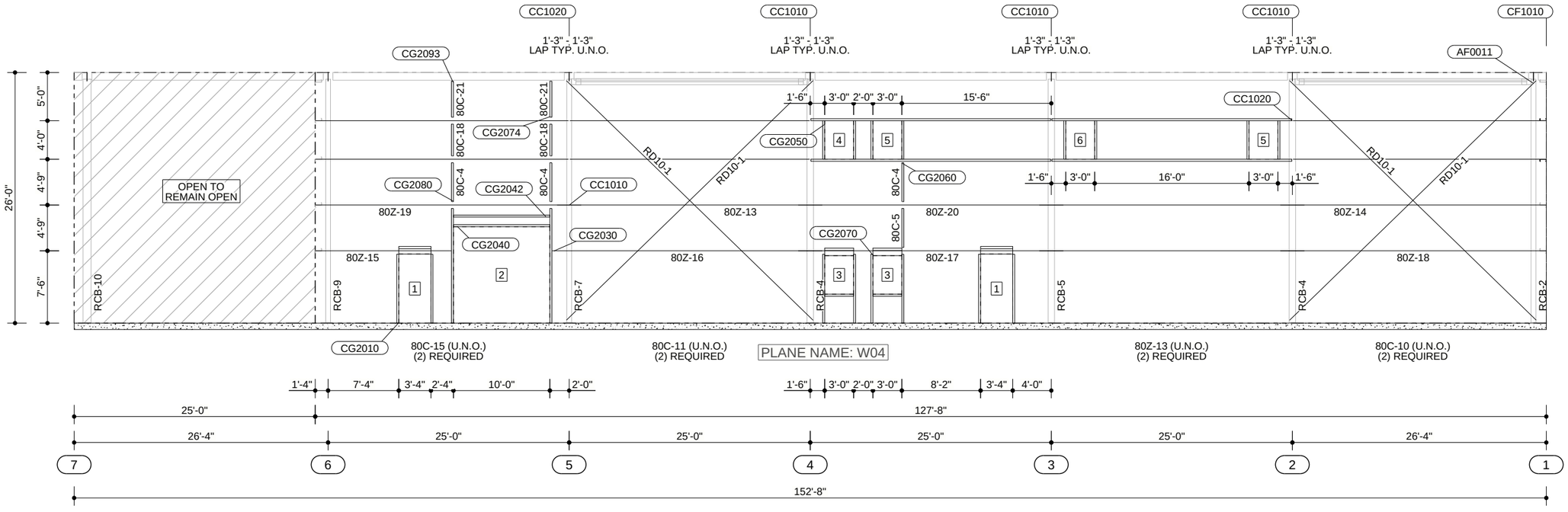
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

WALL FRAMING GENERAL NOTES

WN1: SEE CROSS SECTION FOR MAIN FRAME FLANGE BRACING.
WN2: SEE WALL FRAMING DETAILS FOR STANDARD GIRT ORIENTATION DETAIL.
WN3: RD_ INDICATES ROD BRACING. SEE PRIMARY DETAILS FOR ROD BRACING ASSEMBLY.
WN4: CA_ INDICATES CABLE BRACING. SEE PRIMARY DETAILS FOR CABLE BRACING ASSEMBLY.
WN5: CUT AND DRILL GIRTS AS NECESSARY FOR FIELD LOCATED FRAMED OPENINGS.
WN6: AT FLUSH OR INSET GIRT CONDITIONS, FIELD SLOT GIRT WEBS TO ALLOW PASSAGE OF ROD BRACING. SEE PRIMARY DETAILS FOR GUIDELINES.
WN7: DETAIL NUMBERS LISTED ABOVE EACH LINE ARE TYP AT THAT FRAME LINE U.N.O.
WN8: ▼ INDICATES NESTED GIRT. SEE DETAIL CM____.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

Part Sizes				
Mark	Profile		Mark	Profile
80C-10	80C089		80Z-20	80Z060
80C-11	80C089			
80C-15	80C089			
80Z-13	80Z060			
80Z-14	80Z060			
80Z-15	80Z060			
80Z-16	80Z060			
80Z-17	80Z060			
80Z-18	80Z067			
80Z-19	80Z089			

FRAMED OPENING TABLE									
MARK	WIDTH	HEIGHT	HEADER	DRUM SUPPORT	LEFT JAMB	RIGHT JAMB	SILL	SILL HEIGHT	FIELD LOCATED
1	3'-4"	7'-2"	HW8-2 (HW8)	N/A	80C-1 (80C060)	80C-1 (80C060)	N/A	N/A	N
2	10'-0"	10'-0"	80C-17 (80C060)	80C-17 (80C060)	80C-16 (80C075)	80C-16 (80C075)	N/A	N/A	N
3	3'-0"	4'-0"	HW8-1 (HW8)	N/A	80C-2 (80C060)	80C-2 (80C060)	80C-3 (80C060)	3'-0"	N
4	3'-0"	4'-0"	80C-19 (80C089)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-19 (80C089)	17'-0"	N
5	3'-0"	4'-0"	N/A	N/A	80C-8 (80C060)	80C-8 (80C060)	N/A	17'-0"	N
6	3'-0"	4'-0"	80C-20 (80C089)	N/A	80C-8 (80C060)	80C-8 (80C060)	80C-20 (80C089)	17'-0"	N



FRAMING ELEVATION - SIDEWALL AT LINE A

WALL FRAMING GENERAL NOTES

WN1: SEE CROSS SECTION FOR MAIN FRAME FLANGE BRACING.
WN2: SEE WALL FRAMING DETAILS FOR STANDARD GIRT ORIENTATION DETAIL.
WN3: RD_ INDICATES ROD BRACING. SEE PRIMARY DETAILS FOR ROD BRACING ASSEMBLY.
WN4: CA_ INDICATES CABLE BRACING. SEE PRIMARY DETAILS FOR CABLE BRACING ASSEMBLY.
WN5: CUT AND DRILL GIRTS AS NECESSARY FOR FIELD LOCATED FRAMED OPENINGS.
WN6: AT FLUSH OR INSET GIRT CONDITIONS, FIELD SLOT GIRT WEBS TO ALLOW PASSAGE OF ROD BRACING. SEE PRIMARY DETAILS FOR GUIDELINES.
WN7: DETAIL NUMBERS LISTED ABOVE EACH LINE ARE TYP AT THAT FRAME LINE U.N.O.
WN8: ▼ INDICATES NESTED GIRT. SEE DETAIL CM____.
GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

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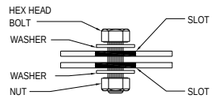
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JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE FRAMING ELEVATION - SIDEWALL AT LINE A
SHEET E12

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

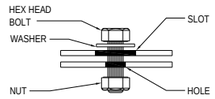
9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER



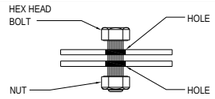
SLOT TO SLOT CONNECTIONS

WASHERS REQUIRED ON BOTH SIDES OF MATERIAL IF SLOTS ARE ON BOTH SIDES. (EXCEPTION: SEE DETAIL AT RIGHT FOR LAPPED ZEE MEMBERS)



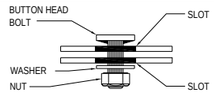
SLOT TO HOLE CONNECTIONS

ONE WASHER REQUIRED ON SLOTTED SIDE ONLY.



HOLE TO HOLE CONNECTIONS

NO WASHERS REQUIRED WHEN SLOTS ARE NOT USED.



SLOT TO SLOT CONNECTIONS

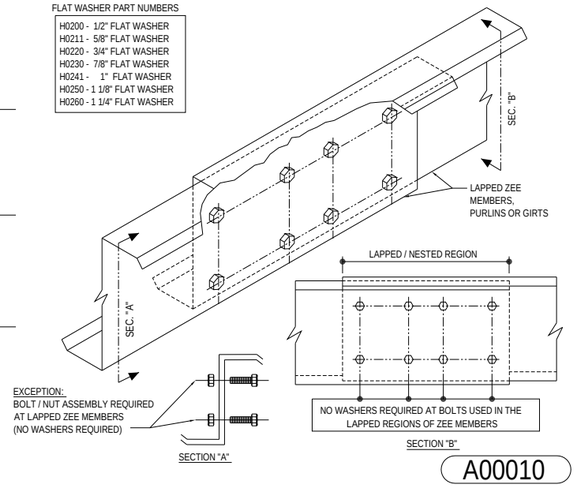
WASHER REQUIRED AT NUT SIDE ONLY FOR BUTTON HEAD BOLTS. (BUTTON HEAD BOLTS HAVE MATERIAL GRABBING FINS UNDER THE HEAD, A WASHER IS NOT NEEDED ON BOLT HEAD SIDE).

WASHER REQUIREMENTS ERECTOR NOTE

(UNLESS NOTED OTHERWISE ON DRAWINGS)

FLAT WASHER PART NUMBERS

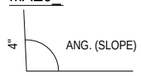
H0200 - 1/2" FLAT WASHER
H0211 - 5/8" FLAT WASHER
H0220 - 3/4" FLAT WASHER
H0230 - 7/8" FLAT WASHER
H0241 - 1" FLAT WASHER
H0250 - 1 1/8" FLAT WASHER
H0260 - 1 1/4" FLAT WASHER



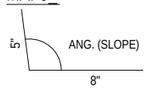
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STANDARD ANGLE SCHEDULE

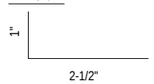
MAE0 — EAVE ANGLE, GALVANIZED, 4" x 5" x 120"



MAF0 — EAVE ANGLE, GALVANIZED, 5" x 8" x 120"



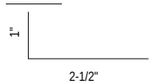
MAG01 — GIRT ANGLE, GALVANIZED, 1" x 2-1/2" x 12"



MAG02 — GIRT ANGLE, GALVANIZED, 1" x 2-1/2" x 24"



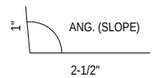
MAG03 — GIRT ANGLE, GALVANIZED, 1" x 2-1/2" x 30"



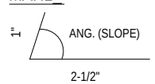
MAG10 — GIRT ANGLE, GALVANIZED, 1" x 2-1/2" x 120"



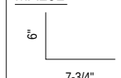
MAH0 — EAVE STRUT ANGLE, GALVANIZED, 1" x 2-1/2" x 12"



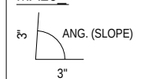
MAH1 — EAVE STRUT ANGLE, GALVANIZED, 1" x 2-1/2" x 12"



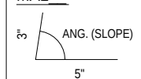
MAL01 — LINER LOW EAVE ANGLE, GALVANIZED, 6" x 7-3/4" x 120"



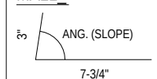
MAL0 — LINER EAVE ANGLE, GALVANIZED, 3" x 3" x 120"



MAL — LINER EAVE ANGLE, GALVANIZED, 3" x 5" x 120"



MAL1 — LINER EAVE ANGLE, GALVANIZED, 3" x 7-3/4" x 120"



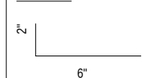
MAP01 — RAKE PARAPET ANGLE, GALVANIZED, 2" x 12" x 120"



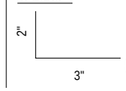
MAP02 — RAKE PARAPET ANGLE, GALVANIZED, 6" x 6" x 120"



MAR26 — RAKE ANGLE, GALVANIZED, 2" x 6" x 242"



MAR02 — STANDING SEAM RAKE/ BASE ANGLE, GALVANIZED, 2" x 3" x 242"



A00031

MBMA MEMBER
IAS ACCREDITED AWPA P5 EQ
CWB CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:10pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

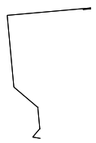
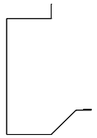
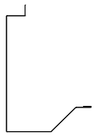
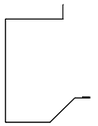
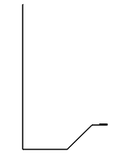
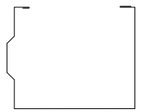
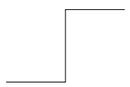
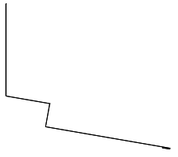
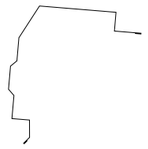
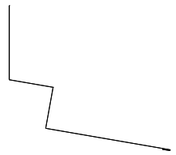
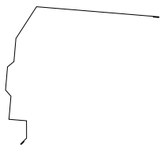
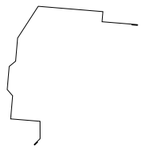
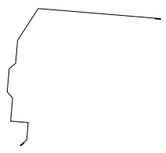
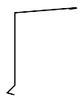
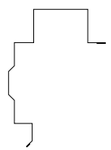
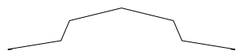
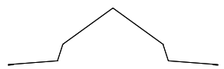
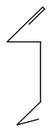
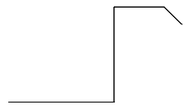
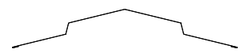
SHEET D1

DRAWING TITLE GENERAL DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON STATE OF WASHINGTON 42446 REGISTERED PROFESSIONAL ENGINEER

1		2		3		4		5		6		7		8	
NAME:	ELCR121	NAME:	ELCS_121	NAME:	ETC_121	NAME:	ETH_121	NAME:	ETL_121	NAME:	ETR_121	NAME:	ETS_121	NAME:	ETU_121
LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121
DESC:	LOW EAVE EXT. TRIM - R-PANEL	DESC:	LOW EAVE EXT. TRIM - S.S. PANEL	DESC:	EXTENSION TRIM AT EAVE CEE	DESC:	HIGH EAVE EXTENSION TRIM	DESC:	LOW EAVE TRIM AT RAKE EXT.	DESC:	RAKE EXTENSION TRIM	DESC:	EXT. TRIM AT EAVE "S"	DESC:	UNIVERSAL EXTENSION TRIM
9		10		11		12		13		14		15		16	
NAME:	GHP121	NAME:	GHS_121	NAME:	GSN___	NAME:	HAT_120	NAME:	HBT120	NAME:	HCT_121	NAME:	HCV_121	NAME:	HIP_120
LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121 & 242	LEN (IN.):	120	LEN (IN.):	120	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	120
DESC:	HORIZ. GUTT. POSITION TRIM	DESC:	HORIZ. GUTTER SUPPORT	DESC:	SCULPTURED GUTTER	DESC:	HAT CHANNEL	DESC:	HIP BACKER (TRAP. PANELS)	DESC:	HIP CAP TRIM (TRAPEZOIDAL PNL.)	DESC:	HIP CAP TRIM (VERTICAL RIB PNL.)	DESC:	HIP INSULATION PAN
17		18		19		20		21		22		23		24	
NAME:	HMCR121	NAME:	HPL_120	NAME:	HRJ121	NAME:	HRP_121	NAME:	HERN___	NAME:	HTP_121	NAME:	HESN___	NAME:	HEVN___
LEN (IN.):	121	LEN (IN.):	120	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121 & 242	LEN (IN.):	121	LEN (IN.):	121 & 242	LEN (IN.):	121 & 242
DESC:	HIP METAL CLOSURE (R-PANEL)	DESC:	HIP PLATE	DESC:	HIP RIB JAY	DESC:	H.E. PARA. TRIM - R-PANEL	DESC:	H.E. SCULP. TRIM - R-PANEL	DESC:	HIGH EAVE PARA. - TRAP. PANEL	DESC:	HIGH EAVE SCULP. - S.S. PANEL	DESC:	HIGH EAVE SCULP. - V.R. PANEL
25		26		27		28		29		30		31		32	
NAME:	HEXN___	NAME:	LBCR_121	NAME:	LBCS___121	NAME:	LES__121	NAME:	RES121	NAME:	RIPJ121	NAME:	RIPP181	NAME:	RPU121
LEN (IN.):	121 & 242	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	181	LEN (IN.):	121
DESC:	HIGH EAVE EXTEN. - S.S. PANEL	DESC:	LOW EAVE COVER TRIM - R-PANEL	DESC:	LOW EAVE COVER TRIM - SS ROOF	DESC:	LOW EAVE SPACER TRIM	DESC:	RAKE SPACER TRIM	DESC:	RIDGE. INSULATION PAN - JOISTS	DESC:	RIDGE INSULATION PAN - PURLINS	DESC:	RAKE PARAPET TRIM
33		34		35		36		37		38		39		40	
NAME:	RTSN___	NAME:	RSS121	NAME:	RTLP___	NAME:	RTP___	NAME:	RTR121	NAME:	RVCC_121	NAME:	RVCZ_120	NAME:	RVL_121
LEN (IN.):	121 & 242	LEN (IN.):	121	LEN (IN.):	121 & 242	LEN (IN.):	121 & 242	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	120	LEN (IN.):	121
DESC:	SCULPTURED RAKE TRIM	DESC:	RAKE SPACER - JOISTS	DESC:	LOW PROFILE RIDGE - TRAP. PNL	DESC:	HIGH PROFILE RIDGE - TRAP. PNL	DESC:	ROOF TRIM RETAINER	DESC:	RIDGE VR CLOSURE COVER	DESC:	RIDGE VR CLOSURE ZEE	DESC:	RIDGE - VERTICAL RIB
41		42		43		44		45		46					
NAME:	VDF_121	NAME:	VIP_120	NAME:	VPL_120	NAME:	--	NAME:	--	NAME:	--				
LEN (IN.):	121	LEN (IN.):	120	LEN (IN.):	120	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--				
DESC:	VALLEY DIVERTER	DESC:	VALLEY INSULATION PAN	DESC:	VALLEY PLATE	DESC:	--	DESC:	--	DESC:	--				

NOTE: TRIM PROFILE SCALE VARIES

NBS ROOF TRIM SCHEDULE

LOW EAVE, HIGH EAVE, GABLE/RAKE, RIDGE TRIM, EXTENSIONS, & HIP/VALLEY PROFILES

A00041

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

MBMA MEMBER
IAS ACCREDITED AC472 & 610
CWC CERTIFIED CIA-WAF-1
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PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:11pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

SHEET D2

DRAWING TITLE
GENERAL DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

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NAME:	BSA___	NAME:	BSB121	NAME:	BSC121	NAME:	BSD121	NAME:	BSE121	NAME:	BSF121	NAME:	BSW121	NAME:	CC____
LEN (IN.):	121 / 242	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	MULTI.
DESC:	BASE ANGLE TRIM	DESC:	BASE TRIM	DESC:	BASE TRIM	DESC:	BASE TRIM	DESC:	BASE TRIM	DESC:	BASE TRIM	DESC:	WAINSCOT TRIM	DESC:	CEE CHANNEL COVER TRIM

9		10		11		12		13		14		15		16	
NAME:	CIA121	NAME:	CIB121	NAME:	CIT121	NAME:	COA121	NAME:	COB121	NAME:	COT121	NAME:	CS____	NAME:	CT_121
LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	MULTI.	LEN (IN.):	121
DESC:	INSIDE CORNER TRIM - ALT	DESC:	INSIDE CORNER TRIM- BASIC	DESC:	INSIDE CORNER TRIM - TRANS.	DESC:	OUTSIDE CORNER TRIM - ALT.	DESC:	OUTSIDE CORNER TRIM - BASIC	DESC:	OUTSIDE CORNER TRIM - TRANS.	DESC:	"S" CHANNEL COVER	DESC:	CAP TRIM

17		18		19		20		21		22		23		24	
NAME:	CW____	NAME:	DJ_088	NAME:	HTA___	NAME:	HTD___	NAME:	IC_121	NAME:	IT_121	NAME:	JTA___	NAME:	JTD___
LEN (IN.):	MULTI.	LEN (IN.):	88	LEN (IN.):	MULTI.	LEN (IN.):	MULTI.	LEN (IN.):	121	LEN (IN.):	121	LEN (IN.):	MULTI.	LEN (IN.):	MULTI.
DESC:	HEAD WRAP COVER	DESC:	JAMB COVER TRIM - WALK D.	DESC:	HEADER TRIM	DESC:	WINDOW & LINER TRIM	DESC:	INSET / OUTSET TRIM	DESC:	INSET / OUTSET TRIM	DESC:	JAMB TRIM - R-PANEL & A-PANEL	DESC:	JAMB TRIM - REV. R-PANEL

25		26		27		28		29		30		31		32	
NAME:	MFA121	NAME:	MFR121	NAME:	PR_072	NAME:	PT_121	NAME:	PTC121	NAME:	STA___	NAME:	WJ____	NAME:	--
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DESC:	MISCELLANEOUS FILLER TRIM	DESC:	MISCELLANEOUS FILLER TRIM	DESC:	PARTITION FLASHING	DESC:	PARTITION FLASHING	DESC:	PARTITION TRIM COVER	DESC:	SILL TRIM	DESC:	JAMB COVER TRIM @ WINDOW	DESC:	--

33		34		35		36		37		38		39		40	
NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--
LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--	LEN (IN.):	--
DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--

41		42		43		44		45		46	
NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--	NAME:	--
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DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--	DESC:	--

NOTE: TRIM PROFILE SCALE VARIES

WALL TRIM SCHEDULE

BASE, CORNER, FRAMED OPENINGS, INSET/OUTSET, AND PARTITION TRIM PROFILES

A0005(

MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CERTIFIED SWI
CERTIFIED CSA W47.1
CSSB
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:12pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE GENERAL DETAILS

SHEET D3

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

PANEL CLIP & SECONDARY ATTACHMENT FASTENERS

FASTENER		SPECIFICATIONS	USAGE	NOTES
H1020		Self-Drilling Screw 1/4-14 x 1 1/4" TCP 3 w/o Washer 5/16" Head Color: Available in "No Paint" Only	Panel Clips Attach panel clips, rake angle clips, eave plate to purlins with insulation ≤ R19 Attach misc light gauge material to secondary	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.110 MIN / 0.250 MAX Pre-Drill Diameter: 3/16" Ø
H1025		Self-Drilling Screw 1/4-14 x 2" TCP 3 w/o Washer 3/8" Head Color: Available in "No Paint" Only	Panel Clips - Long Attach panel clips, rake angle clips, eave plate to purlins with insulation >R19 and ≤ R38	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.110 MIN / 0.250 MAX Pre-Drill Diameter: 3/16" Ø
H1070		Self-Drilling Screw 12-24 x 1 1/2" TCP 5 w/o Washer 5/16" Head Color: Check w/ local plant	Panel Clips - Hot Roll Attach panel clips, rake angle clips, eave plate to joist with insulation ≤ R19 Attach misc light gauge material to HR secondary	RECOMMENDED TOOL TYPES 1800 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.250 MIN / 0.500 MAX Pre-Drill Diameter: 3/16" Ø
H1075		Self-Drilling Screw 12-24 x 2" TCP 5 w/o Washer 5/16" Head Color: Check w/ local plant	Panel Clips - Hot Roll - Long Attach panel clips, rake angle clips, eave plate to joist with insulation > R19 and ≤ R38	RECOMMENDED TOOL TYPES 1800 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.250 MIN / 0.500 MAX Pre-Drill Diameter: 3/16" Ø
H1079		Self-Drilling Screw SDI 12-24 x 1 1/2" #5 Drilltite w/o Wash 5/16" Head (Painted Orange) (Vendor: Black & Decker) Color: Available in "No Paint" Only	Used to attach deck to joist with high seismic loads NOT to be used for roof clips Available for Utah only	RECOMMENDED TOOL TYPES 1800 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.250 MIN / 0.500 MAX Pre-Drill Diameter: 3/16" Ø

WALL FASTENERS

FASTENER		SPECIFICATIONS	USAGE	NOTES
H1040 / H1041		Self-Drilling Screw 12-14 x 1 1/4" TCP 3 5/16" Head H1040 - w/o Washer H1041 - w/ Washer Color: All Standard SMP & PVDF Check local plant stock inventory	Wall Structural Used to attach wall panel, wall flashing and light gauge parts with insulation ≤ R13	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.050 MIN / 0.140 MAX Pre-Drill Diameter: 5/32" Ø
H1045 / H1047		Self-Drilling Screw 12-14 x 2" TCP 3 5/16" Head H1045 - w/o Washer H1047 - w/ Washer Color: All Standard SMP & PVDF Check local plant stock inventory	Wall Structural - Long Used to attach wall panel, wall flashing and light gauge parts with insulation > R13 and ≤ R19	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.090 MIN / 0.210 MAX Pre-Drill Diameter: 3/16" Ø
H1070 / H1071		Self-Drilling Screw 12-24 x 1 1/2" TCP 5 5/16" Head H1070 - w/o Washer H1071 - w/ Washer Color: All Standard SMP & PVDF Check local plant stock inventory	Wall Structural -HR w/ Washer -HR w/o Washer Used to attach wall panel and trims to hot roll members with insulation ≤ R13	RECOMMENDED TOOL TYPES 1800 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.250 MIN / 0.500 MAX Pre-Drill Diameter: 3/16" Ø
H1075		Self-Drilling Screw 12-24 x 2" TCP 5 w/o Washer 5/16" Head Color: Check w/ local plant	Wall Structural -HR w/o Washer Used to attach wall panel and trims to hot roll members with insulation > R13 and ≤ R19	RECOMMENDED TOOL TYPES 1800 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.250 MIN / 0.500 MAX Pre-Drill Diameter: 3/16" Ø
H1060 / H1061		Self-Drilling Screw 1/4-14 x 7/8" TCP 1 5/16" Head H1060 - w/o Washer H1061 - w/ Washer Color: All Standard SMP & PVDF Check local plant stock inventory	Wall Stitch Used to attach wall trim end laps and trim to wall panel	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.035 MIN / 0.090 MAX Pre-Drill Diameter: 1/8" Ø

ROOF FASTENERS

FASTENER		SPECIFICATIONS	USAGE	NOTES
H1000		SELF-TAPPING SCREW (GOOF SCREW) 17-14 x 1" w/ Washer 5/16" UltiMate Head Color: All Standard SMP & PVDF Check local plant stock inventory	"Goof Screw" Used at locations on roof, where fastener has stripped out.	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch DO NOT use impacting tools DRILLING CAPACITY N/A
H1026		Self-Drilling Screw 12-14 x 2" TCP 3 w/ Washer 5/16" UltiMate Head Color: All Standard SMP & PVDF Check local plant stock inventory	Vented ridge -To accomodate the thickness of Purlin Vent from Cor-A-Vent	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.090 MIN / 0.210 MAX Pre-Drill Diameter: 3/16" Ø
H1030		Self-Drilling Screw 1/4-14 x 1 1/4" TCP 3 w/ Washer 5/16" UltiMate Head Color: All Standard SMP & PVDF Check local plant stock inventory	Roof Structural Used to attach roof panel, roof flashing, end laps and light gauge parts with insulation ≤ R16	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.110 MIN / 0.250 MAX Pre-Drill Diameter: 3/16" Ø
H1035		Self-Drilling Screw 12-14 x 1 1/2" TCP 3 w/ Washer 5/16" UltiMate Head Color: All Standard SMP & PVDF Check local plant stock inventory	Roof Structural - Long Used to attach roof panel, roof flashing, end laps and light gauge parts with insulation = R19	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.050 MIN / 0.140 MAX Pre-Drill Diameter: 5/32" Ø
H1050		Self-Drilling Screw 1/4-14 x 7/8" TCP 1 w/ Washer 5/16" UltiMate Head Color: All Standard SMP & PVDF Check local plant stock inventory	Roof Stitch Used to attach roof trim end laps and trim to roof panel	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.035 MIN / 0.090 MAX Pre-Drill Diameter: 1/8" Ø

RIVETS & SPECIALTY FASTENERS

FASTENER		SPECIFICATIONS	USAGE	NOTES
H1100		Pop Rivet 1/8" x 3/16" Stainless Steel Blind Pop Rivet Color: All Standard SMP & PVDF Check local plant stock inventory	Used at trim laps, corner caps, and attaching trim to panel where stitch fasteners can't be used	RECOMMENDED TOOL TYPES Manual or electric rivet tool DO NOT use impacting tools
H1110		Grommet Fastener 3/8" Diameter Stainless Grommet Seal Color: Available in "No Paint" Only	Used at translucent panel to metal side lap connections	RECOMMENDED TOOL TYPES Torque adjustable clutch grommet tool DO NOT use impacting tools
H1220		Self-Drilling Screw 12-14 x 1" TCP 3 Square / Phillips Pancake Head Color: Available in "No Paint" Only	Pancake Screw Used to attach panel clips and rake angle to purlins **ONLY WITH ZERO STANDOFF CLIPS	RECOMMENDED TOOL TYPES 2000 RPM MAX Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools DRILLING CAPACITY 0.090 MIN / 0.210 MAX Pre-Drill Diameter: 3/16" Ø
H1223		Self-Tapping Fastener 10-14 X 1-1/2" Woodtite w/ Washer 1/4" Head Color: All Standard SMP & PVDF Check local plant stock inventory	Wood Structural Used to attach panel and trim to wood structure Non-Stock Special Order Fastener	RECOMMENDED TOOL TYPES 2000-2500 RPM Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools
H1224		Self-Tapping Fastener Type-A or Type-17 10-12 X 1" Square / Phillips Pancake Head Color: Available in "No Paint" Only	Wood Clip Screw Panel clips to wood **Only 0" offset clips Non-Stock Special Order Fastener	RECOMMENDED TOOL TYPES 2000-2500 RPM Torque adjustable clutch, 4 AMP or higher DO NOT use impacting tools
H2200		Insulation Retainer Washer 1/4 x 1-1/4" F8 Fender Washer (1 1/4" O.D. w/ 5/16" I.D.) Color: Available in "No Paint" Only	Used in conjunction with H1020 fasteners to secure roof insulation. Reference roofline trim details for specific applications.	RECOMMENDED TOOL TYPES N/A

A00100

MBMA MEMBER
IAS ACCREDITED
CWB CERTIFIED
CSSB
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:13pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

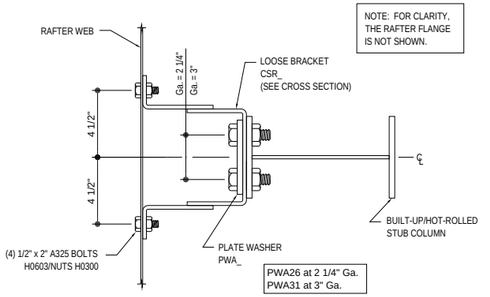
SHEET D4

DRAWING TITLE
GENERAL DETAILS

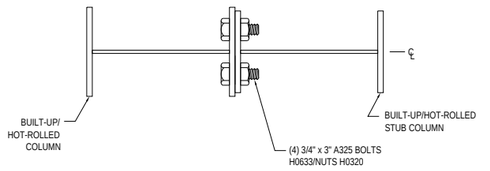
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

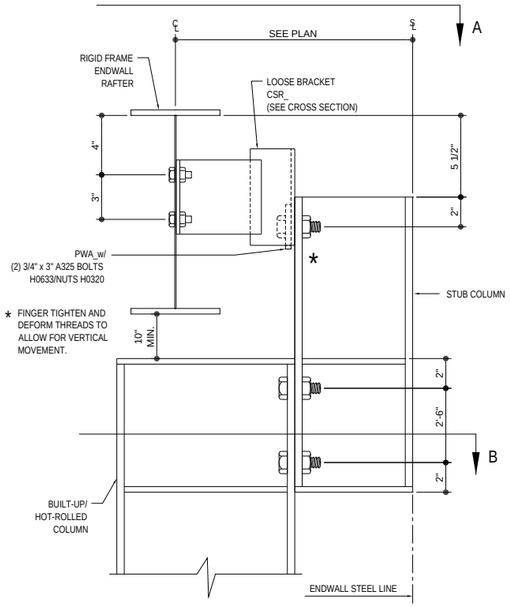


SECTION A



SECTION B

REQ'D PARTS
- (4) 1/2" x 2" A325 BOLTS (H0603)
- (4) 1/2" NUTS (H0300)
- (6) 3/4" x 3" A325 BOLTS (H0633)
- (6) 3/4" NUTS (H0320)
- (1) CSR_
- (1) PWA_

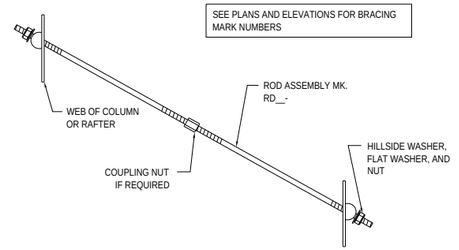


ENDWALL COL TO EXP. EW RAFTER CONNECTION

BUILT-UP/HOT-ROLLED COLUMN AND BU/HR STUB AT BYPASS GIRTS
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

AD0140

ROD DIAMETER	MARK NUMBER	HILLSIDE WASHERS	FLAT WASHERS	A307/A325 NUTS	COUPLING NUTS (QTY VARIES)
5/8" Ø	RD05-	(2) H0280	(2) H0210	(2) H0310	H0810
3/4" Ø	RD06-	(2) H0285	(2) H0220	(2) H0320	H0820
7/8" Ø	RD07-	(2) H0285	(2) H0230	(2) H0325	H0830
1" Ø	RD08-	(2) H0290	(2) H0240	(2) H0330	H0840
1 1/8" Ø	RD09-	(2) H0290	(2) H0250	(2) H0450	H0850
1 1/4" Ø	RD10-	(2) H0295	(2) H0260	(2) H0340	H0860



ROD BRACE DETAIL

WEB TO WEB

AF0011

FBC_ — INDICATES LENGTH OF FLANGE BRACE IN INCHES

BLANK LENGTH

FBH- COUNTER (1-999)
SPECIAL LENGTH FLANGE BRACE

BLANK LENGTH

FBE__ COUNTER (01-07)
COPED FLANGE BRACE

BLANK LENGTH

FBJ- COUNTER (1-999)
SPECIAL LENGTH COPED FLANGE BRACE

BLANK LENGTH

FBF- COUNTER (1-999)
3" X 3" 1/4" BRACE ANGLE

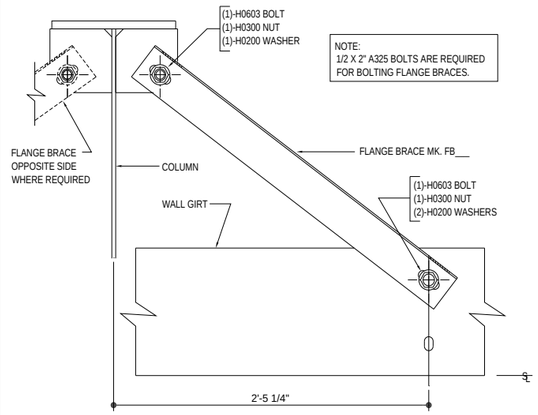
BLANK LENGTH

FBK_ — INDICATES LENGTH OF FLANGE BRACE IN INCHES

BLANK LENGTH

FLANGE BRACE MARK NUMBERS

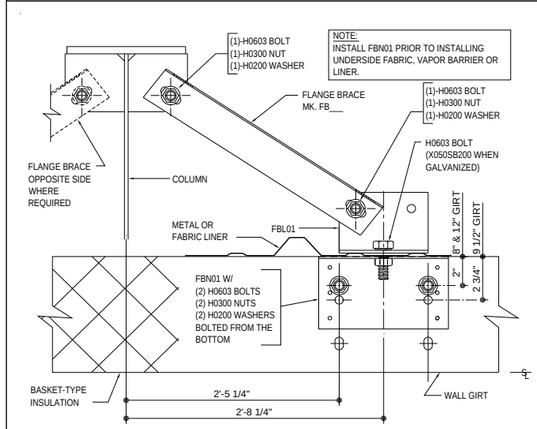
AG0003



FLANGE BRACE AT COLUMN & GIRT

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE LOCATIONS, PART MARKS, & QUANTITIES

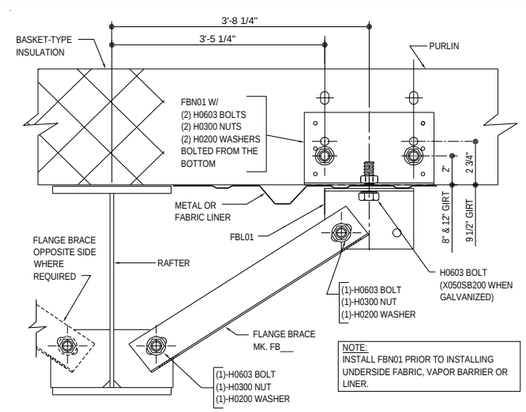
AG0030



FLANGE BRACE WITH BASKET INSUL OR LINER AT COLUMN

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE LOCATIONS, PART MARKS, & QUANTITIES

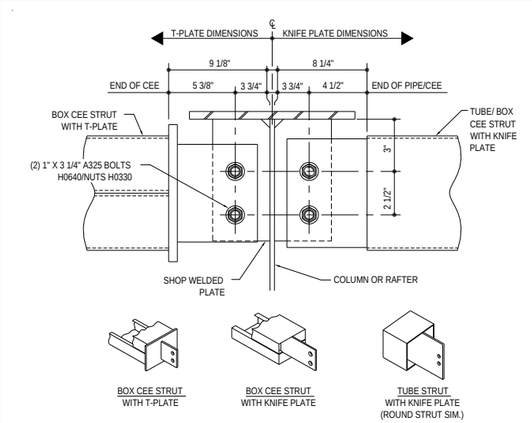
AG0105



FLANGE BRACE WITH BASKET INSUL OR LINER AT RAFTER

SEE PLANS AND ELEVATIONS FOR FLANGE BRACE LOCATIONS, PART MARKS, & QUANTITIES

AG0110



2-BOLT 6" TUBE OR BOX STRUT AT WEB OF COLUMN/RAFTER

8" MIN. COLUMN/RAFTER
SEE PLANS & ELEVATIONS FOR MARK NUMBERS AND LOCATIONS

AK0160

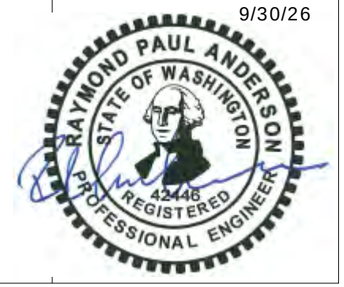
MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CWB CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

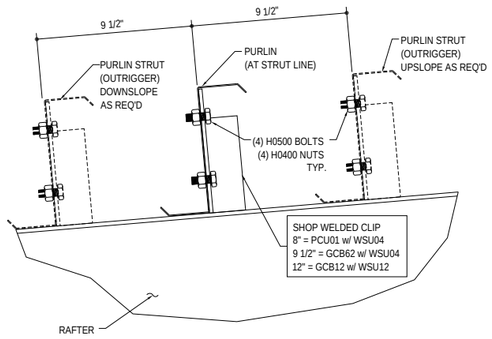
09/30/2026 12:06:14pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET D5
DRAWING TITLE PRIMARY DETAILS

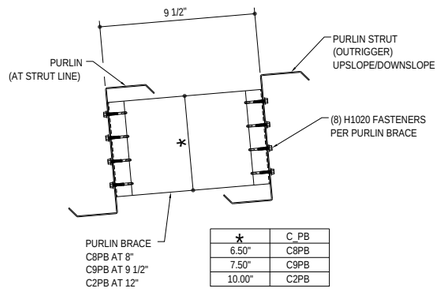
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26





AT FRAME LINES



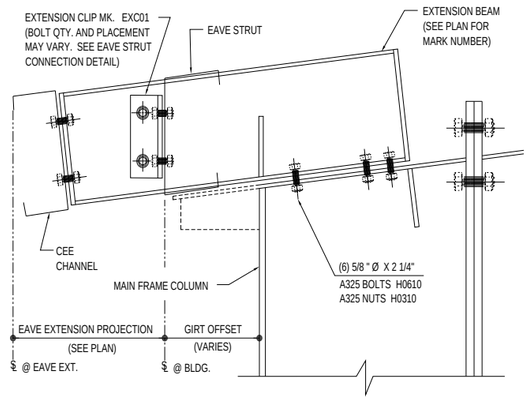
*	C_PB
6.50"	C8PB
7.50"	C9PB
10.00"	C2PB

BETWEEN FRAME LINES
(SEE ROOF PLAN FOR LOCATIONS OF C_PB PURLIN BRACE)

STRUT PURLIN DETAIL

SEE PLANS & ELEVATIONS FOR MARK NUMBERS AND LOCATIONS
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

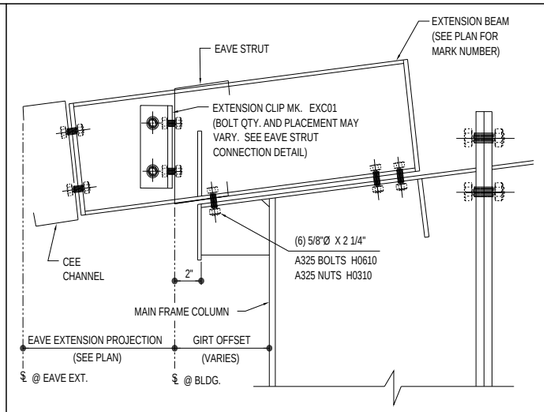
AK0300



LOW EAVE EXTENSION DETAIL

BYPASS GIRTS AT MAIN FRAMES
FOR HAUNCH DEPTH > 1'-3"
NOTE: USE 1/2" x 2" A325 BOLTS H0603/NUTS H0300 U.N.O.

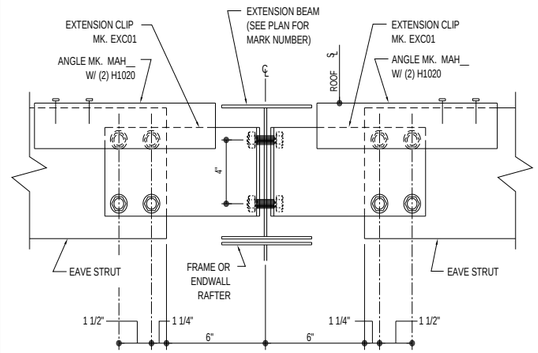
AN1030



LOW EAVE EXTENSION DETAIL

BYPASS GIRTS AT MAIN FRAMES
FOR HAUNCH DEPTHS ≤ 1'-3"
NOTE: USE 1/2" x 2" A325 BOLTS H0603/NUTS H0300 U.N.O.

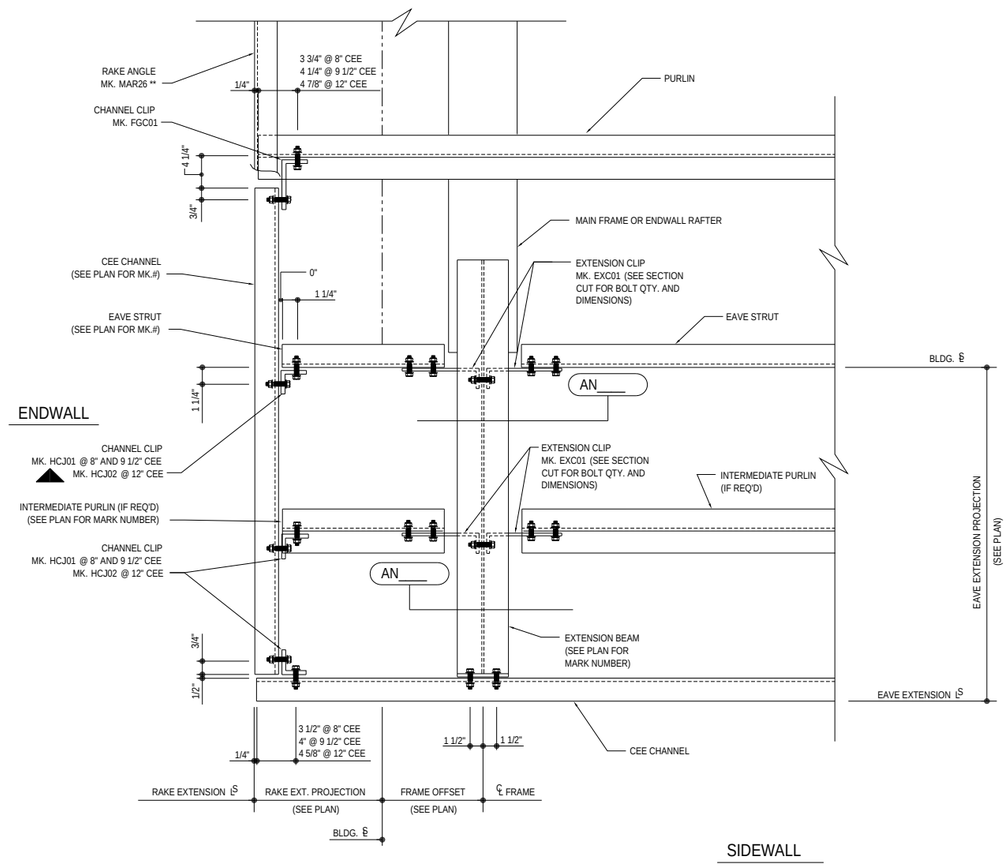
AN1040



EAVE STRUT AT EAVE EXTENSION DETAIL

AT 8" AND 9 1/2" SECONDARY
NOTE: USE (10) 1/2" x 2" A325 BOLTS H0603/NUTS H0300
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS.

AN2000



SIDEWALL

LOW EAVE & RAKE EXTENSION DETAIL

NOTE: USE 1/2" x 2" A325 BOLTS H0603/ NUTS H0300 (U.N.O.)
** - EXTEND MAR26 TO EXTENSION STEEL LINE
▲ = FIELD WORK MAY BE REQUIRED FOR PROPER CLIP FIT UP.

AN3021

MBMA MEMBER · IAS ACCREDITED AISC 370 CERTIFIED CSA W47.1 · CWB · CISC CWB · CSSBI

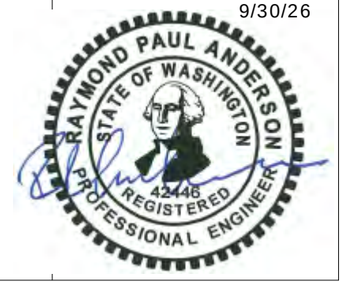
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

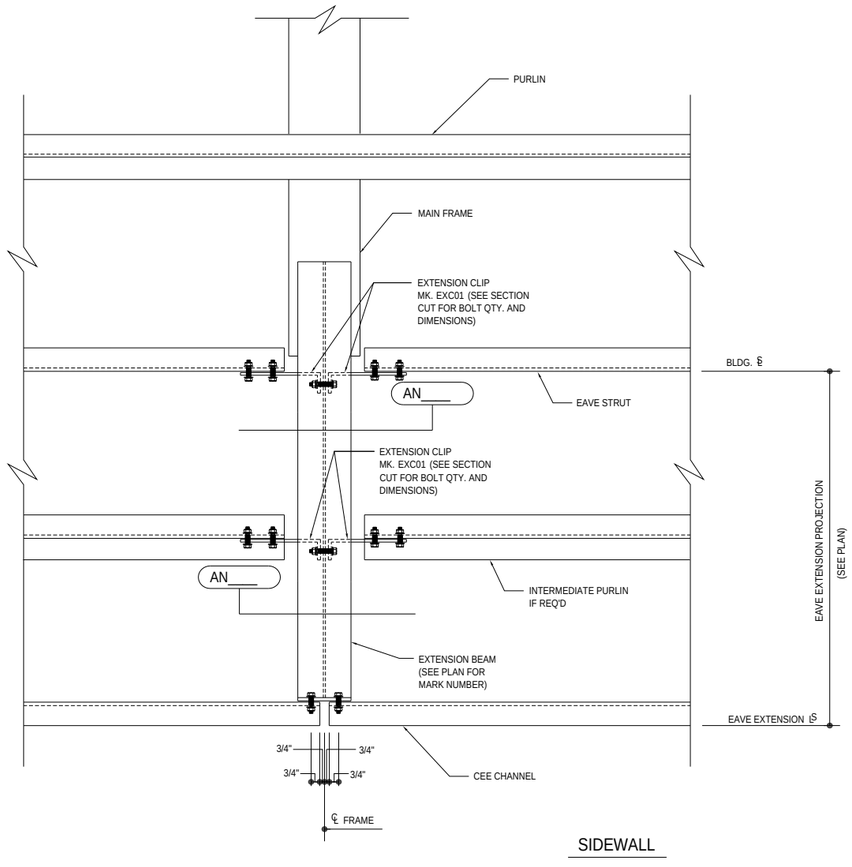
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JOB NUMBER	U26H0545A
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	FOR PERMITS ONLY
DRAWING TITLE	PRIMARY DETAILS
SHEET	D6
DATE	09/30/2026

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26





SIDEWALL

LOW EAVE EXTENSION DETAIL

NOTE: USE 1/2"X 2" A325 BOLTS H0603/NUTS H0300 (U.N.O.)

AN3030

MBMA MEMBER

IAS ACCREDITED MANUFACTURER

CERTIFIED CSA W47.1

PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:17pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

SHEET D7

DRAWING TITLE PRIMARY DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

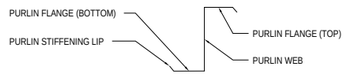
9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

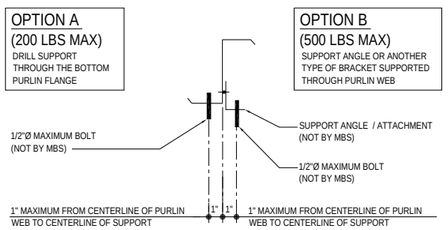
COLLATERAL DEAD LOADS, UNLESS NOTED OTHERWISE, ARE ASSUMED TO BE UNIFORMLY DISTRIBUTED. WHEN SUSPENDED SPRINKLER SYSTEMS, LIGHTING, HVAC EQUIPMENT, CEILINGS, ETC. ARE SUSPENDED FROM ROOF MEMBERS, CONSULT M.B.S. ENGINEERING IF THESE CONCENTRATED LOADS EXCEED 500 POUNDS (USING THE WEB MOUNT DETAIL) OR 200 POUNDS (USING THE FLANGE MOUNT DETAIL) OR IF INDIVIDUAL MEMBERS ARE LOADED SIGNIFICANTLY MORE THAN OTHERS.

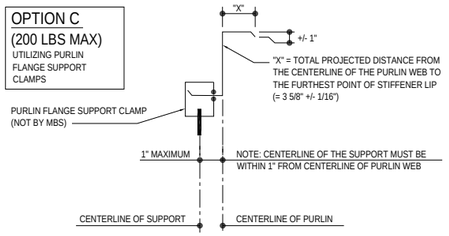
GENERAL RESTRICTION

UNDER NO CIRCUMSTANCES CAN THE PURLIN STIFFENING LIP BE FIELD MODIFIED FROM THE FACTORY SUPPLIED CONDITION. ALSO DO NOT HANG ANYTHING FROM PURLIN STIFFENING LIP.



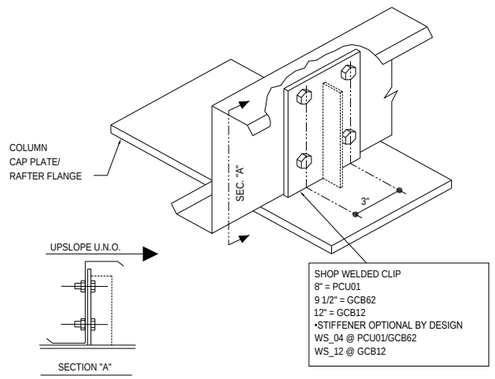
SUPPORT ATTACHMENT OPTIONS





PURLIN SUPPORT METHODS

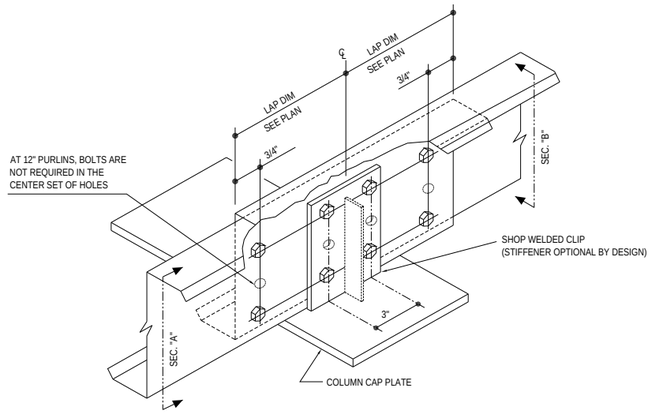
B00010



WELDED CLIP @ END FRAME

USE (4) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400 U.N.O.
REFERENCE ERECTOR NOTE FOR TYP. WASHER REQUIREMENTS

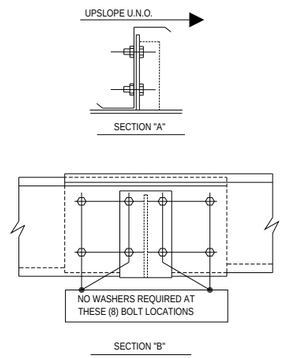
BB0050

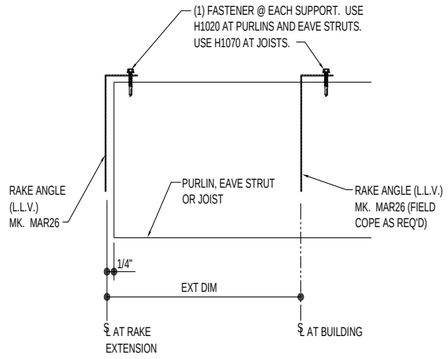


WELDED CLIP @ INTERIOR FRAME

USE (8) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400 U.N.O.

BB0055





RAKE ANGLE ATTACHMENT

AT ENDWALL STEEL LINE WITH RAKE EXTENSION

BD0061

MBMA MEMBER
IAS ACCREDITED AWPP BI 10
CWB CERTIFIED CSA W47.1
AISC
SSEA

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:17pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET D8
DRAWING TITLE ROOF FRAMING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

INSTALLATION INSTRUCTIONS

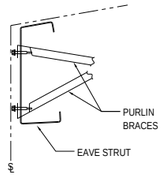
1) FOR PURLIN BRACE "X", INSERT ANGLES "BACK-TO-BACK" INTO THE FACTORY PUNCHED SLOTS. BEND TABS AS SHOWN AND FASTEN THROUGH TAB WITH (1) H1020 FASTENER PER END. WHEN IMP WALL IS PRESENT, USE H1220 AT STEEL LINE WITH EAVE STRUTS.

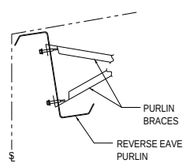
2) CONNECT PURLIN BRACE "X" AT THE ANGLE INTERSECTION WITH (1) H1020 FASTENER.

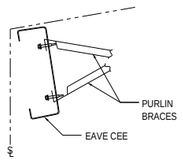
3) PURLIN BRACING IS NOT TO DISTORT OR ALTER PURLINS FROM THEIR INTENDED SHAPE OR LOCATION.

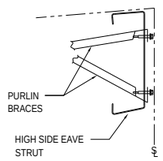
4) SEE DETAILS BELOW FOR ADDITIONAL INFORMATION WHEN ATTACHING TO ALTERNATE FRAMING MEMBERS.

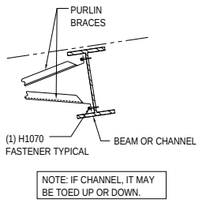
5) IF A BRACE IS USED IN A SPACING THAT IS LESS THAN 1'-3", THEN THE BRACE WILL BE SUPPLIED AT 1'-3". ERECTOR TO FIELD CUT AND CREATE A TAB AS NEEDED TO FIT IN SMALL SPACE.



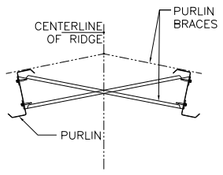


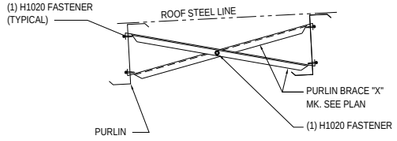


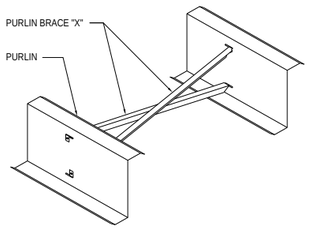




NOTE: IF CHANNEL, IT MAY BE TOED UP OR DOWN.





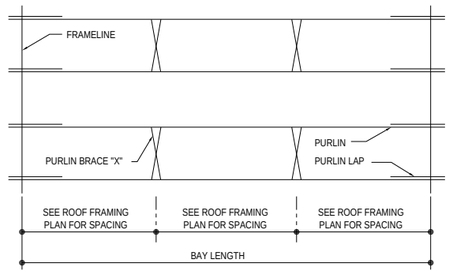


NOTE: PURLIN BRACING ATTACHMENT METHOD IS THE SAME REGARDLESS OF THE SECONDARY MEMBER TYPE (ZEE, CEE, EAVE STRUT, BEAM, ETC.)

PLAN VIEW OF PURLIN BRACING LOCATIONS PER BAY

1) SEE ROOF FRAMING PLAN(S) FOR PURLIN BRACE MARK NUMBERS, QUANTITIES AND LOCATIONS.

2) (2) ROWS OF PURLIN BRACING IS SHOWN BELOW FOR REFERENCE ONLY, ACTUAL NUMBER OF ROWS MAY VARY PER BAY AND PER PROJECT, SEE ROOF FRAMING PLAN(S) FOR SPACING.



PURLIN BRACING ATTACHMENT METHODS

BE0001

MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CWB CERTIFIED
CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:18pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

SHEET D9

DRAWING TITLE ROOF FRAMING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

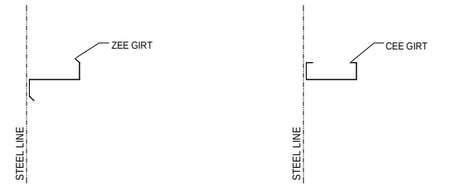
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

ERECTOR NOTE:

UNLESS SPECIFICALLY NOTED OTHERWISE, STANDARD ZEE GIRT ORIENTATION IS TO HAVE THE GIRT TOED DOWN AT THE STEEL LINE AS SHOWN IN THE DETAIL BELOW.

UNLESS SPECIFICALLY NOTED OTHERWISE, STANDARD CEE GIRT ORIENTATION IS TO HAVE THE GIRT TOED UP AS SHOWN IN THE DETAIL BELOW. STANDARD CLIP ATTACHMENT IS BELOW THE GIRT, HOWEVER SOME DETAILS REQUIRE THAT THE CLIP BE ABOVE THE GIRT OR THAT THE GIRT BE TOED DOWN.

(REFER TO THE GIRT DETAILS FOR SPECIFIC CONNECTION REQUIREMENTS).



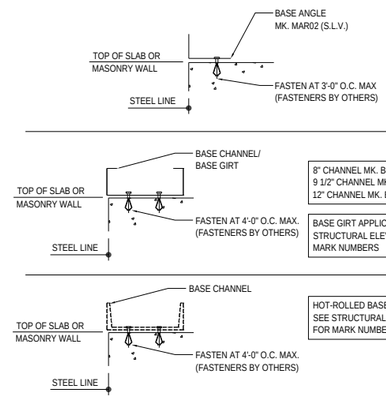
ZEE GIRT ORIENTATION

CEE GIRT ORIENTATION

STANDARD GIRT ORIENTATION DETAIL

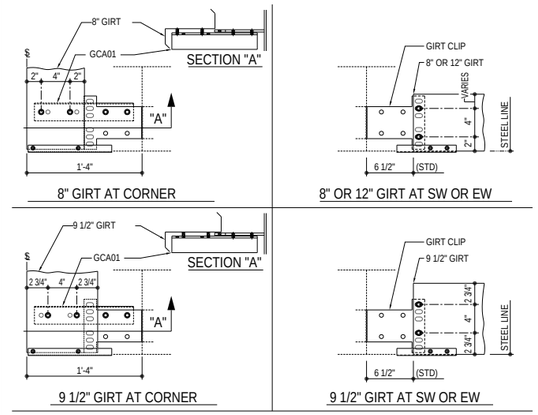
SEE GIRT DETAILS FOR GIRT CONNECTIONS
(COLUMNS NOT SHOWN)

C00010



BASE MEMBER DETAIL

C00040



FLUSH GIRT BOLT PLACEMENT DETAIL

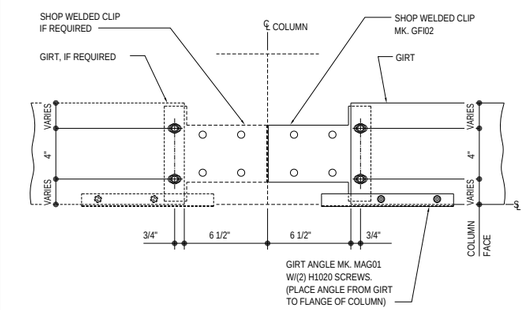
REFERENCE WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS
GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS.
REFER TO THE DETAILS ABOVE TO DETERMINE WHICH HOLES ARE UTILIZED.

CA1001

ERECTOR NOTE

GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS.
REFER TO THE STANDARD BOLT PLACEMENT DETAIL(S) FOR PROPER BOLT PLACEMENT.

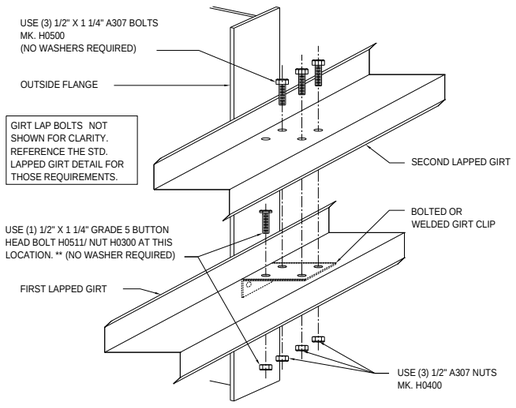
RIGHT HAND DETAIL SHOWN, LEFT HAND OPPOSITE



FLUSH GIRT DETAIL

FLUSH GIRTS AT INTERIOR BAY COLUMNS
NOTE: USE (4) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

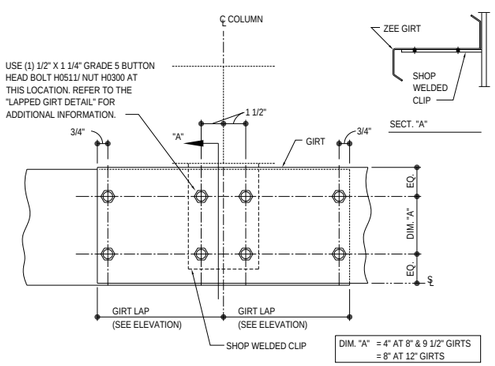
CA1010



LAPPED GIRT DETAIL

LAPPED GIRTS @ INTERIOR BAY COLUMNS
** THE 1/2" GRADE 5 BUTTON HEAD BOLT MUST BE INSTALLED INTO THE FIRST GIRT AND CLIP OF A LAPPED CONDITION. THE BOLT/NUT ASSEMBLY MUST BE WRENCH TIGHT PRIOR TO THE SECOND LAPPED GIRT BEING INSTALLED.

CC0006



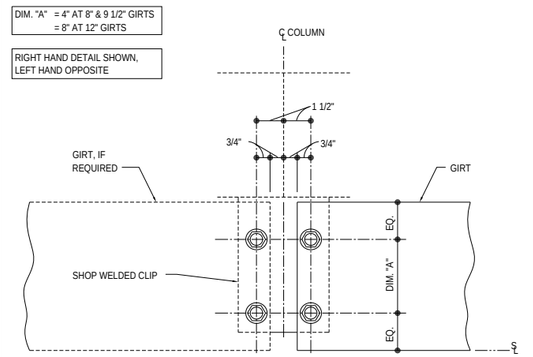
SW OR EW GIRT DETAIL

LAPPED BYPASS GIRTS AT INTERIOR BAY COLUMNS
NOTE: USE (7) 1/2"x 1 1/4" A307 BOLTS H0500/NUTS H0400
WASHERS ARE NOT REQUIRED AT LAPPED ZEE CONNECTION
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

CC1010

DIM. "A" = 4" AT 8" & 9 1/2" GIRTS
= 8" AT 12" GIRTS

RIGHT HAND DETAIL SHOWN,
LEFT HAND OPPOSITE

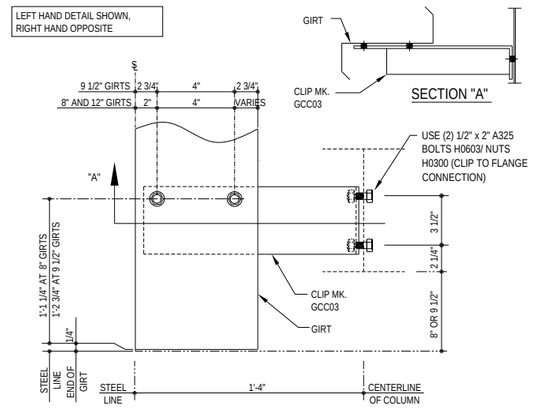


SW OR EW GIRT DETAIL

SIMPLE-SPAN BYPASS GIRTS AT INTERIOR BAY COLUMNS
NOTE: USE (4) 1/2"x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE ERECTOR NOTE FOR TYPICAL WASHER REQUIREMENTS

CC1020

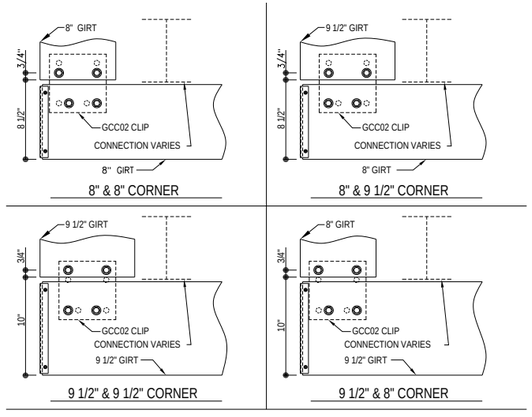
LEFT HAND DETAIL SHOWN,
RIGHT HAND OPPOSITE



BOLTED GIRT TERMINATION DETAIL

NOTE: USE (2) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CF0252

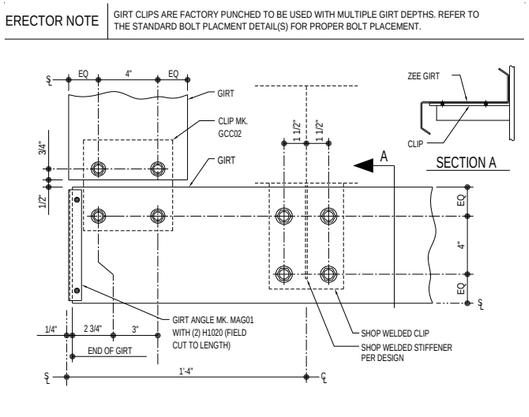


BYPASS GIRT BOLT PLACEMENT DETAIL

REFERENCE WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS
GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS.
REFER TO THE DETAILS ABOVE TO DETERMINE WHICH HOLES ARE UTILIZED.

CF1001

ERECTOR NOTE GIRT CLIPS ARE FACTORY PUNCHED TO BE USED WITH MULTIPLE GIRT DEPTHS. REFER TO THE STANDARD BOLT PLACMENT DETAIL(S) FOR PROPER BOLT PLACEMENT.



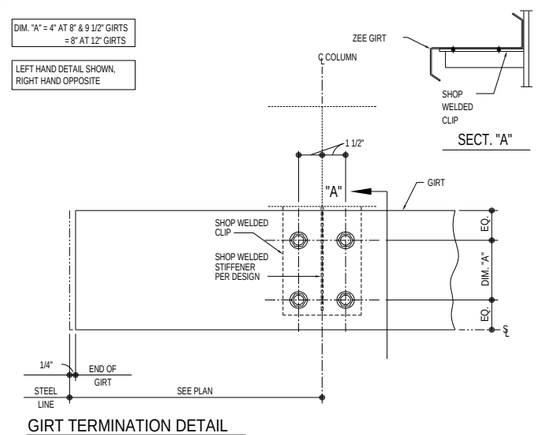
BYPASS GIRT CORNER DETAIL

LEFT HAND DETAIL SHOWN, RIGHT HAND OPPOSITE
NOTE: USE (8) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CF1010

DIM. "A" = 4" AT 8" & 9 1/2" GIRTS
= 8" AT 12" GIRTS

LEFT HAND DETAIL SHOWN,
RIGHT HAND OPPOSITE



GIRT TERMINATION DETAIL

LEFT HAND DETAIL SHOWN, RIGHT HAND OPPOSITE
NOTE: USE (4) 1/2" x 1 1/4" A307 BOLTS H0500/NUTS H0400
REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CF1200

MBMA MEMBER
IAS ACCREDITED
CERTIFIED
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101
09/30/2026 12:06:19pm

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

JOB NUMBER
U26H0545A

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

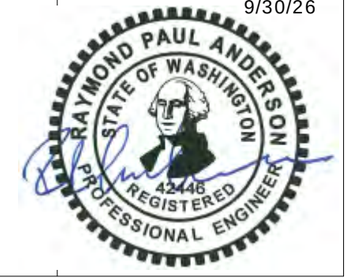
DRAWING STATUS
FOR PERMITS ONLY

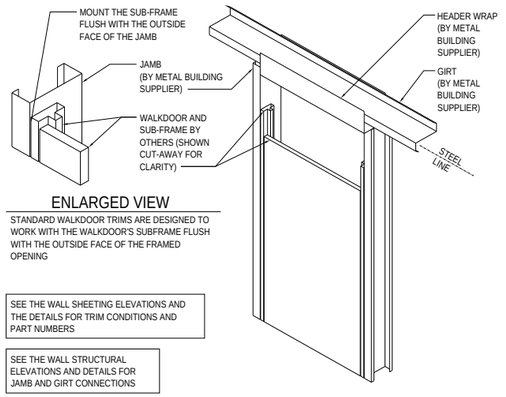
DRAWING TITLE
WALL FRAMING DETAILS

SHEET
D10

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26





ENLARGED VIEW

STANDARD WALKDOOR TRIMS ARE DESIGNED TO WORK WITH THE WALKDOOR'S SUBFRAME FLUSH WITH THE OUTSIDE FACE OF THE FRAMED OPENING

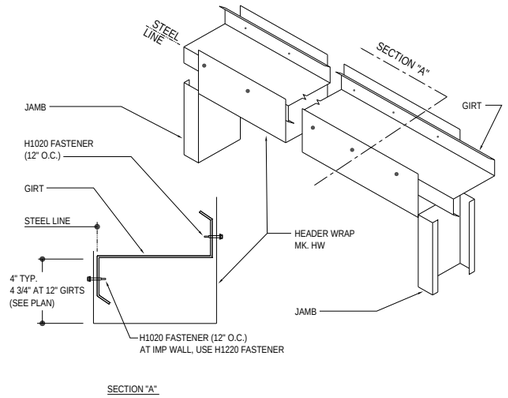
SEE THE WALL SHEETING ELEVATIONS AND THE DETAILS FOR TRIM CONDITIONS AND PART NUMBERS

SEE THE WALL STRUCTURAL ELEVATIONS AND DETAILS FOR JAMB AND GIRT CONNECTIONS

WALKDOOR FRAMED OPENING DETAIL

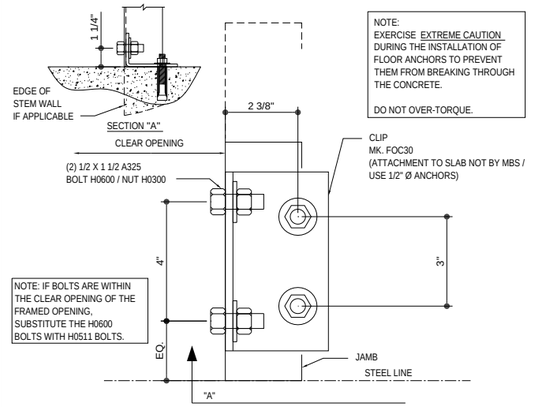
(WALKDOOR PROVIDED BY OTHERS)
SEE THE WALL ELEVATIONS FOR JAMB AND GIRT PART NUMBERS

CG0016



HEADER WRAP DETAIL

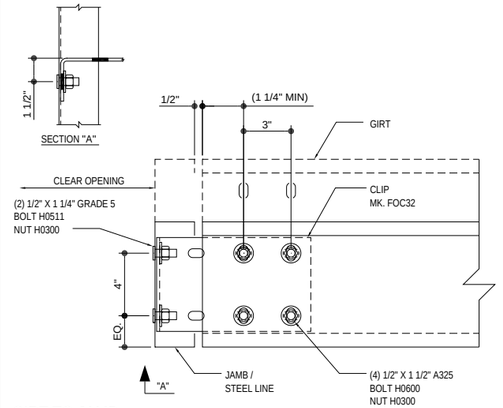
CG0025



JAMB TO BASE (BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

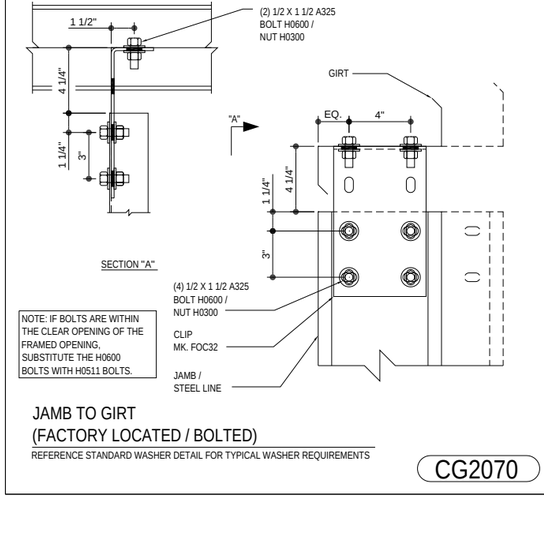
CG2010



GIRT TO JAMB (FACTORY & FIELD LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

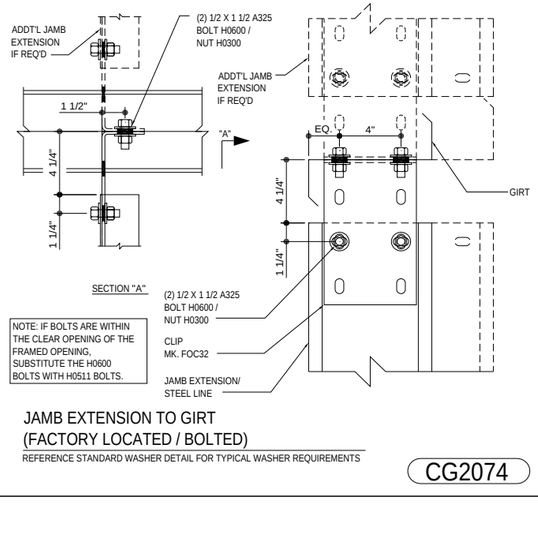
CG2030



HEADER OR SILL TO JAMB (FACTORY LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

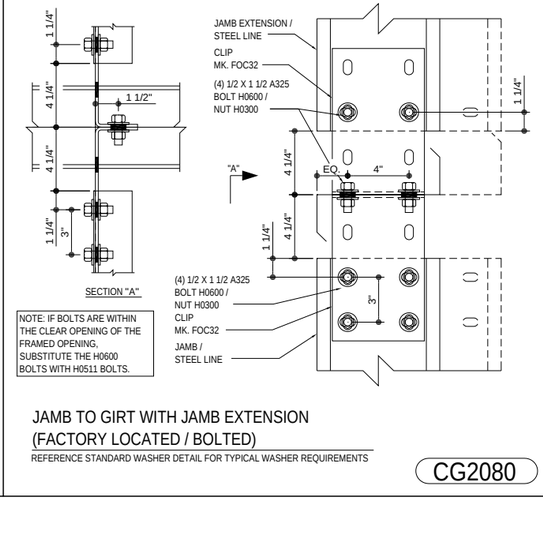
CG2040



HEADER OR SILL TO JAMB (FIELD LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

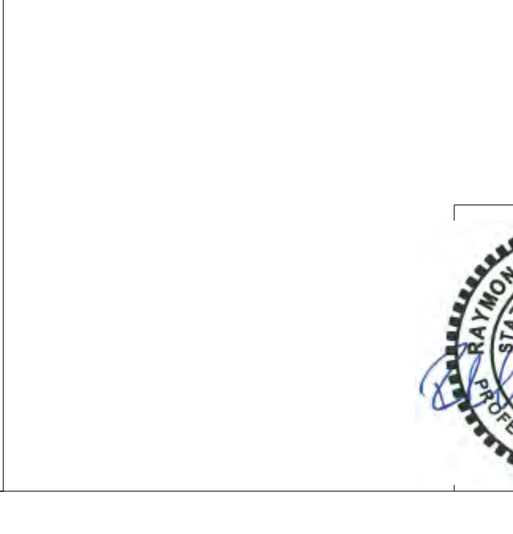
CG2042



JAMB TO FULL-BAY HEADER (FACTORY LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2050



JAMB TO FULL-BAY HEADER WITH JAMB EXT. (FACTORY & FIELD LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2060

JAMB TO GIRT (FACTORY LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2070

JAMB EXTENSION TO GIRT (FACTORY LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2074

JAMB TO GIRT WITH JAMB EXTENSION (FACTORY LOCATED / BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2080

MBMA MEMBER
IAS ACCREDITED AC472 & 162
CERTIFIED CSA W47.1
CERTIFIED CSA W47.1
ESSE

NUCOR BUILDING SYSTEMS

PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:21pm

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

JOB NUMBER
U26H0545A

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

SHEET
D11

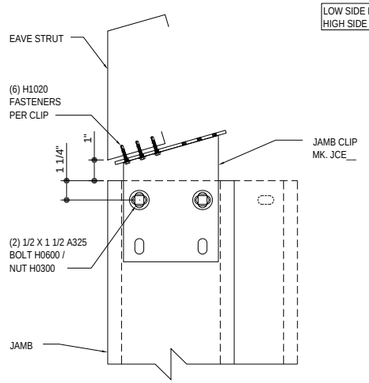
DRAWING TITLE
WALL FRAMING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

LOW SIDE EAVE SHOWN.
HIGH SIDE EAVE SIMILAR.



JAMB EXTENSION TO EAVE STRUT (BOLTED)

REFERENCE STANDARD WASHER DETAIL FOR TYPICAL WASHER REQUIREMENTS

CG2093

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:23pm

JOB NUMBER	**U26H0545A**
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	FOR PERMITS ONLY
SHEET	D12
DRAWING TITLE	WALL FRAMING DETAILS

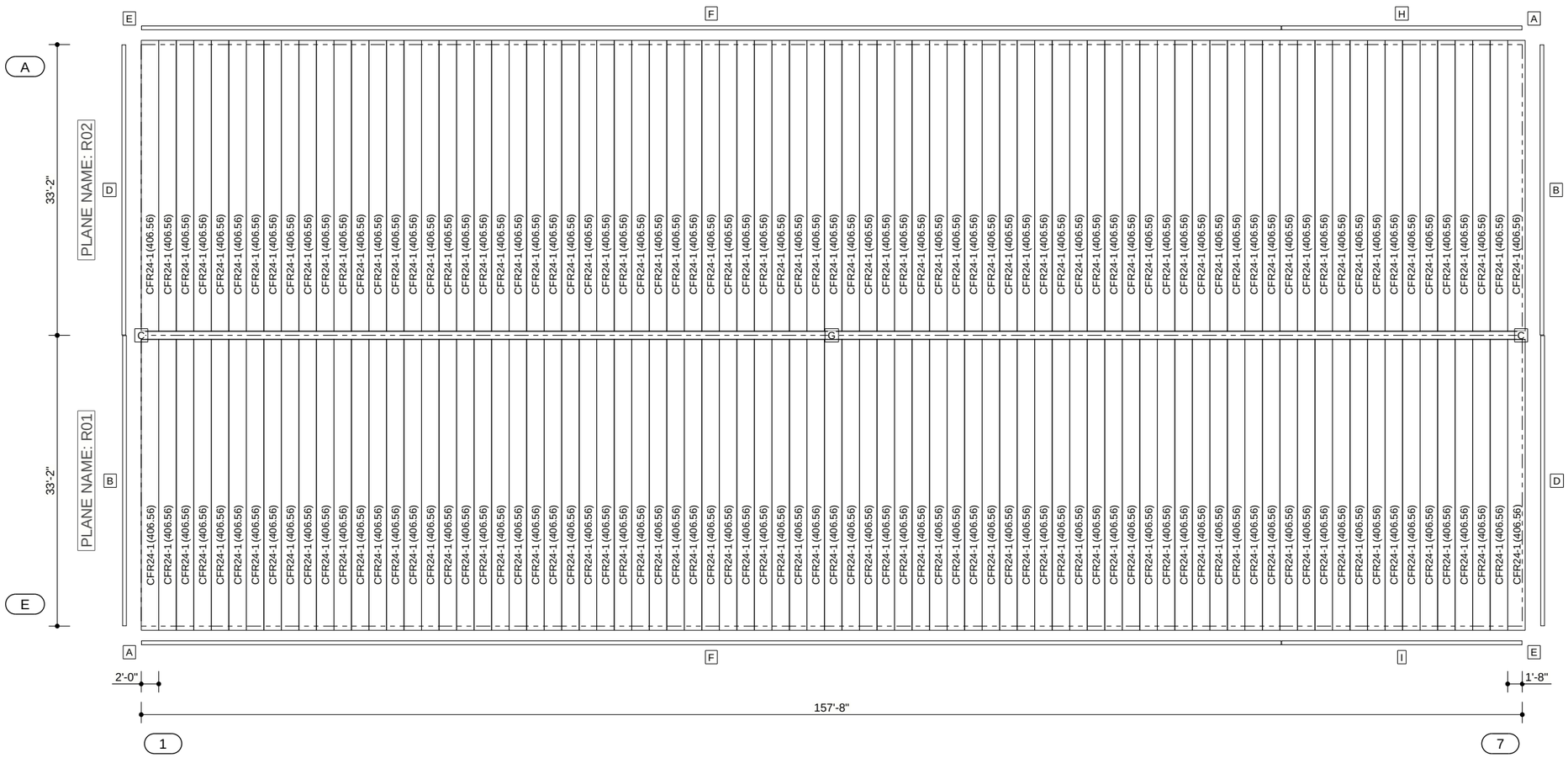
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

LINE AND TERMINATION TRIM CHART										
MARK	TRIM	DETAIL		MARK	TRIM	DETAIL		MARK	TRIM	DETAIL
A	(1)H4000N(BD) (1)RTSC(BD) (1)RSCE(BD) (1)RESCL(BD)	ED7001 ED7002		D	(8)MAR26(GZ) (2)RTSN242(BD) (.08)FEB120(GZ) (4)RTR121(BD) (12)COVL2(NP) (4)RES1121(BD) (7)JTD121(BD)	GA0011 EA6076 BD0061 EO6005 EO6800 EO6810		G	(8)RTP4242(BD) (1.45)FEB120(GZ)	EG6010
B	(8)MAR26(GZ) (2)RTSN242(BD) (.08)FEB120(GZ) (4)RTR121(BD) (12)COVR2(NP) (4)RES1121(BD) (7)JTD121(BD)	GA0011 EA6076 BD0061 EO6005 EO6800 EO6810		E	(1)H4000N(BD) (1)RTSC(BD) (1)RSCE(BD) (1)RESCR(BD)	ED7001 ED7002		H	(2)GSN242(BD) (3)ELCS9121(BD) (1.5)MAR26(GZ)	EA6013 EA6014 EO6005 EO6700
C	(.5)RTSN121(BD) (.05)MAR02(GZ) (.5)MPCN(BD) (1)FS6-2569(BD)	EG7001 EG7632		F	(14)MAL12(GZ) (30)EPT108(GZ) (1)GEJC(BW) (2)H4100N(BW) (7)GSN242(BD) (14)MAE02(GZ) (14)ELCS9121(BD) (7)MAR26(GZ) (14)SCT121(BD)	GA0011 EA6013 EA6014 EO6005 EO6700 EO6710 ED6900		I	(4)EPT108(GZ) (2)GSN242(BD) (3)ELCS9121(BD) (1.5)MAR26(GZ)	EA6013 EA6014 EO6005 EO6700

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
R01	1147	BD	A00031 A00041 EA6000 EA6010 EA6012 EA6013 EA6014 EA6015 EA6016 EA6035
R02	1148	BD	A00031 A00041 EA6000 EA6010 EA6012 EA6013 EA6014 EA6015 EA6016 EA6035



ROOF SHEETING PLAN

ROOF SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:30pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

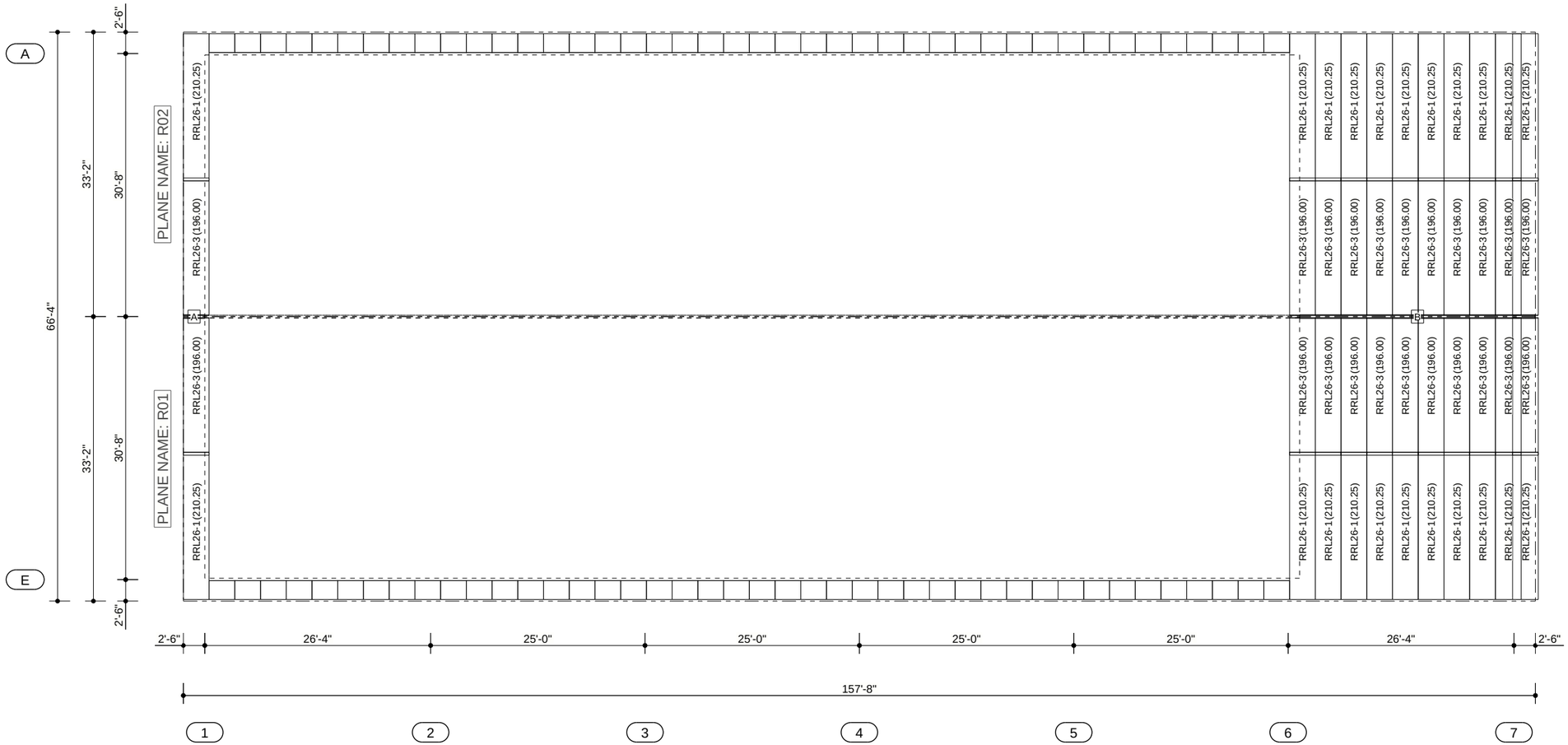
DRAWING TITLE ROOF SHEETING PLAN

SHEET S1

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

LINE AND TERMINATION TRIM CHART		
MARK	TRIM	DETAIL
A	(2)CT3121(BD)	IF0020
B	(6)CT3121(BD)	IF0020

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
R02	1150	BD	IA0070 IA0080
R01	1152	BD	IA0070 IA0080



ROOF LINER PLAN

ROOF LINER GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CERTIFIED GIA WA#1
CSSB

09/30/2026 12:06:35pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

DRAWING TITLE
ROOF LINER PLAN

SHEET
S2

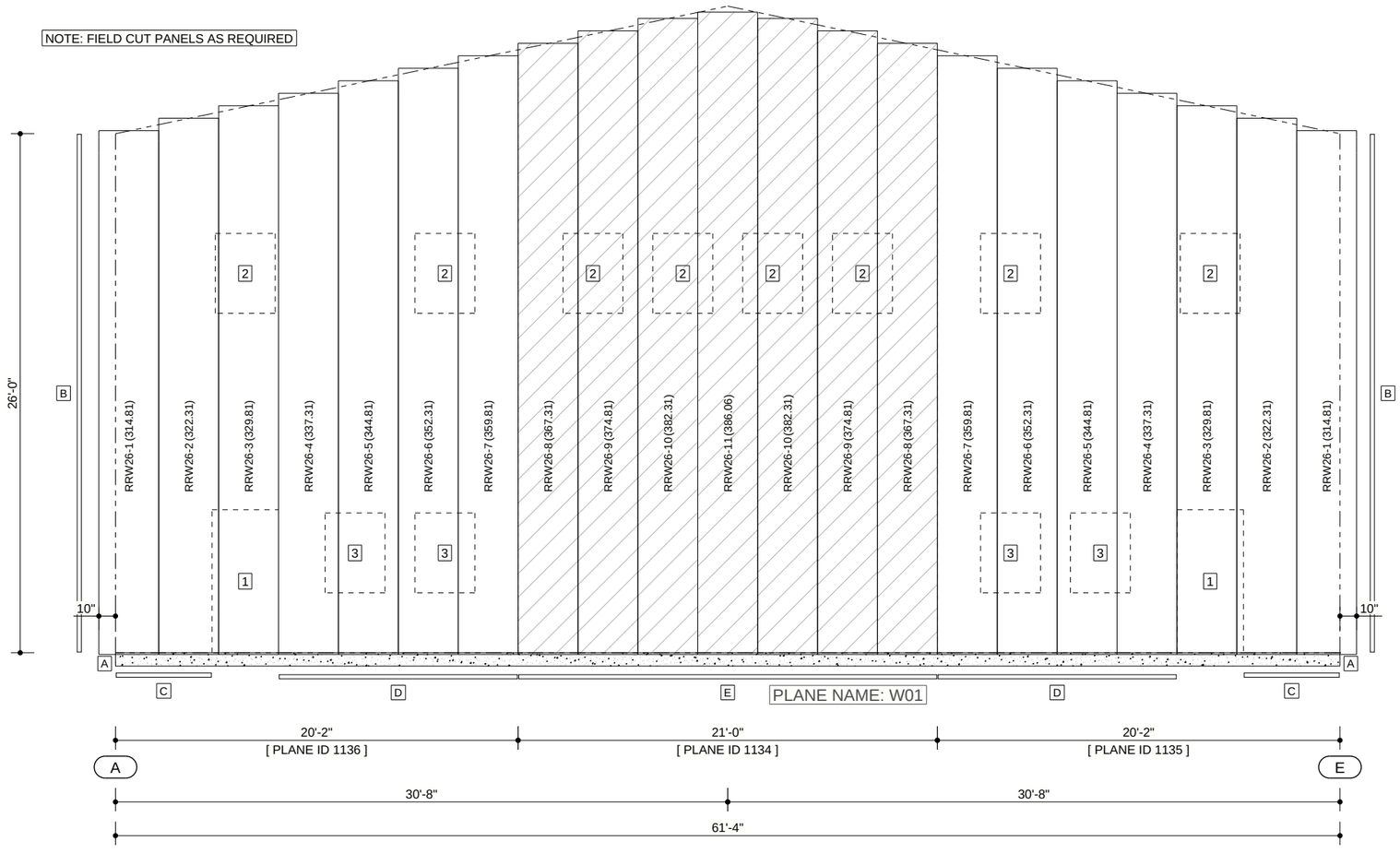
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

LINE AND TERMINATION TRIM CHART		
MARK	TRIM	DETAIL
A	(1)H4200(CL)	
B	(1.5)MAR26(GZ) (2)COA242(BD) (5.5)JTD121(BD)	GA0011 GC0231
C	(1)BSB121(CL) (.5)B8C01(RP)	GA0005 GB0020 C00040
D	(2)BSB121(CL) (1)B8C01(RP)	GA0005 GB0020 C00040
E	(3)BSB121(CL) (1.5)B8C01(RP)	GA0005 GB0020 C00040

FRAMED OPENING TABLE				
MARK	WIDTH	HEIGHT	TRIM	DETAIL
1	3'-4"	7'-2"	(1)HTA044(CL) (2)JTD087(CL)	GD0040
2	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070
3	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
W01	1134	FG	A00050 GA0000 A00100 GA0030
W01	1135	CL	A00050 GA0000 A00100 GA0030
W01	1136	CL	A00050 GA0000 A00100 GA0030

NOTE: FIELD CUT PANELS AS REQUIRED



SHEETING ELEVATION - ENDWALL AT LINE 1

WALL SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:41pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE SHEETING ELEVATION - ENDWALL AT LINE 1

SHEET S3

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

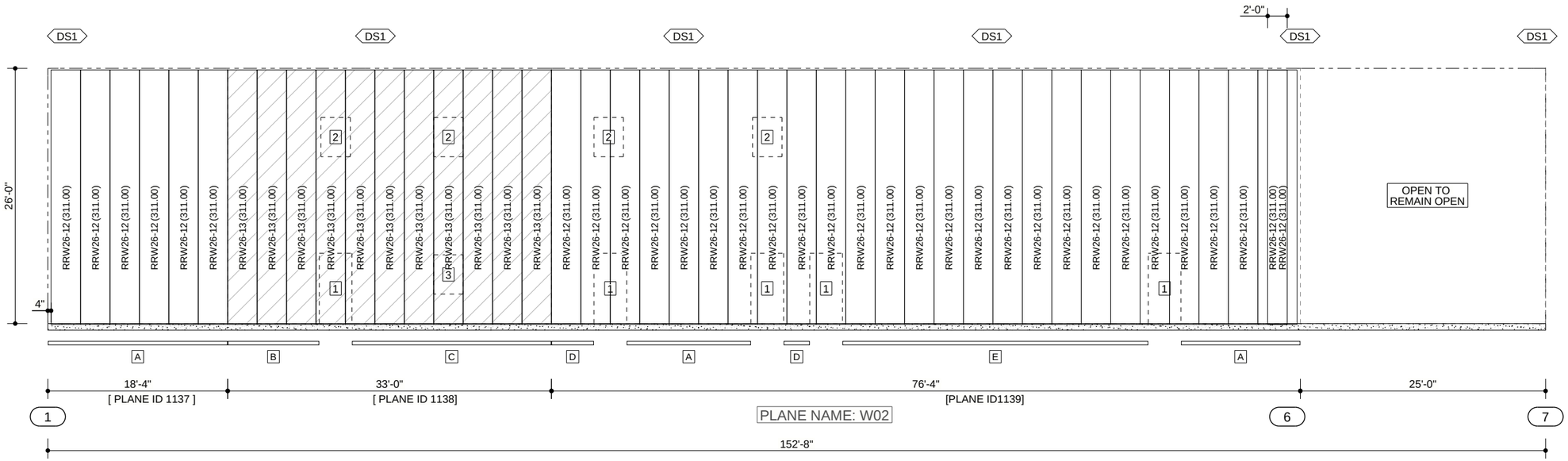
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

LINE AND TERMINATION TRIM CHART		
MARK	TRIM	DETAIL
A	(2)BSB121(CL) (1)B8C01(RP)	GA0005 GB0020 C00040
B	(2)BSB121(CL) (.5)B8C01(RP)	GA0005 GB0020 C00040
C	(3)BSB121(CL) (1.5)B8C01(RP)	GA0005 GB0020 C00040
D	(1)BSB121(CL) (.5)B8C01(RP)	GA0005 GB0020 C00040
E	(4)BSB121(CL) (2)B8C01(RP)	GA0005 GB0020 C00040

FRAMED OPENING TABLE				
MARK	WIDTH	HEIGHT	TRIM	DETAIL
1	3'-4"	7'-2"	(1)HTA044(CL) (2)JTD087(CL)	GD0040
2	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070
3	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070

DOWNSPOUT LOCATION & TRIM CHART		
MARK	TRIM	DETAIL
DS1	(3)DSC120(BD) (4)DSSTRAP(BD) (4)DSSTBRK(BD) (2)DSCEAB(BD) (1)DSCEAA(BD)	GA0170
MAX SPACING OF DOWNSPOUT DROPS: 50'-0" O.C. MAX		
MATERIAL PROVIDED ONLY FOR THE DOWNSPOUT LOCATIONS SHOWN IN THE VIEW(S) BELOW (DS1, DS2, ETC.)		

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
W02	1137	CL	A00050 GA0000 A00100 GA0030
W02	1138	FG	A00050 GA0000 A00100 GA0030
W02	1139	CL	A00050 GA0000 A00100 GA0030



SHEETING ELEVATION - SIDEWALL AT LINE E

WALL SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

9/30/26

RAYMOND PAUL ANDERSON
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NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
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09/30/2026 12:06:46pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE SHEETING ELEVATION - SIDEWALL AT LINE E

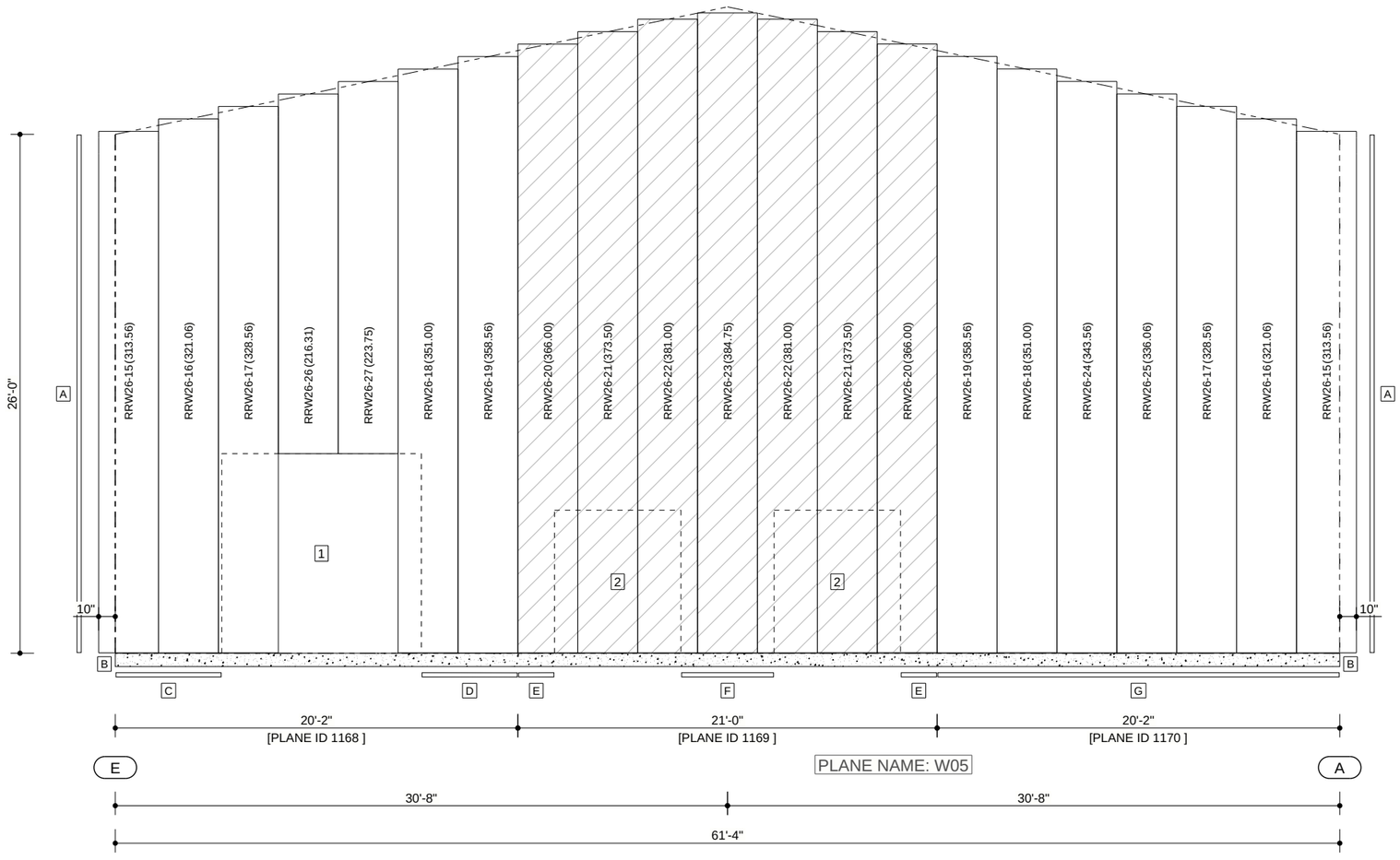
SHEET S4

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

LINE AND TERMINATION TRIM CHART		
MARK	TRIM	DETAIL
A	(1.5)MAR26(GZ) (2)COA242(BD) (5.5)JTD121(BD)	GA0011 GC0231
B	(1)H4200(CL)	
C	(.5)B8C01(RP) (1)TRIM-1(CL)	GA0005 C00040 IC0010X
D	(.5)B8C01(RP) (1)TRIM-1(CL)	GA0005 GB0020 C00040 IC0010X
E	(.5)B8C01(RP) (.25)TRIM-1(CL)	GA0005 GB0020 C00040 IC0010X
F	(.5)B8C01(RP) (.5)TRIM-1(CL)	GA0005 GB0020 C00040 IC0010X
G	(1.5)B8C01(RP) (3)TRIM-1(CL)	GA0005 GB0020 C00040 IC0010X

FRAMED OPENING TABLE				
MARK	WIDTH	HEIGHT	TRIM	DETAIL
1	10'-0"	10'-0"	(1)HTA124(CL) (2)JTD121(CL) (3)CC8121(CL)	GD0040 GD0005
2	6'-4"	7'-2"	(1)HTA080(CL) (2)JTD087(CL)	GD0040

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
W05	1168	CL	A00050 GA0000 A00100 GA0030
W05	1169	FG	A00050 GA0000 A00100 GA0030
W05	1170	CL	A00050 GA0000 A00100 GA0030



SHEETING ELEVATION - ENDWALL AT LINE 6 (PARTITION)

WALL SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
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09/30/2026 12:06:49pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

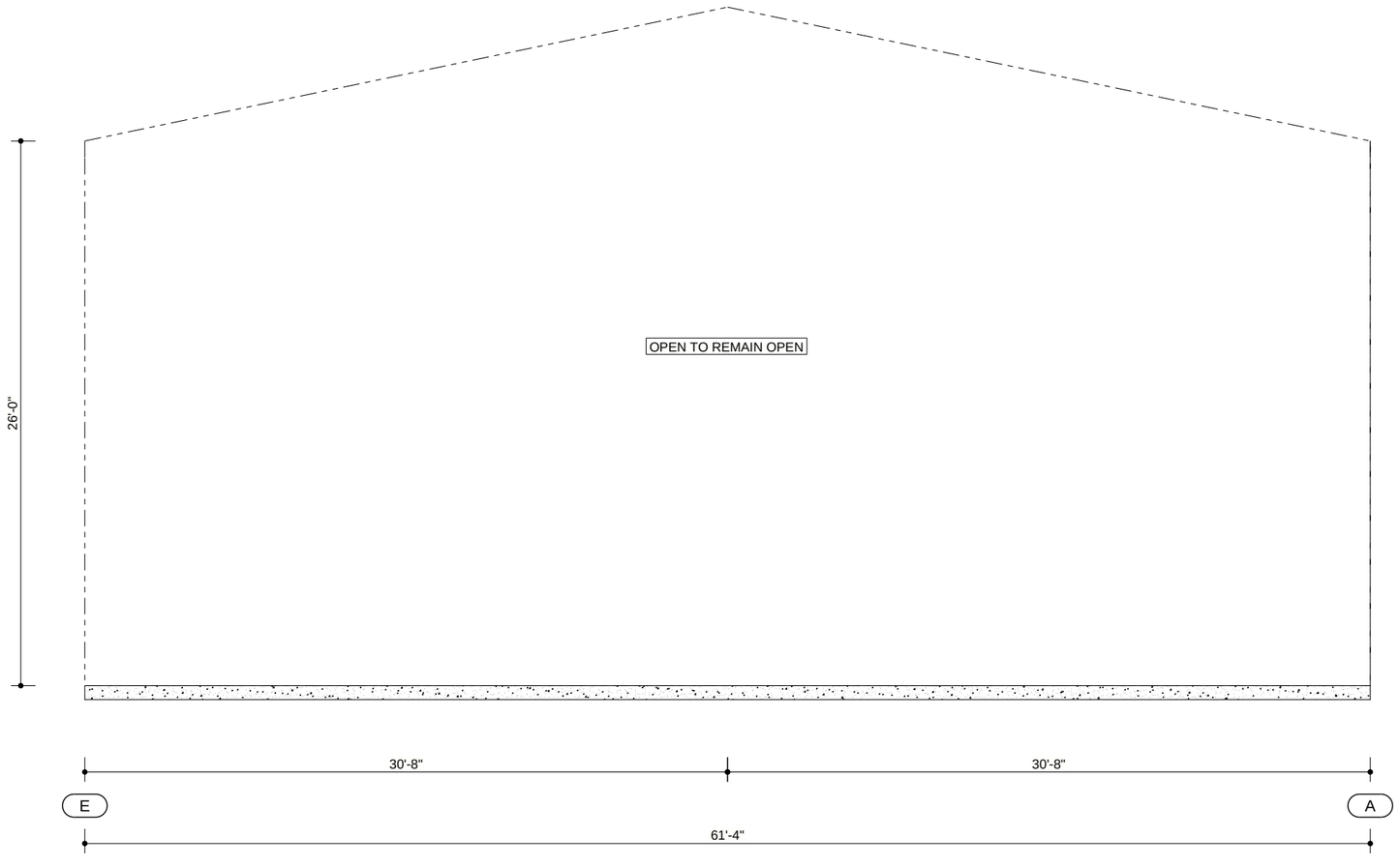
DRAWING TITLE SHEETING ELEVATION - ENDWALL AT LINE 6

SHEET S5

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
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SHEETING ELEVATION - ENDWALL AT LINE 7

WALL SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

GN1: REQUIRED DETAILS ARE NOT ALWAYS CALLED OUT ON THE PLAN/ELEVATION. ALL DETAILS AND INFO ON THE D & SD PAGES SHOULD BE REVIEWED PRIOR TO INSTALLATION.

NUCOR BUILDING SYSTEMS
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FAX: (435) 919-3101

JOB NUMBER	ADDRESS
U26H0545A	THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME: NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME: ADVANCED BUILDING STRUCTURES
DRAWING STATUS: FOR PERMITS ONLY
SHEET: S6
DRAWING TITLE: SHEETING ELEVATION - ENDWALL AT LINE 7

09/30/2026 12:06:50pm

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

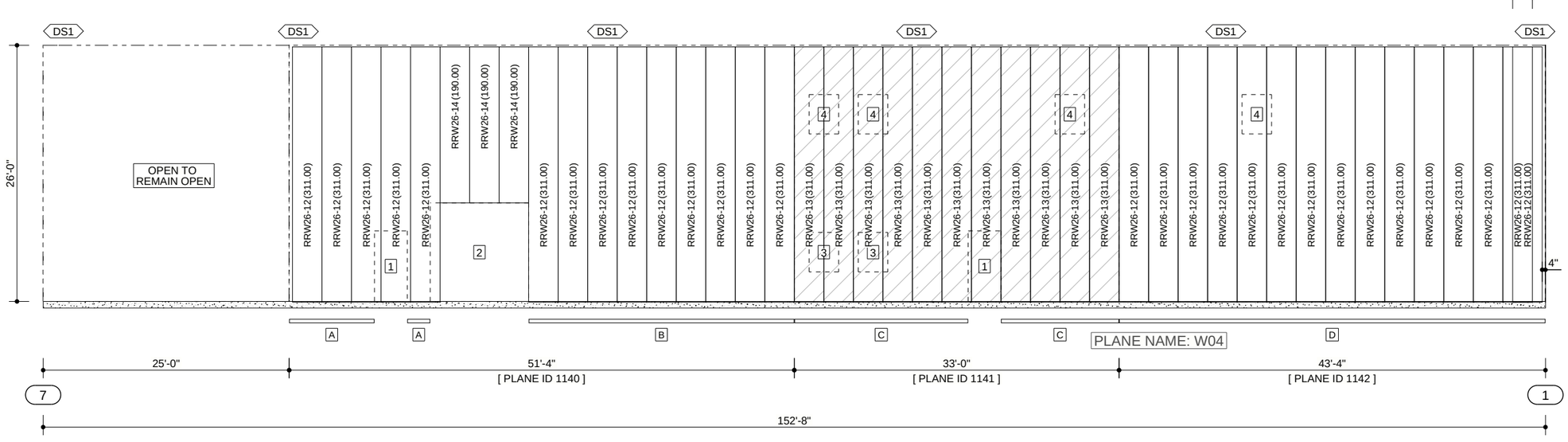
RAYMOND PAUL ANDERSON
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PROFESSIONAL ENGINEER

LINE AND TERMINATION TRIM CHART		
MARK	TRIM	DETAIL
A	(1)BSB121(CL) (.5)B8C01(RP)	GA0005 GB0020 C00040
B	(3)BSB121(CL) (1.5)B8C01(RP)	GA0005 GB0020 C00040
C	(2)BSB121(CL) (1)B8C01(RP)	GA0005 GB0020 C00040
D	(5)BSB121(CL) (2.5)B8C01(RP)	GA0005 GB0020 C00040

FRAMED OPENING TABLE				
MARK	WIDTH	HEIGHT	TRIM	DETAIL
1	3'-4"	7'-2"	(1)HTA044(CL) (2)JTD087(CL)	GD0040
2	10'-0"	10'-0"	(1)HTA124(CL) (2)JTD121(CL) (3)CC8121(CL)	GD0040 GD0005
3	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070
4	3'-0"	4'-0"	(1)HTA044(CL) (2)JTD087(CL) (1)STA040(CL)	GD0070

DOWNSPOUT LOCATION & TRIM CHART		
MARK	TRIM	DETAIL
DS1	(3)DSC120(BD) (4)DSSTRAP(BD) (4)DSSTBRK(BD) (2)DSCEAB(BD) (1)DSCEAA(BD)	GA0170
MAX SPACING OF DOWNSPOUT DROPS: 50'-0" O.C. MAX		
MATERIAL PROVIDED ONLY FOR THE DOWNSPOUT LOCATIONS SHOWN IN THE VIEW(S) BELOW (DS1, DS2, ETC.)		

PANEL PLANE ID			
PLANE NAME	PLANE ID#	COLOR	DETAILS
W04	1140	CL	A00050 GA0000 A00100 GA0030
W04	1141	FG	A00050 GA0000 A00100 GA0030
W04	1142	CL	A00050 GA0000 A00100 GA0030



SHEETING ELEVATION - SIDEWALL AT LINE A

WALL SHEETING GENERAL NOTES

GSN1: PRE-DRILLING MAY BE REQUIRED WHEN FASTENING TO HOT-ROLL, NESTED, LAPPED, OR HEAVY GAUGE MEMBERS.

GSN2: THERMAL BLOCKS AND FOAM CLOSURES MAY NOT BE PROVIDED UNLESS SPECIFIED IN THE ORDER DOCUMENTS OR OTHERWISE REQUIRED.

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9/30/26

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09/30/2026 12:06:56pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE SHEETING ELEVATION - SIDEWALL AT LINE A

SHEET S7

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

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https://vimeo.com/showcase/11423087

EAVE PLATE

RAKE SUPPORT ANGLE

ROOF START PANEL

OUTSIDE CLOSURE

ON-SLOPE GUTTER

SCULPTURED RAKE TRIM

END LAP INSTALLATION

HIGH-EAVE PARAPET DETAIL

RAKE PARAPET

PIPE PENETRATIONS IN THE ROOF

STANDING SEAM PANEL MODULARITY

EAVE CLOSURE

EA6000

9/30/26

RAYMOND PAUL ANDERSON
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09/30/2026 12:06:57pm

JOB NUMBER	U26H0545A
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	FOR PERMITS ONLY
SHEET	SD1
DRAWING TITLE	ROOF SHEETING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

DESIGN AND PERFORMANCE CRITERIA

ROOF SYSTEM
THE ROOF SYSTEM CONSISTS OF 24 GAUGE PANELS WITH A NOMINAL COVERAGE OF 2'-0" AND A PANEL SEAM THAT IS 3 1/2", 4 1/2" OR 5 1/2" HIGH DEPENDING ON CLIP TYPE USED. REFER TO THE DETAILS AND SECTIONS FOR SPECIFIC PANEL CLIP TYPE.

PANEL CLIP SPACING
THE ROOF SYSTEM USES A CLIP TO ATTACH THE PANELS TO THE ROOF SECONDARY MEMBERS. PANEL CLIP SPACING REQUIREMENTS AS A STANDARD ARE REQUIRED AT EVERY PURLIN AND/OR ROOF JOIST.
FOR STRUCTURES NOT SUPPLIED BY MBS: MAXIMUM CLIP SPACING IS TO BE 5'-0" FOR PURLIN ROOFS AND 5'-6" FOR JOIST ROOFS.

PANEL CLIP FASTENING REQUIREMENTS
STANDARD CLIP FASTENERS ARE DESIGNED TO FASTEN TO A STEEL STRUCTURAL MEMBER OF .060" MINIMUM THICKNESS (16 GA.). A MINIMUM OF TWO FASTENERS ARE REQUIRED TO ENGAGE THE STRUCTURAL MEMBER AT EVERY PANEL CLIP LOCATION. IN CERTAIN INSTANCES, THREE FASTENERS MAY BE REQUIRED PER CLIP. LOOK IN THE ERECTION DRAWINGS FOR YOUR SPECIFIC FASTENER REQUIREMENTS. FASTENER PULLOUT VALUES ARE DEPENDENT UPON PROJECT LOCATION, SIZE, BUILDING CODE AND LOADING.

ROOF TOP UNITS AND CURB SUPPORTS
THE ROOF SYSTEM IS ELEVATED ABOVE THE TOP OF THE ROOF SECONDARY STRUCTURAL MEMBERS. THE ROOF CURB SUB-FRAMING IS LEVEL WITH THE SECONDARY STRUCTURAL MEMBERS. REFER TO THE DETAILS FOR PROPER JAMB LOCATIONS AND DIMENSIONS.

THE ROOF SYSTEM IS DESIGNED AS A FLOATING SYSTEM. CURB FRAMING AND FLASHING MUST BE DESIGNED ACCORDINGLY TO ALLOW THE CURB SYSTEM TO FLOAT WITH THE ROOF DURING THERMAL EXPANSION AND CONTRACTION. ROOF CURBS SHALL NOT SPAN THE RIDGE OF A BUILDING.

INSULATION REQUIREMENTS
INSULATION IS RECOMMENDED TO BE USED IN ALL ROOF APPLICATIONS TO AVOID PROBLEMS WITH CONDENSATION FORMING ON THE UNDERSIDE OF THE SHEETING. THIS ALSO PROVIDES A BUFFER BETWEEN THE PURLINS AND THE ROOF TO ELIMINATE NOISE AND POSSIBLE DAMAGE DUE TO METAL-TO-METAL CONTACT. NOISE REDUCING FOAM TAPE CAN BE SUPPLIED FOR USE IN LIMITED APPLICATIONS (CANOPIES, ETC.) WHEN INCLUDED AS PART OF THE ROOF ORDER. REFER TO THE DETAILS FOR FOAM TAPE REQUIREMENTS.

PAINTED ROOF
PAINTED STANDING SEAM ROOF PANELS ARE OFTEN PROVIDED BY MBS. IN THIS CASE, GUTTER BRACKETS AND OUTSIDE CLOSURES WILL BE PAINTED TO MATCH THE ROOF COLOR AS A STANDARD.

MASTIC APPLICATION

TEMPERATURE EXTREMES
TEMPERATURE EXTREMES MUST BE CONSIDERED DURING INSTALLATION OF THE ROOF DUE TO THE SENSITIVITY OF MASTICS. THE RECOMMENDED INSTALLATION TEMPERATURE RANGE IS 20-120 DEGREES FAHRENHEIT. AT COLDER TEMPERATURES, THE MASTIC STIFFENS RESULTING IN LOSS OF ADHESION AND COMPRESSIBILITY. AT HOTTER TEMPERATURES, THE MASTIC BECOMES TOO SOFT FOR PRACTICAL HANDLING. ON COLD BUT SUNNY DAYS, THE PANEL SURFACE MAY BECOME WARM ENOUGH TO ACCEPT THE APPLICATION OF HEATED MASTIC EVEN THOUGH THE AIR TEMPERATURE IS BELOW 20 DEGREES FAHRENHEIT.

WHEN OVERNIGHT TEMPERATURES FALL BELOW FREEZING, THE MASTIC SHOULD BE STORED IN A HEATED ROOM SO IT WILL BE WARM ENOUGH TO USE THE FOLLOWING DAY. ON HOT DAYS, THE MASTIC CARTONS SHOULD BE STORED OFF THE ROOF IN A COOL AND SHADED AREA. WHILE ON THE ROOF, MASTIC ROLLS SHOULD BE KEPT SHADED UNTIL ACTUAL USE.

IN VERY COLD WEATHER, IT IS RECOMMENDED THAT THE FASTENERS BE TIGHTENED SLOWLY AND ONLY TIGHT ENOUGH THAT THE MASTIC IS IN FULL CONTACT WITH THE PANEL OR FLASHING. THEN ON THE NEXT SUNNY DAY, COMPLETE THE TIGHTENING PROCESS AFTER THE SUN WARMS THE PANEL AND FLASHING SURFACES.

CONTAMINATION
TO ASSURE PROPER ADHESION AND SEALING, THE MASTIC MUST HAVE COMPLETE CONTACT WITH ADJOINING SURFACES. CONTAMINANTS SUCH AS WATER OIL, DIRT AND DUST PREVENT SUCH CONTACT. THE PANEL AND FLASHING SURFACES MUST BE DRY AND THOROUGHLY CLEANED OF ALL CONTAMINANTS. BEFORE APPLYING TAPE MASTIC, THE MASTIC SHOULD BE CHECKED FOR CONTAMINANTS. IF THE MASTIC SURFACES ARE CONTAMINATED, IT MUST NOT BE USED.

DURING COOL WEATHER, CONDENSATION OR LIGHT MIST CAN ACCUMULATE ON THE PANEL AND FLASHING SURFACE AND NOT BE EASILY NOTICED. IT IS RECOMMENDED THAT THE MASTICS ALWAYS BE KEPT UNDER PROTECTIVE COVER AND THAT THE PANEL AND FLASHING SURFACES BE WIPED DRY IMMEDIATELY BEFORE INSTALLATION.

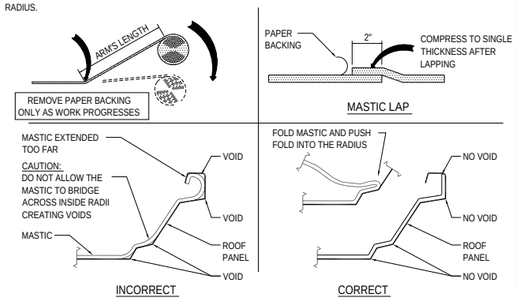
TAPE MASTIC IS PROVIDED WITH A PROTECTIVE PAPER TO REDUCE CONTAMINATION. INCOMPLETE REMOVAL OF THE PROTECTIVE PAPER WILL PREVENT THE MASTIC ADHESION TO THE PANEL OR FLASHING SURFACES. ALWAYS CHECK THAT THE PROTECTIVE PAPER IS COMPLETELY REMOVED. DO NOT REMOVE THE PROTECTIVE PAPER UNTIL IMMEDIATELY BEFORE THE PANEL OR FLASHING IS INSTALLED OVER THE MASTIC.

COMPRESSION
TO ASSURE PROPER COMPRESSION AND SEAL, THE TAPE MASTIC MUST BE COMPRESSED BETWEEN THE PANEL AND FLASHING SURFACES WITH FIRM AND UNIFORM PRESSURE. IN MOST CASES, THE REQUIRED PRESSURE IS APPLIED BY THE CLAMPING ACTION OF SCREWS PULLING THE ADJOINING SURFACES TOGETHER. HOWEVER, THE TAPE SEALANT'S RESISTANCE TO PRESSURE BECOMES GREATER IN COLD WEATHER.

DURING COLD WEATHER, THE FASTENERS MUST BE TIGHTENED SLOWLY TO ALLOW THE MASTIC TIME TO COMPRESS. IF THE FASTENERS ARE TIGHTENED TOO FAST, THE FASTENERS MAY STRIP OUT BEFORE THE MASTIC COMPRESSES ADEQUATELY, OR THE PANEL OR FLASHING MAY DEFORM IN THE IMMEDIATE AREA OF THE FASTENER, LEAVING THE REST OF THE MASTIC INSUFFICIENTLY COMPRESSED.

INSIDE CORNERS
AN INSIDE RADIUS, SUCH AS WHERE THE PANEL FLAT MEETS A RIB, IS USUALLY THE MOST CRITICAL AREA TO SEAL. A COMMON MISTAKE FOR THE INSTALLER IS TO BRIDGE THE MASTIC ACROSS THE INSIDE RADIUS.

WHEN THE LAPPING PANEL OR FLASHING IS PUSHED INTO PLACE, THE BRIDGED MASTIC IS STRETCHED AND THINNED. THE MASTIC MAY THEN BE TOO THIN TO ADEQUATELY SEAL THIS CRITICAL AREA. WHEN TAPE MASTIC IS APPLIED AT AN INSIDE RADIUS, IT IS RECOMMENDED THAT THE MASTIC BE FOLDED BACK, THEN PUSH THE MASTIC FOLD INTO THE RADIUS.



ERECTORS RESPONSIBILITY

REGULATIONS
REGULATIONS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ACT, LOCAL, STATE, AND/OR FEDERAL AGENCIES SHOULD BE ADHERED TO AT ALL TIMES. MBS IS NOT RESPONSIBLE FOR INJURY, DAMAGE, OR FAILURE, WHICH MAY BE THE RESULT FROM FAILING TO MEET ANY OF THESE REGULATIONS.

IN COMPLIANCE WITH THE HAZARD COMMUNICATION RULE 1910.1200, MATERIAL SAFETY DATA SHEETS (MSDS) HAVE BEEN PROVIDED FOR YOUR USE AND SAFETY. THESE DATA SHEETS SHOULD BE MADE AVAILABLE TO ALL PERSONNEL THAT COME IN CONTACT WITH THESE PRODUCTS. THESE DATA SHEETS WILL GIVE YOU THE NECESSARY INFORMATION TO PROPERLY HANDLE SUCH MATERIALS AND WHAT TO DO IN CASE OF AN EMERGENCY. (THE MSDS SHEETS ARE LOCATED ONLINE AND ARE AVAILABLE UPON REQUEST).

THE ERECTOR OF THE ROOF SYSTEM IS RESPONSIBLE FOR THE SAFE EXECUTION OF THIS DETAIL. THESE INSTRUCTIONS ARE INTENDED TO DESCRIBE THE SEQUENCE AND PROPER PLACEMENT OF PARTS. THEY ARE NOT INTENDED TO PRESCRIBE COMPREHENSIVE SAFETY PROCEDURES. THE PROCEDURES IN THIS DETAIL ARE BELIEVED TO BE RELIABLE. HOWEVER, MBS SHALL NOT BE RESPONSIBLE FOR INJURY, DAMAGE, OR FAILURE DUE TO THE MISAPPLICATION OF THESE PROCEDURES, IMPROPER ERECTION TECHNIQUES, OR NEGLIGENCE

WALKING AND WORKING ON ROOF PANELS
DO NOT PLACE BUNDLES OF PANELS ON THE ROOF STRUCTURE WITHOUT FIRST VERIFYING THE STRUCTURE WILL SAFELY SUPPORT THE CONCENTRATED WEIGHT OF THE PANELS AND THE WEIGHT OF THE INSTALLATION CREW. SOME ROOF STRUCTURES MAY NOT BE DESIGNED TO SUPPORT THE WEIGHT OF A FULL PANEL BUNDLE WITHOUT ADDITIONAL STRUCTURE SUPPORT.

DO NOT USE A ROOF PANEL AS A WORKING PLATFORM. AN UNSECURED PANEL COULD COLLAPSE UNDER THE WEIGHT OF A PERSON STANDING BETWEEN PURLINS OR AT THE PANEL END.

DO NOT WALK ON THE LAST INSTALLED PANEL RUN, AS THE UNSECURED EDGE COULD COLLAPSE UNDER A PERSON'S WEIGHT. WHEN INSTALLING CLIPS OR MAKING END LAP CONNECTIONS, ETC., STAND WHERE THE ROOF STRUCTURAL WILL SUPPORT YOUR WEIGHT.

AN APPROVED AND SAFE WALKING PLATFORM SHOULD BE USED IN HIGH TRAFFIC AREAS TO PREVENT THE ROOF PANEL FROM BEING DEFORMED, SCRATCHED, OR SCUFFED.

SAFETY EQUIPMENT
THE USE OF SAFETY EQUIPMENT FOR THE ROOF PANEL INSTALLATION IS RECOMMENDED AT ALL TIMES DURING THE INSTALLATION PROCESS. HOWEVER, WHEN USING LANYARDS, ENSURE THAT THE CLASP, BELT HOOKS AND WIRE CABLES ARE COVERED IN SUCH A MANNER THAT THEY WILL NOT SCRATCH THE PANEL SURFACE IF ACCIDENTALLY DRAGGED ALONG THE PANEL.

CREW SIZE
THE LENGTH OF THE INDIVIDUAL ROOF PANELS SHOULD BE CONSIDERED WHEN DETERMINING CREW SIZE. IT IS RECOMMENDED THAT UNDER NORMAL CONDITIONS, THERE BE ONE PERSON FOR EVERY TEN FEET OF PANEL LENGTH, PLUS ONE.

PANEL OVERHANG
DO NOT STAND ON THE END OF UNSUPPORTED (CANTILEVERED) PANELS AT THE EAVE OR RIDGE. STANDING ON THE CANTILEVER PORTION MAY RESULT IN PANEL COLLAPSE.

POINT LOADS
WHEN PROPERLY SUPPORTED BY THE STRUCTURAL STEEL, PANELS ARE DESIGNED TO SUPPORT UNIFORM LOADS, WHICH ARE EVENLY DISTRIBUTED OVER THE PANEL SURFACES. POINT LOADS THAT OCCUR IN SMALL OR CONCENTRATED AREAS, SUCH AS HEAVY EQUIPMENT, LADDER, OR PLATFORM FEET, ETC., MAY CAUSE PANEL DEFORMATION OR EVEN PANEL COLLAPSE.

SLICK SURFACES
PANEL SURFACES AND STRUCTURAL STEEL SURFACES ARE HARD, SMOOTH, AND NONABSORBENT, WHICH CAUSES THESE SURFACES TO BE VERY SLICK WHEN WET OR COVERED WITH SNOW OR ICE. EVEN BLOWING SAND OR HEAVY DUST CAN MAKE THESE SURFACES DIFFICULT TO WALK ON WITHOUT SLIPPING.

UNPAINTED PANEL SURFACES ARE OFTEN COATED WITH OIL TO ACCOMMODATE THE PANEL-FABRICATION PROCESS. ALTHOUGH DESIGNED TO WASH AWAY OR EVAPORATE DURING NORMAL WEATHER, THE OIL ON NEW PANELS CAN BE EXTREMELY SLICK, ESPECIALLY DURING PERIODS OF LIGHT RAIN AND DEW.
CAUTION MUST BE EXERCISED TO PREVENT SLIPPING AND FALLING ONTO THE ROOF SURFACE OR EVEN SLIDING OFF THE ROOF. NON-SLIP FOOTWEAR IS A NECESSITY AND NON-SLIP WORKING PLATFORMS ARE RECOMMENDED.

ELECTRICAL CONDUCTANCE
METAL PANELS ARE EXCELLENT ELECTRICAL CONDUCTORS. A COMMON CAUSE OF INJURY IS THE CONTACT OF METAL PANELS WITH POWER LINES DURING HANDLING AND INSTALLATION. THE LOCATION OF ALL POWER LINES MUST BE NOTED AND, IF POSSIBLE, FLAGGED. THE INSTALLATION PROCESS MUST BE ROUTED TO AVOID ACCIDENTAL CONTACT WITH ALL POWER LINES AND HIGH VOLTAGE SERVICES AND EQUIPMENT. ALL TOOLS AND POWER CORDS MUST BE PROPERLY INSULATED AND GROUNDED AND THE USE OF APPROVED GROUND FAULT CIRCUIT BREAKERS IS RECOMMENDED.

FALSE SECURITY OF INSULATION
BLANKET AND RIGID BOARD INSULATION BLOCK THE INSTALLER'S VIEW OF THE GROUND BELOW THE ROOF. SERIOUS INJURY CAN OCCUR WHEN THE INSTALLER GETS A FALSE SENSE OF SECURITY BECAUSE HE CANNOT SEE THE GROUND AND STEPS THROUGH THE INSULATION.

SHARP EDGES
SOME EDGES OR PANELS AND FLASHING ARE RAZOR SHARP AND CAN CAUSE SEVERE CUTS IF PROPER PROTECTIVE HAND GEAR IS NOT WORN. BE CAREFUL NOT TO INJURE OTHERS WHILE MOVING PANELS AND FLASHING.

COORDINATION WITH OTHER TRADES
SUPPORTS FOR THE ROOF SYSTEM SHALL BE PROVIDED AND ARE REQUIRED AS SHOWN IN THE SECTIONS AND AS NOTED IN THESE SPECIFICATIONS. ALL NECESSARY CLEARANCE DIMENSIONS FOR PROPER ELEVATIONS RELATIVE TO THE ROOF PANELS HAVE BEEN SHOWN. THE ERECTOR SHALL BE RESPONSIBLE FOR COORDINATING THESE DIMENSIONAL REQUIREMENTS WITH OTHER TRADES ASSOCIATED WITH THE BUILDING ROOF SYSTEM.

ERECTION CARE
THE ERECTOR MUST BE SKILLED IN THE ERECTION OF METAL BUILDING SYSTEMS AND IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, FEDERAL AND STATE CONSTRUCTION AND SAFETY REGULATIONS INCLUDING OSHA REGULATIONS AS WELL AS ANY APPLICABLE REQUIREMENTS OF LOCAL, NATIONAL OR INTERNATIONAL UNION RULES OR PRACTICES. THE ERECTOR REMAINS SOLELY RESPONSIBLE FOR THE SAFETY AND APPROPRIATENESS OF ALL TECHNIQUES AND METHODS UTILIZED BY ITS CREWS IN THE ERECTION OF THE METAL BUILDING SYSTEM AND/OR THE ROOF SYSTEM. THE ERECTOR IS ALSO RESPONSIBLE FOR SUPPLYING ANY SAFETY DEVICES SUCH AS SCAFFOLDS, RUNWAYS, NETS, ETC. WHICH MAY BE REQUIRED TO SAFELY ERECT THE METAL BUILDING SYSTEM AND/OR ROOF SYSTEM.

THE ERECTOR OF THE ROOF SYSTEM SHALL EXERCISE GREAT CARE AND ATTENTION TO THE DETAILS AS SHOWN ON THESE DRAWINGS TO INSURE A SECURE AND PROPER FIT OF ALL COMPONENTS. MBS SHALL NOT BE RESPONSIBLE FOR SUPERVISING AND/OR COORDINATING THE ERECTION OF THE ROOF SYSTEM WITH OTHER TRADES.

DUE CONSIDERATION MUST BE GIVEN BY THE ERECTOR TO THE EFFECTS OF THERMAL EXPANSION AND CONTRACTION WHEN ERECTING A ROOF TIE-IN TO AN EXISTING STRUCTURE TO INSURE A SAFE, SECURE, WEATHER TIGHT CONDITION. FLASHING FOR TIE-INS TO EXISTING BUILDINGS IS TYPICALLY NOT INCLUDED AS PART OF THE MATERIAL PROVIDED BY MBS. REFER TO THE SECTIONS/DETAILS FOR SPECIFIC MATERIALS PROVIDED BY MBS.

THERMAL BLOCKS

PURPOSE
THERMAL BLOCKS ARE USED IN BOTH INSULATED AND UN-INSULATED CONDITIONS. THEY PROVIDE IMPROVED THERMAL PERFORMANCE WHERE INSULATION HAS BEEN COMPRESSED AT THE SECONDARY MEMBERS UNDER THE PANEL. THEY ALSO PROVIDE SUPPORT TO THE PANEL AND REDUCE PANEL FLUTTERING AND RUMBLE IN UN-INSULATED CONDITIONS. UN-INSULATED CONDITIONS UTILIZE THERMAL BLOCKS OR FOAM SPACERS THAT HAVE ADHESIVE TO ADHERE TO THE SECONDARY MEMBER TO PREVENT THEM FROM FALLING OUT OF PLACE.

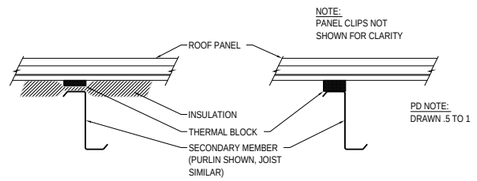
LOCATIONS
THERMAL BLOCKS OR FOAM SPACERS ARE TO BE USED OVER ANY SECONDARY MEMBER WITH THE EXCEPTION OF THE EAVE MEMBER WHERE THE EAVE PLATE IS LOCATED.

INSULATED ROOF

	THERMAL BLOCK		
CLIP	THICK	MIN. R-VALUE	MK. #
SHORT	N/A	N/A	N/A
TALL	1"	R-3.5	H3301
TALL	1"	R-5	H3345
SUPER TALL	1"	R-3.5	H3301
SUPER TALL	1"	R-5	H3345

UNINSULATED ROOF

	THERMAL BLOCK	
CLIP	THICK	MK. #
SHORT	1/2"	H3310
TALL	1 1/2"	H3305



ROOF SYSTEM COMPONENT WITH DETAILING

DEFINITION
COMPONENTS WITH DETAILING DEFINITION IS A CASE WHERE MBS IS PROVIDING THE ROOF SYSTEM TO BE USED IN CONJUNCTION WITH ANOTHER STRUCTURE. MBS REFERS TO THAT AS A "COMPONENTS WITH DETAILING." THIS SIMPLY MEANS THAT MBS SHALL CALCULATE THE QUANTITIES AND LENGTHS FOR THE MATERIAL REQUIRED. MBS IS PERFORMING NO ENGINEERING STUDY OF THE EXISTING STRUCTURE. THE ENGINEER OF RECORD ON THE PROJECT SHALL BE RESPONSIBLE FOR COORDINATING THE ROOF SYSTEM WITH THE OTHER TRADES OF THE PROJECT TO INSURE A SAFE, QUALITY AND PROPER APPLICATION OF THE ROOF SYSTEM.

DIAPHRAGM
THE ROOF IS DESIGNED TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION AND WILL NOT ACT AS A DIAPHRAGM FOR RESISTING LATERAL LOAD FORCES OR PROVIDING LATERAL STABILITY TO THE ROOF STRUCTURAL MEMBERS. DUE CONSIDERATION FOR THIS MUST BE ADDRESSED BY THE PROJECT ENGINEER OF RECORD. IN ADDITION, THE ROOF SYSTEM, BECAUSE IT IS DESIGNED TO FLOAT, WILL NOT SUPPORT STRUCTURAL MEMBERS LATERALLY. WHEN REPLACING AN EXISTING SCREW DOWN ROOF, ADDITIONAL BRACING MAY BE REQUIRED TO LATERALLY SUPPORT THE MEMBERS. ENGINEERING AND MATERIAL FOR THESE USES SHALL NOT BE PROVIDED BY MBS.

BUILDING & PANEL PREPARATION

STEP 1: PLUMB AND SQUARE
THE FIRST STEP IN THE SUCCESSFUL INSTALLATION OF WALL PANELS IS TO HAVE THE PRIMARY FRAMING PLUMB AND SQUARE. FOR BEST RESULTS, IT IS RECOMMENDED THAT A TRANSIT BE USED WHEN ERECTING THE STRUCTURAL STEEL. MAKE SURE THAT THE FOUNDATION AND BUILDING STRUCTURE IS SQUARE, LEVEL, AND CORRECT TO THE OUT-TO-OUT STEEL LINE DIMENSIONS.
SEE FIGURE "A"

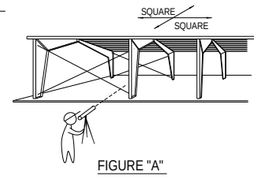


FIGURE "A"

FIELD CUTTING PANELS

WHEN FIELD CUTTING OR MITERING WALL PANELS, NON-ABRASIVE CUTTING TOOLS SUCH AS NIBBLERS OR TIN-SNIPS SHALL BE USED. ABRASIVE CUTTING TOOLS SUCH AS MECHANICAL GRINDERS OR POWER SAWS CAN DAMAGE THE MATERIAL FINISH AND CREATE EXCESS METAL SHAVINGS THAT CAN CORRODE THE PANELS. THE USE OF NON-APPROVED CUTTING DEVICES MAY VOID THE FACTORY WARRANTY.

ANY METAL SHAVINGS THAT ARE CREATED NEED TO BE CLEANED FROM THE PANEL TO PREVENT SCRATCHING AND/OR CORROSION. THE MANUFACTURER WILL NOT ACCEPT CLAIMS FOR DAMAGE/DETERIORATION DUE TO USE OF UNAPPROVED TOOLS.

SPECIAL CONDITION AT A STRONG-BACK EAVE BEAM

IF THIS PROJECT HAS AN EAVE BEAM WITH (2) PURLINS, AS SHOWN, DO NOT ATTACH ROOF CLIPS TO THE "SECOND" PURLIN.



FASTENER INSTALLATION

RECOMMENDED TOOL TYPES: SEE ALSO FASTENER SCHEDULE
4 AMP OR HIGHER RATED TOOLS (DO NOT USE IMPACTING TOOLS)
2000 - 2500 RPM SCREW GUN WITH TORQUE ADJUSTABLE CLUTCH
MANUAL OR ELECTRIC RIVET TOOL

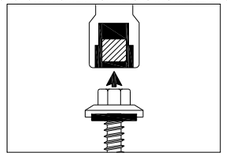
DO NOT USE IMPACTING TOOLS
TO ASSURE PROPER VOLTAGE TO THE TOOL, EXTENSION CORDS SHOULD BE CHECKED FOR PROPER WIRE SIZE/CORD LENGTH.
16 GAGE WIRE, MAXIMUM CORD LENGTH = 100'
14 GAGE WIRE, MAXIMUM CORD LENGTH = 200'
12 GAGE WIRE, MAXIMUM CORD LENGTH = 300'

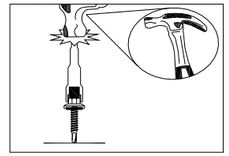
DRIVING TIPS:
SET THE NUT DRIVER AS DESCRIBED BELOW PRIOR TO INSTALLING FASTENERS TO PREVENT FASTENER WOBBLE...

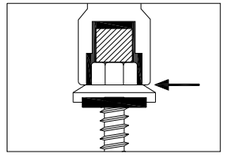
SOCKET EXTENSIONS (4" OR 6") ARE RECOMMENDED TO BE USED FOR INSTALLING PANEL CLIP FASTENERS TO MAINTAIN VERTICAL FASTENER INSTALLATION.

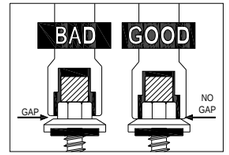
EXCESSIVE PRESSURE CAN CAUSE DRILL POINT FAILURE. LET THE FASTENER DO THE WORK.

DO NOT OVER TIGHTEN FASTENERS AS THIS WILL LEAD TO PANEL DIMPLING AND DISTORTION.

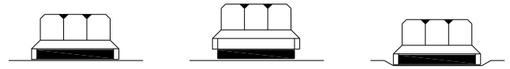

1. PUT THE TOP OF THE FASTENER INTO THE NUT DRIVER. NOTE: FOR PAINTED FASTENERS, PLACE A SINGLE OR DOUBLED LAYER OF PLASTIC BETWEEN THE FASTENER HEAD AND THE NUT DRIVER.


2. PLACE THE POINT OF THE FASTENER ONTO A HARD SURFACE AND FIRMLY HIT THE TOP OF THE NUT DRIVER 2-3 TIMES.


3. THE BASE OF THE NUT DRIVER SHOULD NOW BE CONTACTING THE TOP OF THE HEAD OF THE FASTENER WITH NO GAPS.

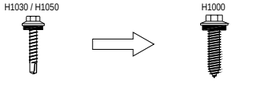


4. BAD SET VS. GOOD SET.



SEALING MATERIAL COMPRESSED UNDER CAP OF FASTENER.
SEALING MATERIAL VISIBLE UNDER CAP OF FASTENER.
SEALING MATERIAL COMPRESSED BUT DIMPLED THE PANEL / TRIM.

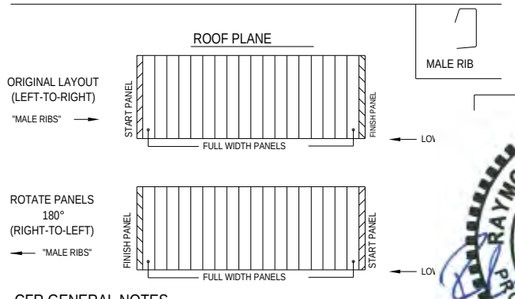
STRIP A FASTENER?
IF YOU STRIP H1030 OR H1050 REPLACE IT WITH H1000
IF YOU STRIP H1000 IN ENDLAP YOU MUST REBUILD THE ENDLAP



ROOF SHEETING DIRECTION

1.) THE ROOF SHEETING PLAN IS SHOWN WITH THE ROOF PANELS BEING ERECTED FROM "LEFT-TO-RIGHT". IF THE DESIRE IS TO ERECT THE ROOF PANELS FROM "LEFT-TO-RIGHT", FOLLOW THE ROOF SHEETING PLAN AS SHOWN. IF THE DESIRE IS TO ERECT THE ROOF PANELS FROM "RIGHT-TO-LEFT", FOLLOW THE INSTRUCTIONS SHOWN BELOW.

2.) WHEN SETTING BUNDLES OF PANELS ON THE ROOF, THE "MALE RIB" MUST ALWAYS BE AWAY FROM THE END OF THE BUILDING WHERE THE SHEETING WILL BEGIN.

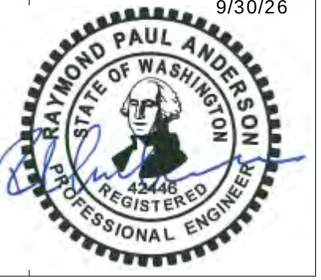


CFR GENERAL NOTES

GENERAL ROOF PANEL NOTES

EA601

9/30/26



MBMA MEMBER | IAS ACCREDITED | CERTIFIED CSA W47.1 | CERTIFIED CSA S16 | ISO 9001

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:06:58pm

JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF SHEETING DETAILS

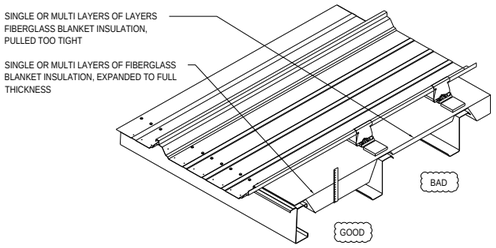
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

DATE 09/30/2026
SHEET SD2

SPECIAL ATTENTION MUST BE GIVEN TO INSULATION SAG AND RECOMMEND PRE-DRILLING TO LOCATE CLIPS. MODULARITY TOOLS ARE AVAILABLE TO AID IN MODULARITY.

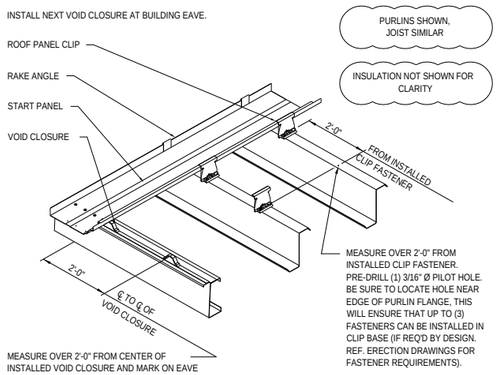
ENSURE THE INSULATION IS PERMITTED TO SAG AT MID-SPAN BETWEEN ROOF SECONDARY MEMBERS AND EXPANDED TO THE FULL THICKNESS WHILE STILL KEEPING CONTACT WITH BOTTOM OF PANEL.

DO NOT PULL THE INSULATION TAUT AS THIS WILL SIGNIFICANTLY REDUCE THE THERMAL PERFORMANCE OF THE ROOF SYSTEM AND COULD CAUSE ROOF PANEL MODULARITY ISSUES.



PRE-DRILL ONE PILOT HOLE FOR ROOF PANEL CLIPS AT MID-SPANS, HIGH SIDE OR RIDGE AND PANEL END LAPS, IF ANY.

INSTALL NEXT VOID CLOSURE AT BUILDING EAVE.



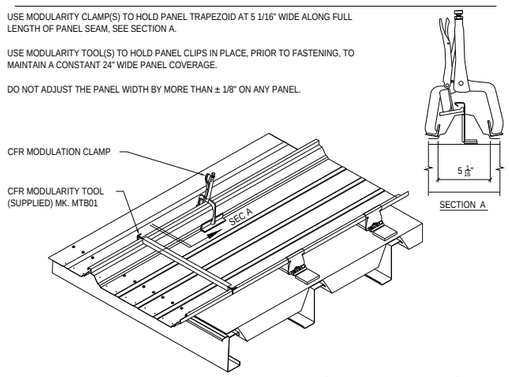
MEASURE OVER 2'-0" FROM INSTALLED CLIP FASTENER. PRE-DRILL (1) 3/16" Ø PILOT HOLE. BE SURE TO LOCATE HOLE NEAR EDGE OF PURLIN FLANGE, THIS WILL ENSURE THAT UP TO (3) FASTENERS CAN BE INSTALLED IN CLIP BASE (IF REQ'D BY DESIGN. REF. ERECTION DRAWINGS FOR FASTENER REQUIREMENTS).

MEASURE OVER 2'-0" FROM CENTER OF INSTALLED VOID CLOSURE AND MARK ON EAVE PLATE TAPE MASTIC. INSTALL NEXT VOID CLOSURE AS SHOWN.

USE MODULARITY CLAMP(S) TO HOLD PANEL TRAPEZOID AT 5 1/16" WIDE ALONG FULL LENGTH OF PANEL SEAM, SEE SECTION A.

USE MODULARITY TOOL(S) TO HOLD PANEL CLIPS IN PLACE, PRIOR TO FASTENING, TO MAINTAIN A CONSTANT 24" WIDE PANEL COVERAGE.

DO NOT ADJUST THE PANEL WIDTH BY MORE THAN ± 1/8" ON ANY PANEL.



CORRECT PANEL MODULARITY

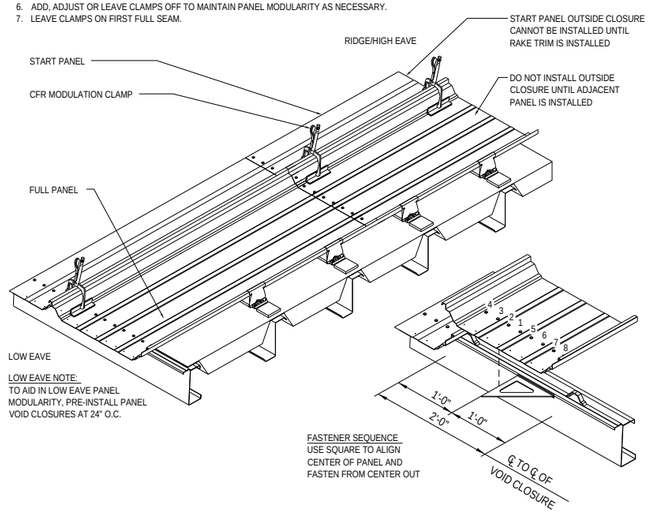
ADJUSTING PANEL MODULARITY

PANEL MODULARITY SEQUENCE

THE PROCEDURES AND SEQUENCE SHOWN ARE RECOMMENDED TO AID IN MAINTAINING PANEL MODULARITY.
THE TOOLS SHOWN ARE NOT REQUIRED BUT RECOMMENDED TO AID INSTALLATION.

STAGE #1

1. AFTER INSTALLING START PANEL PRE-DRILL CLIP HOLES 2'-0" O.C. AND MARK EAVE PLATE 1'-0" O.C. TO LOCATE CENTER OF VOID CLOSURES AND CENTER OF PANEL FLAT.
2. ROLL FIRST FULL PANEL IN PLACE AND ALIGN CENTER OF PANEL FLAT TO SQUARE AS SHOWN BELOW.
3. APPLY THE LOW EAVE CLAMP AS SHOWN TO DRAW PANEL TIGHT TO CLOSURE.
4. INSTALL THE EAVE FASTENERS STARTING AT CENTER OF PANEL AND WORK BACK TO TRAILING RIB. THEN FROM CENTER OF PANEL TOWARD LEADING RIB.
5. AS PANEL INSTALLATION PROGRESSES, INSTALL MORE CLAMPS UPSLOPE AS SHOWN.
6. ADD, ADJUST OR LEAVE CLAMPS OFF TO MAINTAIN PANEL MODULARITY AS NECESSARY.
7. LEAVE CLAMPS ON FIRST FULL SEAM.

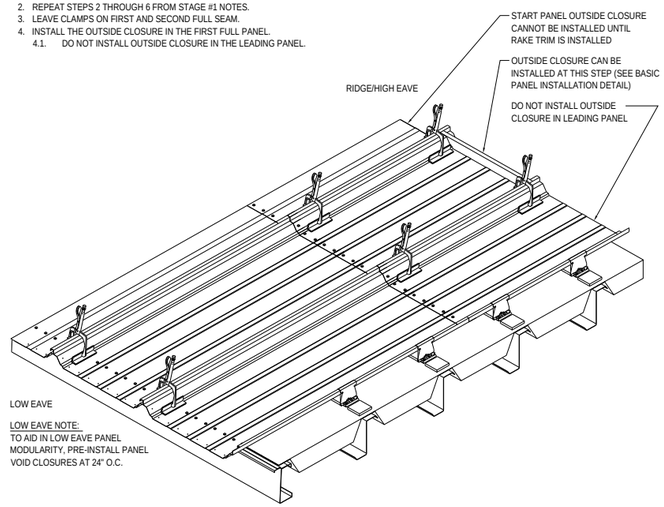


LOW EAVE NOTE:
TO AID IN LOW EAVE PANEL MODULARITY, PRE-INSTALL PANEL VOID CLOSURES AT 24" O.C.

FASTENER SEQUENCE
USE SQUARE TO ALIGN CENTER OF PANEL AND FASTEN FROM CENTER OUT

STAGE #2

1. INSTALL THE NEXT LOW EAVE PANEL AND ADD CLAMP.
2. REPEAT STEPS 2 THROUGH 6 FROM STAGE #1 NOTES.
3. LEAVE CLAMPS ON FIRST AND SECOND FULL SEAM.
4. INSTALL THE OUTSIDE CLOSURE IN THE FIRST FULL PANEL.
   4.1. DO NOT INSTALL OUTSIDE CLOSURE IN THE LEADING PANEL.



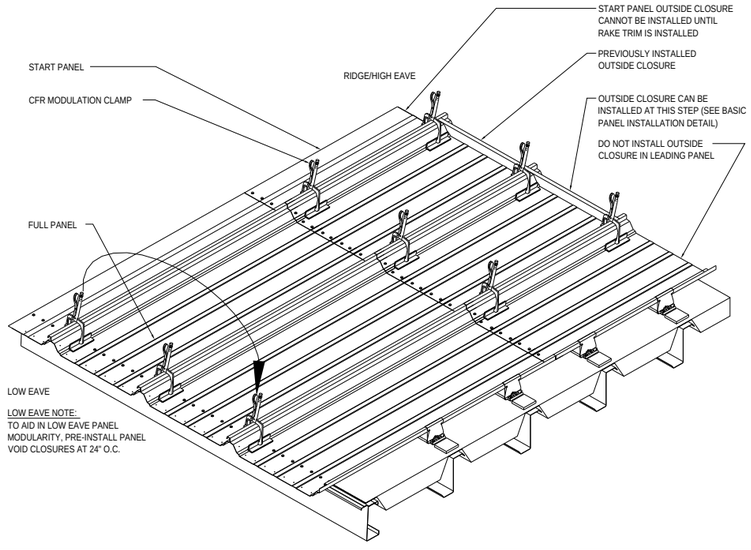
LOW EAVE NOTE:
TO AID IN LOW EAVE PANEL MODULARITY, PRE-INSTALL PANEL VOID CLOSURES AT 24" O.C.

ROOF SEAMING HAND TOOLS

ROOF SEAMING HAND TOOLS CAN BE PURCHASED BY VISITING DIROOFSEAMERS.COM/NBG OR BY CALLING (888) 343-0456

STAGE #3

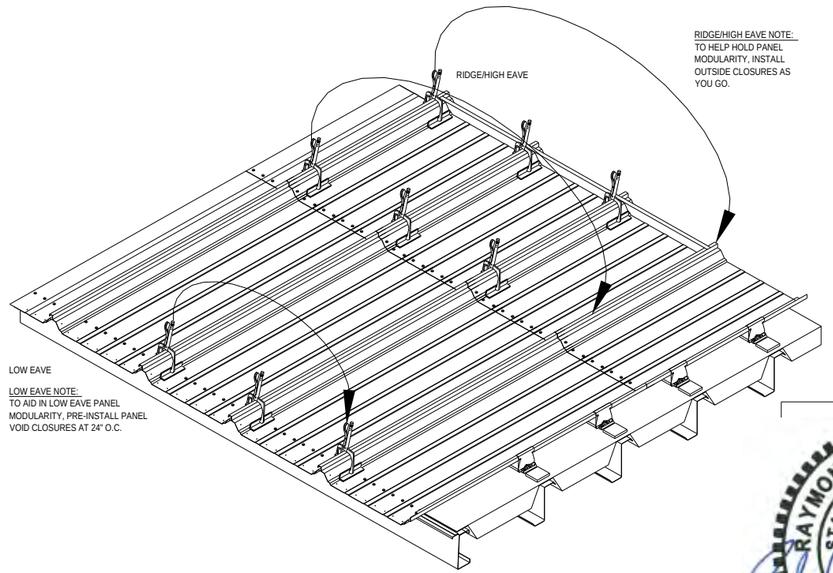
1. KEEP CLAMPS IN PLACE ON THE FIRST TWO SEAMS WITH THE EXCEPTION OF THE LOW EAVE CLAMP.
2. INSTALL THE NEXT LOW EAVE PANEL AND LEAP FROG CLAMP AS SHOWN.
3. REPEAT STEPS 2 THROUGH 5 FROM STAGE #1 NOTES.



LOW EAVE NOTE:
TO AID IN LOW EAVE PANEL MODULARITY, PRE-INSTALL PANEL VOID CLOSURES AT 24" O.C.

STAGE #4

1. KEEP CLAMPS IN PLACE ON THE FIRST TWO SEAMS WITH



LOW EAVE NOTE:
TO AID IN LOW EAVE PANEL MODULARITY, PRE-INSTALL PANEL VOID CLOSURES AT 24" O.C.

MODULARITY GUIDANCE

SPECIAL ATTENTION TO ABOVE STEPS TO MAINTAIN PROPER PANEL MODULARITY AND THERMAL PERFORMANCE IS CRITICAL, FAILURE TO DO SO WILL RESULT IN UNSIGHTLY PANEL APPEARANCE.

EA601

9/30/26

RAYMOND PAUL ANDERSON
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PROFESSIONAL ENGINEER

MBMA MEMBER
IAS ACCREDITED AC472 R10
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09/30/2026 12:07:00pm

JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET SD3
DRAWING TITLE ROOF SHEETING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

BASIC INSTALLATION SEQUENCE

THE FOLLOWING STEPS OUTLINE THE BASIC INSTALLATION OF THE ROOF SYSTEM. REFERENCE THE SPECIFIC DETAILS WITHIN THIS ERECTION DRAWING SET FOR CONDITIONS SPECIFIC TO THIS PROJECT.

START PANEL PREPARATION

THE ROOF SYSTEM IS DESIGNED TO BE ELEVATED AND FLOAT ABOVE THE ROOF SUPPORT MEMBERS. BEGIN AT THE LOWER RAKE CORNER BY INSTALLING THE EAVE PLATE. (REFERENCE EAVE PLATE INSTALLATION BELOW)

AFTER EAVE PLATE HAS BEEN INSTALLED, STITCH THE FIRST ROLL OF ROOF INSULATION FROM RIDGE / HIGH EAVE TO LOW EAVE.

INSTALL THE RAKE CLIPS AND RAKE ANGLE TO SUPPORT / SECURE THE START PANEL. (REFERENCE RAKE ANGLE / RAKE CLIP PREPARATION TO THE RIGHT)

INSTALL START PANEL (FIELD CUT AS REQUIRED)

THE START PANEL IS SUPPLIED AS A FULL SHEET. DEPENDING ON RAKE CONDITION AND START DIMENSION, THE START PANEL MAY NEED TO BE CUT. REFER TO THE ROOF SHEETING PLAN FOR START / FINISH DIMENSIONS, RAKE DETAILS AND START/FINISH PANEL NOTES TO THE RIGHT TO DETERMINE PROPER PANEL CUT. INSTALL THE START PANEL (LOW EAVE PANEL FIRST IF PANEL RUN IS LONG ENOUGH TO REQUIRE ENDLAPS) BY SECURING THE PANEL TO THE EAVE PLATE AND RAKE ANGLE. (REFERENCE LOW EAVE AND RAKE DETAILS). INSTALL PANEL CLIPS ON LEADING EDGE OF PANEL AS SHOWN IN THE PANEL CLIP DETAIL. CONTINUE TO INSTALL UPSLOPE START PANEL IF ENDLAPS ARE REQUIRED. REFERENCE THE BACKUP PLATE DETAIL AND ENDLAP DETAIL FOR ATTACHMENT OF START PANEL(S) AT RAKE ANGLE.

INTERMEDIATE PANEL & MODULARITY

THE INTERMEDIATE PANELS (FULL PANELS) SHOULD BE INSTALLED BY ROLLING THE PANEL INTO PLACE ENSURING THE SEAM IS FULLY ENGAGED. SECURE THE PANELS WITH PANEL CLIPS AND THE LOW EAVE ACROSS THE ROOF. IT IS RECOMMENDED TO PREDRILL FOR CLIPS AT ENDLAP AND HIGH EAVE AND INSTALL THE OUTSIDE CLOSURE AT THE HIGH EAVE / RIDGE AS THE ROOF PROGRESSES. THIS WILL HELP MAINTAIN MODULARITY.

FINISH PANEL

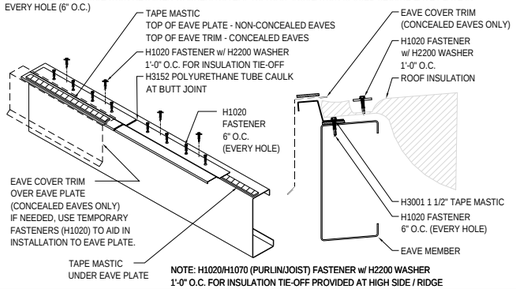
THE FINISH PANEL IS SIMILAR TO THE START PANEL INSTALLATION. THE RAKE ANGLE CLIPS AND RAKE ANGLE NEED TO BE INSTALLED ON TOP OF THE INSULATION PRIOR TO INSTALLING THE FINISH PANEL. THE FINISH PANEL SHOULD BE FIELD CUT AND ROLLED INTO PLACE AND SECURED TO THE RAKE ANGLE SIMILAR TO THE START PANEL.

TRIM INSTALLATION

TRIM INSTALLATION CAN BE DONE AFTER THE ROOF PANELS ALL HAVE BEEN INSTALLED OR CAN BE INSTALLED AS ENOUGH PANELS HAVE BEEN INSTALLED FOR ATTACHMENT OF TRIMS. (REFERENCE TRIM DETAILS)

EAVE PLATE INSTALLATION

PLACE TAPE MASTIC ON TOP OF EAVE MEMBER PRIOR TO INSTALLING EAVE PLATE. INSTALL EAVE PLATE BY FASTENING EVERY HOLE TO EAVE MEMBER (6" O.C.) PRIOR TO INSULATION BEING INSTALLED. SECURE INSULATION WITH FASTENER & INSULATION RETAINER WASHER. NOTE: IF NO ROOF INSULATION IS USED SECURE EAVE PLATE IN EVERY HOLE (6" O.C.)

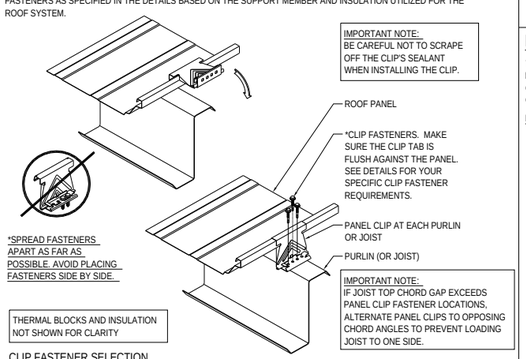


NOTE: H1020/H1070 (PURLIN/JOIST) FASTENER w/ H2200 WASHER 1'-0" O.C. FOR INSULATION TIE-OFF PROVIDED AT HIGH SIDE / RIDGE

SHORT EAVE PLATE		TALL EAVE PLATE		SUPER TALL EAVE PLATE	
EPS108	BASIC EAVE / GUTTER	EPT108	BASIC EAVE / GUTTER	EPX108	BASIC EAVE / GUTTER

PANEL CLIP INSTALLATION

BEFORE INSTALLING THE PANEL CLIP, FEEL FOR THE SUPPORT MEMBER BELOW THE INSULATION. ALIGN CLIP CENTERED OVER THE SUPPORT MEMBER AND ROLL CLIP OVER THE MALE HOOK OF THE PANEL. FASTEN CLIP WITH FASTENERS AS SPECIFIED IN THE DETAILS BASED ON THE SUPPORT MEMBER AND INSULATION UTILIZED FOR THE ROOF SYSTEM.



CLIP FASTENER SELECTION

R-Boost™APPLICATION
SEE DETAIL FA2010

PURLIN APPLICATION
H1020 FOR INSULATION ≤R-19 (6 3/8")
H1025 FOR INSULATION >R-19 (6 3/8") AND ≤R-38 (12")

JOIST APPLICATION
H1070 FOR INSULATION ≤R-19 (6 3/8")
H1075 FOR INSULATION >R-19 (6 3/8") AND ≤R-38 (12")

STANDARD CLIPS		PERIMETER CLIPS	
PART #	PART DESCRIPTION	PART #	PART DESCRIPTION
H2500	SHORT FIXED CLIP	H2720	8" SHORT SLIDING CLIP
H2510	TALL FIXED CLIP	H2730	8" TALL SLIDING CLIP
H2520	SHORT SLIDING CLIP	H2740	12" SHORT SLIDING CLIP
H2530	TALL SLIDING CLIP	H2750	12" TALL SLIDING CLIP
H2540	SUPER TALL SLIDING CLIP	H2760	16" SHORT SLIDING CLIP
		H2770	16" TALL SLIDING CLIP

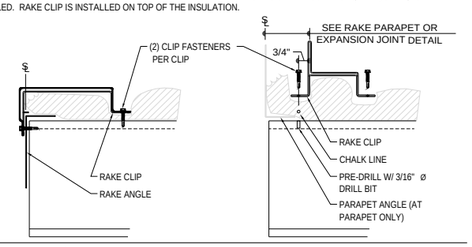
RAKE ANGLE / RAKE CLIP PREPARATION

SCULPTURED TRIM:

INSTALL INSULATION (IF REQUIRED) ALIGNED TO RAKE STEEL LINE AND FASTEN INSULATION TO LOW EAVE & RIDGE / HIGH EAVE WITH PROVIDED H1020 & H2200 FASTENERS & WASHERS. THE RAKE CLIP & ANGLE WILL INSTALL OVER THE INSULATION AS SHOWN AND SECURE INSULATION TO RAKE. DO NOT INSTALL RAKE CLIPS WITHOUT HAVING THE RAKE CLIPS SLID ONTO THE RAKE ANGLE.

PARAPET & EXPANSION:

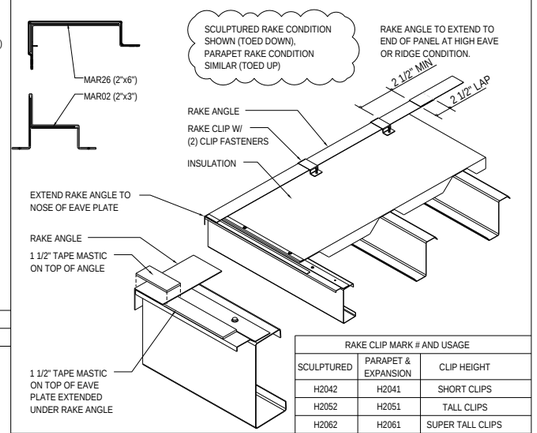
PRIOR TO INSTALLING THE ROOF INSULATION THE SECONDARY MEMBER WILL NEED TO BE PRE-DRILLED FOR THE RAKE CLIPS. SNAP A CHALK LINE AND PRE-DRILLING 3/16"Ø HOLES WILL MAKE INSTALLATION OF THE RAKE AND CLIPS MUCH EASIER AFTER INSULATION IS IN PLACE. DO NOT INSTALL RAKE CLIPS UNTIL INSULATION (IF REQUIRED) IS INSTALLED. RAKE CLIP IS INSTALLED ON TOP OF THE INSULATION.



RAKE ANGLE / RAKE CLIP INSTALLATION

AFTER INSULATION IS IN PLACE AND PRIOR TO INSTALLING THE RAKE CLIPS AND RAKE ANGLE APPLY 1 1/2" TAPE MASTIC ON TOP OF THE EAVE PLATE BUT ONLY REMOVE PAPER BACKING WHERE THE RAKE ANGLE WILL REST. THIS WILL SEAL BETWEEN THE EAVE PLATE AND THE RAKE ANGLE.

SLIDE RAKE CLIPS ONTO RAKE ANGLE PRIOR TO SECURING THE RAKE CLIPS TO THE SECONDARY MEMBERS. PLACE THE RAKE CLIPS AND ANGLE OVER THE INSULATION. INSTALL FASTENER HORIZONTALLY INTO RAKE ANGLE AND INSTALL SECOND FASTENER VERTICALLY TO SECURE CLIP. NOTE: (2) SCREWS ARE REQUIRED IN EVERY CLIP. DO NOT CUT INSULATION OUT FROM AROUND THE CLIP.

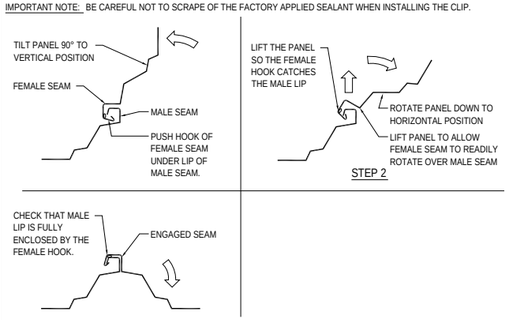


RAKE CLIP MARK # AND USAGE		
SCULPTURED	PARAPET & EXPANSION	CLIP HEIGHT
H2042	H2041	SHORT CLIPS
H2052	H2051	TALL CLIPS
H2062	H2061	SUPER TALL CLIPS

PANEL INSTALLATION

THE PANEL IS DESIGNED TO INTERLOCK AND HOOK TOGETHER AT THE SEAM. IN ORDER TO HOOK THE PANEL, LAY PANEL WITH FEMALE RIB OVER TOP OF THE MALE RIB. TILT THE LEADING PANEL UP UNTIL THE HOOK CATCHES THE LIP OF THE MALE RIB. ROTATE THE PANEL DOWN WHILE ENSURING THE PANEL HOOKS ENGAGED COMPLETELY UP THE RIB OF THE PANEL.

IMPORTANT NOTE: BE CAREFUL NOT TO SCRAPE OF THE FACTORY APPLIED SEALANT WHEN INSTALLING THE CLIP.

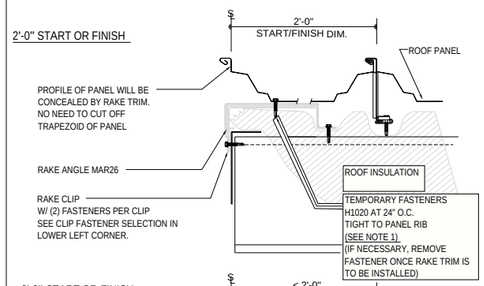


START/FINISH PANEL AT SCULPTURED RAKE

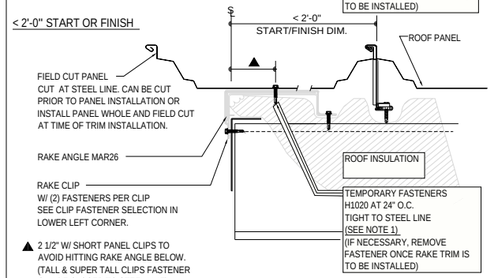
THE START PANEL IN MANY CASES WITH SCULPTURED TRIM WILL NOT NEED TO BE SHEARED DEPENDING ON PANEL START DIMENSION (SEE ROOF PLAN AND RAKE DETAIL). IF THE PANEL NEEDS TO BE SHEARED IT CAN BE INSTALLED WHOLE AND SHEARED AT TIME OF SCULPTURED RAKE TRIM INSTALLATION IF DEISED.

THE BACKUP PLATE PROVIDES SUPPORT AT THE ENDLAP AND HIGH SIDE OF THE PANEL TO ALLOW FOR COMPRESSION OF SEALANTS. THE BACK UP PLATE HAS NOTCHES THAT SLIDE ONTO THE PANEL TO LOCATE AND HOLD THE BACKUP PLATE IN PLACE. AT THE RAKE CONDITION, THE BACKUP PLATE IS TO BE FIELD CUT FLUSH WITH THE HORIZONTAL LEG OF THE RAKE ANGLE. DO NOT EXTEND BACKUP PLATE ON TOP OF RAKE ANGLE.

2'-0" START OR FINISH

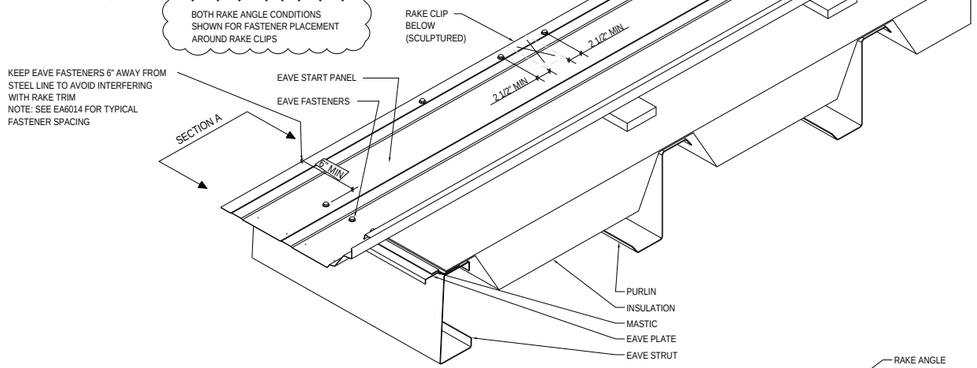


< 2'-0" START OR FINISH



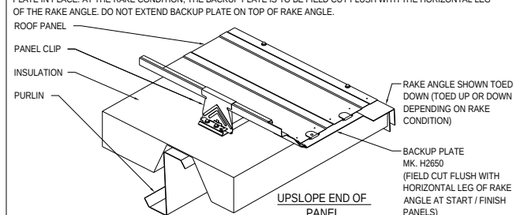
▲ 2 1/2" W/ SHORT PANEL CLIPS TO AVOID HITTING RAKE ANGLE BELOW. (TALL & SUPER TALL CLIPS FASTENER CAN BE CLOSER TO STEEL LINE)

BOTH RAKE ANGLE CONDITIONS SHOWN FOR FASTENER PLACEMENT AROUND RAKE CLIPS



BACKUP PLATE INSTALLATION

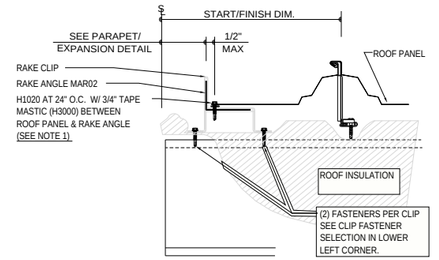
THE BACKUP PLATE PROVIDES SUPPORT AT THE ENDLAP AND HIGH SIDE OF THE PANEL TO ALLOW FOR COMPRESSION OF SEALANTS. THE BACK UP PLATE HAS NOTCHES THAT SLIDE ONTO THE PANEL TO LOCATE AND HOLD THE BACKUP PLATE IN PLACE. AT THE RAKE CONDITION, THE BACKUP PLATE IS TO BE FIELD CUT FLUSH WITH THE HORIZONTAL LEG OF THE RAKE ANGLE. DO NOT EXTEND BACKUP PLATE ON TOP OF RAKE ANGLE.



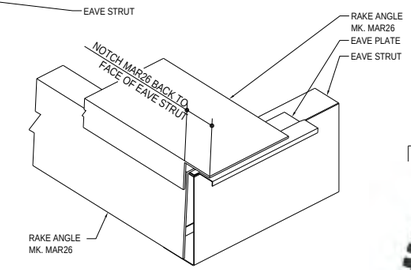
START/FINISH PANEL AT PARAPET OR EXPANSION

THE START & FINISH PANEL WILL NEED TO BE SHEARED WITH PARAPET/EXPANSION CONDITION.

THE BACKUP PLATE PROVIDES SUPPORT AT THE ENDLAP AND HIGH SIDE OF THE PANEL TO ALLOW FOR COMPRESSION OF SEALANTS. THE BACK UP PLATE HAS NOTCHES THAT SLIDE ONTO THE PANEL TO LOCATE AND HOLD THE BACKUP PLATE IN PLACE. AT THE RAKE CONDITION, THE BACKUP PLATE IS TO BE FIELD CUT FLUSH WITH THE HORIZONTAL LEG OF THE RAKE ANGLE. DO NOT EXTEND BACKUP PLATE ON TOP OF RAKE ANGLE.



NOTE 1: KEEP FASTENERS 2 1/2" AWAY FROM RAKE CLIPS!!



SECTION A

CFR BASIC INSTALLATION DETAIL

BASIC PANEL INSTALLATION INSTRUCTIONS
SEE ROOFLINE TRIM DETAILS FOR FURTHER INFORMATION

EA601

9/30/26



MBMA MEMBER
IAS ACCREDITED AC472
CERTIFIED CSA W47.1
CERTIFIED CSA S16
ISO 9001

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:02pm

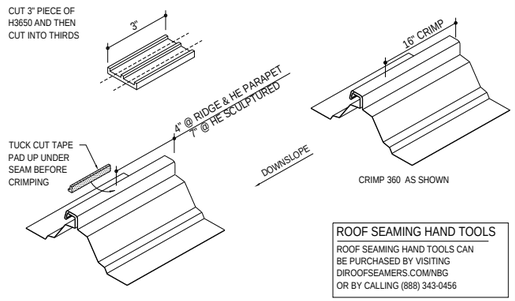
JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF SHEETING DETAILS
SHEET SD4

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT REVIEW R0	NSI /	WD	09/30/2026

PANEL HIGH EAVE PREPARATION

CUT A 3" PIECE OF H3650 TAPE MASTIC TO BE PLACED UP IN SEAM OF PANEL. MASTIC SHOULD BE PLACED AS SHOWN FROM END OF PANEL TO CENTER OF TAPE PAD. PLACE INSIDE THE MALE HOOK ON THE VERTICAL FACE.

SEALANT



CRIMPING

CRIMP 360 AS SHOWN

ROOF SEAMING HAND TOOLS

ROOF SEAMING HAND TOOLS CAN BE PURCHASED BY VISITING DIROOFSEAMERS.COM/NBG OR BY CALLING (888) 343-0456

OUTSIDE CLOSURE MASTIC INSTALLATION

START & FINISH PANEL NOTE: OUTSIDE CLOSURE CANNOT BE INSTALLED IN THE START / FINISH PANEL UNTIL THE RAKE TRIM IS INSTALLED.

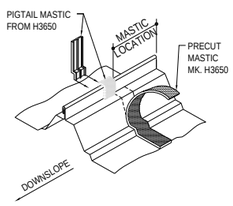
MODULARITY NOTE: OUTSIDE CLOSURE IS RECOMMENDED TO BE INSTALLED AS ROOF PROGRESSES. AS NEXT PANEL IS INSTALLED, CLOSURE SHOULD BE INSTALLED IN THE PREVIOUS PANEL RUN.

STEP 1: REFERENCE HIGH EAVE OR RIDGE DETAIL FOR PROPER LOCATION. APPLY THE PRECUT MASTIC ACROSS THE PANEL WITH THE BOTTOM OF THE MASTIC 4" DOWN FROM END OF PANEL FOR RIDGE & HIGH EAVE SCULPTURED CONDITIONS. ALIGN MASTIC 3" DOWN FROM END OF PANEL FOR HIGH EAVE PARAPET & HIGH EAVE EXTENSIONS. PRESS THE MASTIC INTO THE CORNERS OF THE TRAPEZOID TO ENSURE THERE ARE NO GAPS. CUT A 3" PIECE OF THE PRECUT MASTIC TO PLACE A PIGTAIL AROUND THE PANEL RIB AGAINST THE DOWNSLOPE EDGE OF PRECUT MASTIC. FOLD PIG TAIL AS SHOWN AND PRESS INTO VOID UNDER SEAM. MARRY PIGTAIL TO PRECUT.

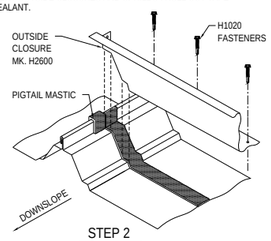
STEP 2: ALIGN THE OUTSIDE CLOSURE WITH MASTIC AND SEAT INTO THE PRECUT MASTIC. ATTACH THE OUTSIDE CLOSURE THROUGH THE PREPUNCHED HOLES THROUGH THE PANEL AND INTO THE BACKUP PLATE.

STEP 3: INSTALL FASTENER THROUGH RIB INTO ADJACENT OUTSIDE CLOSURE TO DRAW THEM TOGETHER.

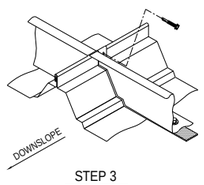
STEP 4: PRIOR TO INSTALLING TRIM, APPLY BUTYL CAULK DOWN PROFILE OF TRAPEZOID AND 1" MIN ONTO PANEL FLAT. ALSO APPLY BUTYL CAULK ACROSS JOINT OF ADJACENT OUTSIDE CLOSURES AND UPHILL 3". ROLL OUT TAPE MASTIC ACROSS TOP OF OUTSIDE CLOSURES FOR TRIM SEALANT.



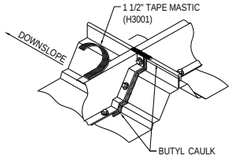
STEP 1



STEP 2

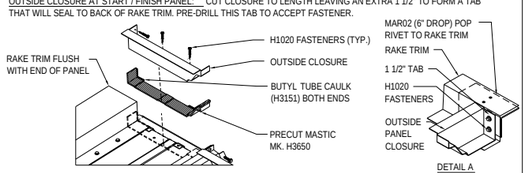


STEP 3



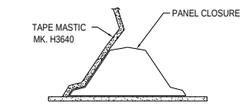
STEP 4

OUTSIDE CLOSURE AT START / FINISH PANEL: CUT CLOSURE TO LENGTH LEAVING AN EXTRA 1 1/2" TO FORM A TAB THAT WILL SEAL TO BACK OF RAKE TRIM. PRE-DRILL THIS TAB TO ACCEPT FASTENER.

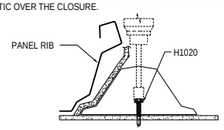


INSIDE VOID CLOSURE INSTALLATION

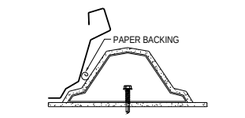
IT IS CRITICAL TO ENSURE THAT THE TAPE MASTIC OVER THE CLOSURE DOES NOT LEAVE GAPS AT THE CORNERS AND THAT THE BUTYL CAULK IN PANEL RIB JOINS THE TAPE MASTIC OVER THE CLOSURE.



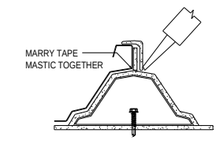
STEP 1: APPLY MASTIC TO TOP SIDE OF CLOSURE. DO NOT REMOVE PAPER BACKING. EXTEND MASTIC 1/2" BEYOND CLOSURE AND COMPRESS TO SINGLE THICKNESS WITH MASTIC BELOW CLOSURE.



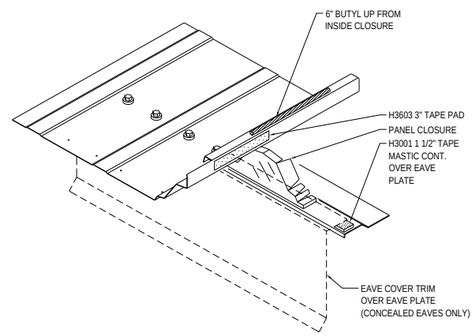
STEP 2: LIFT PANEL RIB AND POSITION CLOSURE UNDER THE MALE RIB AND INSTALL FASTENER THROUGH PREPUNCH HOLE.

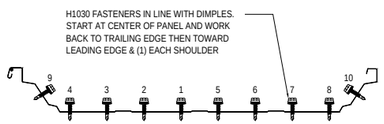


STEP 3: REMOVE PAPER BACKING FROM MASTIC AND PRESS PANEL FIRMLY INTO PLACE.



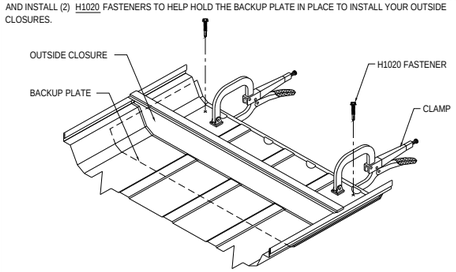
STEP 4: APPLY TAPE PAD TO VERTICAL LEG OF PANEL AND APPLY BUTYL CAULK VERTICALLY UP SEAM OVER CLOSURE.





BACKUP PLATE INSTALLATION

IF THE BACKUP PLATE DOES NOT REACH THE FIRST PURLIN, CLAMP THE BACKUP PLATE TO THE END OF THE PANEL AND INSTALL (2) H1020 FASTENERS TO HELP HOLD THE BACKUP PLATE IN PLACE TO INSTALL YOUR OUTSIDE CLOSURES.



CFR BASIC INSTALLATION DETAIL

BASIC PANEL INSTALLATION INSTRUCTIONS
SEE ROOFLINE TRIM DETAILS FOR FURTHER INFORMATION

EA6014

MBMA MEMBER

IAS ACCREDITED AC472 (R10)

CWD CERTIFIED G1A W47.1

CSSB

NUCOR BUILDING SYSTEMS

PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:05pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

SHEET SD5

DRAWING TITLE
ROOF SHEETING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

IMPORTANT NOTE:

THE INSTRUCTIONS ON THIS PAGE ONLY ADDRESS THE USE OF THE HAND CRIMPING TOOLS. INSTRUCTIONS FOR MECHANICAL SEAMING, IF REQUIRED, ARE OUTLINED IN THE SEAMING MANUAL, WHICH IS INCLUDED WITH THE MECHANICAL SEAMER KIT PROVIDED BY D.I. ROOF SEAMERS.

SPECIALIZED SEAMING AND HAND CRIMPING TOOLS
THE FINISHED SEAM OF THE ROOF PANELS REQUIRES SPECIAL SEAMING TOOLS THAT ARE AVAILABLE ONLY THROUGH D.I. ROOF SEAMERS. CAUTION: THE USE OF OTHER SEAMING / CRIMPING EQUIPMENT WILL LIKELY RESULT IN FAULTY AND / OR DAMAGED SEAMS AND SHALL INVALIDATE ANY OF THE ROOF SYSTEM'S MATERIAL AND WEATHER TIGHTNESS WARRANTIES.

SEAMING TOOL SOURCE
CONTACT D.I. ROOF SEAMERS TO PURCHASE ANY NECESSARY CRIMPING TOOLS AND FOR RENTAL INFORMATION OF THE MECHANICAL SEAMER IF REQUIRED.

VISIT DIROOFSEAMERS.COM/NBG OR CALL (888) 343-0456

CRIMPING & SEAMING REQUIREMENTS

THE DESIGN OF THIS STRUCTURE REQUIRES SEAMING TO MEET DESIGN AND CODE REQUIREMENTS. SEE THE SEAMING PLAN FOR ROOF PLANE SPECIFIC SEAMING REQUIREMENTS.
THERE ARE THREE SEAM TYPES POSSIBLE WITH THE NUCOR CFR ROOF AS NOTED BELOW. ALL OF THESE SEAM TYPES CAN BE ACHIEVED WITH THE AVAILABLE CRIMPERS. WHEN VISE LOCK AND VISE LOCK 360 SEAMS ARE REQUIRED, IT IS RECOMMENDED TO RENT A MECHANICAL SEAMER TO AID IN THE SEAMING PROCESS.

1. NUCOR ROLL LOCK ™ (SEE NOTES 1 AND 2 BELOW)
2. NUCOR VISE LOCK ® (SEE NOTES 1, 2 AND 3 BELOW)
3. NUCOR VISE LOCK 360 ® (SEE NOTES 2 AND 3 BELOW)

NOTE 1
NUCOR ROLL LOCK SEAM IS THE MINIMUM REQUIRED BY DESIGN FOR ANY ROOF PLANE. ADDITIONAL SEAMING MAY BE REQUIRED BY THE BUILDER OR ARCHITECT. IT IS THE ERECTORS RESPONSIBILITY TO PERFORM ANY ADDITIONAL CRIMPING / SEAMING REQUIRED BY THE BUILDER, ARCHITECT, ETC. ABOVE AND BEYOND THE DESIGN REQUIREMENT OF THE MBS.

NOTE 2
MULTIPLE SEAM TYPES MAY BE REQUIRED BY DESIGN IN DIFFERENT ZONES OF THE ROOF PLANE. REVIEW THE ROOF SEAMING PLAN CAREFULLY FOR ROOF PLANE SPECIFIC SEAMING REQUIREMENTS.

NOTE 3
NOT ALL ROOF SYSTEMS REQUIRE MECHANICAL SEAMING. THE BUYER, ARCHITECT, OWNER, ETC. MAY ELECT TO SPECIFY A MECHANICALLY SEAMED ROOF. OFTEN, FACTORY MUTUAL RATINGS ALSO REQUIRE A VISE LOCK 360 MECHANICAL SEAM.

SEE THE SEAMING MANUAL FOR IMPORTANT ERECTOR INFORMATOIN ABOUT THE VISE LOCK 360 SEAMER REQUIREMENTS.

WHEN TO CRIMP
AS WORK PROGRESSES, IT SHALL BE THE ERECTORS RESPONSIBILITY TO APPLY THE NUCOR ROLL LOCK HAND CRIMPING REQUIREMENTS IN SUCH A WAY AS TO ENSURE THAT THE PANELS HAVE BEEN ADEQUATELY SECURED AT THE COMPLETION OF EACH DAYS WORK.

NUCOR ROLL LOCK SEAM ™



LOW EAVE, RIDGE, END LAP AND AT CLIP — SEAM BETWEEN CLIPS

THE ROLL LOCK SEAM ™ ROLL LOCK SEAM REQUIRES THE ROOF PANELS TO BE CRIMPED WITH A MANUAL CRIMPING TOOL BY THE COMPLETION OF EACH DAY'S WORK. THIS DOES NOT REQUIRE THE USE OF A MOTORIZED SEAMER.

CRIMPING IS REQUIRED AT THE FOLLOWING LOCATIONS

1.	LOW EAVE	16"
2.	RIDGE / HIGH SIDE	16"
3.	ENDLAP	16"
4.	AT CLIPS	SINGLE CRIMP

NUCOR VISE LOCK SEAM (R)



SEAM AT CLIP — SEAM BETWEEN CLIPS

THE VISE LOCK SEAM ® IS CONTINUOUS FULL LENGTH OF THE PANEL. THE VISE LOCK SEAM CAN BE ACHIEVED BY TWO DIFFERENT METHODS.
1. CONTINUALLY HAND CRIMPING THE SEAM WITH THE VISE LOCK HAND CRIMPER.
2. MECHANICALLY SEAMING WITH A VISE LOCK MOTORIZED SEAMER.

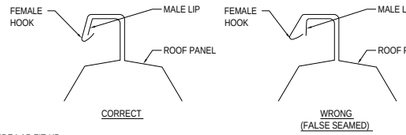
NUCOR VISE LOCK 360 SEAM (R)



SEAM AT CLIP — SEAM BETWEEN CLIPS

THE VISE LOCK 360 SEAM ® IS CONTINUOUS FULL LENGTH OF THE PANEL. THE VISE LOCK 360 ® SEAM CAN BE ACHIEVED BY TWO DIFFERENT METHODS.
1. CONTINUALLY HAND CRIMPING THE SEAM WITH THE VISE LOCK 360 HAND CRIMPER. THE SEAM NEEDS TO BE HAND CRIMPED INTO A VISE LOCK SEAM PRIOR TO USING THE VISE LOCK 360 CRIMPER.
2. MECHANICALLY SEAMING WITH A MOTORIZED SEAMER.

CHECK PANEL ASSEMBLY



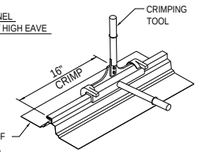
SIDE LAP FIT-UP
BEFORE CRIMPING AND / OR SEAMING, INSPECT THE FULL LENGTH OF EACH PANEL SIDE LAP. CHECK THAT THE LIP AT THE MALE EDGE OF THE PANEL IS ENCLOSED BY THE HOOK OF THE ADJACENT PANEL'S FEMALE EDGE AS SHOWN IN THE DETAIL ABOVE. ANY CONDITIONS WHERE THE SEAM IS NOT ENGAGED PROPERLY MUST BE CORRECTED BEFORE ATTEMPTING TO CRIMP OR SEAM THE PANEL. FALSE SEAMING OCCURS WHEN THE PANELS ARE NOT PROPERLY ENGAGED. FALSE SEAMED PANELS CANNOT PROVIDE THE REQUIRED WIND LOAD AND WEATHER RESISTANCE THEY WERE DESIGNED TO WITHSTAND. FALSE SEAMING CAN ALSO LEAD TO PANEL DAMAGE AND THE MBS NOR D.I. ROOF SEAMERS CAN BE HELD RESPONSIBLE FOR ANY CONCERNS RELATED TO FALSE SEAMING.

CLIP ALIGNMENT
BEFORE CRIMPING AND / OR SEAMING, INSPECT THAT EACH ROOF PANEL CLIP IS PROPERLY ENGAGED IN THE SIDE LAP ASSEMBLY. ANY DISPLACED CLIPS MUST BE CORRECTED BEFORE ATTEMPTING TO CRIMP / SEAM THE ROOF PANELS. PANEL CLIPS THAT ARE NOT PROPERLY ENGAGED AND ALIGNED CAN CAUSE FAULTY CRIMP / SEAM AND OBJECTIONABLE SEAM APPEARANCE. THE MBS NOR D.I. ROOF SEAMERS CAN BE HELD RESPONSIBLE FOR ANY CONCERNS RELATED TO IMPROPERLY ALIGNED CLIPS.

SEAM DAMAGE
BEFORE CRIMPING AND / OR SEAMING, INSPECT THAT EACH ROOF PANEL MALE AND FEMALE ARE FREE FROM DISTORTION AND KINKS WHICH CAN LEAD TO DIFFICULTY AND / OR DAMAGE TO THE PANEL WHILE ATTEMPTING TO CRIMP / SEAM THE PANEL. ANY DISTORTIONS / KINKS MUST BE CORRECTED BEFORE ATTEMPTING TO CRIMP / SEAM THE PANELS. THE MBS NOR D.I. ROOF SEAMERS CAN BE HELD RESPONSIBLE FOR ANY CONCERNS RELATED TO DAMAGE CAUSED IN THE FIELD.

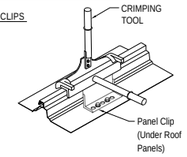
MANUAL CRIMPING - EAVE / END LAP / RIDGE / PANEL CLIP

END OF PANEL
LOW EAVE / HIGH EAVE
RIDGE END



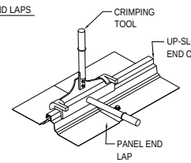
CRIMP PROCESS
CRIMP THE END OF THE PANEL FOLLOWED BY ADDITIONAL CRIMPS TO EXTEND 16" FROM END OF PANEL.

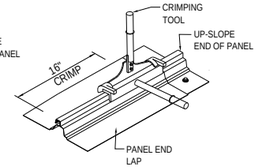
PANEL CLIPS



CRIMP PROCESS
THE PANEL CLIP REQUIRES A SINGLE CRIMP CENTERED OVER THE PANEL CLIP.

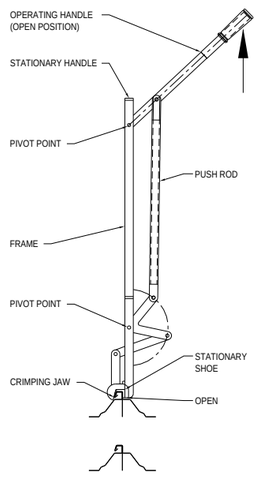
PANEL END LAPS

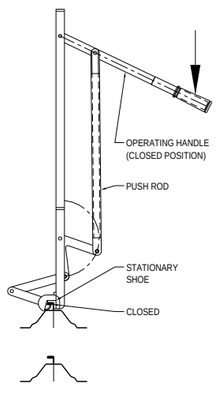




END LAP CRIMP IS TWO STEP PROCESS
STEP 1: CENTER THE CRIMP TOOL OVER THE PANEL END LAP FOR THE FIRST CRIMP.
STEP 2: THE SECOND CRIMP MUST OVERLAP THE FIRST CRIMP AND EXTEND TO ENSURE THE CRIMP REACHES THE DOWNSLOPE PANEL CLIP. THIS MAY REQUIRE A THIRD CRIMP DEPENDING HOW MUCH OVERLAP WAS DONE.

MANUAL CRIMPING
STAND-UP VISE LOCK CRIMPER





THE MANUAL CRIMPING PROCEDURE FOR THE STAND-UP VISE LOCK CRIMPER IS THE SAME PROCEDURE AS THE SMALL VISE LOCK HAND CRIMPER. THE STAND-UP AND SMALL HAND CRIMPERS CAN BE USED IN CONJUNCTION WITH EACH OTHER. THE MANUAL CRIMPERS CAN BE UTLIZED TO CREATE A CONTINUOUS SEAM BY MAKING ADJACENT CRIMPS WITH SLIGHT OVERLAP.

TOOL OPERATION

STEP 1
WITH THE HANDLE IN THE UPWARD (OPEN) POSITION, PLACE THE CRIMPER ON THE PANEL RIB. MAKE SURE THE CRIMPER HEAD IS COMPLETELY SEATED ON THE TOP OF THE PANEL RIB BEFORE CRIMPING. IT IS CRITICAL THAT THE OPERATING JAW IS TOWARD THE HOOK SIDE OF THE PANEL AS SHOWN ABOVE. OPERATING THE CRIMPER BACKWARDS ON THE PANEL WILL RESULT IN DAMAGE TO THE PANEL.

STEP 2
PUSH DOWN ON THE HANDLE UNTIL IT STOPS. RAISE HANDLE TO RELEASE CRIMPER. REPOSITION CRIMPER AS NECESSARY AND REPEAT TO EXTEND THE LENGTH OF THE CRIMP.

ROOF SEAMING HAND TOOLS

ROOF SEAMING HAND TOOLS CAN BE PURCHASED BY VISITING DIROOFSEAMERS.COM/NBG OR BY CALLING (888) 343-0456

CFR HAND CRIMPING NOTES

HAND CRIMPING TOOLS AND PROCEDURES

EA6015

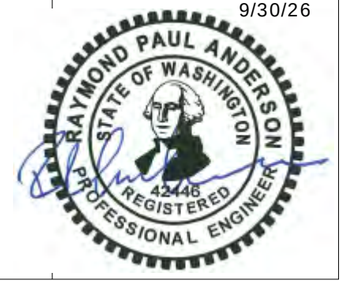
MBMA MEMBER
IAS ACCREDITED AC472 R10
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

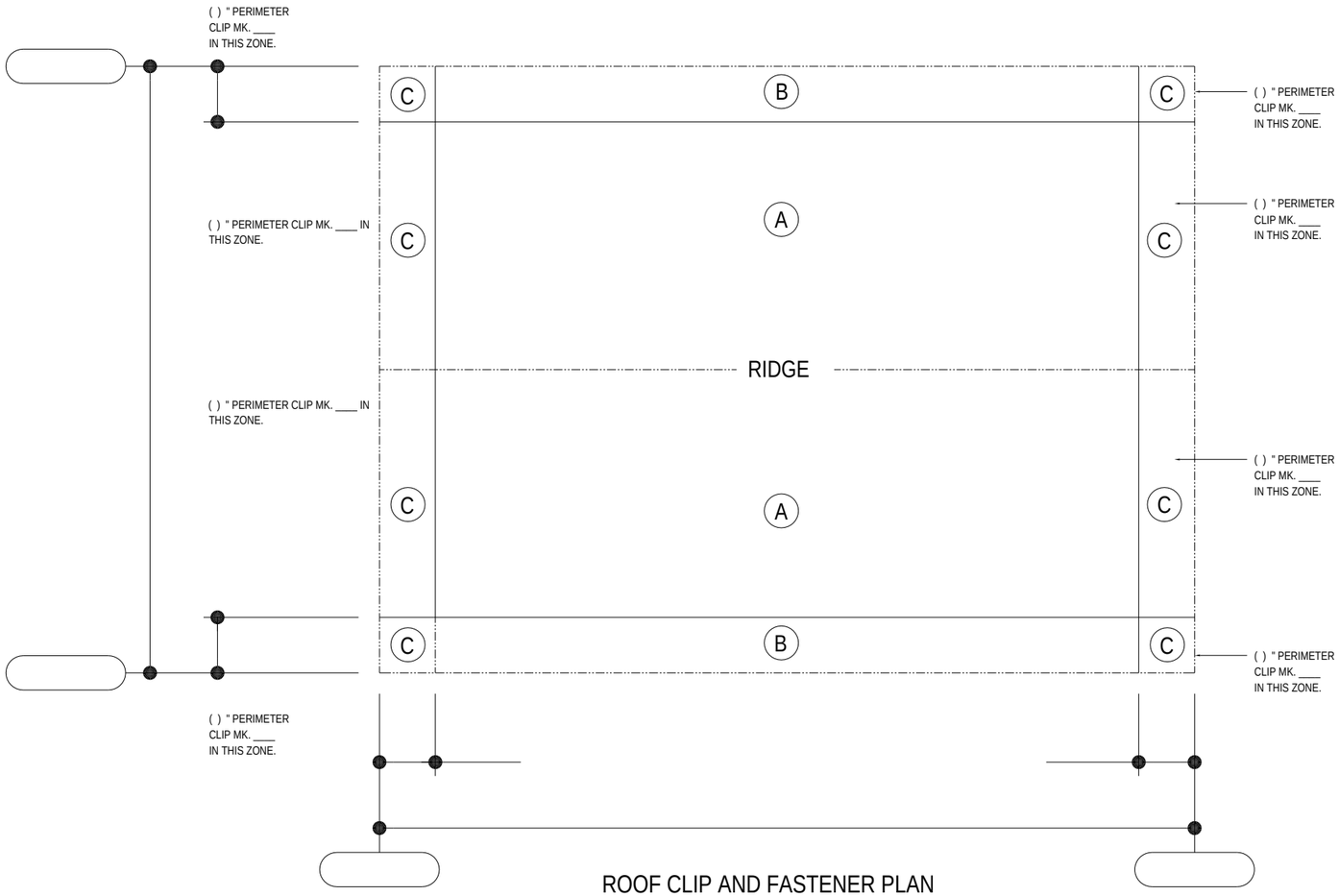
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JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF SHEETING DETAILS
SHEET SD6

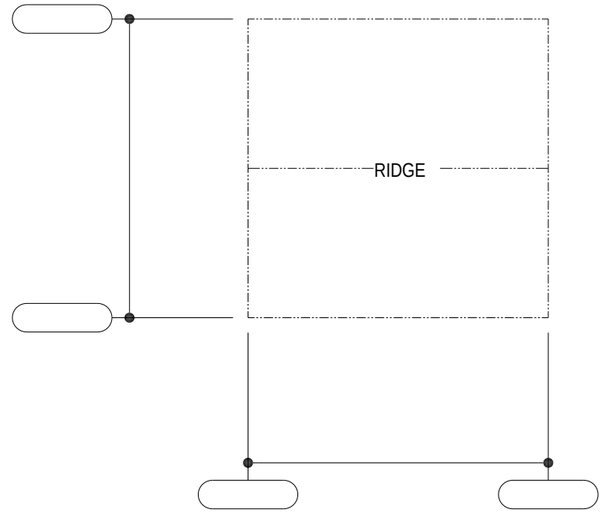
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0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26





ROOF CLIP AND FASTENER PLAN



ROOF SEAMING PLAN

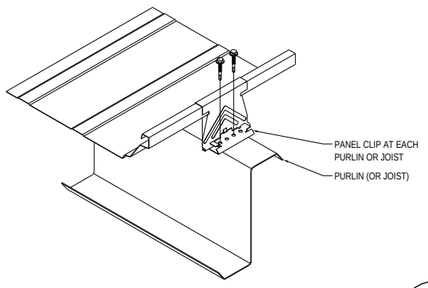
1. NUCOR ROLL LOCK ™
2. NUCOR VISE LOCK (R)
3. NUCOR VISE LOCK 360 (R)

STANDARD CLIPS	
PART #	PART DESCRIPTION
H2500	SHORT FIXED CLIP
H2510	TALL FIXED CLIP
H2520	SHORT SLIDING CLIP
H2530	TALL SLIDING CLIP
H2540	SUPER TALL SLIDING CLIP

PERIMETER CLIPS	
PART #	PART DESCRIPTION
H2720	8" SHORT SLIDING CLIP
H2730	8" TALL SLIDING CLIP
H2740	12" SHORT SLIDING CLIP
H2750	12" TALL SLIDING CLIP
H2760	16" SHORT SLIDING CLIP
H2770	16" TALL SLIDING CLIP

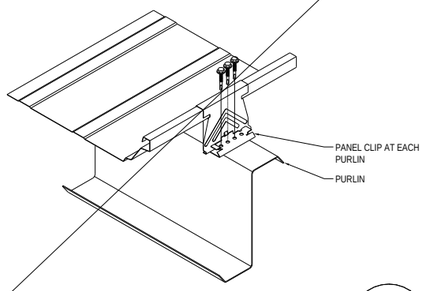
INSULATION	FASTENER		CLIP
R_	PURLIN	JOIST	SHORT
NONE	H1020	H1070	ALL
≤ R-11	H1020	H1070	SHORT
> R-11 and ≤ R-20	H1020	H1070	TALL
> R-20 and ≤ R-28	H1025	H1075	TALL
> R-28	H1025	H1075	SUPER TALL

STANDARD CLIP



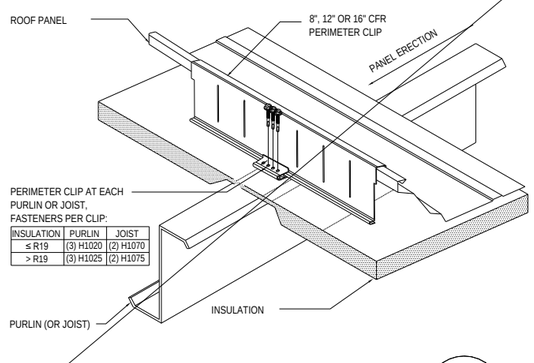
(2) FASTENERS PER CLIP AT PURLIN/JOIST — A

STANDARD CLIP



(3) FASTENERS PER CLIP AT PURLIN — B

PERIMETER CLIP



(3) FASTENERS PER CLIP AT PURLIN
(2) FASTENERS PER CLIP AT JOIST — C

CRITICAL SEAMER ORDERING INFORMATION

ROOF TYPE	CFR
PANEL GAUGE	24 GA.
SQUARE FOOTAGE (ENTIRE ROOF)	10,458 SQ. FT
ROOF PITCH	2.5 :12
SEAM HEIGHT	3"
ENDLAPS	☐ YES ☒ NO
GALVALUME OR PAINTED ROOF	☐ GALVALUME ☒ PAINT
PERIMETER CLIPS REQUIRED	☐ YES ☒ NO

PLEASE NOTE THAT ALL SEAMER ORDERS WILL TAKE APPROXIMATELY 5-7 WORKING DAYS FOR DELIVERY TO JOB SITE FROM DATE OF ORDER. VISE LOCK OPTIONS INCLUDE A 3 STATION SINGLE DIRECTION OR 5 STATION BI-DIRECTIONAL. VISE LOCK 360 ONLY HAS (5) STATION SINGLE DIRECTION AVAILABLE.

DIROOFSEAMERS.COM
PHONE (888) 343-0456

EA601(

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

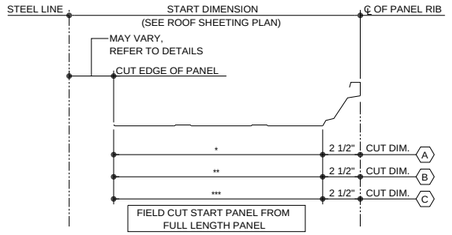
MBMA MEMBER · IAS ACCREDITED AC472 (E10) · CWC CERTIFIED CIA WWF1 · CSSB

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:07pm

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PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF SHEETING DETAILS
SHEET SD7

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

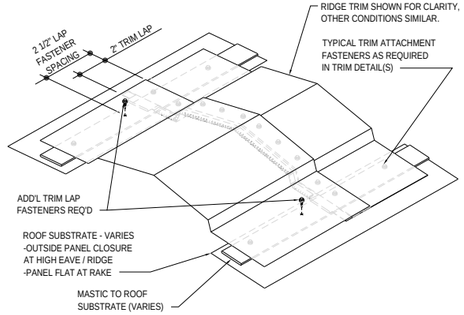


START PANEL CUT DIMENSION DETAIL

- WHEN FIELD CUTTING OR MITERING ROOF PANELS, NON-ABRASIVE CUTTING TOOLS SUCH AS NIBBLERS OR TIN-SNIPS SHALL BE USED.
- ABRASIVE CUTTING TOOLS SUCH AS MECHANICAL GRINDERS, SAWS, SHEARS OR SCISSORS CAN DAMAGE THE PANEL FINISH AND CREATE EXCESS METAL SHAVINGS THAT CAN CORRODE THE PANELS.
- THE USE OF NON-APPROVED CUTTING DEVICES MAY VOID YOUR FACTORY WARRANTY.

EA6035

NOTE:
REFERENCE TRIM CONDITION DETAIL FOR
REQUIRED SEALANT AND FASTENERS



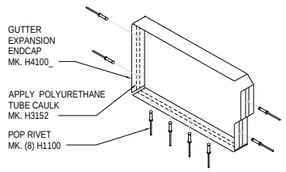
TRIM LAP COMPRESSION FASTENER

THE ADDITIONAL FASTENER IS REQUIRED AT TRIM LAPS TO AID IN ELIMINATING GAPS AND COMPRESSING SEALANTS WHERE THE MULTIPLE LAYERS OF FLASHING COME TOGETHER.

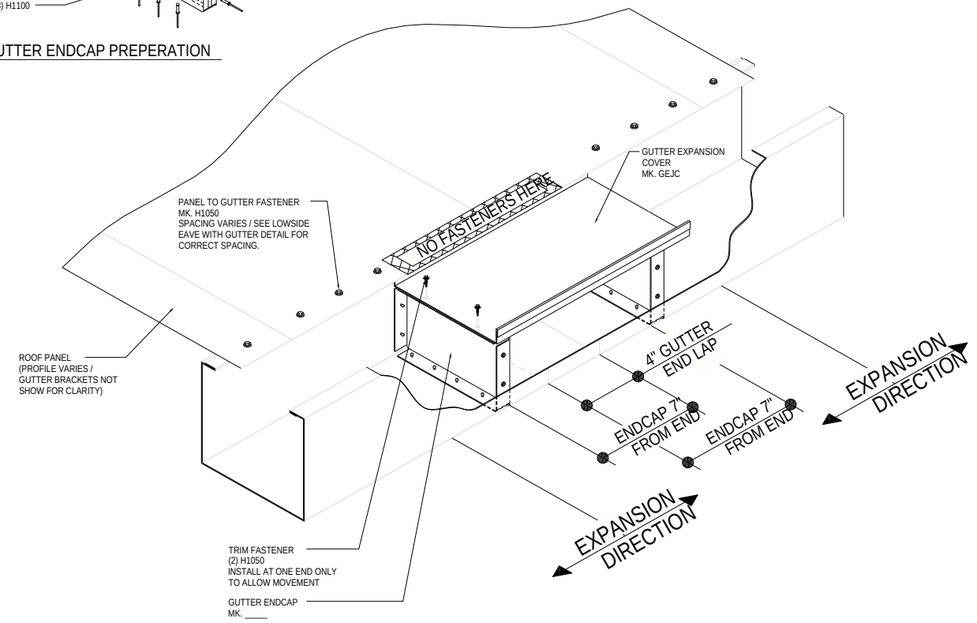
EA6076

GUTTER ENDCAP INSTALLATION INSTRUCTIONS

- SLIDE THE GUTTER EXPANSION JOINT COVER, MK. GEJC, INTO GUTTER BEFORE INSTALLATING THE GUTTER ENDCAPS.
- APPLY POLYURETHANE TUBE CAULK, MK. H3152, ALONG THE BOTTOM AND SIDES OF THE H4100_ END CAPS AND INSTALL WHERE SHOWN BELOW. (2 H1100 POP RIVETS IN EACH SIDE AND 4 H1100 POP RIVETS IN BOTTOM.)
- PLACE THE GUTTER EXPANSION JOINT COVER, MK. GEJC, ON TOP OF BOTH H4100_ ENDCAPS; FASTEN ONE SIDE ONLY WITH (2) H1050 FASTENERS, SO THE JOINT IS FREE TO SLIDE.
- AVOID INSTALLING AT DOWNSPOUT LOCATIONS.
- NOTE: DO NOT CAULK OR FASTEN THE TWO GUTTER SECTIONS TOGETHER.



GUTTER ENDCAP PREPERATION



GUTTER EXPANSION JOINT

EXPANSION JOINT TO BE INSTALLED EVERY 150'-0"

ED6900

STEP 1

GUTTER END CAPS
APPLY A CONTINUOUS BEAD OF POLYURETHANE TUBE CAULK (H3152) AROUND THREE SIDES OF THE GUTTER END CAP (H4000_) .

INSERT THE GUTTER CAP 1/2" (H4000_) INTO THE END OF THE GUTTER.

FASTEN WITH POP RIVETS (H1100) AS SHOWN IN GUTTER DETAIL. APPLY POLYURETHANE TUBE CAULK (H3152) AROUND PERIMETER INSIDE GUTER TO SEAL CAP.

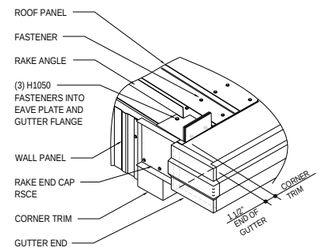
EXTEND GUTTER BEYOND FACE OF WALL CORNER TRIM AS SHOWN.

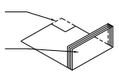
RAKE CAP END INSTALLATION
HOLD THE RAKE CAP END (RSCE) TIGHT TO THE BACK OF AND FLUSH WITH THE BOTTOM OF THE GUTTER. FASTEN TO THE WALL CORNER TRIM WITH (2) TRIM-COLORED SELF-DRILLING SCREWS (H1050) .

RAKE CAP INSTALLATION
BEFORE INSTALLING THE RAKE TRIM, THE RAKE CAP MUST BE INSTALLED.

APPLY POLYURETHANE TUBE CAULK (H3152) TO (3) SIDES OF THE RTSC AND PLACE IT ON THE END OF THE PANEL. HOLD THE END CAP ASSEMBLY AGAINST THE CORNER TRIM TO ALIGN THE RAKE CAP TO THE BACK OF THIS ASSEMBLY. USE (3) H1050 FASTENER FOR THE RAKE CAP. FIELD COPE FLAT OF RTSC AS REQUIRED TO FIT AROUND THE RAKE ANGLE.

RAKE CAP PART NUMBERS
• RTSC





RAKE CAP, GUTTER/RAKE TRIM, AND GUTTER END CAP MUST BE INSTALLED BEFORE THE RAKE TRIM.

STEP 2

RAKE TRIM INSTALLATION AT BUILDING WITH GUTTER

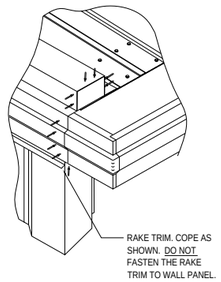
RAKE TRIM PART NUMBERS
• RTS_121 X 10'-1"
• RTS_242 X 20'-2"

ALL PARTS MUST BE POSITIONED PROPERLY BEFORE TOUCHING THE MASTIC TO THE ROOF PANEL. MASTIC CANNOT BE REUSED.

ALIGN THE END OF THE RAKE TRIM WITH THE END OF THE ROOF PANEL. THIS WILL LAP ONTO THE GUTTER END CAP.

ALWAYS START THE RAKE TRIM INSTALLATION AT THE LOW EAVE WORKING TOWARD THE HIGH EAVE OR RIDGE. INSTALL RAKE TRIM ACCORDING RAKE TRIM DETAIL

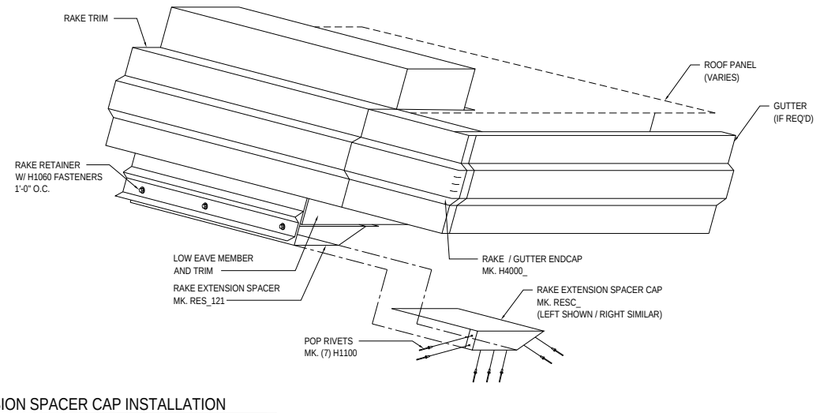
COPE THE BOTTOM VERTICAL LEG OF THE RAKE TRIM FLUSH WITH THE OUTSIDE EDGE OF THE WALL CORNER TRIM. FASTEN THE RAKE TRIM TO THE END CAPS USING POP RIVETS (H1100)



SCULPTURED RAKE TO ON SLOPE GUTTER

DETAIL SHOWN WITH WALL PANEL AND CORNER TRIM. MASONRY AND INSULATED WALL PANEL CONDITIONS SIMILAR.

ED7001



RAKE EXTENSION SPACER CAP INSTALLATION

ED7002

MBMA MEMBER
IAS ACCREDITED MFG. #140
CWD CERTIFIED C16.W41.1
CERTIFIED CASE
SSEA

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:09pm

JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
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SHEET SD8

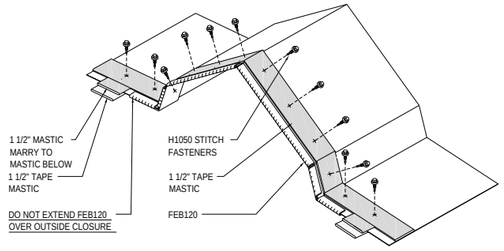
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

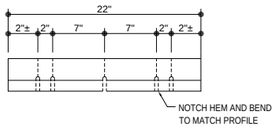
9/30/26

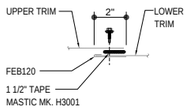
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

RIDGE CAP LAP & FLASHING BACKER

SLIDE FIELD CUT SECTION FLASHING ENDLAP BACKER ONTO THE LOWER TRIM PIECE. PLACE TAPE MASTIC NEXT TO HEM OF THE BACKER (NOT ON TOP OF HEM). MARRY LAP MASTIC WITH MASTIC BETWEEN RIDGE CAP AND OUTSIDE CLOSURES.



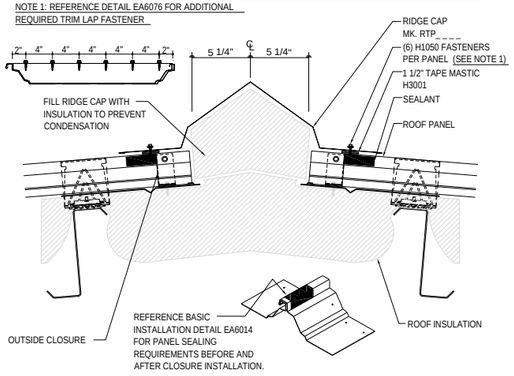




FLASHING ENDLAP BACKER

FIELD CUT FROM STANDARD FEB120

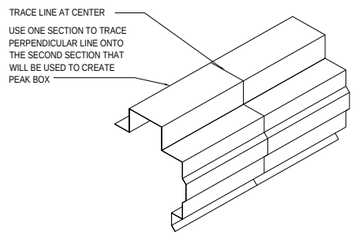
NOTE 1: REFERENCE DETAIL EA6076 FOR ADDITIONAL REQUIRED TRIM LAP FASTENER



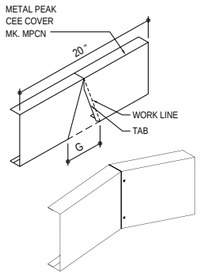
RIDGE TRIM DETAIL

RIDGE TRIM DETAIL

EG6010



PEAK BOX LAYOUT
RAKE TRIM

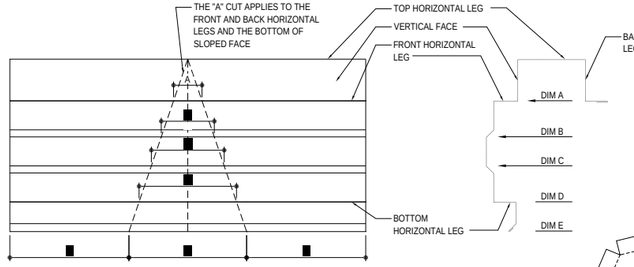


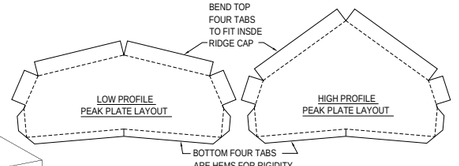
FIELD FAB COVER LAYOUT
FOR BRAND DECAL

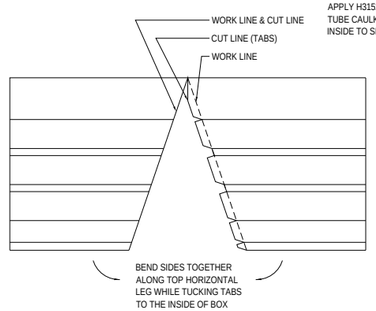
ROOF SLOPE	LAYOUT DIMENSION (INCHES)						
	A	B	C	D	E	F	G
0.25:12	1/8	1/4	5/16	7/16	1/2	11 3/4	5/16
0.50:12	1/4	7/16	5/8	13/16	1	11 1/2	5/8
1:12	1/2	7/8	1 1/4	1 5/8	2	11	1 3/16
2:12	15/16	1 13/16	2 7/16	3 5/16	3 15/16	10	2 3/8
3:12	1 7/16	2 11/16	3 11/16	4 15/16	6	9	3 9/16
4:12	1 7/8	3 5/8	4 7/8	6 5/8	7 7/8	8 1/16	4 3/4
5:12	2 3/8	4 1/2	6 1/8	8 1/4	9 7/8	7 1/16	5 15/16
6:12	2 7/8	5 3/8	7 3/8	9 7/8	11 7/8	6 1/16	7 1/8
7:12	3 3/8	6 1/4	8 5/8	11 1/2	13 7/8	5 1/16	8 5/16
8:12	3 7/8	7 /18	9 7/8	13 1/8	15 7/8	4 1/16	9 1/2
9:12	4 5/16	8 1/16	11 1/8	14 7/8	17 7/8	3 1/8	10 11/16
10:12	4 3/4	9	12 1/4	16 1/2	19 3/4	2 1/8	11 7/8
11:12	5 1/4	9 7/8	13 1/2	18 1/8	21 3/4	7 1/8	13 1/16
12:12	5 3/4	10 3/4	14 3/4	19 3/4	23 3/4	6 1/8	14 1/4

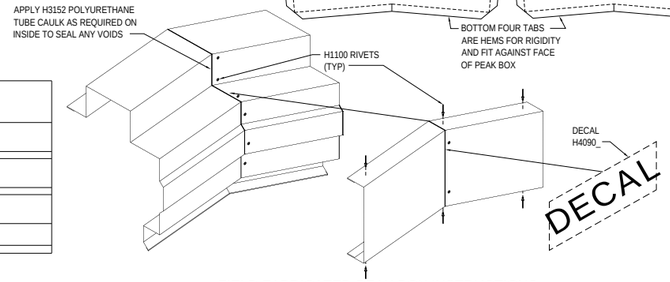
STEP BY STEP INSTRUCTIONS

1. CREATE FIELD FAB PEAK BOX FROM SUPPLIED RAKE TRIM (RTS_121)
   - 1.1. CUT RAKE TRIM INTO (2) 2'-0" ± LENGTHS
     - 1.1.1. (2) 3'-0" ± LENGTHS AT 11:12 SLOPE AND GREATER
   - 1.2. LAYOUT THE WORK LINES AS SHOWN
   - 1.3. OFFSET ONE OF THE WORK LINES FOR TABS LAYOUT
   - 1.4. MAKE CUTS AS SHOWN
   - 1.5. BEND AT THE TOP HORIZONTAL LEG OF THE TRIM
   - 1.6. POP RIVET THE TWO SIDES TOGETHER WITH H1100 RIVETS
   - 1.7. CAULK ANY GAPS AS REQUIRED ON INSIDE WITH H3152 POLYURETHANE TUBE CAULK
3. CREATE FIELD FAB COVER FOR BRAND DECAL
   - 3.1. CUT A 20" PIECE OF MPC_ AND CUT THE PIE SHAPE LEAVING A TAB ON SIDE TO RIVET TOGETHER.
   - 3.2. ATTACH TO PEAK BOX WITH RIVETS TOP AND BOTTOM AND APPLY DECAL
4. CREATE FIELD FAB PEAK PLATE FROM SUPPLIED FS6- FLAT STOCK. (NOT REQUIRED W/ LOC SEAM PANEL)
   - 4.1. PLACE RIDGE CAP TEMPORARILY ON PEAK BOX AND TRACE PATTERN TO TRANSFER TO FLAT STOCK. CUT OUT AS SHOWN AND BEND TABS.









FIELD FABRICATED PEAK BOX INSTRUCTIONS

REFERENCE PEAK BOX DETAIL FOR INSTALLATION

EG7001

MBMA MEMBER
IAS ACCREDITED MANUFACTURER
CWB CERTIFIED CSA W47.1
CSSB

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
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09/30/2026 12:07:10pm

JOB NUMBER	U26H0545A
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	FOR PERMITS ONLY
SHEET	SD9
DRAWING TITLE	ROOF SHEETING DETAILS

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

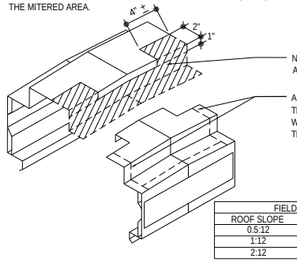
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

METAL PEAK BOX AND PEAK PLATE PREPARATION

PEAK BOX PREPARATION
STEP 1

ERECTOR NOTE:
PRIOR TO INSTALLING THE FIRST OR LAST PIECE OF RIDGE CAP, THE PEAK BOX AND PEAK PLATE NEED TO BE INSTALLED.

PEAK BOX
START BY FIELD CUTTING THE BACK LEG OF THE PEAK BOX OFF AS SHOWN BELOW. NEXT APPLY A CONTINUOUS BEAD OF POLYURETHANE TUBE CAULK (H3152) ON THE UNDERSIDE OF THE PEAK BOX WHERE IT COMES IN CONTACT WITH THE RAKE TRIMS. APPLY POLYURETHANE TUBE CAULK (H3152) TO ANY GAPS ON THE UNDERSIDE OF THE PEAK BOX IN THE MITERED AREA.



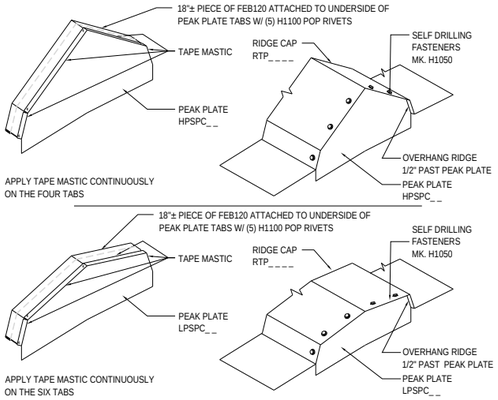
NOTCH BACK SIDE OF PEAK BOX TO ALLOW TO FIT AROUND OUTSIDE CLOSURE

APPLY A CONTINUOUS BEAD OF TUBE CAULK ON THE UNDERSIDE OF THE PEAK BOX AT ALL AREAS WHERE IT COMES IN CONTACT WITH THE RAKE TRIM.

FIELD FABRICATED PEAK BOX OR:		
ROOF SLOPE	PEAK BOX	PEAK PLATE
0.5:12	MPSN50	HPSPC50 OR LPSPC50
1:12	MPSN01	HPSPC01 OR LPSPC01
2:12	MPSN02	HPSPC02 OR LPSPC02

PEAK PLATE WITH RIDGE CAP PREPARATION
STEP 2

START BY ATTACHING A PIECE OF FEB120 TO THE PEAK PLATE WITH POP RIVETS AS A BACKER FOR RIDGE CAP ATTACHMENT. APPLY A CONTINUOUS STRIP OF **1 ⅛" TAPE MASTIC (H3001)** TO THE TOP OF THE FOUR TABS AND THE UNDERSIDE OF THE SLOPED TAB AS SHOWN. NEXT PLACE THE PEAK PLATE INSIDE OF THE RIDGE CAP AND FASTEN WITH (6) TRIM COLORED (H1050) FASTENERS.

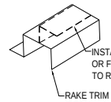


RIDGE CAP WITH METAL PEAK BOX INSTALLATION

DETAIL SHOWN WITH ROOF AND WALL PANEL. OTHER WALL SYSTEMS AND NO WALL SIMILAR.

MAR02 ATTACHMENT TO RAKE WITH POP RIVETS
STEP 3

USE A PIECE OF MAR02 OR FEB01 DROP ATTACHED TO UNDERSIDE OF THE RAKE TRIM ON BOTH SIDES OF RIDGE W/ (4) H1100 POP RIVETS. THIS WILL ACT AS BACKER TO FASTEN RIDGE CAP INTO RAKE.
AVOID PINNING PEAK BOX WITH FASTENER
KEEP RIVETS WITHIN THE COVERAGE AREA OF THE RIDGE CAP TO ENSURE WEATHER TIGHTNESS.



METAL PEAK BOX & PEAK PLATE INSTALLATION AT STANDARD RAKE TRIM
STEP 4

CENTER THE PREPARED PEAK BOX OVER THE RIDGE. ONCE CENTERED, PUSH THE PEAK BOX DOWN AND OVER THE RAKE TRIMS. MAKE SURE THE BACK LIP OF THE PEAK BOX IS BETWEEN THE OUTSIDE PANEL CLOSURE AND THE RAKE TRIM. TO ACHIEVE THIS YOU MAY NEED TO BACK OUT THE FASTENER ON THE OUTSIDE PANEL CLOSURE TAB AND THEN RE-INSTALL.FINISH INSTALLING THE RAKE RETAINER TRIM OVER THE PEAK BOX.

INSTALL CONTINUOUS 1 1/2" TAPE MASTIC (H3001) ALONG THE TOP OF THE OUTSIDE PANEL CLOSURE ON BOTH SIDES OF THE RIDGE. REMOVE THE PAPER BACKING ONLY AS WORK PROGRESSES.

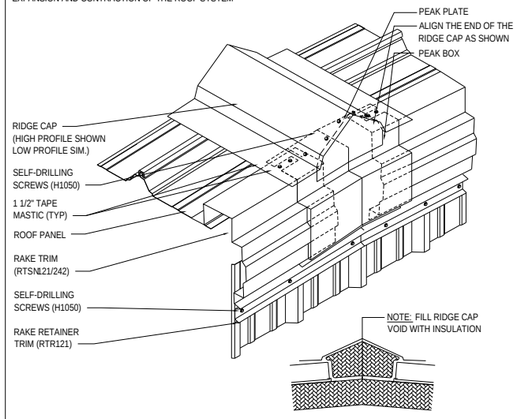
AFTER THE PEAK BOX IS IN PLACE, EXTEND THE 1 1/2" TAPE MASTIC (H3001) FROM THE OUTSIDE PANEL CLOSURE TO THE SLOPED FACE TO THE PEAK BOX. NEXT, INSTALL SHORT PIECES OF 1 1/2" TAPE MASTIC (H3001) TO THE FLAT PORTION OF THE RIDGE CAP (AS SHOWN).

CENTER THE PREPARED SECTION OF RIDGE CAP OVER THE OUTSIDE PANEL CLOSURE AND FASTEN WITH (5) RIDGE CAP COLORED SELF-DRILLING SCREWS (H1050) PER PANEL WIDTH. (2" FROM EACH RIB AND 5" O/C IN BETWEEN). BE SURE THAT THE EDGE OF THE RIDGE CAP IS EXTENDED BEYOND THE SLOPED FACE OF THE RAKE TRIM AND PEAK BOX BY 1/2"+/- TO CREATE A RAIN HOOD AND PROTECTION FOR THE SEALANT.

START THE RIDGE CAP FLUSH WITH THE SLOPED EDGE OF THE RAKE TRIM AS SHOWN IN THE DETAIL BELOW.

RIDGE CAP MUST BE PROPERLY POSITIONED BEFORE TOUCHING THE MASTIC. MASTIC CANNOT BE REUSED.

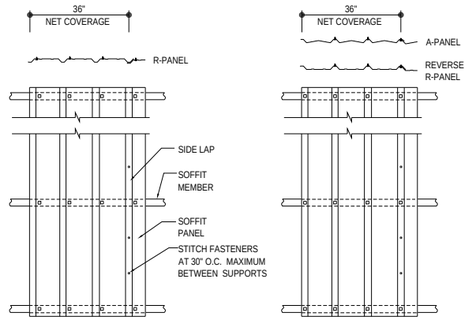
DO NOT PLACE ANY FASTENERS IN THE PEAK BOX . DOING SO WILL NOT ALLOW THE RAKE TRIM TO "FLOAT" WITH THE EXPANSION AND CONTRACTION OF THE ROOF SYSTEM



EG7632

• H1060 STITCH FASTENER
▫ H1040 STRUCTURAL FASTENER

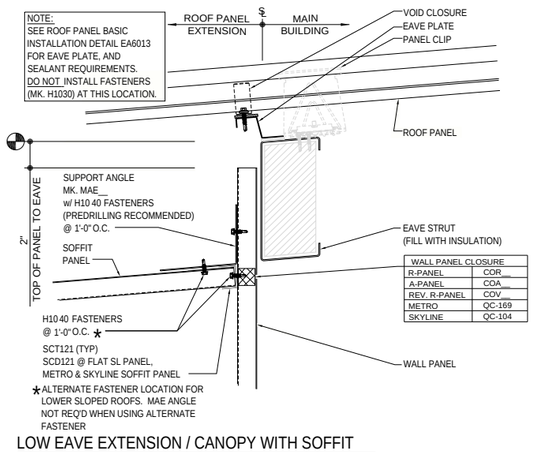
ERECTOR NOTE:
ERECTION OF THE SOFFIT PANEL MUST BE COORDINATED PROPERLY WITH THE SOFFIT TRIM CONDITIONS AS SHOWN IN THE ERECTION DETAILS. PLACEMENT AND ORIENTATION OF THE SOFFIT PANEL MAY VARY BY CONDITION AND SUPPORT MEMBERS MAY ALSO VARY. USE THIS FASTENING PATTERN UNLESS TRIM SECTION SHOWS A SPECIFIC PATTERN.



SOFFIT PANEL ERECTION DETAIL

EO6005

NOTE:
SEE ROOF PANEL BASIC INSTALLATION DETAIL EA6013 FOR EAVE PLATE, AND SEALANT REQUIREMENTS. DO NOT INSTALL FASTENERS (MK. H1030) AT THIS LOCATION.



WALL PANEL CLOSURE	
R-PANEL	COR__
A-PANEL	COA__
REV. R-PANEL	COV__
METRO	QC-169
SKYLINE	QC-104

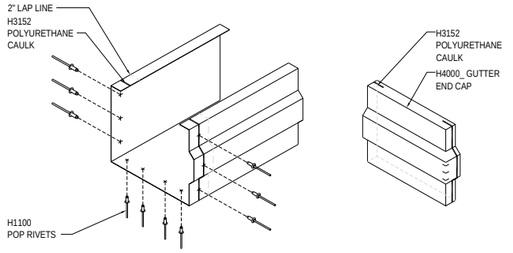
LOW EAVE EXTENSION / CANOPY WITH SOFFIT

LOW EAVE WITH OR WITHOUT GUTTER CONTINUATION AT RAKE EXTENSION
SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

EO6710

GUTTER LAP & END CAP

APPLY BEAD OF POLYURETHANE CAULK 1" FROM END OF TRIM AND LAP SECTIONS 2" AND FASTEN AS SHOWN. TO TERMINATE THE GUTTER APPLY POLYURETHANE CAULK TO THREE SIDES OF END CAP AND TOP RETURN AREA AS SHOWN AND INSERT 1/2" INTO END OF GUTTER. ATTACH WITH RIVETS SAME AS END LAP.

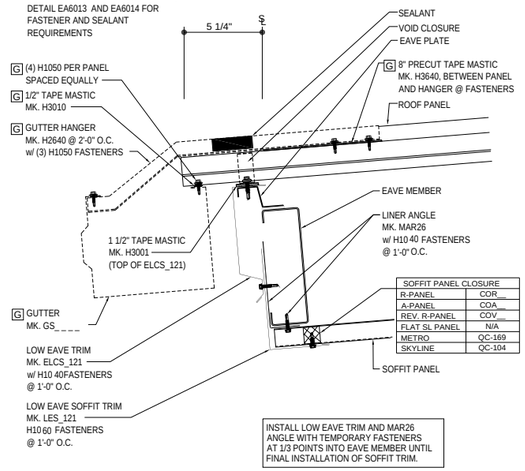


NOTE 1: PANEL RIB MUST BE HAND CRIMPED PRIOR TO INSTALLING GUTTER BRACKET!

GUTTER SHOWN IF REQ'D
G REQ'D ONLY FOR GUTTER

NOTE:
SEQUENCING LOW EAVE TRIM WITH WALL PANELS / OTHER TRIMS WILL BE REQUIRED.

NOTE:
SEE ROOF PANEL BASIC INSTALLATION DETAIL EA6013 AND EA6014 FOR FASTENER AND SEALANT REQUIREMENTS



SOFFIT PANEL CLOSURE	
R-PANEL	COR__
A-PANEL	COA__
REV. R-PANEL	COV__
FLAT SL PANEL	N/A
METRO	QC-169
SKYLINE	QC-104

INSTALL LOW EAVE TRIM AND MAR26 ANGLE WITH TEMPORARY FASTENERS AT 1/3 POINTS INTO EAVE MEMBER UNTIL FINAL INSTALLATION OF SOFFIT TRIM.

LOW EAVE EXTENSION / CANOPY WITH SOFFIT

LOW EAVE WITH OR WITHOUT GUTTER CONTINUATION AT RAKE EXTENSION
SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

EO6700

MBMA MEMBER
IAS ACCREDITED AC472 (R10)
CERTIFIED CSA W47.1
CSSB
NUCOR BUILDING SYSTEMS
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09/30/2026 12:07:12pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE ROOF SHEETING DETAILS
SHEET SD10

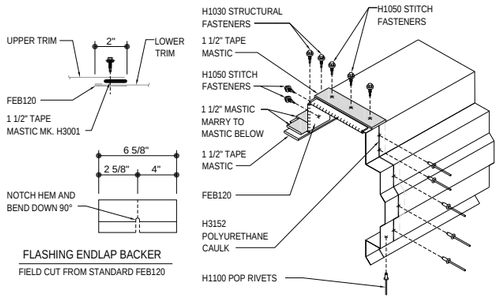
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0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

RAKE LAP & FLASHING BACKER

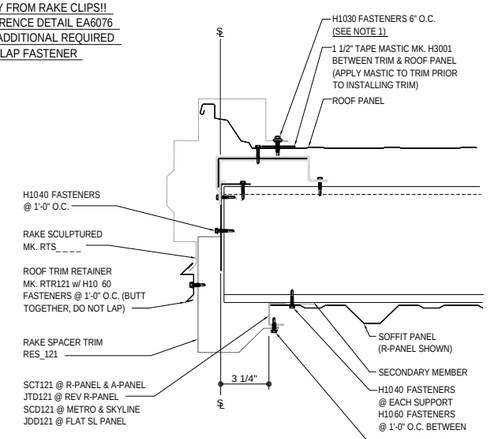
SLIDE FIELD CUT SECTION OF FLASHING ENDLAP BACKER ONTO THE LOWER TRIM PIECE AS SHOWN BELOW. PLACE TAPE MASTIC NEXT TO HEM OF THE BACKER (NOT ON TOP OF HEM). APPLY CONTINUOUS BEAD OF CAULK 1" FROM END OF TRIM DOWN PROFILE OF TRIM. FASTEN LAP WITH STITCH FASTENERS AND POP RIVETS AS SHOWN. ROOF STRUCTURAL FASTENERS SHOULD BE USED TO FASTEN THROUGH PANEL FLAT INTO RAKE ANGLE.



FLASHING ENDLAP BACKER

FIELD CUT FROM STANDARD FEB120

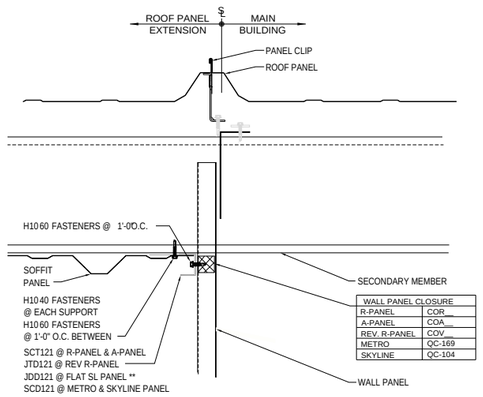
NOTE 1: KEEP FASTENERS 2 1/2" AWAY FROM RAKE CLIPS!! REFERENCE DETAIL EA6076 FOR ADDITIONAL REQUIRED TRIM LAP FASTENER



RAKE TERMINATION AT EXTENSION / CANOPY WITH SOFFIT

SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

EO6800



RAKE EXTENSION TRIM AT ENDWALL WITH SOFFIT

SEE WALL SHEETING ERECTION NOTES FOR WALL PANEL FASTENER LOCATIONS

EO6810

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:14pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE ROOF SHEETING DETAILS

SHEET SD11

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

BUILDING & PANEL PREPARATION

STEP 1: PLUMB AND SQUARE
THE FIRST STEP IN THE SUCCESSFUL INSTALLATION OF WALL PANELS IS TO HAVE THE PRIMARY FRAMING PLUMB AND SQUARE. FOR BEST RESULTS, IT IS RECOMMENDED THAT A TRANSIT BE USED WHEN ERECTING THE STRUCTURAL STEEL. MAKE SURE THAT THE FOUNDATION AND BUILDING STRUCTURE IS SQUARE, LEVEL, AND CORRECT TO THE OUT-TO-OUT STEEL LINE DIMENSIONS.
SEE FIGURE "A"

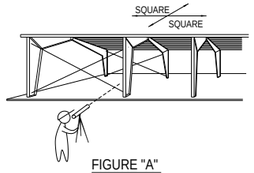


FIGURE "A"

STEP 2: GIRT BLOCKING
BLOCK GIRTS TO "LEVEL" POSITION BEFORE STARTING THE WALL SHEETING OR INSULATION. CHECK TO BE SURE THAT THE EAVE STRUT AND GIRTS ARE STRAIGHT AND PLUMB. TO ALIGN THE GIRTS, CUT TEMPORARY WOOD BLOCKING TO THE PROPER LENGTH AND INSTALL BETWEEN THE LINES OF GIRTS. THIS BLOCKING CAN BE MOVED FROM BAY TO BAY WHICH WILL REDUCE THE NUMBER OF PIECES REQUIRED. NORMALLY, ONE LINE OF BLOCKING PER BAY WILL BE SUFFICIENT BUT WIDER BAYS MAY REQUIRE MORE. IT IS RECOMMENDED TO BLOCK AT LEAST TWO BAYS AND LEAP FROG THE BLOCKING AS A BAY IS SHEETED. BLOCKING SHOULD NOT BE REMOVED UNTIL THE FULL BAY HAS BEEN SHEETED.
SEE FIGURE "B"

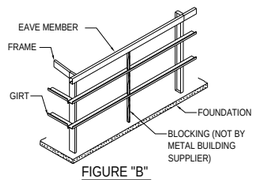


FIGURE "B"

STEP 3: PRE-DRILL PANEL LAP
STACK PANELS WITH ENDS FLUSH ON A LEVEL PLACE ON THE GROUND IN PILES NOT EXCEEDING 10 PANELS. THEN PLACE SMALL WOODEN BLOCKS UNDER SIDE-LAPPING EDGE OF STACK OF PANELS TO HOLD THEM AT CORRECT HEIGHT AND POSITION WHILE DRILLING FASTENER HOLES. HOLD PANELS TIGHTLY TOGETHER AT EACH END WITH CLAMPING PLIERS. CAREFULLY MARK POSITIONS FOR SIDE-LAP FASTENERS ON TOP OF HIGH RIB. FASTENERS SHOULD BE LOCATED "ON CENTER" OF HIGH RIB. DRILL HOLES FOR "STITCH" FASTENER (USE #1,-7/32" - 15/64" DRILL-BIT) ON TOP SHEET OF SIDE-LAP. BE SURE PANELS ARE WELL NESTED BEFORE DRILLING.
SEE FIGURE "C"

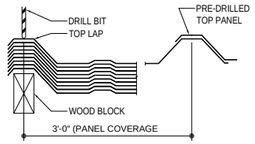


FIGURE "C"

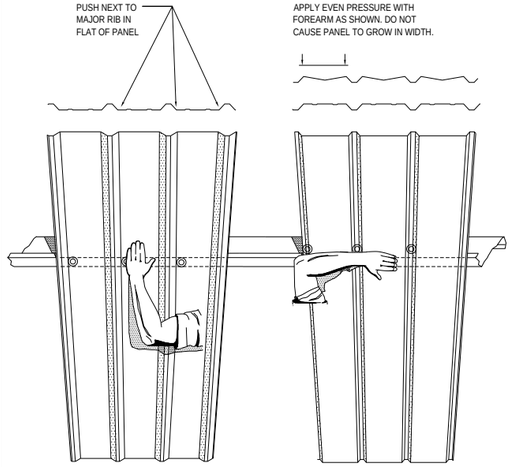
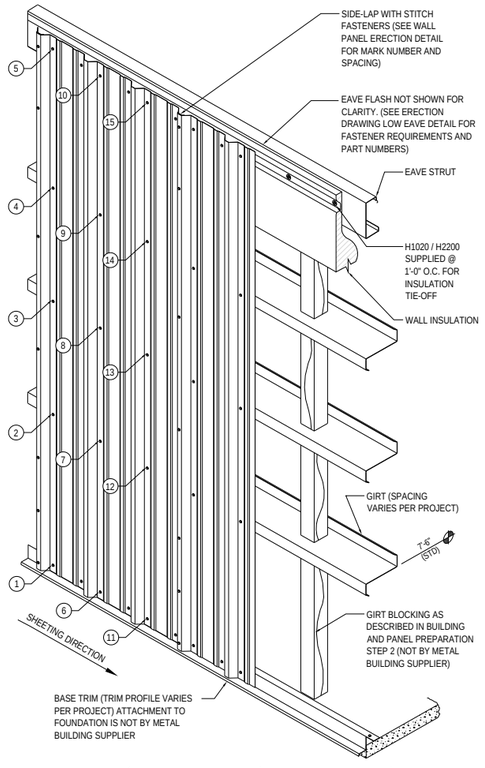


FIGURE "E"



NOTE: BASE TRIM PROFILES ARE MANUFACTURED WITH A 5°D SLOPE TO PROMOTE WATER SHED. ENSURE SLOPE IS PRESENT TO PREVENT HOLDING WATER. DO NOT ALLOW WEIGHT OF PANEL TO OVER BEND TRIM CREATING LARGER GAP AT RIB OF PANEL.

FIGURE "D"

CONTRACT SELECTION: ALL CONDITIONS, IF APPLICABLE

- ☒ BLDG. RAKE PARAPET: CLOSURES ALWAYS PROVIDED - STRAIGHT CLOSURES UP TO 1 1/2:12. BEVELED CLOSURES UP 9:12.
- ☒ BLDG. HIGH EAVE PARAPET: CLOSURES ALWAYS PROVIDED - STRAIGHT CLOSURES.
- ☒ BLDG. PARAPET GUTTER: CLOSURES ALWAYS PROVIDED - STRAIGHT CLOSURES.
- ☒ EAVE/RAKE EXTENSION WITH SOFFIT PANEL: CLOSURES ALWAYS PROVIDED.
- ☒ TRANSLUCENT WALL PANEL: CLOSURES ALWAYS PROVIDED.
- ☒ INSET/RECESSED WALLS: CLOSURES ALWAYS PROVIDED.
- ☒ BOXED CANOPIES: CLOSURES ALWAYS PROVIDED.
- ☒ CLOSED FASCIA'S: CLOSURES ALWAYS PROVIDED.
- ☒ BLDG. SCULPTURED RAKE TRIM: - STRAIGHT CLOSURES PROVIDED UP TO 1 1/2:12. BEVELED CLOSURES UP 9:12.
- ☒ BLDG. HIGH EAVE SCULPTURED TRIM: - STRAIGHT CLOSURES PROVIDED.
- ☒ BLDG. LOW EAVE BASIC / ON-SLOPE GUTTER / HORIZ GUTTER: - STRAIGHT CLOSURES PROVIDED.
- ☒ BLDG. BASE TRIM: STRAIGHT CLOSURES PROVIDED.
- ☒ BLDG. FRAMED OPENING HEAD TRIM / SILL TRIM: - STRAIGHT CLOSURES PROVIDED.
- ☒ BLDG. WAINSCOT TRANSITION: - STRAIGHT CLOSURES PROVIDED.

WALL PANEL CLOSURE REQUIREMENTS

SEE SPECIFIC DETAILS & WALL PANEL ELEVATIONS FOR PART MARKS & CLOSURE LOCATIONS

GA0005

FIELD CUTTING PANELS

WHEN FIELD CUTTING OR MITERING WALL PANELS, NON-ABRASIVE CUTTING TOOLS SUCH AS NIBBLERS OR TIN-SNIPS SHALL BE USED. ABRASIVE CUTTING TOOLS SUCH AS MECHANICAL GRINDERS OR POWER SAWS CAN DAMAGE THE MATERIAL FINISH AND CREATE EXCESS METAL SHAVINGS THAT CAN CORRODE THE PANELS. THE USE OF NON-APPROVED CUTTING DEVICES MAY VOID THE FACTORY WARRANTY.

ANY METAL SHAVINGS THAT ARE CREATED NEED TO BE CLEANED FROM THE PANEL TO PREVENT SCRATCHING AND/OR CORROSION. THE MANUFACTURER WILL NOT ACCEPT CLAIMS FOR DAMAGE/DETERIORATION DUE TO USE OF UNAPPROVED TOOLS.

FASTENER INSTALLATION

RECOMMENDED TOOL TYPES: SEE ALSO FASTENER SCHEDULE
4 AMP OR HIGHER RATED TOOLS (DO NOT USE IMPACTING TOOLS)
2000 - 2500 RPM SCREW GUN WITH TORQUE ADJUSTABLE CLUTCH
MANUAL OR ELECTRIC RIVET TOOL

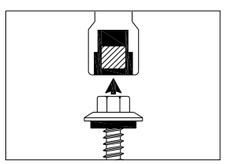
DO NOT USE IMPACTING TOOLS
TO ASSURE PROPER VOLTAGE TO THE TOOL, EXTENSION CORDS SHOULD BE CHECKED FOR PROPER WIRE SIZE/CHORD LENGTH:
- 16 GAGE WIRE, MAXIMUM CHORD LENGTH = 100'
- 14 GAGE WIRE, MAXIMUM CHORD LENGTH = 200'
- 12 GAGE WIRE, MAXIMUM CHORD LENGTH = 300'

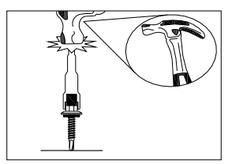
DRIVING TIPS:
SET THE NUT DRIVER AS DESCRIBED BELOW PRIOR TO INSTALLING FASTENERS TO PREVENT FASTENER WOBBLE...

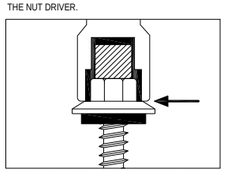
COMPRESS THE INSULATION AT FASTENER LOCATION WITH ONE HAND WHILE DRIVING THE FASTENER WITH THE OTHER. THIS WILL HELP KEEP THE PANEL FLAT AND PREVENT THE FASTENER FROM "WALKING". DRIVE FASTENERS PERPENDICULAR TO PANEL SURFACE.

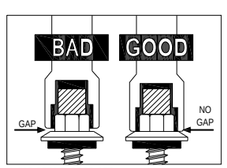
EXCESSIVE PRESSURE CAN CAUSE DRILL POINT FAILURE. LET THE FASTENER DO THE WORK.

DO NOT OVER TIGHTEN FASTENERS AS THIS WILL LEAD TO PANEL DIMPLING AND DISTORTION.


1. PUT THE TOP OF THE FASTENER INTO THE NUT DRIVER. NOTE: FOR PAINTED FASTENERS, PLACE A SINGLE OR DOUBLED LAYER OF PLASTIC BETWEEN THE FASTENER HEAD AND THE NUT DRIVER.


2. PLACE THE POINT OF THE FASTENER ONTO A HARD SURFACE AND FIRMLY HIT THE TOP OF THE NUT DRIVER 2-3 TIMES.


3. THE BASE OF THE NUT DRIVER SHOULD NOW BE CONTACTING THE TOP OF THE HEAD OF THE FASTENER WITH NO GAPS.



4. BAD SET VS. GOOD SET.

PANEL INSTALLATION & FASTENER SEQUENCE

STEP 1: INSTALL FIRST PANEL
INSTALL THE FIRST WALL PANEL AT THE BUILDING CORNER AND ALIGN THE PANEL RIB WITH THE STEEL LINE AS SHOWN IN THE CORNER DETAILS USING THE START/FINISH DIMENSION SHOWN ON THE PLAN. IT IS EXTREMELY IMPORTANT THAT THE FIRST WALL PANEL IS INSTALLED PLUMB AND SQUARE. USE A LEVEL OR A TRANSIT TO AID IN THIS PROCESS.

PLACE A 1/8" SHIM ON THE BASE TRIM UNDER THE PANEL TO HOLD THE PANEL OFF THE BASE TRIM. ENSURE THAT THE WEIGHT OF THE PANEL DOES NOT FORCE BASE TRIM TO EXCESSIVELY BEND DOWN. BASE TRIM SHOULD HAVE A SLIGHT SLOPE TO ALLOW WATER TO RUN OUT AND NOT SIT ON BASE TRIM.
SEE FIGURE "D" - TO RIGHT

WHEN INSTALLING THE PANEL, APPLY PRESSURE EVENLY TO AVOID DISTORTING THE PANEL AND CAUSING OIL CANNING.
SEE FIGURE "E" - ABOVE

RECOMMENDED PANEL FASTENING SEQUENCE IS SHOWN TO THE RIGHT. THIS PATTERN AIDS IN PLUMBING AS WELL AS MAINTAINING PANEL COVERAGE / MODULARITY. SOME APPLICATIONS MAY REQUIRE MODIFIED SEQUENCE AND WILL BE BEST DETERMINED IN THE FIELD. DO NOT ATTACH PANEL AT BASE AND TOP AND WORK TOWARD THE MIDDLE OF THE PANEL. THIS CREATES OIL CANNING. MANUFACTURER IS NOT RESPONSIBLE FOR FINAL APPEARANCE OF INSTALLED PANEL.

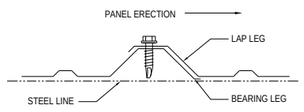
STEP 2: INSTALL SUBSEQUENT PANELS
INSTALL THE SECOND PANEL BY LAYING THE LAP EDGE OVER THE BEARING RIB OF THE FIRST PANEL. SEE BELOW FOR PROPER ALIGNMENT AT SIDE-LAP. CHECK PANEL PLUMBNESS AND FASTEN PANEL IN THE SAME SEQUENCE STARTING WITH THE STRUCTURAL FASTENERS ALONG THE LAP TO ENSURE A TIGHT SIDE-LAP. CONTINUE FOR THE REMAINDER OF THE WALL, CUTTING PANELS AROUND FRAMED OPENINGS AS REQUIRED. (TRIM SHOULD BE INSTALLED AROUND OPENINGS PRIOR TO INSTALLING PANEL)

RECOMMENDED TIPS:
WALL PANELS CAN BE INSTALLED LEFT TO RIGHT OR RIGHT TO LEFT. IT IS RECOMMENDED TO INSTALL SHEETS STARTING OPPOSITE THE PREVAILING VIEW / WIND SO THAT THE SIDE-LAP SEAM IS AWAY AND LESS NOTICEABLE.

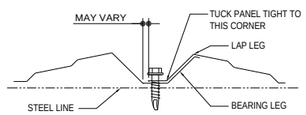
PANEL ORIENTATION AND ALIGNMENT

NOTE THE ORIENTATION OF THE PROFILE AND BEARING LEG FOR THE LEADING EDGE OF THE PANEL. PANELS SHOULD BE INSTALLED AS SHOWN BELOW TO HELP MAINTAIN PANEL MODULARITY / COVERAGE FOR THE LENGTH OF THE WALL.

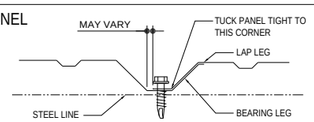
R-PANEL



A-PANEL



REVERSE R-PANEL



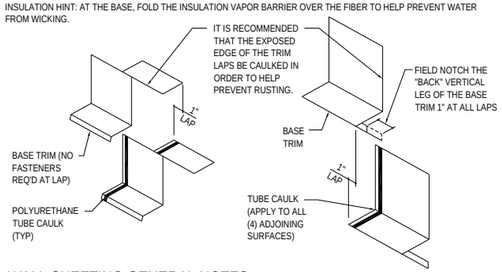
BASE TRIM LAP SEALANT

AT BASE TRIM LAPS, APPLY A BEAD OF POLYURETHANE TUBE CAULK (H3152) TO ALL ADJOINING SURFACES AND LAP 1". SEE BASE TRIM DETAIL FOR THE SPECIFIC TRIM FOR YOUR PROJECT.

IF JOB HAS OPTIONAL FOAM PANEL CLOSURES ORDERED AT BASE, ATTACH TO INSIDE OF WALL PANEL AT BASE AND FASTEN THROUGH PANEL AND CLOSURE, INTO BASE TRIM. FASTENING PATTERN WILL VARY PER WALL PANEL TYPE. REFER TO THE WALL PANEL ERECTION DETAIL FOR MORE FASTENING INFO.

USE SUPPLIED BASE CORNER PIECES OR FIELD MITER BASE TRIM AT CORNERS.

INSULATION HINT: AT THE BASE, FOLD THE INSULATION VAPOR BARRIER OVER THE FIBER TO HELP PREVENT WATER FROM WICKING.



WALL SHEETING GENERAL NOTES

GA0000

MBMA MEMBER | IAS ACCREDITED AC472 (E10) | CWS CERTIFIED CSA W47.1 | CSSB

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:15pm

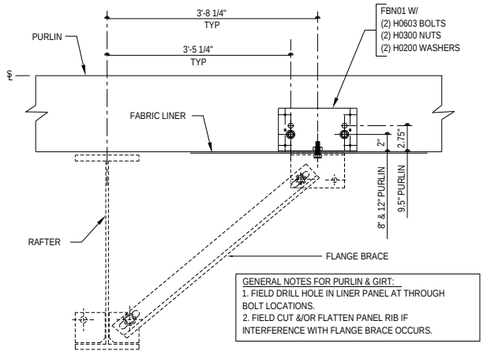
JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE WALL SHEETING DETAILS
SHEET SD12

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

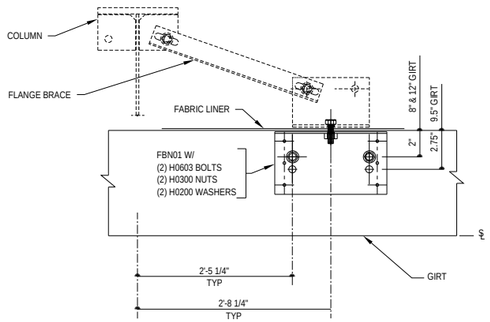
RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

ERECTOR NOTE: INSTALL FLANGE BRACE CLIP FBN01 PRIOR TO INSTALLING FABRIC LINER



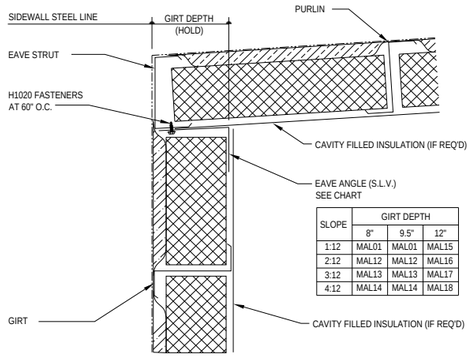
FLANGE BRACE AT RAFTER & PURLIN

SEE FLANGE BRACE DETAILS AG____ FOR ADDITIONAL INFORMATION



FLANGE BRACE AT COLUMN & GIRT

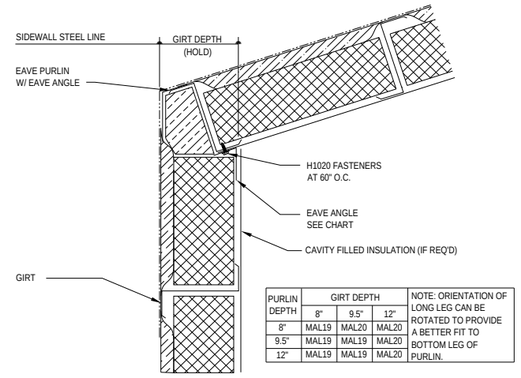
SEE FLANGE BRACE DETAILS AG____ FOR ADDITIONAL INFORMATION



SLOPE	GIRT DEPTH		
	8"	9.5"	12"
1:12	MAL01	MAL01	MAL15
2:12	MAL12	MAL12	MAL16
3:12	MAL13	MAL13	MAL17
4:12	MAL14	MAL14	MAL18

LOW EAVE INSULATION ANGLE AT EAVE STRUT

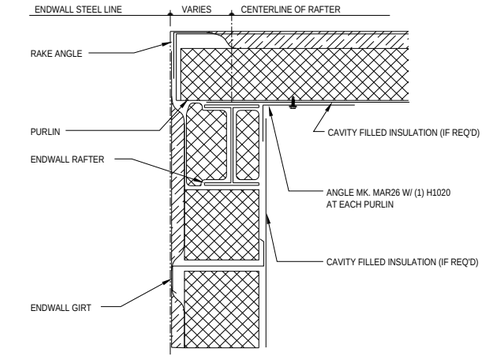
(FOR SLOPES >1:12 & <= 4:12)



PURLIN DEPTH	GIRT DEPTH			NOTE: ORIENTATION OF LONG LEG CAN BE ROTATED TO PROVIDE A BETTER FIT TO BOTTOM LEG OF PURLIN.
	8"	9.5"	12"	
8"	MAL19	MAL20	MAL20	
9.5"	MAL19	MAL19	MAL20	
12"	MAL19	MAL19	MAL20	

LOW EAVE INSULATION ANGLE AT REVERSE PURLIN

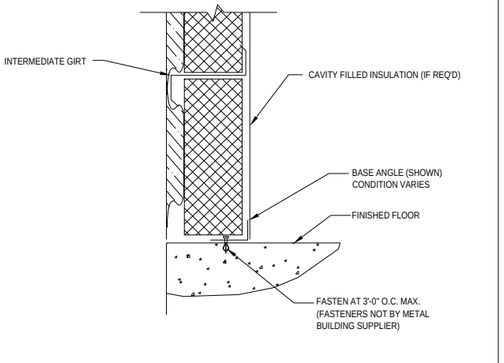
(FOR SLOPES 5:12)



PURLIN DEPTH	GIRT DEPTH			NOTE: ORIENTATION OF LONG LEG CAN BE ROTATED TO PROVIDE A BETTER FIT TO BOTTOM LEG OF PURLIN.
	8"	9.5"	12"	
8"	MAL21	MAL22	MAL22	
9.5"	MAL21	MAL21	MAL22	
12"	MAL21	MAL21	MAL22	

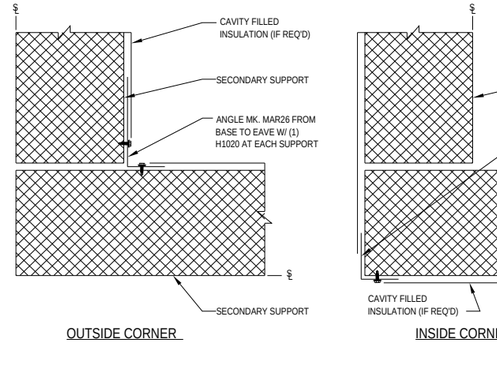
LOW EAVE INSULATION ANGLE AT REV. PURLIN

(FOR SLOPES 6:12 ONLY)

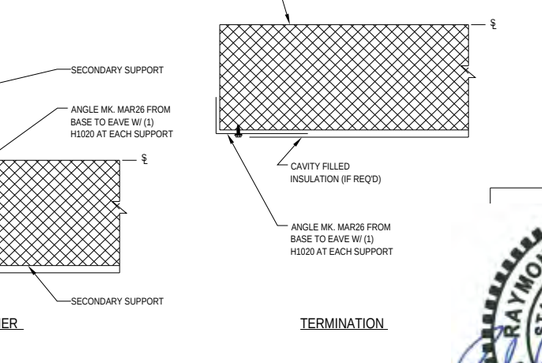


GIRT DEPTH	ROOF SLOPE	EAVE ANGLE
8", 9.5"	1:12	MAF01
8", 9.5"	2:12	MAF02
8", 9.5"	3:12	MAF03
8", 9.5"	4:12	MAF04
12"	1:12	MAJ81
12"	2:12	MAJ82
12"	3:12	MAJ83
12"	4:12	MAJ84

HIGH EAVE INSULATION ANGLE AT EAVE STRUT



HIGH EAVE INSULATION ANGLE AT GIRT/CHANNEL



INSULATION ANGLE AT RAKE DETAIL

INSULATION ANGLE AT RAKE DETAIL

INSULATION ANGLE AT BASE

OUTSIDE CORNER

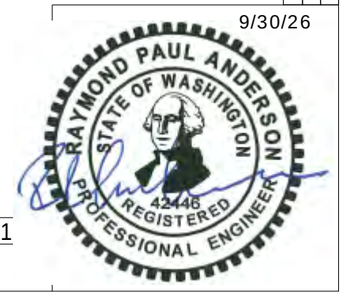
INSIDE CORNER

TERMINATION

INSULATION ANGLE AT WALL CORNERS

GA001

9/30/26



MBMA MEMBER

IAS ACCREDITED MANUFACTURER

CERTIFIED CSA W47.1

NUCOR BUILDING SYSTEMS

PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:16pm

JOB NUMBER **U26H0545A**

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

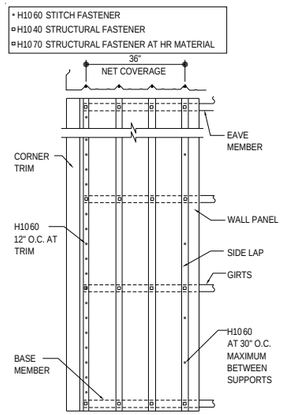
BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS FOR PERMITS ONLY

DRAWING TITLE WALL SHEETING DETAILS

SHEET SD13

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

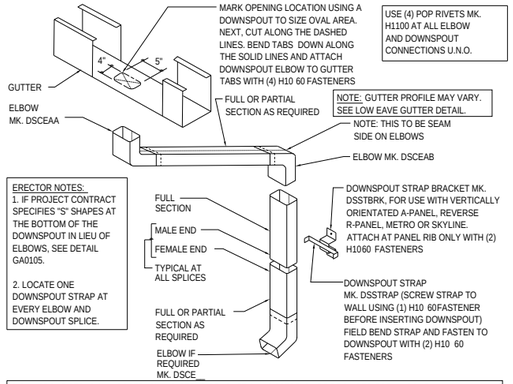


1. BLOCK GIRTS TO "LEVEL" POSITION BEFORE STARTING PANEL ERECTION. MAINTAIN WOOD BLOCKING (NOT BY METAL BUILDING SUPPLIER) UNTIL PANEL TO STRUCTURAL FASTENERS ARE INSTALLED.
2. ALIGN AND PLUMB FIRST WALL PANEL.
3. TO PREVENT "OIL-CANNING", ALL PANEL FASTENERS SHOULD START FROM BASE MEMBER AND THEN BE SECURED TO EACH STRUCTURAL GIRT TOWARD THE EAVE.
4. FOUNDATION MUST BE SQUARE, LEVEL, AND CORRECT TO THE OUT-TO-OUT STEEL LINE DIMENSIONS.
5. ERECTION CREW IS TO CLEAN ALL WALL PANELS BEFORE LEAVING JOB SITE.
6. ERECTOR IS TO ERECT PANELS SO THAT SIDELAPS ARE AWAY FROM THE MAIN TRAFFIC AREA'S LINE OF SIGHT.
7. STORE PANELS PROPERLY TO PREVENT MOISTURE.
8. AT FLUSH GIRT CONDITIONS, PRE-DRILL COLUMNS (& STUBS IF REQ'D) FOR EASE OF PANEL ATTACHMENT AT THESE AREAS.
9. INSTALL BASE PANEL CLOSURES (IF JOB REQUIRES THEM). SEE BASE TRIM DETAILS.

WALL PANEL ERECTION

ERECTOR NOTE: 1/2" SIDELAP MASTIC (H3010) IS REQUIRED IN SNOWDRIFT CONDITIONS. REFER TO THE ELEVATIONS FOR LOCATION REQUIREMENTS.

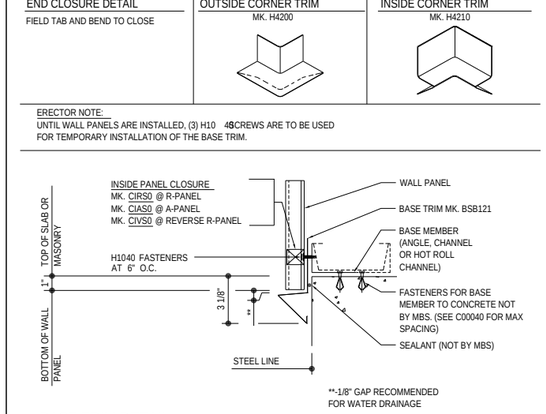
GA0030



CORRUGATED DOWNSPOUT AT OVERHANG

REFERENCE DOWNSPOUT SCHEDULE FOR DOWNSPOUT MARK NUMBERS

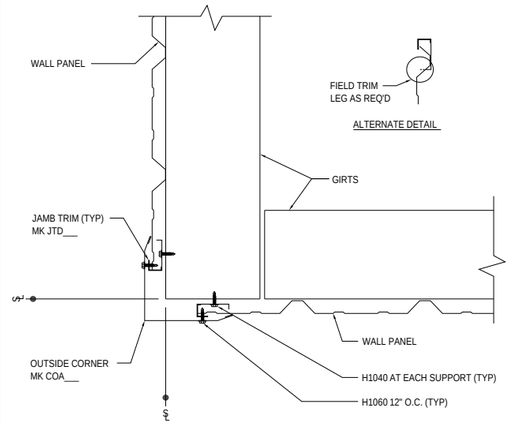
GA0170



BASE TRIM DETAIL

SEE WALL SHEETING ERECTION DETAIL FOR WALL PANEL FASTENER LOCATIONS

GB0020



ALTERNATE OUTSIDE CORNER DETAIL

FIELD CUT PANELS AS REQUIRED

GC0231

FRAMED OPENING COVER TRIM

FOR ALL STANDARD WALL PANEL TYPES
SILL SHOWN, HEAD AND JAMBS SIMILAR

GD0005

STEP 1 - INSTALL HEAD TRIM
INSTALL HEAD TRIM PRIOR TO INSTALLING WALL PANEL

STEP 2 - INSTALL JAMB TRIM
FIELD CUT WALL PANELS AS REQUIRED AFTER JAMB TRIM INSTALLATION

STEP 3 - SLIT WALL PANEL
SLIT WALL PANEL AS SHOWN PRIOR TO INSTALLING TO ALLOW PANEL TO SLIDE AROUND HEAD TRIM.

DOOR FRAMED OPENING DETAIL

FOR ALL STANDARD WALL PANEL TYPES
LEFT HAND SHOWN, RIGHT HAND SIMILAR

GD0040

MBMA MEMBER
IAS ACCREDITED
CERTIFIED CSA W47.1
CERTIFIED CSA S16
ISO 9001

NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:18pm

JOB NUMBER **U26H0545A**
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
SHEET SD14
DRAWING TITLE WALL SHEETING DETAILS

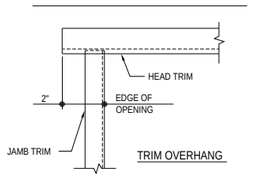
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
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1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

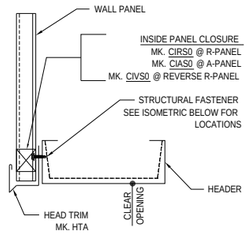


FASTENER KEY

STITCH FASTENER = H10 60
STRUCTURAL FASTENER
WITH COLD-FORM = H10 40
STRUCTURAL FASTENER
WITH HOT-ROLLED = H10 70



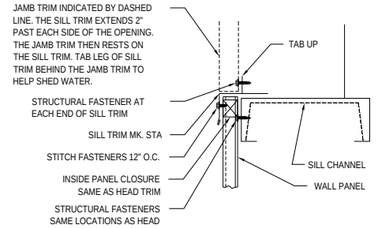
TRIM OVERHANG

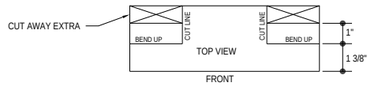


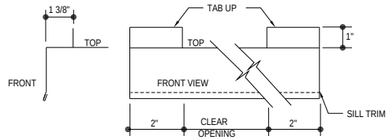
STEP 1 - INSTALL HEAD TRIM

INSTALL HEAD TRIM PRIOR TO INSTALLING WALL PANEL

JAMB TRIM INDICATED BY DASHED LINE. THE SILL TRIM EXTENDS 2" PAST EACH SIDE OF THE OPENING. THE JAMB TRIM THEN RESTS ON THE SILL TRIM. TAB LEG OF SILL TRIM BEHIND THE JAMB TRIM TO HELP SHED WATER.





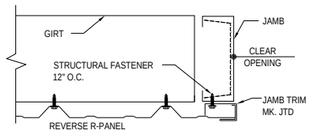


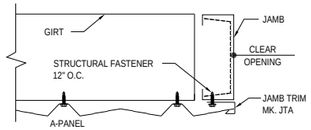
STEP 2 - SILL TRIM PREP & INSTALL

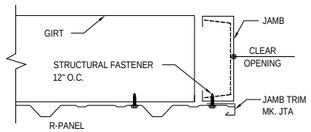
PREPARE AND INSTALL SILL TRIM PRIOR TO INSTALLING WALL PANEL

NOTE: FIELD TRIM JAMB TRIM LEG AS REQUIRED

ALTERNATE DETAIL







STEP 3 - INSTALL JAMB TRIM

FIELD CUT WALL PANELS AS REQUIRED AFTER JAMB TRIM INSTALLATION

STEP 4 - SLIT WALL PANEL

SLIT WALL PANEL AS SHOWN PRIOR TO INSTALLING TO ALLOW PANEL TO SLIDE AROUND HEAD TRIM.

WINDOW FRAMED OPENING DETAIL

FOR ALL STANDARD WALL PANEL TYPES
LEFT HAND SHOWN, RIGHT HAND SIMILAR

GD0070

MBMA MEMBER | IAS ACCREDITED AWS A4.1 | CERTIFIED CSA W47.1 | CWB | CSSB

NUCOR BUILDING SYSTEMS

PHONE: (435) 919-3100
FAX: (435) 919-3101

09/30/2026 12:07:19pm

JOB NUMBER **U26H0545A**

ADDRESS
THURSTON COUNTY
OLYMPIA, WA 98513

PROJECT NAME
NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME
ADVANCED BUILDING STRUCTURES

DRAWING STATUS
FOR PERMITS ONLY

SHEET SD15

DRAWING TITLE
WALL SHEETING DETAILS

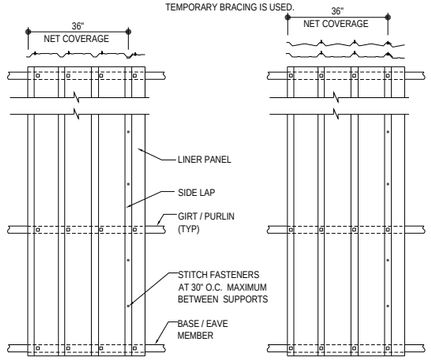
#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/2026
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/2026

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

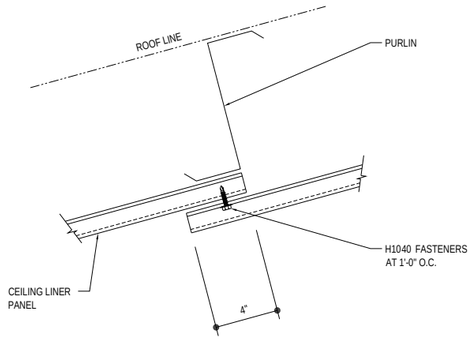
• H1060 STITCH FASTENER
○ H1040 STRUCTURAL FASTENER

ERECTOR NOTE:
ERECTION OF THE LINER PANEL MUST BE COORDINATED PROPERLY WITH THE BRACING AND BRACE STRUTS TO ENSURE THAT THE STRUCTURE IS ADEQUATELY BRACED DURING THE ERECTION PROCESS. TEMPORARY REMOVAL OF BRACING AND STRUTS IS ACCEPTABLE FOR LINER ERECTION, PROVIDED ADEQUATE TEMPORARY BRACING IS USED.



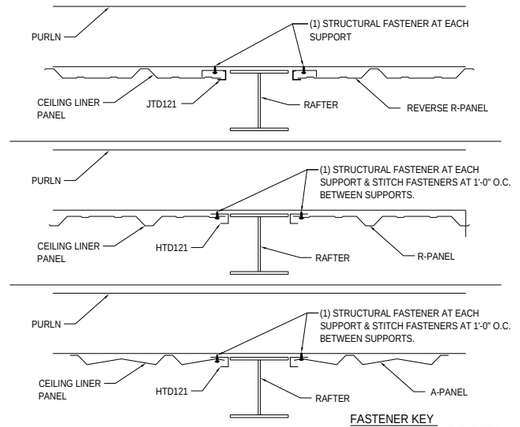
WALL & CEILING LINER ERECTION DETAIL

IA0070



CEILING LINER PANEL ENDLAP

IA0080

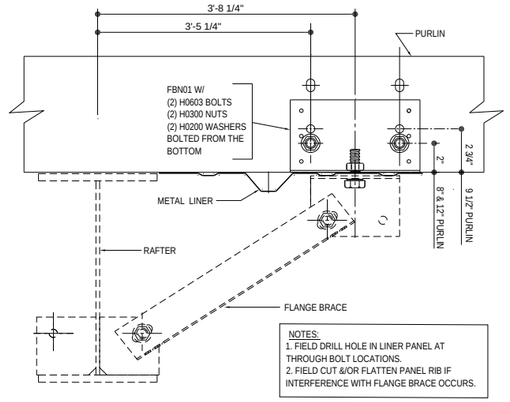


FASTENER KEY
H1040 - STRUCTURAL FASTENERS
H1060 - STITCH FASTENERS

CEILING LINER TERMINATION AT RAFTER

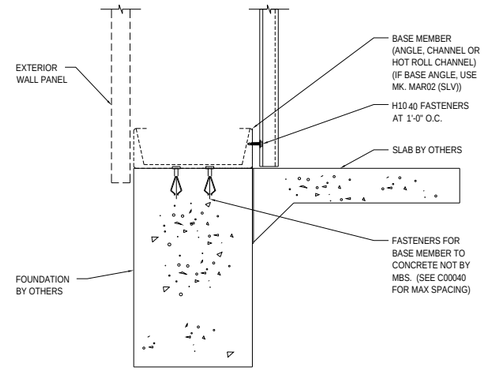
IA0100

ATTENTION!!
ERECTOR NOTE: INSTALL FLANGE BRACE CLIP FBN01 PRIOR TO INSTALLING ANY LINER



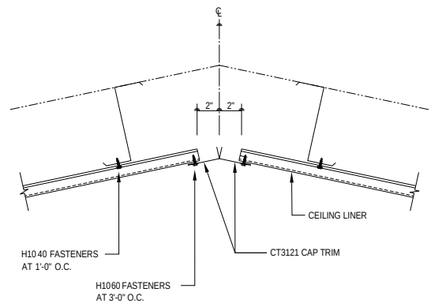
NOTES:
1. FIELD DRILL HOLE IN LINER PANEL AT THROUGH BOLT LOCATIONS.
2. FIELD CUT &/OR FLATTEN PANEL RIB IF INTERFERENCE WITH FLANGE BRACE OCCURS.

TYPICAL FLANGE BRACE@ PURLIN & RAFTER W/ LINER



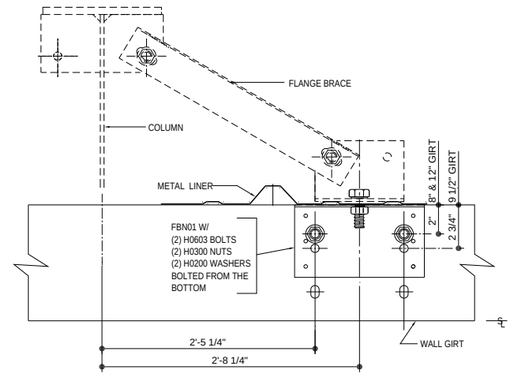
LINER BASE AT FINISH FLOOR
FOR ALL LINER PANEL TYPES

IC0010



CEILING LINER PANEL RIDGE DETAIL
CEILING LINER - SLOPES >1:12
ALL STANDARD LINER PANEL TYPES

IF0020



TYPICAL FLANGE BRACE@ GIRT & COLUMN W/ LINER

NOTES:
SEE PLANS AND ELEVATIONS FOR FLANGE BRACE PART MARKS.
SEE FLANGE BRACE DETAILS AG___ FOR ADDITIONAL INFORMATION.

IAA001

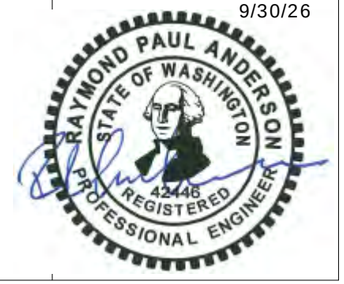
IAA001

MBMA MEMBER
IAS ACCREDITED
CERTIFIED CSA W47.1
NUCOR BUILDING SYSTEMS
PHONE: (435) 919-3100
FAX: (435) 919-3101
09/30/2026 12:07:26pm

JOB NUMBER U26H0545A
ADDRESS THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME ADVANCED BUILDING STRUCTURES
DRAWING STATUS FOR PERMITS ONLY
DRAWING TITLE LINER OR MISC SHEETING DETAILS
SHEET SD16

#	RELEASE / REVISION	DWN / CHK	ENG	DATE
0	ANCHOR RODS	WD / RA	WD	09/16/26
1	BLDG. DEPT. REVIEW R0	NSI /	WD	09/30/26

9/30/26



GENERAL NOTES

THESE GENERAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATIONS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK. THE GENERAL CONTRACTOR SHALL VERIFY AND COORDINATE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE STRUCTURE HAS BEEN DESIGNED TO RESIST CODE SPECIFIED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY; ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING, FORMWORK, BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES. PROVIDE ADEQUATE RESISTANCE TO LOADS ON THE STRUCTURES DURING CONSTRUCTION PER SEI/ASCE STANDARD NO. 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION."

CONSTRUCTION OBSERVATION BY THE STRUCTURAL ENGINEER IS FOR GENERAL CONFORMANCE WITH DESIGN ASPECTS ONLY AND IS NOT INTENDED IN ANY WAY TO REVIEW THE CONTRACTOR'S CONSTRUCTION PROCEDURES.

STANDARDS
ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2021 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION.

CONTRACT DRAWINGS / DIMENSIONS

ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. CONSULTANT DRAWINGS BY OTHER DISCIPLINES ARE SUPPLEMENTARY TO ARCHITECTURAL DRAWINGS. REPORT DIMENSIONAL OMISSIONS OR DISCREPANCIES BETWEEN ARCHITECTURAL DRAWINGS AND STRUCTURAL, MECHANICAL, ELECTRICAL OR CIVIL DRAWINGS TO ARCHITECT PRIOR TO PROCEEDING WITH WORK.

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS. PRIMARY STRUCTURAL ELEMENTS ARE DIMENSIONED ON STRUCTURAL PLANS AND DETAILS AND OVERALL LAYOUT OF STRUCTURAL PORTION OF WORK. SOME SECONDARY ELEMENTS ARE NOT DIMENSIONED, SUCH AS WALL CONFIGURATIONS, INCLUDING EXACT DOOR AND WINDOW LOCATIONS, ALCOVES, SLAB SLOPES AND DEPRESSIONS, CURBS, ETC. VERTICAL DIMENSIONAL CONTROL IS DEFINED BY ARCHITECTURAL WALL SECTIONS AND BUILDING SECTIONS. STRUCTURAL DETAILS SHOW DIMENSIONAL RELATIONSHIPS TO CONTROL DIMENSIONS DEFINED BY ARCHITECTURAL DRAWINGS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN **BOTH** ARCHITECTURAL AND STRUCTURAL DRAWINGS.

DESIGN CRITERIA

VERTICAL LOADS

AREA	DESIGN DEAD LOAD	LIVE LOAD (2)	PARTITION LOAD	CONCENTRATED LOADS
ROOF	ACTUAL	25 PSF (1)		300#
OFFICE		50 PSF	+15 PSF	2,000#
CLASSROOM		75 PSF		1,000#
CORRIDORS (ABOVE 1ST FLR)		80 PSF		2,000#
STAIRS		100 PSF		300#
LIGHT STORAGE		125 PSF (3)		2,000#

(1) DRIFT AND UNBALANCED SNOW LOAD PER ASCE 7-16, CHAPTER 7. FOR SNOW DRIFT MAP SEE
(2) LIVE LOADS EXCEPT SNOW LOADS ARE REDUCED PER IBC SECTION 1607.12.
(3) LIVE LOAD REDUCTION NOT PERMITTED.
(4) DEAD LOAD TO INCLUDE SELF WEIGHT OF THE STRUCTURE, 7 PSF COLLATERAL DEAD LOAD

SNOW: (MINIMUM ROOF SNOW LOAD = 25 PSF)

Pg = 18 PSF = GROUND SNOW LOAD
Pf = 0.7CeCtIsPg = FLAT ROOF SNOW LOAD
Ps = CsPf = SLOPED ROOF SNOW LOAD
Is = 1.0, Ce = 1.0, Ct = 1.0, Cs = VARIES

RAIN INTENSITY:

RAIN INTENSITY, *i* = 3.0 (IN/HR)

LATERAL FORCES

LATERAL FORCES ARE TRANSMITTED BY DIAPHRAGM ACTION OF ROOF AND FLOORS TO BRACED FRAMES/PORTAL FRAMES. LOADS ARE THEN TRANSFERRED TO FOUNDATION BY BRACED FRAME/PORTAL FRAME ACTION WHERE ULTIMATE DISPLACEMENT IS RESISTED BY PASSIVE PRESSURE OF EARTH AND/OR SLIDING FRICTION. OVERTURNING IS RESISTED BY DEAD LOAD OF THE STRUCTURE.

LATERAL FORCE RESISTING SYSTEM: ALL MEMBERS AND CONNECTIONS REFERRED TO AS LATERAL FORCE RESISTING SYSTEM (LFRS) SHALL COMPLY WITH REQUIREMENTS OF THE SEISMIC FORCE RESISTING SYSTEM AND THE WIND FORCE RESISTING SYSTEM SET FORTH IN THE SPECIAL INSPECTION REQUIREMENTS OF IBC SECTION 1704 AND 1705, AND AS NOTED IN THE STATEMENT OF SPECIAL INSPECTIONS.

WIND:

THE BUILDING MEETS THE CRITERIA TO USE THE "ENCLOSED, PARTIALLY ENCLOSED, AND OPEN BUILDING OF ALL HEIGHTS PROCEDURE" PER ASCE 7-16.

- EXPOSURE CATEGORY = C
- BASIC WIND SPEED, (3 SEC. GUST), V_{ULT} = 97 MPH
- RISK CATEGORY PER IBC TABLE 1604.5 = II
- TOPOGRAPHIC FACTOR K_{ZT} = 1.0
- INTERNAL PRESSURE COEFFICIENT (ENCLOSED) = ± 0.18

SEISMIC: (ASCE 7-16) V = CsW

WHERE $Cs = \frac{S_{DS}}{(\frac{R}{Ie})}$; WITH

Cs MINIMUM = 0.044 $S_{DS}Ie \geq 0.01$
OR
Cs MINIMUM = $\frac{0.5S_1}{\frac{R}{Ie}}$ FOR $S_1 > 0.6g$

Cs MAXIMUM = $\frac{\frac{S_{D1}}{T(\frac{R}{Ie})}}{}$ FOR $T \leq T_L$
OR
Cs MAXIMUM = $\frac{S_{D1}T_L}{T^2(\frac{R}{Ie})}$ FOR $T > T_L$

SEISMIC IMPORTANCE FACTOR, Ie = 1.0
RISK CATEGORY OF BUILDING PER IBC TABLE 1604.5 = II
SPECTRAL RESPONSE ACCELERATIONS S_S = 1.342 & S_1 = 0.485
SITE CLASS PER TABLE 20.3-1 = D
DESIGN SPECTRAL RESPONSE ACCELERATIONS S_{DS} = 0.843 & S_{D1} = 0.869
SEISMIC DESIGN CATEGORY = D

MEZZANINE
W = EFFECTIVE SEISMIC WEIGHT = 349
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE
SEISMIC FORCE-RESISTING SYSTEM PER TABLE 12.2-1:
LIGHT FRAME (COLD-FORMED STEEL) SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE
RESPONSE MODIFICATION FACTOR, R = 6.5
OVERSTRENGTH FACTOR, Ω = 2.5
DEFLECTION AMPLIFICATION FACTOR, Cd = 4.5
Cs = 0.127
DESIGN BASE SHEAR V = 45.8K
REDUNDANCY FACTOR PER 12.3.4, ρ = 1.0

PRE-ENGINEERED METAL BUILDING
ANALYSIS PROCEDURE USED = EQUIVALENT LATERAL FORCE PROCEDURE
SEISMIC FORCE-RESISTING SYSTEM PER TABLE 12.2-1:
ORDINARY CONCENTRICALLY BRACED FRAME
RESPONSE MODIFICATION FACTOR, R = 3.25
OVERSTRENGTH FACTOR, Ω = 2.0
DEFLECTION AMPLIFICATION FACTOR, Cd = 3.25
Cs = 0.308
DESIGN BASE SHEAR V = 62.7K
REDUNDANCY FACTOR PER 12.3.4, ρ = 1.0

PIPES, DUCTS AND MECHANICAL EQUIPMENT SUPPORTED OR BRACED FROM STRUCTURE SHALL CONFORM TO SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC. PUBLICATION "SEISMIC RESTRAINT MANUAL: GUIDELINES FOR MECHANICAL SYSTEMS". SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA PAMPHLET 13.

FOUNDATION DESIGN CRITERIA (REFER TO GEOTECHNICAL REPORT BY GEOTECH. MATCH BACKFILL DESCRIPTION BELOW WITH INFORMATION IN GEOTECH REPORT).

ALLOWABLE SOIL BEARING PRESSURE: 1500 PSF

ACTIVE PRESSURE - RESTRAINED: 60 PCF +11*H SEISMIC SURCHARGE
ACTIVE PRESSURE - UNRESTRAINED: 30 PCF +13*H SEISMIC SURCHARGE
PASSIVE RESISTANCE: 200 PCF (INCLUDES F.O.S. ≥ 1.5)
COEFFICIENT OF FRICTION: 0.37 (INCLUDES F.O.S. ≥ 1.5) (ASSUMED)
*1/3 INCREASE ALLOWED FOR SEISMIC OR WIND LOADING
STATIC DIFFERENTIAL SETTLEMENT: 1/2" MAX OVER 50 FEET PER GEO-TECHNICAL REPORT.

ALL FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED EARTH OR "STRUCTURAL BACKFILL". NATIVE EARTH BEARING SHALL BE SURFACE COMPACTED. AREAS OVER-EXCAVATED SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL OR "STRUCTURAL BACKFILL". AREAS DESIGNATED "STRUCTURAL BACKFILL" SHALL BE FILLED WITH APPROVED WELL-GRADED BANKRUN MATERIAL. MAXIMUM SIZE OF ROCK 4". FROZEN SOIL, ORGANIC MATERIAL AND DELETERIOUS MATTER NOT ALLOWED. COMPACT TO AT LEAST 95% OF ITS MAXIMUM DENSITY AS DETERMINED BY ASTM D1557. CONTRACTOR SHALL EXERCISE EXTREME CARE DURING EXCAVATION TO AVOID DAMAGE TO BURIED LINES, TANKS, AND OTHER CONCEALED ITEMS. UPON DISCOVERY, DO NOT PROCEED WITH WORK UNTIL RECEIVING WRITTEN INSTRUCTIONS FROM ARCHITECT. A COMPETENT REPRESENTATIVE OF THE OWNER SHALL INSPECT ALL FOOTING EXCAVATIONS FOR SUITABILITY OF BEARING SURFACES PRIOR TO PLACEMENT OF REINFORCING STEEL. PROVIDE DRAINAGE AND DEWATERING AROUND ALL WORK TO AVOID WATER-SOFTENED FOOTINGS.

FREE DRAINING BACKFILL MATERIAL FOR RETAINING & BASEMENT WALLS

A CLEAN, FREE DRAINING, WELL GRADED GRANULAR MATERIAL CONFORMING TO ASTM D2487 GW OR SW WHOSE MAXIMUM PARTICLE SIZE DOES NOT EXCEED 3/4" AND WHOSE FINES CONTENT (MATERIAL PASSING THE NO. 200 SIEVE) DOES NOT EXCEED 5%,

WITH A MAXIMUM DUST RATIO $\frac{\text{\% PASSING U.S. NO. 200 SIEVE}}{\text{\% PASSING U.S. NO. 40 SIEVE}}$ = 2/3 MAX.

CONCRETE

CAST-IN-PLACE CONCRETE

CODES, SPECIFICATIONS, AND STANDARDS. CONCRETE WORK SHALL CONFORM TO THE FOLLOWING CODES, SPECIFICATIONS, AND STANDARDS, AND THE STANDARDS AND SPECIFICATIONS THEY REFERENCE. THE CONTRACTOR SHALL OBTAIN AND HAVE READILY AVAILABLE ON SITE THE LATEST VERSION OF THE "ACI MANUAL OF CONCRETE PRACTICE":

ACI:
1. ACI-117 'SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS AND COMMENTARY'.
2. ACI-301 'SPECIFICATIONS FOR CONCRETE CONSTRUCTION'.
3. ACI-302.1 'GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION'.
4. ACI-304 'GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE'.
5. ACI-305.1 'SPECIFICATIONS FOR HOT WEATHER CONCRETING'.
6. ACI-306.1 'STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING'.
7. ACI-308.1 'STANDARD SPECIFICATION FOR CURING CONCRETE'.
8. ACI-309 'GUIDE FOR CONSOLIDATION OF CONCRETE'.
9. ACI-311.4 'GUIDE FOR CONCRETE INSPECTION'.
10. ACI-315 'GUIDE TO PRESENTING REINFORCING STEEL DESIGN DETAILS'.
11. ACI-318 'BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE'.
12. ACI-506.2 'SPECIFICATION FOR SHOTCRETE'.
13. ACI 347 'GUIDE TO FORMWORK FOR CONCRETE'.
14. ACI 303 'GUIDE TO CAST-IN-PLACE ARCHITECTURAL CONCRETE PRACTICE'.

ASTM:
1. ASTM C33 'STANDARD SPECIFICATION FOR CONCRETE AGGREGATES'.
2. ASTM C94 'STANDARD SPECIFICATION FOR READY-MIX CONCRETE'.
3. ASTM C150 'STANDARD SPECIFICATION FOR PORTLAND CEMENT'.
4. ASTM C260 'STANDARD SPECIFICATION FOR AIR-ENTRAINED ADMIXTURES FOR CONCRETE'.
5. ASTM C309 'STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE'.
6. ASTM C494 'STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE'.
7. ASTM C595 'STANDARD SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS'.
8. ASTM C618 'STANDARD SPECIFICATION FOR .. COAL-ASH...'.
9. ASTM C989 'STANDARD SPECIFICATION FOR SLAG...'.
10. ASTM C1017 'STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE'.
11. ASTM C1116 'STANDARD SPECIFICATION FOR FIBER-REINFORCED CONCRETE'.
12. ASTM C1218 'STANDARD TEST METHOD FOR WATER-SOLUBLE CHLORIDE IN MORTAR AND CONCRETE'.
13. ASTM C1315 'STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING COMPOUNDS HAVING SPECIAL PROPERTIES FOR CURING AND SEALING CONCRETE'

MIX DESIGNS: THE CONTRACTOR SHALL DESIGN CONCRETE MIXES THAT MEET OR EXCEED THE REQUIREMENTS OF THE CONCRETE MIX TABLE. ALL CONCRETE MIXES SHALL BE NORMAL WEIGHT, UNLESS NOTED OTHERWISE. THE MIX DESIGNS SHALL FACILITATE ANTICIPATED PLACEMENT METHODS, WEATHER, REBAR CONGESTION, ARCHITECTURAL FINISHES, CONSTRUCTION SEQUENCING, STRUCTURAL DETAILS, AND ALL OTHER FACTORS REQUIRED TO PROVIDE A STRUCTURALLY SOUND, AESTHETICALLY ACCEPTABLE FINISHED PRODUCT. WATER REDUCING ADMIXTURES WILL LIKELY BE REQUIRED TO MEET THESE REQUIREMENTS. CONCRETE MIX DESIGNS SHALL CLEARLY INDICATE THE TARGET SLUMP. SLUMP TOLERANCE SHALL BE ± 1-1/2 INCHES.

AGGREGATE: COARSE AND FINE AGGREGATE SHALL CONFORM TO ASTM C33

CEMENT: CEMENT SHALL CONFORM TO ASTM C150, TYPE II PORTLAND CEMENT OR ASTM C595 - TYPE IL PORTLAND LIMESTONE CEMENT, UNLESS NOTED OTHERWISE. CEMENT IN CONCRETE EXPOSED TO EARTH SHALL BE TYPE II OR TYPE IL-MS.

FLY ASH: SHALL CONFORM TO ASTM C618 CLASS C OR F, MAXIMUM LOSS OF IGNITION SHALL BE 1.0%.

SLAG: GROUND GRANULATED BLAST-FURNACE (GGBF) SLAG SHALL CONFORM TO ASTM C989 GRADE 100 OR 120.

ALTERNATE MIX DESIGNS: VARIATIONS TO THE MIX DESIGN PROPORTIONS MAY BE ACCEPTED IF SUBSTANTIATED IN ACCORDANCE WITH ACI 318, CHAPTER 19. PROVIDE SUBMITTALS A MINIMUM OF TWO WEEKS PRIOR TO BID FOR DETERMINATION OF ACCEPTABILITY.

ADMIXTURES: ADMIXTURES SHALL BE BY MASTER BUILDERS, W.R. GRACE, OR PRE-APPROVED EQUAL. ALL MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED.

WATER: SHALL CONFORM TO ASTM C1602.

MAXIMUM CHLORIDE CONTENT: THE MAXIMUM WATER SOLUBLE CHLORIDE CONTENT SHALL NOT EXCEED 0.15% BY WEIGHT OF CEMENTITIOUS MATERIAL UNLESS NOTED OTHERWISE.

CONCRETE EXPOSED TO WEATHER OR FREEZING AND THAWING: PROVIDE TOTAL AIR CONTENT FOR ALL CONCRETE EXPOSED TO EARTH OR FREEZING AND THAWING PER THE AIR ENTRAINMENT TABLE. TOTAL AIR CONTENT IS THE SUM OF ENTRAINED AIR PROVIDED BY ADMIXTURES AND NATURALLY OCCURRING ENTRAPPED AIR. AIR CONTENT SHALL BE TESTED PRIOR TO BEING PLACED IN THE PUMP HOPPER OR BUCKET; IT IS NOT REQUIRED TO BE TESTED AT THE DISCHARGE END OF THE PUMP HOSE. THE TOLERANCE ON ENTRAPPED AIR SHALL BE +/-1.5% WITH THE AVERAGE OF ALL TESTS NOT LESS THAN THE SPECIFIED AMOUNT.

TOTAL CEMENTITIOUS MATERIAL: THE SUM OF ALL CEMENT PLUS FLY ASH AND SLAG. AT THE CONTRACTORS OPTION FLY ASH OR SLAG MAY BE SUBSTITUTED FOR CEMENT BUT SHALL NOT EXCEED 25% BY WEIGHT OF TOTAL CEMENTITIOUS MATERIAL. IN NO CASE SHALL THE AMOUNT OF FLY ASH OR SLAG BE LESS THAN REQUIRED BY THE CONCRETE MIX DESIGN TABLE.

STRUCTURAL DRAWING INDEX

SHEET NUMBER	SHEET DESCRIPTION
S1.00	GENERAL NOTES
S1.01	GENERAL NOTES
S1.02	GENERAL NOTES
S1.03	GENERAL NOTES
S1.04	GENERAL NOTES
S1.05	GENERAL NOTES
S3.00	FOUNDATION PLAN
S3.01	SECOND FLOOR FRAMING PLAN
S4.00	FOUNDATION DETAILS
S5.00	SLAB ON GRADE DETAILS
S7.00	STEEL FRAMING DETAILS
S7.01	FLOOR FRAMING DETAILS
S8.00	COLD FORMED STEEL DETAILS
S8.01	COLD FORMED STEEL DETAILS
Grand total: 14	

FREIHEIT ARCHITECTURE
PCS Structural Solutions
Seattle | Tacoma | Portland
www.pcs-structural.com

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ISSUE LIST

A25-15 PRINTED 10/2/2026 11:46:34 AM

GENERAL NOTES
S1.00

CONCRETE MIX DESIGN TABLE

ITEM	DESIGN f'c (PSI) (AT 28 DAYS U.N.O.)	MAX. W/C RATIO	MIN. FLY ASH OR SLAG (PCY)	AGGREGATE GRADING ASTM AASHTO	EXPOSURE CLASS (F0, S0, W0, C0 U.N.O.)	NOTES
SLAB ON GRADE - EXPOSED TO WEATHER	5000	0.40	100	57 OR 67	F2, S0, W1, C1	1
SLABS ON GRADE - UNO	4000	0.45	100	57 OR 67	--	1
FOUNDATIONS - UNO	3000	0.50	--	57 OR 67	F0, S0, W0, C1	
ELEVATED DECKS, TOPPING SLABS, AND SLABS ON METAL DECK - UNO	4000	0.45	--	57 OR 67	--	
ALL OTHER CONCRETE	4000	0.50	--	57 OR 67	--	

CONCRETE MIX NOTES:

1. FIBROUS CONCRETE REINFORCEMENT SHALL BE "FIBERMESH 150HP" MANUFACTURED BY SIKA OR PRE-APPROVED EQUAL AND SHALL CONFORM TO ASTM C1116 TYPE III AND SHALL BE 100 PERCENT VIRGIN POLYPROPYLENE, FIBRILLATED FIBERS CONTAINING NO REPROCESSED OLEFIN MATERIALS AND SPECIFICALLY MANUFACTURED FOR USE AS CONCRETE SECONDARY REINFORCEMENT. DOSAGE SHALL FOLLOW MANUFACTURER'S RECOMMENDATION BUT NOT LESS THAN 1.5 LB/CU. YD.
2. MAXIMUM WATER CONTENT 240 PCY.
3. THIS MIX SHALL CONTAIN 1 GALLON PER CY OF "ECLIPSE FLOOR 200" SHRINKAGE REDUCING ADMIXTURE BY GCP APPLIED TECHNOLOGIES, MASTER BUILDERS MASTERLIFE CRA 007 OR APPROVED ALTERNATE. FOR CONCRETE REQUIRING AN AIR ENTRAINMENT ADMIXTURE, GCP "ECLIPSE 4500" OR MASTERLIFE "SRA 035" SHALL BE USED.
5. MAXIMUM SAND/AGGREGATE PERCENTAGE SHALL BE 40%, AND SHALL CONTAIN A MID-RANGE WATER REDUCING ADMIXTURE WITH A DOSAGE HIGH ENOUGH TO REDUCE WATER A MINIMUM OF 10%.

CONCRETE PLACEMENT

PLACE CONCRETE FOLLOWING ALL APPLICABLE ACI RECOMMENDATIONS. CONCRETE SHALL BE PROPERLY CONSOLIDATED PER ACI 309 USING INTERIOR MECHANICAL VIBRATORS, DO NOT OVER-VIBRATE. CONCRETE SHALL BE POURED MONOLITHICALLY BETWEEN CONSTRUCTION OR EXPANSION JOINTS. IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE, THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE REINFORCING. WEATHER FORECASTS SHALL BE MONITORED AND ACI RECOMMENDATIONS FOR HOT AND COLD WEATHER CONCRETING SHALL BE FOLLOWED AS REQUIRED. CONCRETE SHALL NOT FREE FALL MORE THAN 5 FEET DURING PLACEMENT WITHOUT WRITTEN APPROVAL OF STRUCTURAL ENGINEER.

FLOATING & FINISHING OPERATIONS

WATER SHALL NOT BE ADDED TO THE CONCRETE SURFACE DURING FLOATING & FINISHING OPERATIONS. PRE-APPROVED EVAPORATION RETARDER SPECIFICALLY DESIGNED FOR FLOATING & FINISHING OPERATIONS ARE ACCEPTABLE.

FORMED SURFACES:

FORMWORK SURFACE REQUIREMENTS (ACI 347.3R-13 T3.1a)		
ITEM	CONSTRUCTION AND FACING JOINTS	SURFACE IRREGULARITIES
ALL SURFACES EXPOSED TO PUBLIC VIEW, U.N.O.	CJ2	SI2
ALL SURFACES RECEIVING A COURSE TEXTURED COATING SUCH AS PLASTER OR STUCCO, UNLESS NOTED OTHERWISE	CJ3	SI3
ALL OTHER SURFACES, UNLESS NOTED OTHERWISE	CJ4	SI4

COLD WEATHER PLACEMENT:

1. COLD WEATHER IS DEFINED BY ACI 306 AS "A PERIOD WHEN FOR MORE THAN 3 SUCCESSIVE DAYS THE MEAN DAILY TEMPERATURE DROPS BELOW 40° F."
2. NO CONCRETE SHALL BE PLACED ON FROZEN OR PARTIALLY FROZEN GROUND. THAWING THE GROUND WITH HEATERS IS PERMISSIBLE.
3. CONCRETE MIX TEMPERATURES SHALL BE AS SHOWN BELOW. HEATING OF WATER AND/OR AGGREGATES MAY BE REQUIRED TO ATTAIN THESE TEMPERATURES.
4. THE CONCRETE MAY REQUIRE PROTECTION FOR 4-7 DAYS AFTER POURING. IF TEMPERATURES REMAIN BELOW FREEZING, INSULATING BLANKET COVERAGE IS REQUIRED. IF TEMPERATURES ARE SLIGHTLY BELOW FREEZING (30° F MIN.) AT NIGHT AND ABOVE FREEZING DURING THE DAY, KRAFT PAPER WITH COMPLETE COVERAGE MAY BE USED IN LIEU OF INSULATED BLANKETS.
5. NO ADDITIVES CONTAINING CHLORIDES SHALL BE USED. USE "POZZUTEC 20+" BY MASTER BUILDERS OR "POLARSET" BY W.R. GRACE OR PRE-APPROVED EQUAL.

CONDITION OF PLACEMENT AND CURING		WALLS & SLABS	FOOTINGS
MIN. TEMP. FRESH CONCRETE AS MIXED FOR WEATHER INDICATED, DEGREES F.	ABOVE 30° F.	60°	55°
	0° TO 30° F.	65°	60°
	BELOW 0° F.	70°	65°
MIN. TEMP. FRESH CONCRETE AS PLACED AND MAINTAINED, DEGREES F.		55°	50°
MAX. ALLOWABLE GRADUAL DROP IN TEMP. THROUGHOUT FIRST 24 HOURS AFTER END OF PROTECTION, DEGREES F.		50°	40°

HOT OR WINDY WEATHER PLACEMENT

HOT WEATHER IS DEFINED BY ACI 305 AS "ANY COMBINATION OF HIGH AIR TEMPERATURE, LOW RELATIVE HUMIDITY, AND WIND VELOCITY, TENDING TO IMPAIR THE QUALITY OF FRESH HARDENED CONCRETE. ACI 305 FIGURE 2.1.5 SHALL BE USED BY THE CONTRACTOR TO ESTIMATE THE RATE OF EVAPORATION. WHEN THE ESTIMATED RATE OF EVAPORATION IS GREATER THAN O.2 PSF/HOUR THE PLACEMENT SHALL BE CONSIDERED A HOT WEATHER PLACEMENT. PRECAUTIONS AGAINST PLASTIC SHRINKAGE CRACKING ARE NECESSARY. PRECAUTIONS TAKEN BY THE CONTRACTOR VARY DEPENDING UPON THE FACTORS ASSOCIATED WITH WATER EVAPORATION AND INCLUDE BUT ARE NOT LIMITED TO:

1. LIMITING CONCRETE TEMPERATURE TO 100°F AT TIME OF PLACEMENT.
2. APPLICATION OF AN EVAPORATION RETARDER.
3. USE OF FOG SPRAY.
4. REDUCTION OF POUR SIZE.
5. PLACING CONCRETE AT NIGHT.

CONTROL AND CONSTRUCTION JOINTS

CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF ACI 301 SECTIONS 2.2.2.5 AND 5.3.2.6. SPECIAL BONDING METHODS PER SECTION 5.3.2.6 SHALL BE SATISFIED BY ITEM 6 BELOW UNLESS OTHERWISE DETAILED ON THE STRUCTURAL DRAWINGS. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN ON PLAN OR ADDITIONAL CONSTRUCTION JOINTS ARE REQUIRED SUBMIT PROPOSED JOINTING FOR STRUCTURAL ENGINEERS APPROVAL. PROVIDE CONSTRUCTION JOINTS AS INDICATED BELOW UNLESS NOTED OTHERWISE ON THE PLANS:

1. SLABS ON GRADE: PROVIDE CONSTRUCTION AND/OR CONTROL JOINTS AT 16 FEET O.C. MAXIMUM FOR UNEXPOSED SLABS ON GRADE AND 12 FEET O.C. FOR EXPOSED SLABS ON GRADE. COORDINATE JOINTS WITH ARCHITECTURAL DRAWINGS. JOINTS SHALL BE LOCATED TO CREATE SQUARE OR RECTANGULAR SECTIONS WITH A MAXIMUM LONG SIDE TO SHORT SIDE RATIO OF 1.5 TO 1.
2. ATTACHMENT OF NEW CONCRETE TO EXISTING: WHERE SHOWN, ROUGHEN CONCRETE TO A MINIMUM AMPLITUDE OF 1/4" USING IMPACT HAMMER. REMOVE ALL LOOSE OR DAMAGED CONCRETE, THOROUGHLY FLUSH ALL SURFACES WITH POTABLE WATER, AIR BLAST WITH OIL FREE COMPRESSED AIR TO REMOVE ALL WATER.
3. SLAB ON METAL DECK: SHALL NOT BE SAW CUT UNLESS SPECIFICALLY CALLED OUT ON DRAWINGS.

EMBEDDED ITEMS

1. NO ALUMINUM ITEMS SHALL BE EMBEDDED IN ANY CONCRETE.
   B. EMBEDDED CONDUIT IS NOT PERMITTED IN CONCRETE SLABS ON METAL DECK
2. ALL EMBED PLATES SHALL BE SECURELY FASTENED IN PLACE.
3. ALL EMBEDDED STEEL ITEMS EXPOSED TO EARTH SHALL BE GALVANIZED.
4. ALL EMBEDDED STEEL ITEMS EXPOSED TO WEATHER SHALL BE PAINTED UNLESS NOTED AS GALVANIZED. SEE DRAWINGS AND SPECIFICATIONS FOR PAINT, PRIMER, AND GALVANIZING REQUIREMENTS.

CONCRETE CURING AND SEALING

CURING PROCEDURES SHALL COMMENCE IMMEDIATELY AFTER FINISHING CONCRETE TO MAINTAIN CONCRETE IN A MOIST CONDITION. VERIFY CURING AND/OR SEALING PRODUCTS ARE COMPATIBLE WITH FLOOR COVERINGS SHOWN ON THE ARCHITECTURAL DRAWINGS. FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS. SLABS ARE DEFINED AS SLABS ON GRADE, CONCRETE ON METAL DECK, ELEVATED POST-TENSIONED OR MILD REINFORCED DECKS, AND TOPPING SLABS.

ITEM	CONCRETE CURING NOTES
SLABS EXPOSED TO EARTH OR WEATHER OR VEHICLE OR FORKLIFT TRAFFIC INCLUDING LOADING DOCKS	1, (3 OR 4 OR 5), 6
ALL OTHER SLABS	1, (3 OR 4 OR 5)
FORMED SURFACES EXCLUDING FOUNDATIONS	2
SHOTCRETE WALLS	4
ALL OTHER CONCRETE	NONE

CONCRETE CURING NOTES:

1. WHEN THE ESTIMATED EVAPORATION RATE IS GREATER THAN 0.2 PSF/HOUR PROVIDE A SPRAY APPLIED EVAPORATION RETARDER IMMEDIATELY AFTER CONCRETE PLACEMENT. THE EVAPORATION RATE MAY BE CALCULATED PER ACI 305 FIGURE 2.1.5.
2. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS, PER MANUFACTURER'S RECOMMENDATIONS TO ALL FORMED SURFACES IMMEDIATELY AFTER FINAL FORM REMOVAL. NOT REQUIRED IF FORMWORK REMAINS IN PLACE FOR MORE THAN 7 DAYS.
3. PROVIDE PRE-APPROVED CONTINUOUS WET CURE METHOD FOR A MINIMUM OF 14 DAYS.
4. APPLY A LIQUID MEMBRANE FORMING CURING COMPOUND, CONFORMING TO ASTM C309 TYPE 1 CLASS B SPECIFICATIONS OR ASTM C1315 TYPE 1 CLASS A SPECIFICATIONS, PER MANUFACTURER'S RECOMMENDATIONS IMMEDIATELY AFTER FINAL FINISHING. CURING COMPOUND SHALL BE COMPATIBLE WITH ARCHITECTURAL FLOOR COVERINGS AND SEALERS.
5. PROVIDE "ULTRACURE DOT" MOISTURE RETAINING COVER BY MCTECH GROUP, OR APPROVED EQUAL, FOR A MINIMUM OF 14 DAYS.
6. APPLY A SILANE SEALER WITH MINIMUM SOLIDS CONTENT OF 40% PER MANUFACTURER'S RECOMMENDATIONS.

GROUT

NON-SHRINK GROUT: SIKA "SIKAGROUT 928" OR PRE-APPROVED EQUAL. GROUT SHALL CONFORM TO CRD-C621 AND ASTM C1107 WHEN TESTED AT A FLUID CONSISTENCY PER CRD-C611-85 FOR 30 MINUTES. GROUT MAY BE PLACED FROM A 25 SECOND FLOW TO A STIFF PACKING CONSISTENCY. FILL OR PACK ENTIRE SPACE UNDER PLATES OR SHAPES. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PREPARATION, INSTALLATION, AND CURING. 28-DAY MINIMUM STRENGTH SHALL BE 7,500 PSI MINIMUM

REINFORCING STEEL

REINFORCING STEEL SHALL CONFORM TO:

ASTM A615, GRADE 60 TYPICAL UNLESS NOTED OTHERWISE.

DETAIL FABRICATE AND PLACE PER ACI 315 AND ACI 318.

WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064. LAP ONE FULL MESH ON SIDES AND ENDS BUT NOT LESS THAN 8 INCHES. WELDED WIRE REINFORCING SHALL BE SUPPORTED TO WITHSTAND CONCRETE PLACEMENT. PULLING OF MESH INTO PLACE AFTER PLACEMENT IS NOT ALLOWED.

REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE, Fy=60 KSI (UNLESS NOTED OTHERWISE)					
BAR SIZE	MINIMUM LAP SPLICE LENGTHS ("Ls")		MINIMUM DEVELOPMENT LENGTHS ("Ld")		MINIMUM EMBEDMENT LENGTH FOR STANDARD END HOOKS ("Ldh")
	TOP BARS (1)	OTHER BARS	TOP BARS (1)	OTHER BARS	
#3	2'-0"	1'-6"	1'-6"	1'-3"	0'-6"
#4	2'-8"	2'-0"	2'-0"	1'-7"	0'-6"
#5	3'-4"	2'-7"	2'-7"	2'-0"	0'-8"
#6	4'-0"	3'-1"	3'-1"	2'-4"	0'-10"

SPLICE TABLE NOTES:

1. "TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

MECHANICAL COUPLERS: "LENTON" BY NVENT, "CADWELD" BY NVENT, "BAR-LOCK" BY DAYTON SUPERIOR L-SERIES, OR PRE-APPROVED EQUAL. COUPLERS SHALL BE TYPE 2 PER ACI 318 SECTION 18.2.7.1.

WELDED HALF COUPLERS: "LENTON" BY NVENT WELDABLE HALF COUPLERS TYPE C2/C3J OR APPROVED EQUAL.

TERMINATORS: "LENTON" BY NVENT THREADED TERMINATORS TYPE D6 OR APPROVED EQUAL.

FORM SAVERS: "LENTON" BY NVENT THREADED FORM SAVERS TYPE FS OR APPROVED EQUAL.

STUD RAILS: "STUD RAILS" BY DECON INC. FLAT SLAB SHEAR REINFORCING RAILS OR APPROVED EQUAL

REINFORCING STEEL COVER

PROVIDE CONCRETE COVER OVER REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE:

CONCRETE CAST AGAINST EARTH ---------- 3"
EXPOSED TO WEATHER OR EARTH ---------- 2"
TIES ON BEAMS AND COLUMNS ---------- 1-1/2"
SLABS NOT EXPOSED TO WEATHER---- 3/4"

POST-INSTALLED ANCHORS

POST-INSTALLED ANCHORS: SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH REBAR. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. INSTALLER SHALL BE QUALIFIED AND TRAINED BY THE MANUFACTURER. HOLES SHALL BE HAMMER DRILLED ONLY (ROTARY DRILLED ONLY AT UNREINFORCED MASONRY - NO HAMMER TOOLS).

SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED FOR APPROVAL A MINIMUM OF 2 WEEKS PRIOR TO BID, ALONG WITH CALCULATIONS THAT SHALL BE STAMPED BY A PROFESSIONAL ENGINEER (LICENSED IN THE STATE OF THE PROJECT) DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.

CONCRETE ANCHORS:

- ADHESIVE ANCHORS: HILTI HIT-HY 200 V3 (ICC-ESR-4868), HILTI HIT-RE 500 V3 (ICC-ESR-3814), DEWALT PURE 110+ (ICC-ESR-3298) OR SIMPSON SET-3G (ICC-ESR-4057) OR PRE-APPROVED EQUAL.
  - *CONCRETE SHALL BE A MINIMUM OF 21 DAYS OLD AT TIME OF INSTALLATION.
  - *CONCRETE SHALL BE IN THE TEMPERATURE RANGE AS REQUIRED BY THE CONCRETE MANUFACTURER.
  - *HOLE SHALL BY HAMMER-DRILLED ONLY.
  - *DO NOT INSTALL IN WATER-FILLED HOLES.
  - *INSTALLER OF HORIZONTAL OR UPWARDLY INCLINED (ANY POSITION EXCEPT DIRECTLY DOWNWARD) ANCHORS SHALL ALSO BE CERTIFIED BY THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.
- EXPANSION ANCHORS: KWIKBOLT TZ2 (ICC ESR-4266) BY HILTI, INC., OR PRE-APPROVED EQUAL.
- SCREW ANCHORS: KWIK HUS-EZ (ICC ESR-3027) BY HILTI, INC., OR PRE-APPROVED EQUAL.

STRUCTURAL STEEL

DETAILING, FABRICATION AND ERECTION

ALL WORKMANSHIP SHALL CONFORM TO THE AISC MANUAL OF STEEL CONSTRUCTION, 15TH EDITION, THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS JULY 7, 2016, THE AISC CODE OF STANDARD PRACTICE, JUNE 15, 2016 AND THE AISC SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS, JULY 12, 2016.

STEEL MEMBERS ARE EQUALLY SPACED BETWEEN COLUMNS AND/OR DIMENSION POINTS UNLESS NOTED OTHERWISE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDES AND JOINT PREPARATIONS THAT INCLUDE BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDES, WELDING PROCEDURES, REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, WELD EXTENSION TABS, COPES, SURFACE ROUGHNESS VALUES AND TAPERS OF UNEQUAL PARTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLIANCE WITH ALL CURRENT OSHA REQUIREMENTS.

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GENERAL NOTES
S1.01

STRUCTURAL STEEL

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STEEL FABRICATORS

ALL STEEL FABRICATION SHALL BE PERFORMED BY A FABRICATOR CERTIFIED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. THE FABRICATOR SHALL BE DESIGNATED AN AISC CERTIFIED PLANT, CATEGORY BU AT THE TIME OF BID AND SHALL MAINTAIN THIS CERTIFICATION FOR THE DURATION OF THE PROJECT.

STEEL ERECTORS

ALL STEEL ERECTION SHALL BE PERFORMED BY AN ERECTOR CERTIFIED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION. THE ERECTOR SHALL BE DESIGNATED AN AISC CERTIFIED ERECTOR, CATEGORY CSE AT THE TIME OF BID AND SHALL MAINTAIN THIS CERTIFICATION FOR THE DURATION OF THE PROJECT.

STEEL DETAILERS

ALL STEEL DETAILING SHALL BE PERFORMED BY A DETAILER WITH FIVE YEARS MINIMUM EXPERIENCE ON SIMILAR PROJECTS OF EQUAL OR LARGER COMPLEXITY AND SCOPE. QUALIFICATIONS SHALL BE SUBMITTED TWO WEEKS PRIOR TO SHOP DRAWING PRODUCTION.

MATERIAL PROPERTIES

WIDE FLANGE SECTIONS: ASTM A992 (Fy = 50 KSI)

OTHER SHAPES AND PLATES: ASTM A36 (Fy = 36 KSI) TYPICAL UNLESS NOTED OTHERWISE; ASTM A572 (Fy = 50 KSI) WHERE INDICATED

HOLLOW STRUCTURAL SECTIONS: RECTANGULAR & SQUARE - ASTM A500, GRADE C (Fy = 50 KSI) ROUND - ASTM A500, GRADE C (Fy = 46 KSI)

MACHINE BOLTS (M.B.): ASTM A307, GRADE A

HIGH-STRENGTH BOLTS: ASTM F3125, GRADE F1852, UNLESS NOTED OTHERWISE, ASTM F3125, GRADE F2280 WHERE INDICATED

ANCHOR BOLTS (A.B.): ASTM F1554, GRADE 36, UNLESS NOTED OTHERWISE, ASTM F1554, GRADE 105 WHERE INDICATED.

WELDING

STRUCTURAL STEEL: WELD IN ACCORDANCE WITH "STRUCTURAL WELDING CODE" AWS D1.1.

CERTIFICATION: ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS. WELDERS SHALL BE PREQUALIFIED FOR EACH POSITION AND WELD TYPE WHICH THE WELDER WILL BE PERFORMING.

WELD TABS (ALSO KNOWN AS WELD "EXTENSION" TABS OR "RUN OFF" TABS) SHALL BE USED. AFTER THE WELD HAS BEEN COMPLETED THE WELD TABS SHALL BE REMOVED AND THE WELD END GROUND TO A SMOOTH CONTOUR. WELD "DAMS" OR "END DAMS" SHALL NOT BE USED.

THE PROCESS CONSUMABLES FOR ALL WELD FILLER METAL INCLUDING TACK WELDS, ROOT PASS AND SUBSEQUENT PASSES DEPOSITED IN A JOINT SHALL BE COMPATIBLE.

ALL WELD FILLER METAL AND WELD PROCESS SHALL PROVIDE THE TENSILE STRENGTH AND CHARPY V-NOTCH RATINGS AS FOLLOWS:

GRAVITY FRAME

WELD TYPE	FILLER METAL TENSILE STRENGTH	CHARPY V-NOTCH (CVN) RATING
FILLET	70 KSI	-----
PARTIAL PENETRATION	70 KSI	-----
COMPLETE PENETRATION	70 KSI	20 FT-LBS @ 40 DEG F

WELDED CONNECTIONS INSPECTION:

1. ALL WELDING SHALL BE CHECKED BY VISUAL MEANS AND BY OTHER METHODS DEEMED NECESSARY BY THE WELDING INSPECTOR.
2. ALL FULL PENETRATION WELDS TO MEMBERS WHICH FORM A PORTION OF THE LATERAL FORCE-RESISTING SYSTEM SHALL BE CHECKED 100 PERCENT BY ULTRASONIC TESTING.
3. THE CONTRACTOR SHALL SUBMIT A WRITTEN WELDING PROCEDURE SPECIFICATION FOR SHOP AND FIELD WELDING OF ALL LATERAL FORCE-RESISTING SYSTEM CONNECTIONS FOR APPROVAL TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION.

THE STANDARDS OF ACCEPTANCE FOR WELDS TESTED BY ULTRASONIC METHODS SHALL CONFORM TO AWS D1.1.

ALL WELDS FOUND TO BE DEFECTIVE SHALL BE REPAIRED AND REINSPECTED BY THE SAME METHODS ORIGINALLY USED, AND THIS REPAIR AND REINSPECTION SHALL BE PAID FOR BY THE CONTRACTOR

GENERAL REQUIREMENTS

HIGH-STRENGTH BOLTS: ALL A325 HIGH-STRENGTH BOLTS (HSB) INDICATED AS A325 IN THE DRAWINGS SHALL BE ASTM F3125, GRADE F1852, UNLESS OTHERWISE INDICATED AS A490. ALL HSB INDICATED AS A490 SHALL BE ASTM F3125, GRADE F2280. ALL HSB SHALL BE BY "LEJEUNE BOLT COMPANY" OR PRE-APPROVED EQUAL AND SHALL BE INSTALLED PER SECTION 8.2 OF THE "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS", JUNE 2020 BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC SPECIFICATION). ALL BOLT HOLES SHALL BE STANDARD ROUND HOLES UNLESS NOTED OTHERWISE. THE FAYING SURFACES OF ALL PLIES WITHIN THE GRIP OF SLIP-CRITICAL BOLTS (A325SC OR A490SC) SHALL MEET THE REQUIREMENTS FOR A CLASS A SURFACE PER SECTION 3.2 OF THE RCSC SPECIFICATION.

BOLTED CONNECTIONS INSPECTION: CONNECTIONS MADE WITH BEARING TYPE BOLTS SHALL BE INSPECTED PER SECTION 9.1.

ADHESIVE ANCHOR RODS: FULLY THREADED ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.

HEADED STUDS: SHALL BE "H4L HEADED CONCRETE ANCHORS" FOR STUDS 5/8" DIAMETER AND SMALLER AND "S3L SHEAR CONNECTORS" FOR STUDS 3/4" DIAMETER AND LARGER AS MANUFACTURED BY NELSON STUD WELDING, INC. OR PRE-APPROVED EQUAL AND SHALL CONFORM TO AWS D1.1. ALL HEADED STUDS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS USING A NELSON WELD GUN, UNLESS NOTED OTHERWISE ON DETAILS. ALL WELDS SHALL BE MADE AND INSPECTED IN ACCORDANCE WITH AWS D1.1.

FINISH: STRUCTURAL STEEL SHALL BE UNPAINTED, UNLESS NOTED OTHERWISE, AND SHALL BE CLEAN OF LOOSE RUST, LOOSE MILL SCALE, OIL, GREASE AND OTHER FOREIGN SUBSTANCES AND SHALL MEET THE REQUIREMENTS OF SSPC-SP1. WHERE STRUCTURAL STEEL IS NOTED TO BE PAINTED, ALL AREAS COMPRISING THE FAYING SURFACES OF BOLTED CONNECTIONS MADE WITH SLIP-CRITICAL TYPE BOLTS (A325SC OR A490SC) SHALL COMPLY WITH THE REQUIREMENTS OF THE RCSC SPECIFICATION. WHERE STRUCTURAL STEEL IS NOTED TO BE GALVANIZED, IT SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, A384, AND A385. ALL SURFACES WITHIN TWO INCHES OF ANY FIELD WELD LOCATION SHALL BE FREE OF MATERIALS THAT WOULD PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES. FIELD TOUCH-UP OF PRIMED, PAINTED, AND GALVANIZED SURFACES SHALL BE PERFORMED TO REPAIR COATING ABRASIONS, AS WELL AS TO PROTECT ALL AREAS AT CONNECTIONS.

COMPOSITE FLOOR DECK: SHALL CONTAIN THE MINIMUM PROPERTIES SHOWN ON THE STRUCTURAL DRAWINGS AND SHALL BE "FORMLOK" AS MANUFACTURED BY VERCO MANUFACTURING CO., "W COMPOSITE" AS MANUFACTURED BY ASC STEEL DECK, "EPICORE" AS MANUFACTURED BY EPIC METALS, OR PRE-APPROVED EQUAL. THE FLOOR UNITS SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO ASTM A653, AND GALVANIZED PER ASTM A924. SUBMIT SHOP DRAWINGS SHOWING LAYOUT AND FASTENING PATTERN. ALL ACCESSORIES INCLUDING EDGE FORMS, CLOSURE, ETC. SHALL BE PROVIDED TO COMPLETE THE INSTALLATION OF THE COMPOSITE FLOOR.

PREFABRICATED METAL STAIRS AND LANDINGS: SHALL BE DESIGNED PER AISC AND IBC REQUIREMENTS. STRINGERS AND LANDINGS SHALL BE DESIGNED FOR A MINIMUM OF 100 PSF LIVE LOAD. INDIVIDUAL TREADS SHALL BE DESIGNED FOR 300 POUND CONCENTRATED LOAD. EGRESS STAIRS AND LANDINGS SHALL BE DESIGNED WITH CONNECTIONS THAT ALLOW FOR SLIDING OR PROVIDE DUCTILITY TO ACCOMMODATE HORIZONTAL SEISMIC INTERSTORY DRIFT BETWEEN EACH LEVEL PER SECTION 13.5.10 OF ASCE 7. THE STAIR DESIGN CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD SHOWING THE COMPLETE ASSEMBLY AND ATTACHMENTS TO THE SURROUNDING STRUCTURE. THE ATTACHMENTS SHALL BE DETAILED SUCH THAT NO TORQUE IS APPLIED TO THE SURROUNDING STRUCTURAL MEMBERS. THE CALCULATIONS AND SHOP DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT.

CARPENTRY:

NAILS: CONNECTION DESIGNS ARE BASED ON NAILS WITH THE FOLLOWING PROPERTIES:

PENNYWEIGHT	DIAMETER (INCHES)	LENGTH (INCHES)
8d	0.131	2-1/2
10d	0.148	3
16d	0.148	3-1/4
20d	0.192	4

ALL NAILS AND STAPLES SHALL CONFORM TO ASTM F1667 INCLUDING SUPPLEMENT 1. FOR DIAPHRAGM OR SHEAR WALL NAILING THE FOLLOWING FASTENER TYPES MAY BE USED AT EQUIVALENT SPACING TO THAT SPECIFIED ON PLANS.

FASTENER TYPE	DIAMETER (INCHES)	LENGTH (INCHES)
8d COMMON WIRE	0.131	2-1/2
8d "HOT DIPPED GALV. BOX"	0.113	2-1/2
10d COMMON WIRE	0.148	3
10d "HOT DIPPED GALV. BOX"	0.128	3

WOOD SHEATHING (STRUCTURAL): SHEATHING ON WALLS SHALL BE PLYWOOD . PLYWOOD SHEATHING SHALL BE 5-PLY MINIMUM WHERE INDICATED AS PERFORMANCE CATEGORY 3/4" OR THICKER. WOOD SHEATHING SHALL BE "RATED SHEATHING" CONFORMING TO PS1-19 AND/OR PS2-18. ALL PANELS SHALL BEAR THE STAMP OF AN APPROVED GRADING AGENCY. SPAN RATING SHALL BE PROVIDED AS FOLLOWS: ROOF FRAMING AT 32"O.C. (48/24); ROOF FRAMING AT 24"O.C. (32/16); WALLS (32/16); FLOORS (48/24) ALL WOOD SHEATHED WALLS SHALL BE BLOCKED AT ALL PANEL EDGES UNLESS NOTED OTHERWISE.

GENERAL REQUIREMENTS: PROVIDE MINIMUM NAILING PER IBC TABLE 2304.10.2 OR MORE, AS OTHERWISE SHOWN. STAGGER ALL NAILING TO PREVENT SPLITTING OF WOOD MEMBERS. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESERVATIVE TREATED WITH THE EXCEPTION OF INTERIOR CONCRETE TOPPINGS ON WOOD FLOOR SYSTEMS. HOLES AND CUTS IN 3x OR 4x PLATES SHOULD BE TREATED WITH A 9% SOLUTION OF COPPER NAPHTHENATE. BOLT HOLES IN WOOD MEMBERS SHALL BE A MINIMUM OF 1/32" TO A MAXIMUM OF 1/16" LARGER THAN THE BOLT DIAMETER. PROVIDE CUT WASHERS WHERE BOLT HEADS, NUTS AND LAG SCREW HEADS BEAR ON WOOD. PROVIDE A MINIMUM 3"x3"x0.229" PLATE WASHER ON ALL ANCHOR BOLTS WHICH CONNECT MUD SILLS TO FOUNDATION. DO NOT NOTCH OR DRILL STRUCTURAL MEMBERS, EXCEPT AS ALLOWED BY IBC SECTIONS 2308.4.2.4, 2308.5.9, 2308.5.10 AND 2308.7.4 OR AS RESTRICTED BY PLANS OR DETAILS, OR AS APPROVED PRIOR TO INSTALLATION. REFER TO PRESERVATIVE TREATED WOOD REQUIREMENTS IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

FRAMING CONNECTORS: SHALL CONFORM TO CURRENT EVALUATION REPORT AND BE MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, SAN LEANDRO, CA., OR PRE-APPROVED EQUAL. PROVIDE MAXIMUM SIZE AND QUANTITY OF NAILS OR BOLTS PER MANUFACTURER, EXCEPT AS NOTED OTHERWISE. PROVIDE LEAD HOLES AS REQUIRED TO PREVENT SPLITTING OF WOOD MEMBERS. REFER TO PRESERVATIVE TREATED WOOD REQUIREMENTS IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

LAG SCREWS: SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1. LAG SCREWS SHALL BE OF A DIAMETER INDICATED ON DRAWINGS WITH A MINIMUM OF 8x DIA. EMBEDMENT IN SUPPORTING MEMBER UNLESS NOTED OTHERWISE. CLEARANCE HOLE FOR THE SHANK SHALL BE THE SAME DIAMETER AS THE SHANK AND THE SAME DEPTH OF PENETRATION AS THE UNTHREADED PORTION OF THE SHANK. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60 TO 75 PERCENT OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION. THE THREADED PORTION OF THE SCREW SHALL BE INSERTED IN ITS LEAD HOLE BY TURNING WITH A WRENCH. SOAP OR OTHER LUBRICANT SHALL BE USED ON THE SCREWS OR IN THE LEAD HOLE TO FACILITATE INSERTION AND PREVENT DAMAGE TO THE SCREW. LAG SCREWS SHALL NOT BE DRIVEN WITH A HAMMER. REFER TO PRESERVATIVE TREATED WOOD REQUIREMENTS IN THESE GENERAL NOTES FOR GALVANIZING REQUIREMENTS FOR CONNECTORS AND FASTENERS.

COLD-FORMED STEEL FRAMING CONSTRUCTION:

THE DESIGN, INSTALLATION AND CONSTRUCTION OF COLD-FORMED CARBON OR LOW-ALLOY STEEL, STRUCTURAL AND NON-STRUCTURAL STEEL FRAMING, SHALL BE IN ACCORDANCE WITH IBC SECTION 2211 AND AMERICAN IRON AND STEEL INSTITUTE (AISI) STANDARD S100-16 AND S240-20 AND SHALL BE MANUFACTURED BY A MEMBER OF THE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA), CERTIFIED STEEL STUD ASSOCIATION (CSSA), STEEL FRAMING INDUSTRY ASSOCIATION (SFIA), OR PRE-APPROVED EQUAL, IN ACCORDANCE WITH A CURRENT ICC EVALUATION SERVICE REPORT, AISI S202-20 AND S240-20. ALL 54 MIL AND HEAVIER GALVANIZED MEMBERS SHALL BE FORMED FROM STEEL THAT MEETS THE REQUIREMENTS OF ASTM A653, QUALITY SQ, GRADE 50, CLASS 1, FY= 50 KSI. ALL 43 MIL AND LIGHTER GALVANIZED MEMBERS SHALL BE FORMED FROM STEEL THAT MEETS THE REQUIREMENTS OF ASTM A653, QUALITY SQ, GRADE 33, FY=33 KSI. BRIDGING PER MANUFACTURER'S REQUIREMENTS AND AS SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE IN PLACE PRIOR TO PLACING OF ANY CONSTRUCTION LOADS. ALL RUNS SHALL BE RIGIDLY ANCHORED TO END WALLS.

EXTERIOR WALL AND BEARING WALL COLD-FORMED STEEL FRAMING: COLD-FORMED STEEL FRAMING MEMBERS SHALL MEET THE TYPE, SIZE AND THICKNESS AS INDICATED ON THE STRUCTURAL PLANS AND SPECIFICATIONS.

INTERIOR NON-BEARING WALL, CEILING, SOFFIT, AND OTHER MISC. COLD-FORMED STEEL FRAMING: COLD-FORMED STEEL FRAMING MEMBERS SHALL MEET THE TYPE, SIZE, AND THICKNESS AS INDICATED IN THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS, AND SHALL CONFORM TO THE MINIMUM PRESCRIPTIVE REQUIREMENTS OF THE GYPSUM CONSTRUCTION HANDBOOK BY CGC, INC. FRAMING CONDITIONS THAT EXCEED THE WEIGHT, SPAN OR HEIGHT LIMITATIONS SHALL BE CONSTRUCTED USING APPLICABLE DETAILS ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAILING, FABRICATION AND ERECTION OF ALL COLD-FORMED FRAMING NOT SPECIFICALLY DETAILED IN THE GYPSUM CONSTRUCTION HANDBOOK OR ON THE STRUCTURAL DRAWINGS. THE DESIGN AND DETAILING OF THE COLD-FORMED STEEL FRAMING AND CONNECTION TO THE STRUCTURE SHALL BE PREPARED UNDER THE DIRECTION OF AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT AND SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION.

COLD-FORMED STEEL FRAMING SUBSTITUTION: AT THE CONTRACTOR'S OPTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, DETAILING, FABRICATION AND ERECTION OF THE INTERIOR NON-BEARING COLD-FORMED STEEL FRAMING, NOT OCCURING AT BRICK VENEER, AND THE CONNECTION OF THE COLD-FORMED STEEL FRAMING TO THE STRUCTURE. THE DESIGN AND DETAILING OF THE COLD-FORMED STEEL FRAMING AND CONNECTION TO THE STRUCTURE SHALL BE PREPARED UNDER THE DIRECTION OF AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT AND SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO CONSTRUCTION.

POWDER ACTUATED FASTENERS: SHALL BE X-U UNIVERSAL KNURLED SHANK FASTENER BY HILTI OR PRE-APPROVED EQUAL. INSTALL PER ALL MANUFACTURER'S PUBLISHED RECOMMENDATIONS. COLD-FORMED STEEL TO STRUCTURAL STEEL: UNLESS NOTED OTHERWISE, PROVIDE 0.157" SHANK DIAMETER X-U LOW-VELOCITY FASTENER - FASTENER TIP SHALL PENETRATE STRUCTURAL STEEL. COLD-FORMED STEEL TO CONCRETE: UNLESS NOTED OTHERWISE, PROVIDE 0.157" SHANK DIAMETER X-U LOW-VELOCITY FASTENER - EMBED 1-1/2" MINIMUM INTO CONCRETE, UNLESS NOTED OTHERWISE.

SLIP CONNECTIONS: THE STEEL NETWORK "VERTICLIP" OR PRE-APPROVED EQUAL. MATCH CLIP WITH STUD SIZE AND THICKNESS. ATTACH PER MANUFACTURER'S REQUIREMENTS.

MISCELLANEOUS:

PRE-APPROVED SUBSTITUTIONS: SUBSTITUTIONS MAY BE ALLOWED ONLY IF THEY MEET THE REQUIREMENTS OF THESE GENERAL NOTES AND THE SPECIFICATIONS, AND IF COMPLETE WRITTEN ENGINEERING DATA FOR EACH CONDITION REQUIRED FOR THIS PROJECT IS PROVIDED TO THE STRUCTURAL ENGINEER TWO WEEKS PRIOR TO BID DATE AND APPROVED IN WRITTEN ADDENDA BY THE ARCHITECT. DATA IS TO INDICATE CODE BASIS BY YEAR, AUTHORITY FOR STRESSES AND STRESS INCREASES, IF ANY, AND AMOUNT OF EXPECTED DEFLECTION FOR FLEXURAL MEMBERS UNDER (1) TOTAL LOAD AND (2) LIVE LOAD ONLY. ALL INCREASED COSTS IN MECHANICAL, SPRINKLER, ELECTRICAL OR GENERAL INSTALLATION AND ANY ARCHITECTURAL OR STRUCTURAL REDESIGN RESULTING FROM SUBSTITUTION SHALL BE BORNE BY THE GENERAL CONTRACTOR.

PRE-ENGINEERED METAL BUILDING

THE FOUNDATION DESIGN HAS BEEN BASED ON PRELIMINARY LOAD REACTIONS FROM THE BUILDING COLUMNS. THE FOUNDATION REQUIRES FURTHER COORDINATION AFTER BIDDING ONCE THE MANUFACTURER'S SUBMITTAL IS REVIEWED. COLUMN LOAD SUMMARIES SHALL BE PROVIDED, WHICH COMPILES LOAD COMBINATIONS. THE FOUNDATION SHOULD NOT BE INSTALLED PRIOR TO OUR REVIEW. BUILDING COLUMNS SHALL NOT RELY ON BASE FIXITY WITH THE FOUNDATIONS. REFER TO THE SPECIFICATIONS AND ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.

SHOP DRAWINGS/SUBMITTALS

THE FOLLOWING SHOP DRAWINGS/SUBMITTALS SHALL BE PROVIDED FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION OR DELIVERY.

		STRUCTURAL ENGR.	BLDG. DEPT.
1.	CONCRETE MIX DESIGNS	X	X
2.	REINFORCING STEEL SHOP DRAWINGS	X	
3.	STRUCTURAL STEEL	X	X
4.	METAL DECK	X	X
5.	PREFABRICATED METAL STAIRS AND LANDINGS	X	X
6.	MISCELLANEOUS STEEL	X	X

DEFERRED SUBMITTALS

THE FOLLOWING ARE NOT INCLUDED WITH THE BUILDING PERMIT DRAWINGS AND SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT AND THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL AS A DEFERRED SUBMITTAL. SUBMITTALS SHALL BE STAMPED BY A ENGINEER LICENSED IN THE STATE OF THE PROJECT AS NOTED.

		ENGINEER STAMP REQUIRED
1.	PREFABRICATED METAL STAIRS AND LANDINGS	PE

SPECIAL INSPECTION: SPECIAL INSPECTION SHALL BE PROVIDED BY AN INDEPENDENT TESTING LABORATORY PER THE REQUIREMENTS OF IBC CHAPTER 17 AND THE LOCAL BUILDING OFFICIAL OR APPLICABLE JURISDICTION AND THE CONTRACT DOCUMENTS. THE SPECIAL INSPECTOR SHALL SUBMIT INSPECTION REPORTS AND A FINAL SIGNED REPORT TO THE BUILDING OFFICIAL FOR THE ITEMS LISTED IN THE QUALITY ASSURANCE/SPECIAL INSPECTION SECTION:

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GENERAL NOTES
S1.02

STATEMENT OF SPECIAL INSPECTIONS:

SPECIAL INSPECTION: SPECIAL INSPECTION SHALL BE PROVIDED PER THE REQUIREMENTS OF IBC SECTION 1704 AND 1705 AND AS NOTED HEREIN.

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
SOILS	VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		X		IBC 1705.6
	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X		
	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X		
	DURING FILL PLACEMENT, VERIFY USE OF PROPER MATERIALS AND PROCEDURES IN ACCORDANCE WITH THE PROVISIONS OF THE APPROVED GEOTECHNICAL REPORT. VERIFY DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X			
	PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X		
	CONSTRUCTION OF AGGREGATE PIER	X			IBC 1705.8

STEEL CONSTRUCTION	INSPECTION TASKS	OBSERVE	PERFORM	COMMENTS	REFERENCES
	PRIOR TO WELDING:			SPECIAL INSPECTIONS IN THIS SECTION **MAY BE** WAIVED WHERE FABRICATION IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5 **AND WITH THE APPROVAL OF THE BUILDING OFFICIAL.**	AISC 360, TABLE N5.4-1 AISC 341, TABLE J6.1
	WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	X			
	WELDING PROCEDURE SPECIFICATIONS		X		
	MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		X		
	MATERIAL IDENTIFICATION (TYPE/GRADE)	X			
	WELDER IDENTIFICATION SYSTEM	X			
	FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION) • BACKING TYPE AND FIT (IF APPLICABLE)	X			
	FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K—JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY) • JOINT PREPARATIONS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	X			
	CONFIGURATION AND FINISH OF ACCESS HOLES	X			
	FIT-UP OF FILLET WELDS • DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) • CLEANLINESS (CONDITION OF STEEL SURFACES) • TACKING (TACK WELD QUALITY AND LOCATION)	X			
	DURING WELDING:				AISC 360, TABLE N5.4-2 AISC 341, TABLE J6.2
	CONTROL AND HANDLING OF WELDING CONSUMABLES • PACKAGING • EXPOSURE CONTROL	X			
	NO WELDING OVER CRACKED TACK WELDS	X			
	ENVIRONMENTAL CONDITIONS • WIND SPEED WITHIN LIMITS • PRECIPITATION AND TEMPERATURE	X			
	WELDING PROCEDURE SPECIFICATIONS FOLLOWED • SETTINGS ON WELDING EQUIPMENT • TRAVEL SPEED • SELECTED WELDING MATERIALS • SHIELDING GAS TYPE/FLOW RATE • PREHEAT APPLIED • INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) • PROPER POSITION (F, V, H, OH) • INTERMIX OF FILLER METALS AVOIDED UNLESS APPROVED (LATERAL CONNECTIONS ONLY)	X			
	WELDING TECHNIQUES • INTERPASS AND FINAL CLEANING • EACH PASS WITHIN PROFILE LIMITATIONS • EACH PASS MEETS QUALITY REQUIREMENTS	X			
	USE OF QUALIFIED WELDERS (FOR LATERAL CONNECTIONS)	X			
	PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS		X		

STEEL CONSTRUCTION (CONTINUED)	INSPECTION TASKS	OBSERVE	PERFORM	COMMENTS	REFERENCES
	AFTER WELDING:				AISC 360, TABLE N5.4-3 AISC 341, TABLE J6.3
	WELDS CLEANED	X			
	SIZE, LENGTH, AND LOCATION OF WELDS		X		
	WELDS MEET VISUAL ACCEPTANCE CRITERIA • CRACK PROHIBITION • WELD/BASE-METAL FUSION • CRATER CROSS SECTION • WELD PROFILES • WELD SIZE • UNDERCUT • POROSITY		X		
	ARC STRIKES		X		
	k-AREA		X		
	WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES		X		
	BACKING REMOVED AND WELD TABLES REMOVED (IF REQUIRED)		X		
	REPAIR ACTIVITIES		X		
	DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER		X		
	NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER	X			
	PLACEMENT OF REINFORCING OR CONTOURING FILLET WELDS AS REQUIRED (LATERAL CONNECTIONS ONLY)		X		
	PRIOR TO BOLTING:				AISC 360, TABLE N5.6-1 AISC 641, TABLE J7.1
	MANUFACTURER'S CERTIFICATIONS FOR FASTENER MATERIALS	X			
	PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	X			
	CONNECTING ELEMENTS INCLUDING FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	X			
	PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED FOR FASTENER ASSEMBLIES AND METHODS USED	X			
	PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	X			
	DURING BOLTING:				AISC 360, TABLE N5.6-2 AISC 341, TABLE J7.2
	FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	X			
	JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO PRETENSIONING OPERATION	X			
	FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	X			
	FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC *SPECIFICATION*, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	X			
	AFTER BOLTING:				AISC 360, TABLE N5.6-3 AISC 341, TABLE J7.3
	DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS		X		
	OTHER INSPECTION TASKS:				AISC 360 SECTION N5.8
	PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS		X		
	FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPLICABLE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS		X		
	REDUCED BEAM SECTION REQUIREMENTS, IF APPLICABLE • CONTOUR AND FINISH • DIMENSIONAL TOLERANCE		X		AISC 341 TABLE J8.1
	PROTECTED ZONE – NO HOLES AND UNAPPROVED ATTACHMENTS MADE BY FABRICATOR OR ERECTOR, AS APPLICABLE		X		

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GENERAL NOTES
S1.03

STEEL CONSTRUCTION (CONTINUED)	INSPECTION TASKS	OBSERVE	PERFORM	COMMENTS	REFERENCES
	NONDESTRUCTIVE TESTING OF WELDED JOINTS:			SPECIAL INSPECTIONS IN THIS SECTION **MAY BE** WAIVED WHERE FABRICATION IS PERFORMED ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED IN ACCORDANCE WITH IBC SECTION 1704.2.5 **AND WITH THE APPROVAL OF THE BUILDING OFFICIAL.** SEE AISC 360 SECTION N5 FOR ULTRASONIC TESTING RATE	AISC 360 SECTION N5
	FOR RISK CATEGORY III AND IV STRUCTURES ALL COMPLETE-JOINT-PENETRATION WELDS, T- AND CORNER JOINTS, IN MATERIAL 5/16" OR GREATER		X		
	FOR RISK CATEGORY II STRUCTURES 10% OF ALL COMPLETE-JOINT-PENETRATION WELDS, T- AND CORNER JOINTS, IN MATERIAL 5/16" OR GREATER		X		
	COMPOSITE STRUCTURES PRIOR TO CONCRETE PLACEMENT:				AISC 341 TABLE J9.1
	MATERIAL IDENTIFICATION OF REINFORCEMENT STEEL (TYPE/GRADE)	X			
	DETERMINATION OF CARBON EQUIVALENT FOR REINFORCING STEEL OTHER THAN ASTM A706/A706M	X			
	PROPER REINFORCING STEEL SIZE, SPACING AND ORIENTATION	X			
	REINFORCING STEEL HAS NOT BEEN REBENT IN THE FIELD	X			
	REINFORCING STEEL HAS BEEN TIED AND SUPPORTED AS REQUIRED	X			
	REQUIRED REINFORCING STEEL CLEARANCES HAVE BEEN PROVIDED	X			
	COMPOSITE MEMBER HAS REQUIRED SIZE	X			
	COMPOSITE STRUCTURES DURING CONCRETE PLACEMENT:				AISC 341 TABLE J9.2
	CONCRETE: MATERIAL IDENTIFICATION (MIX DESIGN, COMPRESSIVE STRENGTH, MAXIMUM LARGE AGGREGATE SIZE, MAXIMUM SLUMP)	X			
	LIMITS ON WATER ADDED AT THE TRUCK OR PUMP	X			
	PROPER PLACEMENT TECHNIQUES TO LIMIT SEGREGATION	X			
	COMPOSITE STRUCTURES AFTER CONCRETE PLACEMENT:				AISC 341 TABLE J9.3
	ACHIEVEMENT OF MINIMUM SPECIFIED CONCRETE COMPRESSIVE STRENGTH AT SPECIFIED AGE		X		

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL	MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK: A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS B. MANUFACTURER'S CERTIFIED TEST REPORTS		X X		APPLICABLE ASTM MATERIAL STANDARDS & IBC 2210.1.1
	INSPECTION OF WELDING A. COLD-FORM STEEL DECK WELDS		X		AWS D1.3 AWS D1.4 IBC 1705.2.3 SJI SPECIFICATIONS LISTED IN SECTION 2207.1 SJI SPECIFICATIONS LISTED IN SECTION 2207.1
CONCRETE	INSPECT REINFORCEMENT, AND VERIFY PLACEMENT		X	SPECIAL INSPECTIONS NOT REQUIRED FOR THE FOLLOWING CONDITIONS: NON-STRUCTURAL SLAB ON GRADE CONCRETE FOUNDATION WALLS WITH F'c ≤ 2500 PSI ISOLATED SPREAD FOOTINGS FOR BUILDINGS THREE-STORIES AND LESS ABOVE GRADE PLANE CONTINUOUS FOOTINGS SUPPORTING WALLS OF THREE-STORIES AND LESS ABOVE GRADE PLANE WHERE WALLS ARE LIGHT-FRAME CONSTRUCTION AND STRUCTURAL DESIGN IS BASED ON F'c ≤ 2500 PSI	ACI 318: CH 20, 25.2, 25.3, 26.6-1 TO 26.6-3, IBC 1908
	ANCHORS CAST IN CONCRETE-PRIOR TO AND DURING PLACEMENT OF CONCRETE		X		ACI 318: 26.7 AISC 360 SECTION N7
	VERIFY USE OF REQUIRED DESIGN MIX		X		ACI 318, CH 19
	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X			ASTM C172, C31 ACI 318: 26.4, 26.12
	CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION	X			ACI 318: 26.5
	MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		X		ACI 318: 26.5.3 TO 26.5.5
	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (MECHANICAL ANCHORS INSTALLED IN ANY DIRECTION AND ADHESIVE ANCHORS INSTALLED DOWNWARD)		X	PERIODIC INSPECTION TO INCLUDE A QUANTITY OF 10% WITH A MINIMUM OF (5) ANCHORS INSPECTED PER INSTALLER ON A DAILY BASIS.	ACI 318: 26.7 MFR EVAL REPORT MFR PUBLISHED INSTALLATION INSTRUCTIONS

STRUCTURAL SYSTEM	VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
CONCRETE CONTINUED	ANCHORS POST-INSTALLED IN HARDENED CONCRETE (ADHESIVE ANCHORS INSTALLED HORIZONTAL OR UPWARDLY INCLINED)	X			ACI 318: 26.7 MFR EVAL REPORT MFR PUBLISHED INSTALLATION INSTRUCTIONS
	ERECTION OF PRECAST CONCRETE		X		ACI 318: 26.9
	VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO STRESSING OF TENDONS IN POST TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		X		ACI 318: 26.11.2
	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X		ACI 318: 26.11.1.2(b)
	MATERIAL VERIFICATION OF REINFORCEMENT STEEL FOR ASTM A615 REINFORCING		X	MANUFACTURER SHALL PROVIDE MILL TEST REPORTS. CONTINUOUS INSPECTION FOR ALL WELDS GREATER THAN 5/16" FILLET. PERIODIC INSPECTION FOR FILLET WELD 5/16" AND SMALLER	ACI 318: 26.6.4 AWS D1.4 IBC 1705.3.1
	TESTING OF MATERIALS		X		IBC 1705.3.2
	INSPECTION OF WELDING FOR REINFORCING STEEL A. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706 B. REINFORCING STEEL IN MOMENT FRAMES AND BOUNDARY ELEMENTS C. SHEAR REINFORCEMENT D. OTHER REINFORCING STEEL	 X X X	X		AWS D1.3 AWS D1.4 ACI 318 SECTION 26.6.4
WOOD FRAMING	SHEAR WALL NAILING		X	SPECIAL INSPECTION NOT REQUIRED FOR FASTENER SPACING > 4" O.C.	IBC 1705.5, 1705.12.1, 1705.13.2
	DIAPHRAGM NAILING		X	SPECIAL INSPECTION NOT REQUIRED FOR FASTENER SPACING > 4" O.C.	IBC 1705.5, 1705.12.1, 1705.13.2
	NAILING, BOLTING, AND ANCHORAGE OF COMPONENTS THAT ARE PART OF DRAG STRUTS, BRACES AND HOLD-DOWNS THAT ARE PART OF THE SEISMIC RESISTING SYSTEM		X		IBC 1705.12.1, 1705.13.2
	METAL-PLATE-CONNECTED WOOD TRUSSES A. SPANNING 60' OR GREATER B. WITH OVERALL HEIGHT OF 5' OR GREATER		X X	TEMPORARY AND PERMANENT BRACING PERMANENT BRACING	IBC 1705.5.2

TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.

STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY THE STRUCTURAL ENGINEER OF RECORD OR DESIGNATED REPRESENTATIVE IN ACCORDANCE WITH IBC 1704.6. STRUCTURAL OBSERVATION SHALL BE PERFORMED AS FOLLOWS:

- PERIODIC VISUAL OBSERVATION OF STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE TO CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES.
- REVIEW OF TESTING AND INSPECTION REPORTS.
- REPORTS SHALL BE PREPARED FOR EACH SITE VISIT AND SHALL BE DISTRIBUTED TO ARCHITECT.

GENERAL CONTRACTOR SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL INSPECTION REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTION.

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GENERAL NOTES

S1.04

ABBREVIATION LIST					
@	AT	E.F.	EACH FACE	MPL	MASS PLYWOOD LAM
A.B.	ANCHOR BOLT	EL.	ELEVATION	MPP	MASS PLYWOOD PANEL
ADD'L	ADDITIONAL	ELEV.	ELEVATOR	MTL	METAL
A.F.F.	ABOVE FINISH FLOOR	ENGR	ENGINEER	MT SCREW	MASS TIMBER SCREW
ALT.	ALTERNATE	EQ.	EQUAL	N.F.	NEAR FACE
ARCH.	ARCHITECTURAL	E.W.	EACH WAY	N.S.	NEAR SIDE
BLD'G	BUILDING	EXP.	EXPANSION	NTS	NOT TO SCALE
BLK'G	BLOCKING	EXT.	EXTERIOR	O.C.	ON CENTER
BM	BEAM	FDN	FOUNDATION	OPN'G	OPENING
B.O.F.	BOTTOM OF FOOTING	F.F.	FAR FACE	OPP.	OPPOSITE
BOT.	BOTTOM	FLR	FLOOR	P.A.F.	POWDER ACTUATED FASTENER
BRB	BUCKLING RESTRAINED BRACE	F.O.M.	FACE OF MASONRY	PERP.	PERPENDICULAR
BRG	BEARING	F.O.S.	FACE OF STUD	PL	PLATE
BTWN	BETWEEN	FRM'G	FRAMING	P.P.	PARTIAL PENETRATION
B.U.	BUILT UP	F.R.T.	FIRE RETARDANT TREATED	P.P.T.	PRESERVATIVE PRESSURE TREATED
(C=)	CAMBER	F.S.	FAR SIDE	P.S.F.	POUNDS PER SQUARE FOOT
CANT.	CANTILEVER	FTG	FOOTING	PSL	PARALLAM
CFS	COLD-FORMED STEEL	GA.	GAGE/GAUGE	P.T.	POST TENSION
C.J.	CONTROL/CONSTRUCTION JOINT	GALV.	GALVANIZED	PW.	PLYWOOD
℄	CENTERLINE	GL.	GLULAM	REINF.	REINFORCEMENT
CLR.	CLEARANCE	GR.	GRADE	REQ'D	REQUIRED
CLT	CROSS-LAMINATED TIMBER	GWB	GYPSUM WALL BOARD	SCHED.	SCHEDULE
CMU	CONCRETE MASONRY UNIT	HDR	HEADER	SCL	STRUCTURAL COMPOSITE LUMBER
COL.	COLUMN	HGR	HANGER	SHT'G	SHEATHING
CONC.	CONCRETE	HORIZ.	HORIZONTAL	SIM.	SIMILAR
CONN.	CONNECTION	HSS	HOLLOW STRUCTURAL SECTION	S.O.G.	SLAB ON GRADE
CONST.	CONSTRUCTION	HT	HEIGHT	SQ.	SQUARE
CONT.	CONTINUOUS	INT.	INTERIOR	STD	STANDARD
CONTR.	CONTRACTOR	JST	JOIST	STIFF.	STIFFENER
COORD.	COORDINATE	JT	JOINT	STL	STEEL
C.P.	COMPLETE PENETRATION	L	ANGLE	STRUCT.	STRUCTURAL
CTR'D	CENTERED	L.F.R.S.	LATERAL FORCE-RESISTING SYSTEM	T&B	TOP & BOTTOM
C.Y.	CUBIC YARD	L.L.	LIVE LOAD	T&G	TONGUE AND GROOVE
DBL.	DOUBLE	LLH	LONG LEG HORIZONTAL	THR'D	THREADED
DCW	DEMAND CRITICAL WELD	LLV	LONG LEG VERTICAL	T.O.F.	TOP OF FOOTING
D.F.	DOUGLAS FIR	LOC.	LOCATION	T.O.S.	TOP OF STEEL
DIA. OR ⌀	DIAMETER	LSL	LAMINATED STRAND LUMBER	TRT'D	TREATED
DIAG.	DIAGONAL	LVL	LAMINATED VENEER LUMBER	TYP.	TYPICAL
DIM.	DIMENSION	MAX.	MAXIMUM	U.N.O.	UNLESS NOTED OTHERWISE
D.L.	DEAD LOAD	M.B.	MACHINE BOLT	U.T.	ULTRASONIC TESTED
DLT	DOWEL-LAMINATED TIMBER	MECH.	MECHANICAL	VERT.	VERTICAL
DWG	DRAWING	MEZZ.	MEZZANINE	W/	WITH
DWL	DOWEL	MFR	MANUFACTURER	W.P.	WORK POINT
(E)	EXISTING	MIN.	MINIMUM	WT	WEIGHT
EA.	EACH	MISC.	MISCELLANEOUS	W.W.R.	WELDED WIRE REINFORCING

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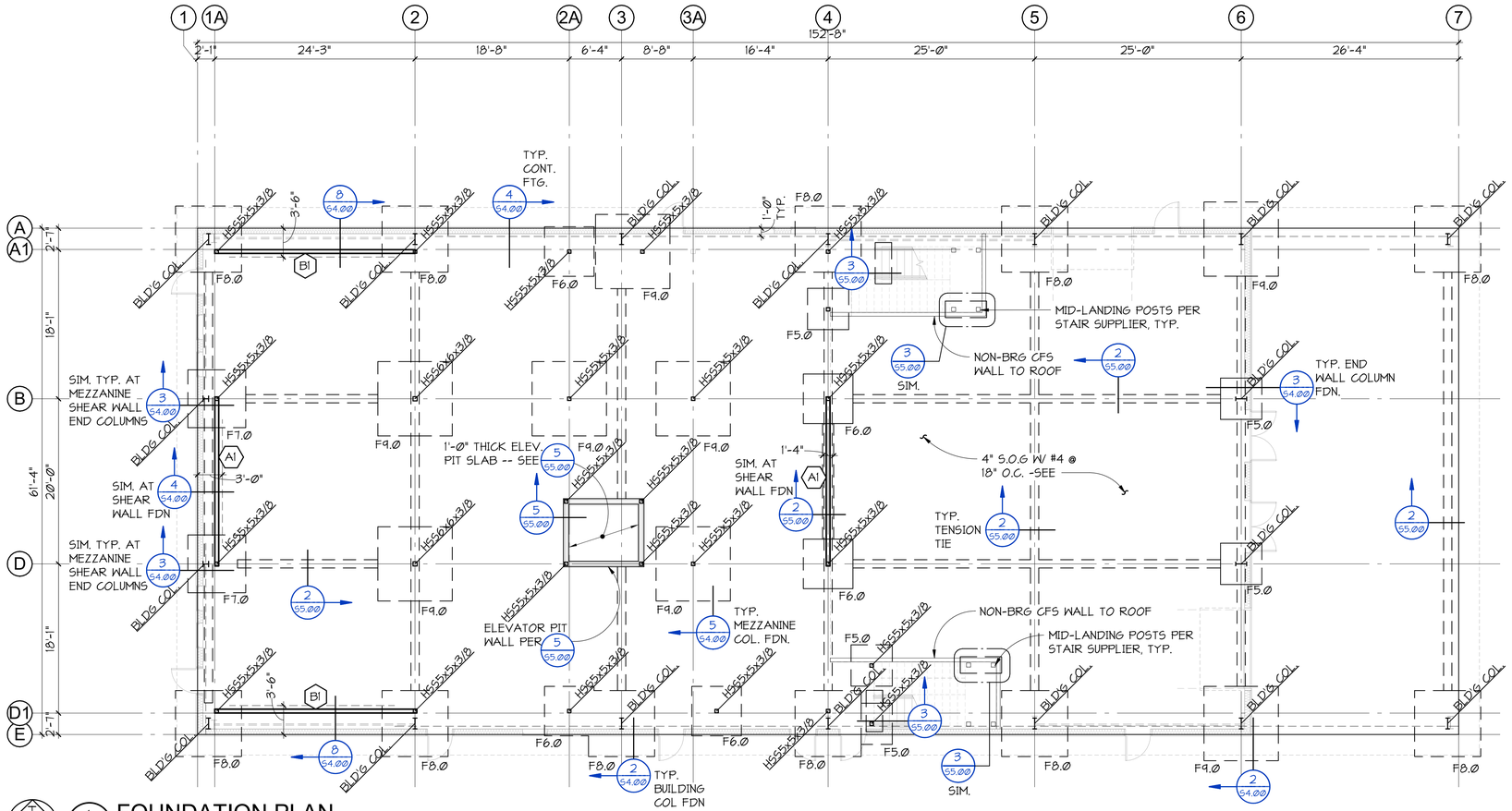


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GENERAL NOTES

S1.05



FOUNDATION NOTES

1. COORDINATE ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
2. "F_" INDICATES CONCRETE SPREAD FOOTING. FOR SCHEDULE SEE 1/S4.ØØ.
3. HSS5x5x3/8 INDICATES STEEL COLUMNS ORIGINATING AT FOUNDATION LEVEL. ALL COLUMNS ARE CONTINUOUS TO ROOF UNLESS NOTED OTHERWISE. FOR TYPICAL ANCHOR ROD/BOLT DETAIL SEE 5/S4.ØØ.
4. FOR TYPICAL FOUNDATION AND CONCRETE SLAB-ON-GRADE DETAILS SEE SHEETS S4.ØØ & S5.ØØ
5. FOR SITE STRUCTURES INCLUDING CANOPIES, WALKWAYS, SITE SIGNS, ETC., SEE ARCHITECTURAL.
6. TOP OF FOOTING ELEVATIONS = -1'-Ø" UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.
7. TOP OF SLAB = Ø'-Ø" UNLESS NOTED OTHERWISE.
8. INDICATES SPECIAL LIGHT GAUGE METAL STUD WALL TYPE. SEE 1/S8.Ø1 FOR SCHEDULE.
9. INDICATES LIGHT GAUGE METAL STUD WALL. LIGHT GAUGE METAL STUDS SHOULD BE SPACED @ 16" ON CENTER MAXIMUM UNLESS NOTED OTHERWISE.
10. NON-STRUCTURAL STUD WALLS ARE NOT SHOWN OR SHOWN SCREENED. FOR LOCATION SEE ARCHITECTURAL DRAWINGS. FOR BRACING AT TOPS OF WALLS SEE S8.Ø1.

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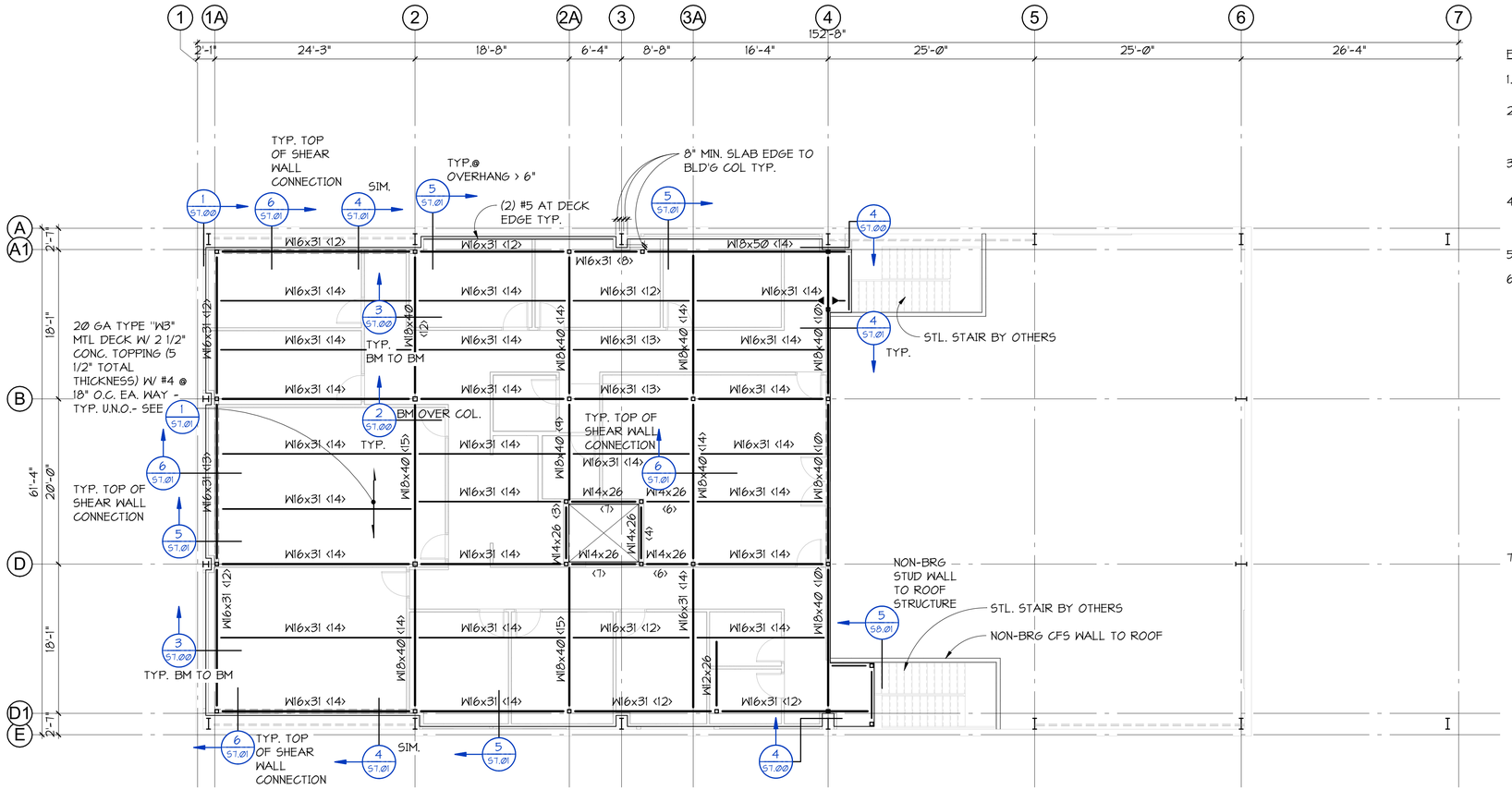
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DANIEL A. HEATH
56734

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FOUNDATION PLAN

S3.00

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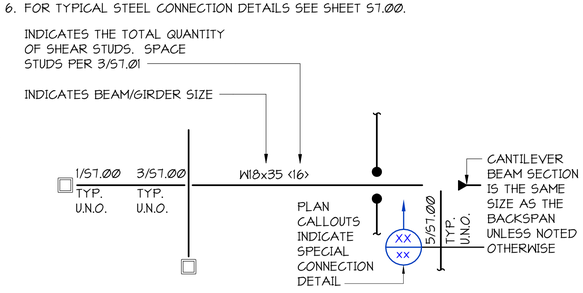
NORTH

1 S3.01 SECOND FLOOR FRAMING PLAN

1/8" = 1'-0"

FLOOR FRAMING NOTES

1. INDICATES STEEL COLUMN DISCONTINUING AT FLOOR LEVEL.
2. INDICATES PENETRATION IN FLOOR STRUCTURE. SEE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL FOR ADDITIONAL OPENINGS. FOR TYPICAL REINFORCING AROUND OPENINGS SEE 2/S7.01
3. FOR TYPICAL COMPOSITE BEAM AND METAL DECK DETAILS SEE SHEET S7.01.
4. NON-STRUCTURAL STUD WALLS ARE SHOWN SCREENED FOR REFERENCE ONLY. FOR LOCATION SEE ARCHITECTURAL. FOR BRACING AT TOPS OF STUD WALLS SEE 3/S8.00
5. INDICATES DIRECTION OF SPAN FOR METAL DECK.
6. FOR TYPICAL STEEL CONNECTION DETAILS SEE SHEET S7.00.



7. STEEL MEMBERS ARE EQUALLY SPACED BETWEEN DIMENSION POINTS UNLESS NOTED OTHERWISE.

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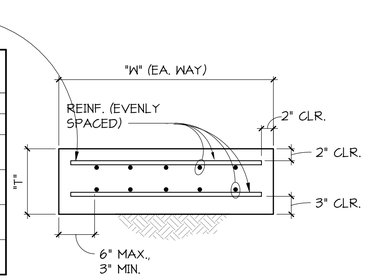
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SECOND FLOOR FRAMING PLAN

S3.01

MARK	DIMENSIONS "W"	DIMENSIONS "T"	REINFORCEMENT EACH WAY TOP AND BOTTOM
F4.0	4'-0"	1'-0"	(4) #4 TOP & BOTTOM
F5.0	5'-0"	1'-0"	(5) #5 TOP & BOTTOM
F6.0	6'-0"	1'-4"	(6) #5 TOP & (6) #6 BOTTOM
F7.0	7'-0"	1'-4"	(7) #5 TOP & (7) #6 BOTTOM
F8.0	8'-0"	1'-4"	(8) #6 TOP & (8) #6 BOTTOM
F9.0	9'-0"	1'-4"	(8) #6 TOP & (8) #6 BOTTOM

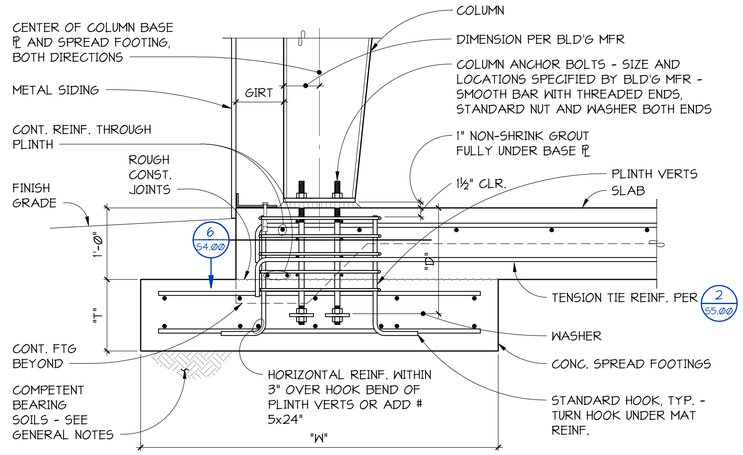


SECTION

NOTES:
1. CENTER ALL FOOTINGS ON COLUMN BASE PLATE ABOVE EXCEPT AS SHOWN OTHERWISE.
2. FOOTINGS SHALL BEAR ON COMPETENT EARTH, SEE GENERAL NOTES.

TYPICAL CONCRETE SPREAD FOOTINGS

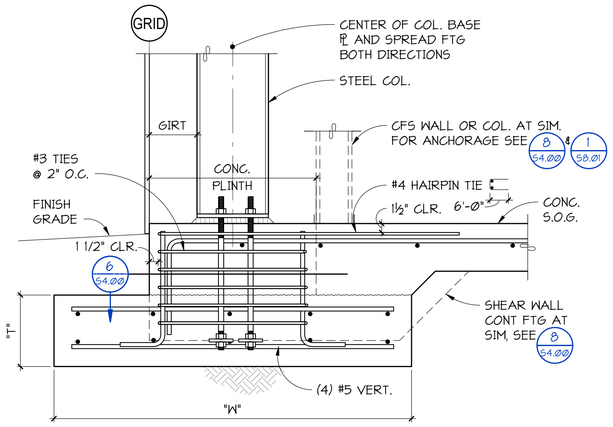
1 / S4.00 SECTION
NO SCALE



NOTES:
1. REINFORCEMENT FORCE "FRAME TIE" IS TAKEN INTO SLAB.
2. REVIEW SLAB JOINTS WITH RESPECT TO FRAME TIE FORCE. USE CONTROL JOINTS THAT CUT EVERY OTHER REINFORCEMENT. CONSTRUCTION JOINTS SHOULD ONLY BE PLACED PARALLEL TO MAIN FRAMES.
3. AVAILABLE REINFORCEMENT AT CONTROL JOINTS IS WITH 1/2 OF REINFORCEMENT CUT AND IS TAKEN AS 25% OF SLAB REINFORCEMENT AT 45° SPLAY TO FIRST JOINT.
4. SIZE FOOTINGS CONSERVATIVELY.

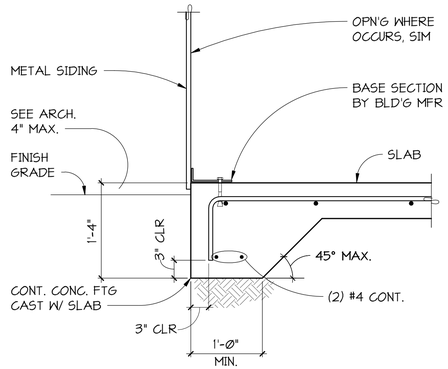
TYPICAL EXTERIOR BUILDING MAIN FRAME COLUMN AT FOUNDATION

2 / S4.00 SECTION
NO SCALE



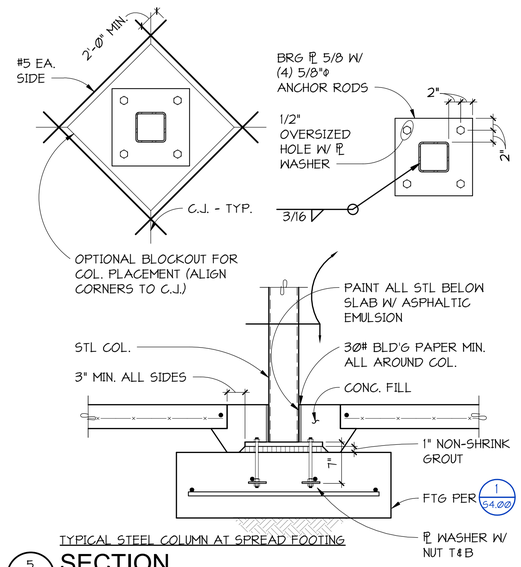
TYPICAL END WALL COLUMN FOUNDATION

3 / S4.00 SECTION
NO SCALE



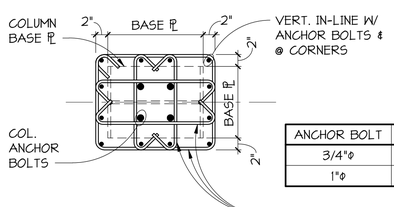
TYPICAL EXTERIOR SLAB EDGE FOUNDATION

4 / S4.00 SECTION
NO SCALE



TYPICAL STEEL COLUMN AT SPREAD FOOTING

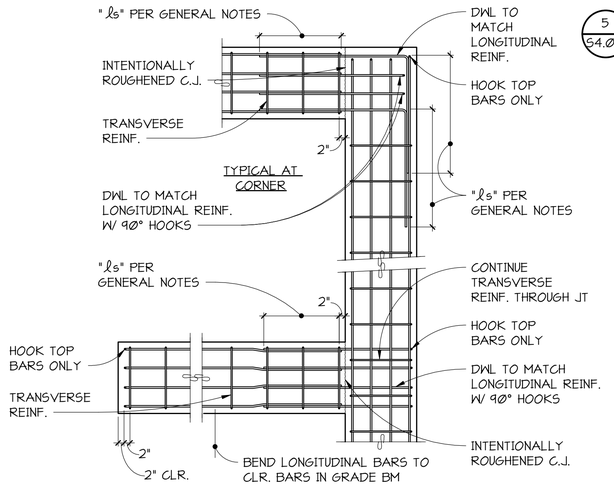
5 / S4.00 SECTION
NO SCALE



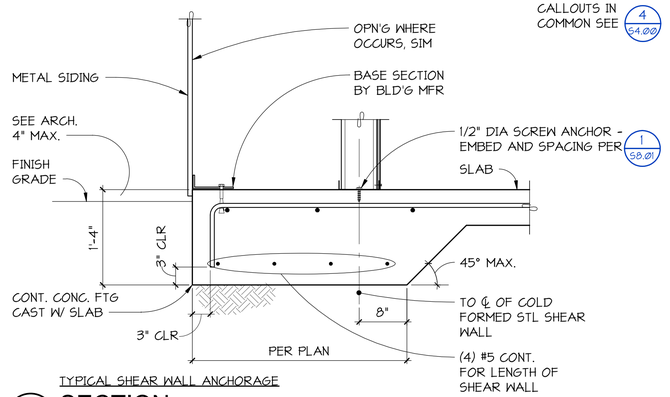
ANCHOR BOLT	"D"	VERTICAL	TIES
3/4"ø	19"	#5	#3
1"ø	22"	#6	#4

TYPICAL BUILDING COLUMN PLINTH

6 / S4.00 SECTION
1" = 1'-0"



7 / S4.00 SECTION
1/2" = 1'-0"



TYPICAL SHEAR WALL ANCHORAGE

8 / S4.00 SECTION
NO SCALE

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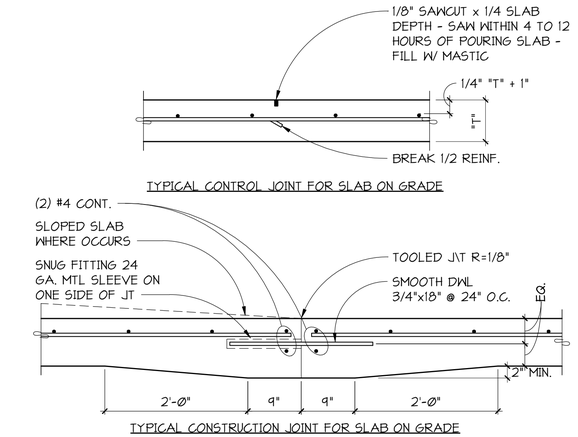
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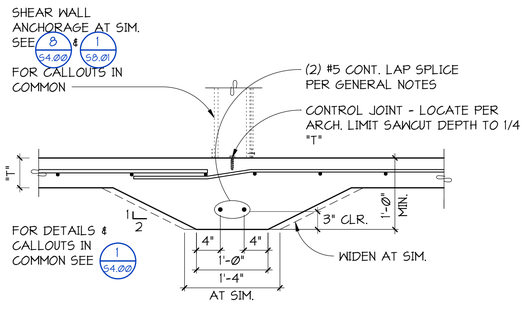
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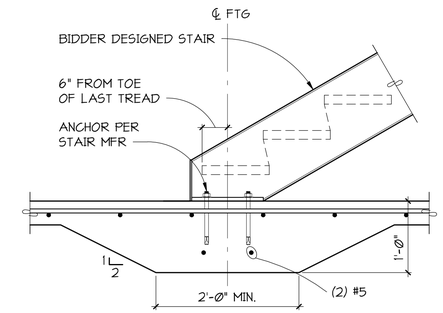
FOUNDATION DETAILS
S4.00



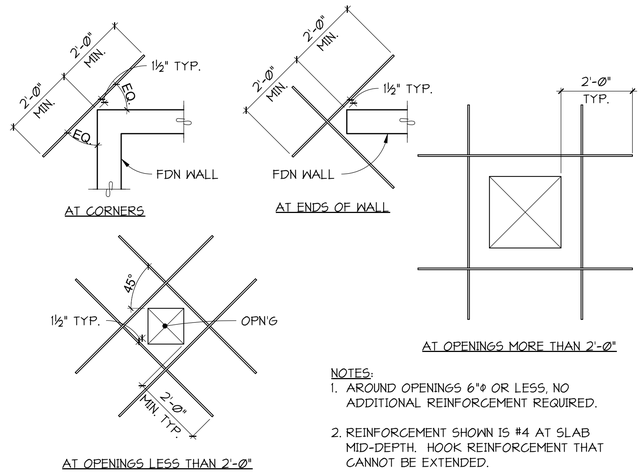
1 S5.00 **SECTION**
1" = 1'-0"



2 S5.00 **SECTION**
1" = 1'-0"



3 S5.00 **SECTION**
1" = 1'-0"



TYPICAL SLAB ON GRADE DISCONTINUITY REINFORCEMENT

4 S5.00 **PLAN DETAILS**
NO SCALE

TYPICAL ELEVATOR PIT

5 S5.00 **SECTION**
NO SCALE

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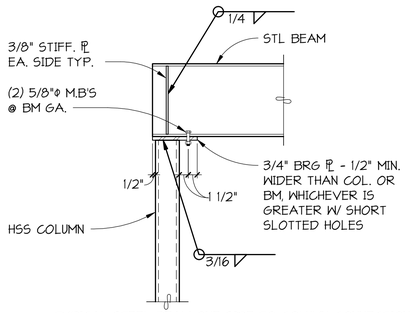


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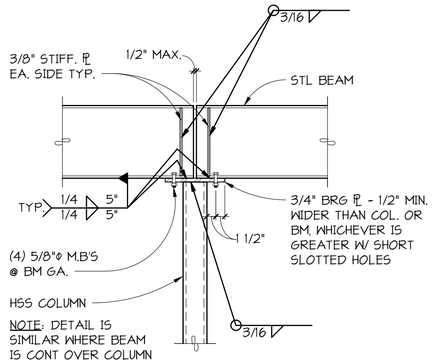
SLAB ON GRADE DETAILS

S5.00



TYPICAL STEEL BEAM ONE SIDE TO COLUMN CONNECTION

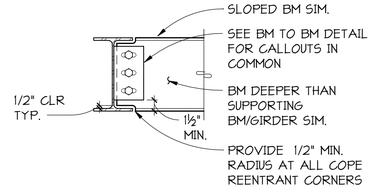
1 S7.00 **DETAIL**
NO SCALE



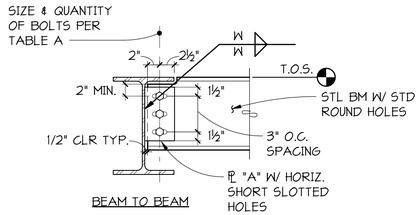
NOTE: DETAIL IS SIMILAR WHERE BEAM IS CONT OVER COLUMN

TYPICAL STEEL BEAM BOTH SIDES TO COLUMN CONNECTION

2 S7.00 **DETAIL**
NO SCALE



BEAM TO BEAM SAME DEPTH



BEAM TO BEAM

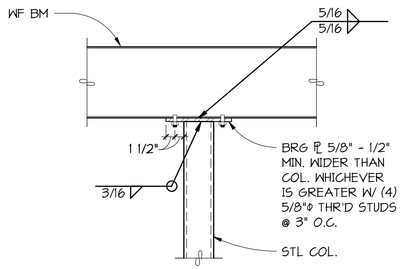
TYPICAL STEEL DETAIL

3 S7.00 **DETAIL**
NO SCALE

TABLE A			
SUPPORTED BEAM SIZE	QUANTITY OF 7/8"ø A325N BOLTS	SHEAR PLATE THICKNESS "A"	WELD "W" NOTE 1.
W10	2	3/8"	5/16"
W12, W14	3	3/8"	5/16"
W16, W18	4	3/8"	5/16"

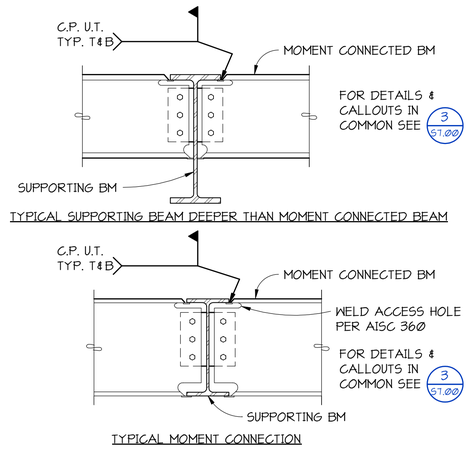
NOTE:

1. WELD SIZE SHOWN IS FOR BEAM/GIRDERS FRAMING PERPENDICULAR INTO SUPPORTS.



TYPICAL CONTINUOUS WIDE FLANGE SECTION BEAM CONNECTION OVER COLUMN

4 S7.00 **SECTION**
NO SCALE



TYPICAL SUPPORTING BEAM DEEPER THAN MOMENT CONNECTED BEAM

TYPICAL MOMENT CONNECTION

5 S7.00 **DETAIL**
NO SCALE

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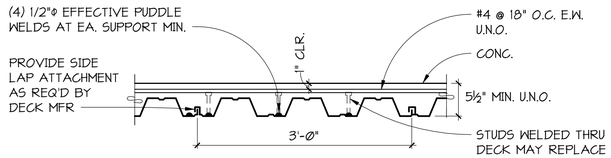


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STEEL FRAMING DETAILS

S7.00

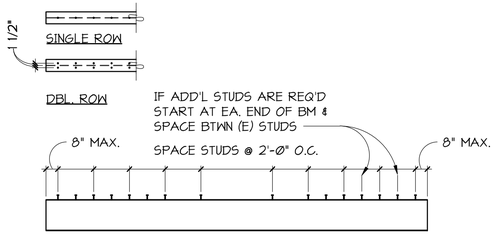


TYPE "W-3" MINIMUM DECK PROPERTIES		
GAGE	I = (in.⁴/ft.)	+S/-S = (in.³/ft)
20	.907	.510/.528

NOTES:
1. (2) SPAN MINIMUM, (3) SPAN PREFERRED. WHERE SIMPLE SPAN SHOWN ON DRAWINGS, GENERAL CONTRACTOR TO PROVIDE SHORING.
2. AT SUPPORTS PARALLEL TO CORRUGATIONS, PROVIDE PUDDLE WELDS AT 24" ON CENTER MAXIMUM.
3. CONDUIT NOT PERMITTED IN SLAB.
4. FOR EXPOSED SLAB LOCATIONS - SEE ARCHITECTURAL.
5. SECTION PROPERTIES ARE BASED ON Fy = 50 KSI.
6. CONTINUOUS METAL DECK WITHOUT CONCRETE TOPPING AT LOW ROOF WHERE NOTED ON PLAN.

TYPICAL COMPOSITE FLOOR DECK

1 / S7.01 DETAIL 1" = 1'-Ø"



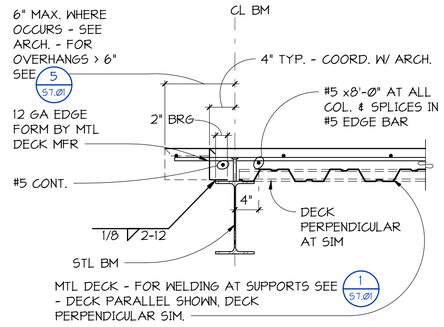
NOTES:
1. LOCATE STUDS AT CENTER OF BEAM FLANGE.
2. STUDS ARE 3/4"ø x LENGTH AFTER WELDING.

4½" LENGTH @ 5½" COMPOSITE SLAB (W3 DECKING)
3½" LENGTH @ 5" COMPOSITE SLAB (W2 DECKING)

3. SEE FRAMING PLANS FOR NUMBER OF STUDS.
4. ALL BEAMS WITH STUDS ARE COMPOSITE STEEL BEAMS.
5. PROVIDE A DOUBLE ROW OF STUDS AT BEAMS WHERE THE REQUIRED NUMBER OF STUDS EXCEEDS THE NUMBER THAT CAN FIT IN A SINGLE ROW AT 6" ON CENTER AT DECK PARALLEL TO BEAM OR 12" ON CENTER AT DECK PERPENDICULAR TO BEAM. STUDS SHOULD BE LOCATED IN DECK FLUTES PER AISC STRONG POSITION.

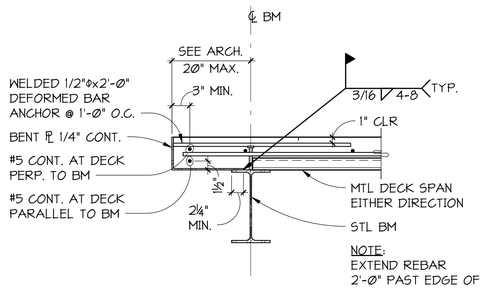
TYPICAL COMPOSITE BEAM DETAIL

3 / S7.01 DETAIL 1/4" = 1'-Ø"



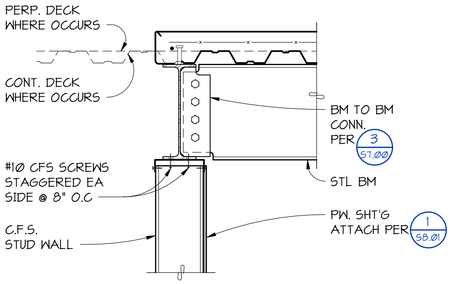
TYPICAL SLAB EDGE CONDITION

4 / S7.01 SECTION 1" = 1'-Ø"



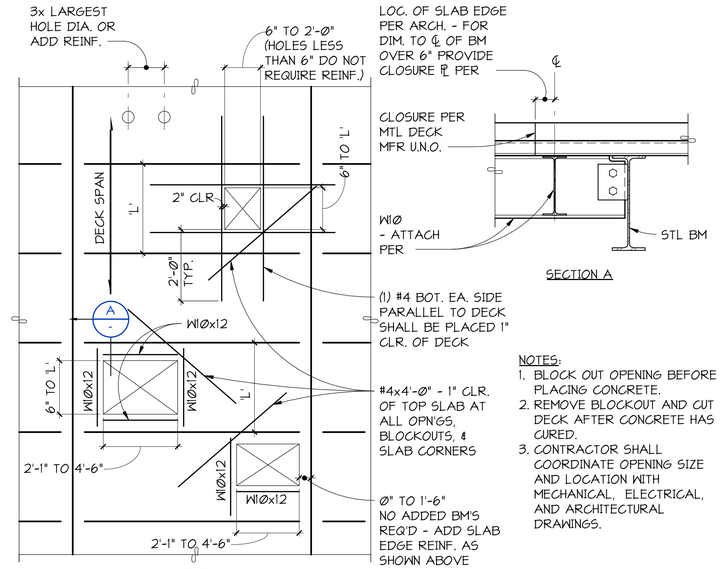
TYPICAL SLAB EDGE CONDITION - OVER 6" OVERHANG

5 / S7.01 SECTION 1" = 1'-Ø"



TYPICAL COLD FORMED STUD SHEAR WALL ATTACHMENT AT FLOOR GIRDER

6 / S7.01 SECTION NO SCALE



NOTES:
1. BLOCK OUT OPENING BEFORE PLACING CONCRETE.
2. REMOVE BLOCKOUT AND CUT DECK AFTER CONCRETE HAS CURED.
3. CONTRACTOR SHALL COORDINATE OPENING SIZE AND LOCATION WITH MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS.

1 / S7.01 DETAIL 1" = 1'-Ø"

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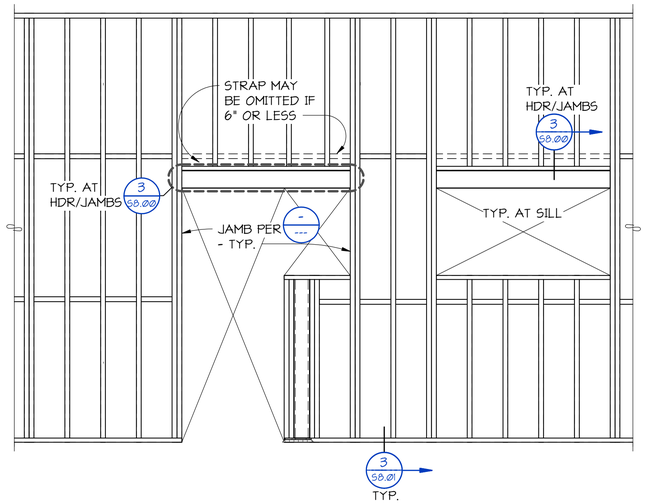


ISSUE LIST

FLOOR FRAMING DETAILS

S7.01

A25-15 PRINTED:10/2/2026 11:47:22 AM



MILS/GAUGE SCHEDULE		
MILS	MINIMUM THICKNESS	GAGE
30	.0312	20
33	.0346	20
43	.0451	18
54	.0566	16
68	.0713	14
97	.1017	12

COLD FORMED STEEL STUD WALL FRAMING NOTES:

1. ALL NON-BEARING WALL STUDS SHALL BE PER 2/SLGM2 UNLESS NOTED OTHERWISE. FOR WALL TYPE AND PROPER LOCATION SEE ARCHITECTURAL DRAWINGS.
2. PROVIDE BRIDGING AT ALL NON-BEARING WALLS WITHOUT FULL HEIGHT QUALIFIED SHEATHING EITHER SIDE OF STUD PER 5/SLGM3 NOTE #1.
3. FOR TYPICAL COLD-FORMED STEEL JOIST CEILING FRAMING SCHEDULE AND DETAIL - SEE 4/SLGM4.
4. ALL WELDS SHALL BE 1/8" FILLET MAXIMUM. FOR MATERIALS THINNER THAN 0.15", EFFECTIVE THROAT SHALL NOT BE LESS THAN THINNEST MATERIAL. WELD IN ACCORDANCE WITH "STRUCTURAL WELDING CODE -- SHEET METAL" AWS D1.3.
5. STUD PUNCHOUTS SHALL NOT BE SPACED LESS THAN 24" ON CENTER, NOR WITHIN 10" CLEAR OF MEMBER END AT STUDS, HEADERS, BEAMS, JOISTS, ETC. FOR TYPICAL ALLOWABLE PUNCHOUT DETAIL - SEE 6/SLGM3.
6. SCREWS SHALL BE THREAD-FORMING OR THREAD-CUTTING, WITH OR WITHOUT A SELF DRILLING POINT. SCREWS SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MINIMUM SPACING IS THREE SCREW DIAMETERS. A MINIMUM OF (3) THREADS SHALL BE ENGAGED.
7. FOR TYPICAL COLD-FORMED STEEL WALL CORNER REQUIREMENTS - SEE 3b/SLGM3.
8. FOR POWDER ACTUATED FASTENER REQUIREMENTS - SEE GENERAL NOTES.

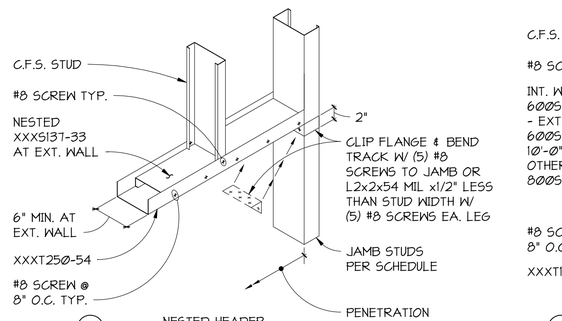
TYPICAL NON-BEARING COLD-FORMED STEEL STUD WALL FRAMING

1 S8.00 ELEVATION
NO SCALE

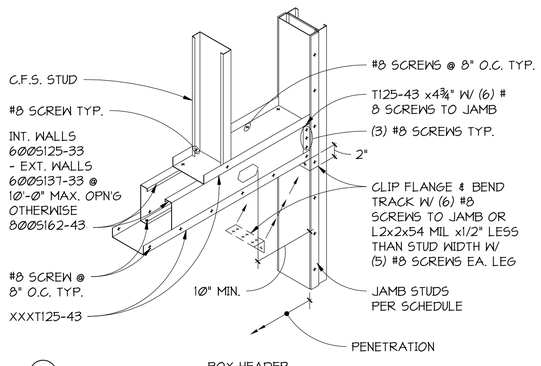
INTERIOR NON-BEARING COLD-FORMED STEEL WALL STUDS 5 PSF (ASD) LIVE LOAD, 1/360 DEFLECTION LIMIT			
REQUIRED BRIDGING TYPE	STUD SIZE	STUD MIL	
		18 MIL	33 MIL
		STUD SPACING	
		16" O.C.	16" O.C.
		MAXIMUM STUD HEIGHT ALLOWED	
4	1625125	8'-2"	8'-5"
	2505125	9'-10"	11'-2"
	3625125	12'-4"	14'-3"
	4005125	13'-4"	15'-11"
	6005125	17'-11"	21'-4"
REQUIRED BRIDGING TYPE	STUD SIZE	STUD MIL	
		43 MIL	54 MIL
		STUD SPACING	
		16" O.C.	16" O.C.
		MAXIMUM STUD HEIGHT ALLOWED	
1 OR 2 OR 3 OR 4	4005137	17'-2"	18'-5"
	4005162	18'-0"	19'-3"
	4005200	19'-0"	20'-4"
	6005137	23'-8"	25'-5"
	6005162	24'-9"	26'-6"
	6005200	26'-0"	27'-11"
1 OR 3 OR 4	8005137	30'-0"	32'-2"
	8005162	31'-2"	33'-6"
	8005200	32'-7"	35'-0"

NOTES:
1. FOR TYPICAL COLD-FORMED STEEL WALL STUD BRIDGING DETAIL SEE 5/SLGM3.
2. INFORMATION SHOWN FOR S125 STUDS TAKEN FROM THE GYPSUM CONSTRUCTION HAND BOOK BY CGC INC. - INFORMATION SHOWN FOR ALL OTHER STUDS TAKEN FROM ICC ES LEGACY REPORT ER-4943P*.
3. 43 MIL MINIMUM REQUIRED AT MASONRY VENEER.

2 S8.00 SCHEDULE
NO SCALE



a NESTED HEADER
4'-0" MAXIMUM PENETRATION SIZE
(NOT ALLOWED AT DOORS)
(6005 MINIMUM AT EXTERIOR)



b BOX HEADER
12'-0 MAXIMUM PENETRATION UNLESS NOTED OTHERWISE
8'-0" MAXIMUM PENETRATION AT 4" EXTERIOR WALL
10'-0" MAXIMUM PENETRATION AT 4" OR 3⅝" INTERIOR WALL

INTERIOR NON-BEARING COLD FORMED STEEL STUD WALL PENETRATION JAMB SCHEDULE 5 PSF (ASD) LIVE LOAD - L/360									
STUD SIZE AND MIL	MAXIMUM PENETRATION (FEET)	MINIMUM NUMBER OF BUILT-UP STUDS AT JAMB			STUD DEPTH	STUD WIDTH AND MIL	MAXIMUM PENETRATION WIDTH (FEET) WITH SINGLE JAMB STUD		
		(2)	(3)	(4)			(4)	(8)	(12)
		MAXIMUM JAMB HEIGHT (FEET)					MAXIMUM JAMB HEIGHT (FEET)		
3625125-33 OR 4005125-33	4	12	15	-	3625 OR 4005	125-33	10	-	-
						137-43	12	-	-
						162-54	13	11	-
	8	10	12	14		200-54	14	12	10
6005125-33	4	16	-	-	6005	125-33	11	-	-
						137-43	14	-	-
	8	13	16	-		162-54	-	15	-
						200-54	-	-	15
	12	9	14	16					

NOTES:
1. BOXED JAMB STUDS SHOWN. BACK-TO-BACK JAMB STUDS PERMITTED AT CONTRACTOR'S OPTION. FOR DETAIL SEE 8/SLGM3.
2. FOR CONNECTION TO STRUCTURE ABOVE - SEE 4/SLGM2 & 1/SLGM4.
3. FOR CONNECTION TO STRUCTURE BELOW - SEE 1/SLGM3.
4. HEADER AND STUDS SHALL BE CONTINUOUS - NO SPLICES ALLOWED.
5. 1/600 APPLIES TO WALLS WITH MASONRY VENEER - COORDINATE WITH ARCH WALL TYPES.

TYPICAL NON-BEARING COLD-FORMED STEEL WALL PENETRATION AT 16'-0" MAXIMUM STUD HEIGHT - JAMB STUD SCHEDULE

3 S8.00 DETAIL
NO SCALE

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COLD FORMED STEEL DETAILS
S8.00

COLD-FORMED STEEL STUD WALL CONSTRUCTION SCHEDULE						
TABLE 1 - SHEAR WALL REQUIREMENTS						
MARK	WALL SHEATHING	SIDES WITH SHEATHING	SHEATHING FASTENING	EDGE FASTENING 2.5 ON CENTER SPACING	FIELD FASTENING ON 5 CENTER SPACING	1/2" SCREW ANCHOR SPACING (EMBED 7") PER 3/S8.Ø1
(A)	7/16" PLYWOOD	(1)	#8 SCREW	3"	12"	24"
(B)	7/16" PLYWOOD	(1)	#8 SCREW	2"	12"	24"

TABLE 2 - STUD REQUIREMENTS		
MARK	STUD SIZE AND SPACING	NUMBER OF STUDS REQUIRED AT MEMBER BEARING
(1)	600S162-54 @ 16" O.C.	(1)

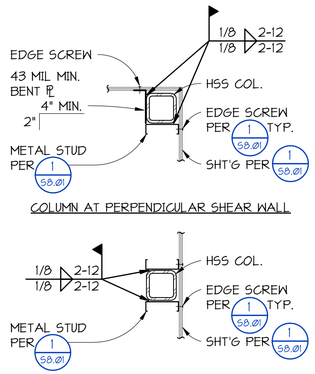
NOTES:

FIRST CHARACTER INDICATES SPECIAL SHEAR WALL REQUIREMENTS PER TABLE 1

SECOND CHARACTER INDICATES SPECIAL STUD SPACING PER TABLE 2

1. (X) INDICATES STRUCTURAL WALL MARK. STUDS SHALL ALIGN WITH JOISTS AND STUDS ABOVE. FOR NUMBER OF STUDS REQUIRED BELOW JOIST/STUD - SEE SCHEDULE. WALL MARK "1" SHALL BE USED AT LOCATIONS WHERE WALL PARALLEL TO JOISTS. FOR TYPICAL WALL STUD BRIDGING DETAIL AND ADDITIONAL WALL FRAMING REQUIREMENTS - SEE 3/SL6M1 AND 1/SL6M1.
2. ALL EXTERIOR AND INTERIOR WALLS DESIGNATED AS SHEAR WALLS SHALL BE BLOCKED AT ALL UNSUPPORTED PANEL EDGES. EDGE FASTENING APPLIES TO TOP AND BOTTOM TRACK, PANEL VERTICAL AND HORIZONTAL JOINTS, WALL CORNERS, HOLDOWN ANCHOR STUDS, AND WALL END STUDS. SHEAR WALL STUD FLANGE WIDTH SHALL BE 5162 MINIMUM. BLOCKING SHALL MATCH THICKNESS OF WALL STUDS x 1½" MINIMUM.
3. ADDITIONAL REQUIREMENTS AT WALL PENETRATIONS, FOR TYPICAL DETAILS - SEE 1/SL6M1.
4. SHEATHING PANELS MAY BE INSTALLED PARALLEL OR PERPENDICULAR TO FRAMING.
5. SCREWS SHALL BE SELF-DRILLING - SELF - TAPPING FLAT HEAD SCREW WITH MINIMUM Ø.292" HEAD DIAMETER.

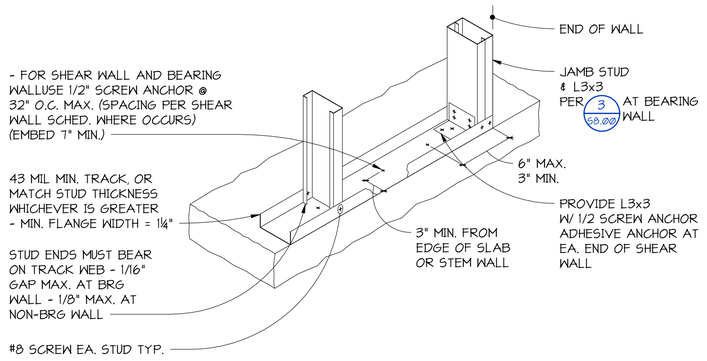
1 / S8.Ø1 SCHEDULE
NO SCALE



TYPICAL COLUMN AT SHEAR WALL

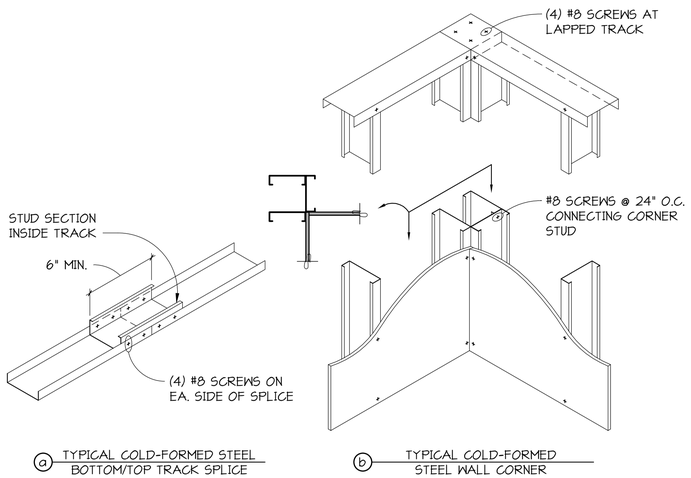
2 / S8.Ø1 DETAIL
NO SCALE

NOTE:
PROVIDE LOAD BEARING SHIMS OR GROUT BETWEEN UNDERSIDE OF WALL BOTTOM TRACK OR RIM TRACK AND SUPPORT BELOW AT STUD OR JOIST LOCATION WHERE GAP GREATER THAN 1/4" OCCURS.



TYPICAL COLD-FORMED STEEL STUD AND TRACK ATTACHMENT

3 / S8.Ø1 DETAIL
NO SCALE



(a) TYPICAL COLD-FORMED STEEL BOTTOM/TOP TRACK SPLICE

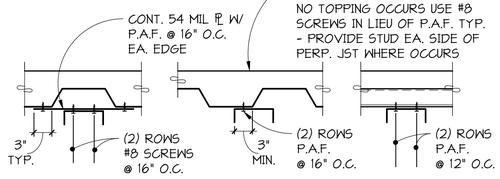
(b) TYPICAL COLD-FORMED STEEL WALL CORNER

4 / S8.Ø1 DETAIL
NO SCALE

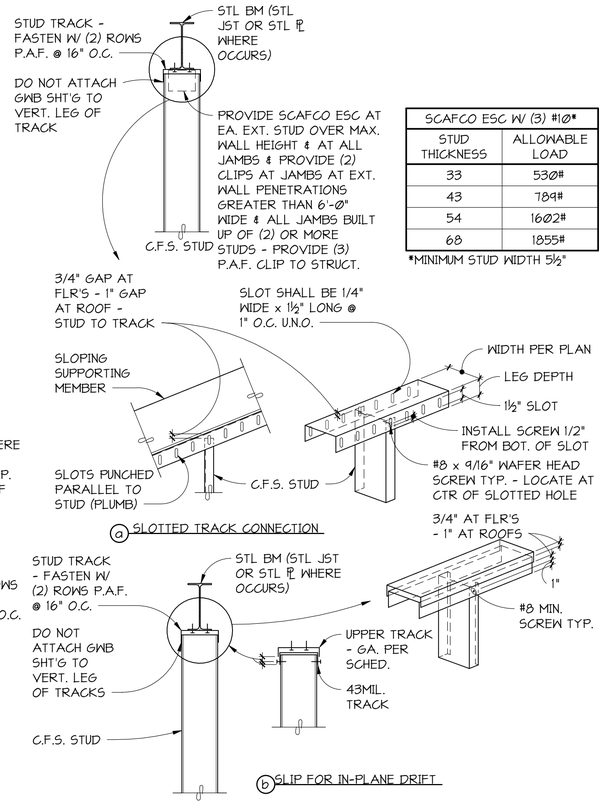
3" MIN. TRACK W/ 1" GAP			
TRACK THICKNESS (MILS)	ALLOWABLE LOAD (POUNDS)	EXTERIOR WALL HEIGHT	INTERIOR WALL HEIGHT
33	47	NOT ALLOWED	14'-1"
43	92	NOT ALLOWED	27'-8"
54	177	17'-11"	
68	299	29'-11"	

*DISTANCE BETWEEN WALL STUD SUPPORTS

TOP TRACK SCHEDULE



TOP TRACK TYPICAL CONNECTION TO STRUCTURE ABOVE



SCAFCO ESC W/ (3) #10*	
STUD THICKNESS	ALLOWABLE LOAD
33	530#
43	789#
54	1602#
68	1855#

*MINIMUM STUD WIDTH 5½"

(a) SLOTTED TRACK CONNECTION

(b) SLIP FOR IN-PLANE DRIFT

TYPICAL NON-BEARING COLD-FORMED STEEL WALL EXTENDING TO STRUCTURE ABOVE

5 / S8.Ø1 SECTION
1" = 1'-Ø"

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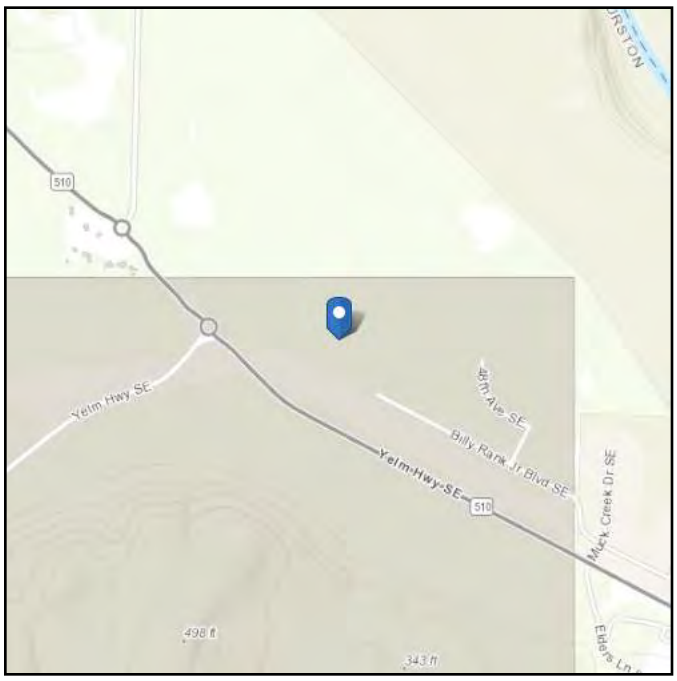
COLD FORMED STEEL DETAILS
S8.01

ASCE Hazards Report

Address:
11940 Billy Frank Jr Blvd SE
Olympia, Washington
98513

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Stiff Soil

Latitude: 47.008917
Longitude: -122.68374
Elevation: 267.42608132666317 ft (NAVD 88)





Wind

Results:

Wind Speed	97 Vmph
10-year MRI	67 Vmph
25-year MRI	73 Vmph
50-year MRI	77 Vmph
100-year MRI	82 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Thu Oct 01 2026

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

Seismic

Site Soil Class: D - Stiff Soil

Results:

S_S :	1.34	S_{D1} :	N/A
S_1 :	0.483	T_L :	16
F_a :	1	PGA :	0.542
F_v :	N/A	PGA_M :	0.596
S_{MS} :	1.34	F_{PGA} :	1.1
S_{M1} :	N/A	I_e :	1
S_{DS} :	0.893	C_v :	1.368

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Thu Oct 01 2026

Date Source: USGS Seismic Design Maps

Snow

Results:

Ground Snow Load, p_g:	15 lb/ft^2
Mapped Elevation:	267.4 ft
Data Source:	
Date Accessed:	Thu Oct 01 2026

Statutory requirements of the Authority Having Jurisdiction are not included.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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3.0 GEOTECHNICAL RECOMMENDATIONS

3.1 SHALLOW FOUNDATION RECOMMENDATIONS

Assuming site preparation is completed as described below, we recommend the following:

- **Subgrade Preparation:**

  QG recommends excavating and clearing any loose or organic cover soils, including the overriding layer of topsoil where necessary, from areas of proposed pavement construction, down to firm bearing conditions and benching the final bottom of subgrade elevation flat. Excavations should be performed with a smooth blade bucket to limit disturbance of subgrade soils. Vibratory compaction methods are suitable for densification of the non-organic native soils.

  After excavations have been completed to the planned subgrade elevations, but before placing fill or structural elements, the exposed subgrade should be evaluated under the periodic guidance of a QG representative. Any areas that are identified as being soft or yielding during subgrade evaluation should be brought to the attention of the geotechnical engineer. Where over excavation is performed below a structure, the over excavation area should extend beyond the outside of the footing a distance equal to the depth of the over excavation below the footing. The over-excavated areas should be backfilled with properly compacted structural fill.

  The proposed buildings may utilize either stepped or continuous footings with slab-on-grade elements. For continuous footing elements, upon reaching bearing strata, we recommend benching foundation lines flat. Continuous perimeter and strip foundations may be stepped as needed to accommodate variations in final subgrade level. We also recommend maximum steps of 18 inches with spacing of at least 5 feet be constructed unless specified otherwise by the design engineer. Structural fill may then be placed as needed to reestablish final foundation grade.

- **Allowable Bearing Capacity:**

  Up to 1,500 pounds per square foot (psf) for foundations placed directly on compacted native soil or an approved granular structural fill placed in accordance with the recommendations of *Section 4.2*. Bearing capacities, at or below 1,500 psf may eliminate the need for additional inspection requirements if approved by the county. The allowable bearing capacity may be increased by 1/3 for transient loading due to wind and seismic events.

- **Minimum Footing Depth:**

  2,000 pounds per square foot (psf)

  For a shallow perimeter and spread footing system, all exterior footings shall be embedded a minimum of 18 inches and all interior footings shall be embedded a minimum of 12 inches

below the lowest adjacent finished grade, but not less than the depth required by design. However, all footings must also penetrate to the prescribed bearing stratum cited above. Minimum depths are referenced per IBC requirements for frost protection; other design concerns may dictate greater values be applied.

- **Minimum Footing Width:**

  Footings should be proportioned to meet the stated bearing capacity and/or the IBC 2021 (or current) minimum requirements. For a shallow perimeter and spread footing system, continuous strip footings should be a minimum of 16 inches wide and interior or isolated column footings should be a minimum of 24 inches wide.

- **Estimated Settlements:**

  All concrete settles after placement. We estimate that the maximum settlements will be on the order of 0.5 inch, or less, with a differential settlement of ½ inch, or less, over 50 linear feet. Settlement is anticipated to occur soon after the load is applied during construction.

3.1.1 BUILDING SLAB ON GRADE FLOOR

QG anticipates that slab-on-grade floors are planned for the interior of the proposed building. Based on typical construction practices, we assume finished slab grade will be similar to or marginally above present grade for the below recommendations. If floor grades are planned to be substantially raised or lowered from existing grade, QG should be contacted to provide revised or alternative recommendations.

- **Capillary Break:**

  A capillary break will be helpful to maintain a dry slab floor and reduce the potential for floor damage resulting from shallow perched water inundation. To provide a capillary moisture break, a 6-inch thick, properly compacted granular mat consisting of open-graded, free-draining angular aggregate is recommended below floor slabs. To provide additional slab structural support, or to substitute for a structural fill base pad where specified, QG recommends the capillary break should consist of crushed rock all passing the 1-inch sieve and no more than 3 percent (by weight) passing the U.S. No. #4 sieve, compacted in accordance with *Section 5.2.2* of this report.

- **Vapor Barrier:**

  A vapor retarding membrane such as 10 mil polyethylene film should be placed beneath all floor slabs to prevent transmission of moisture where floor coverings may be affected. Care should be taken during construction not to puncture or damage the membrane. To protect the membrane, a layer of sand no more than 2 inches thick may be placed over the membrane if desired. If excessive relict organic material is discovered at any location, additional sealant or

more industrial gas barriers may be required to prevent off-gassing of decaying material from infiltrating the new structure. These measures shall be determined by the structural engineer to meet local code requirements as necessary.

- **Structural Design Considerations:**

  QG assumes the design and specifications of slabs will be assessed by the project design engineer. We suggest a minimum unreinforced concrete structural section of 4.0 inches be considered to help protect against cracking and localized settlement, especially where larger equipment or localized loads are anticipated. It is generally recommended that any floor slabs and annular exterior concrete paving subject to vehicular loading be designed to incorporate reinforcing. Additionally, some level of reinforcing, such as a wire mesh may be desirable to prolong slab life due to the overwhelming presence of such poor underlying soils. It should be noted that QG does not express any guarantee or warranty for proposed slab sections.

3.2 LATERAL SOIL & CONCRETE FOUNDATION CONSIDERATIONS

The results of QG's investigation indicate shallow and deep subsurface conditions at the proposed building area consist of gravelly soils.

The finished grade is assumed to be similar to the existing grade. Native soils may be considered suitable for use as backfill against new in-ground structures or direct bearing on a case-by-case basis. QG understands that the building structures may likely incorporate continuous perimeter grade beams as well as isolated footings, incorporating soil amendment as determined by the structural design team. For lateral support of these structures, the following soil parameters should be considered regarding any structural fill against these features (ignoring the upper 18 inches, due to freeze/thaw softening, unless covered in concrete or asphalt).

Table 1. Lateral Earth Pressures

Soil Type	Active Pressure (PSF*H)	At-Rest Pressure (PSF*H)	Seismic Surcharge (PSF*H)	Grade Beam Passive Equivalent Fluid Weight (PCF)	Grade Beam Coefficient of Friction
Existing Soils (GP-GM)	30	60	13	221*	0.37**
Existing Soils (GM)	40	60	11	212*	0.35**
New Structural Fill	35	55	10	200	0.35

*Factor of Safety: 2.0
**Factor of Safety: 1.5

The proposed buildings may utilize continuous grade beams with slab-on-grade, where appropriate, depending on the chosen development style. For continuous footing elements, upon reaching bearing strata, we recommend benching foundation lines flat.

3.3 SEISMIC DESIGN PARAMETERS & LIQUEFACTION

According to the Liquefaction Susceptibility layer of the Washington Geologic Information Portal the site is identified as having very low to low susceptibility. This is generally consistent with the findings of QG's investigation to date. Liquefaction is a phenomenon typically associated with a subsurface profile of relatively loose, cohesionless soils saturated by groundwater. Under seismic shaking the pore pressure can exceed the soil's shear resistance and the soil 'liquefies', which may result in excessive differential settlements that are damaging to structures and disruptive to exterior improvements. *The Washington Interactive Geologic Map - Seismic Site Class Map* classifies the project regional vicinity as *Site Class C to D.*

The USGS Seismic Design Map Tool was used to determine seismic design coefficients and spectral response accelerations assuming Site Soil Class CD, representing a dense soil profile (upper 100 feet) as soil explorations did not reach 100 feet in depth. Parameters in Table 2 were calculated using 2014 USGS hazard data and ASCE 7-22 was referenced for site Peak Ground Acceleration.

Table 2. Seismic Design Parameters

Seismic Design Category		CD	D	Default
Reference		ASCE 7-22	ASCE 7-22	ASCE 7-22
Risk Category		II	II	II
MCE_R ground motion (period=0.2s)	S_S	1.5	1.5	1.5
MCE_R ground motion (period=1.0s)	S_1	0.46	0.46	0.46
Site-modified spectral acceleration value	S_{MS}	1.6	1.67	1.67
Site-modified spectral acceleration value	S_{M1}	0.77	0.98	0.98
Numeric seismic design value at 0.2s SA	S_{DS}	1.07	1.12	1.12
Numeric seismic design value at 1.0s SA	S_{D1}	0.51	0.65	0.65
Site modified peak ground acceleration	PGA_M	0.64	0.66	0.66
Long-period transition period	T_L	16	16	16
Shear wave velocity at 30 meters depth	V_{S30}	365	260	260

Based on the findings of this study, the site is generally considered to have a very low to low risk of liquefaction-induced settlement.

ASCE 7-16 IS ACCEPTABLE FOR IBC 2021. DESIGN PARAMETERS PER ASCE 7-16. SEE DESIGN CRITERIA SPREADSHEET FOR APPLICABLE VALUES

3.4 INFILTRATION RATE DETERMINATION

QG understands the design of on-site stormwater controls are pending the results of this study to confirm design parameters and interpreted depths to perched seasonal groundwater and restrictive soil features.

1.0 – PEMB FDN DESIGN

PEMB FDNS. BASED ON VALUES PROVIDED BY NUCOR INC.
DATED 9/16/2026

DESIGN CRITERIA:

RISK CATEGORY II
SITE CLASS D
ALLOWABLE SOIL BRG = 1500 PSF (+1/3RD FOR W+E)
SDS = 0.893 (ASCE 7-16)

IBC 2021 GOV

SAMPLE BUILDING COL FOOTING DESIGN:

COL ON GRID INTERSECTION: 7A (CORNER)

PER Pg 14 OF EXN PACKAGE:

DL: (LC 2) x = -2^k, y = 6^k (+) (LC2), z = ∅
CL: x = -2^k, y = 7^k, z = ∅
ΣDL = { x = -4^k, y = 13^k }

LLr: (LC, 3) x = -4^k, y = 13^k, z = ∅
SL (MAX LC4,5,17) x = MAX(-2^k, -5^k, -2^k) = -5^k, y = MAX(6^k, 16^k, 6^k) = 16^k, z = ∅

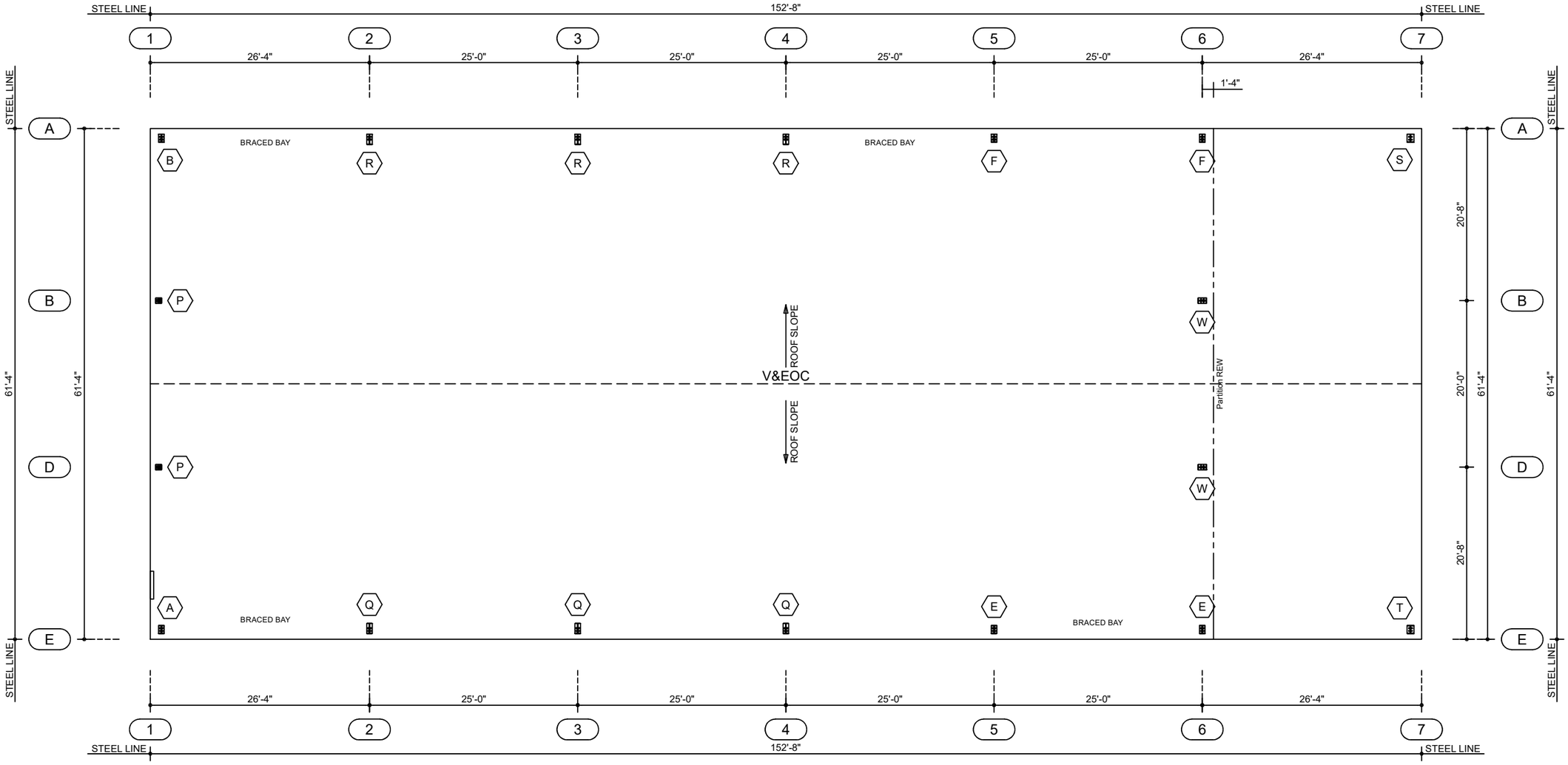
WL: (MAX, LCG → 13) x = +6^k / -2^k, y = -15^k (UPLIFT), z = ∅
EL: x = +/- 4^k, MAX LC14 LC15 y = +/- 4^k, z = ∅

PER ENERCALC, FG.O OK

ANCHOR ROD TABLE		
SIZE	QTY	MATERIAL
1.00"	52	F1554 Gr 55
0.75"	20	F1554 Gr 55

DOCUMENT PROVIDED BY NUCOR

COLUMN LAYOUT PER PEMB MFR



ANCHOR ROD PLAN

ANCHOR ROD PLAN GENERAL NOTES

AN1: THE SPECIFIED ANCHOR ROD DIAMETER ASSUMES F1554 GRADE 55 UNLESS NOTED OTHERWISE. ANCHOR ROD MATERIAL OF EQUAL DIAMETER MEETING OR EXCEEDING THE STRENGTH REQUIREMENTS SET FORTH ON THESE DRAWINGS MAY BE UTILIZED AT THE DISCRETION OF THE FOUNDATION DESIGN ENGINEER. ANCHOR ROD EMBEDMENT LENGTH SHALL BE DETERMINED BY THE FOUNDATION DESIGN ENGINEER.

AN2: METAL BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR PROJECT FOUNDATION DESIGN. THE FOUNDATION DESIGN IS THE RESPONSIBILITY OF A REGISTERED PROFESSIONAL ENGINEER, FAMILIAR WITH LOCAL SITE CONDITIONS.

AN3: ANCHOR RODS, NUTS, FLAT WASHERS FOR ANCHOR RODS, EXPANSION BOLTS, AND CONCRETE/MASONRY EMBEDMENT PLATES ARE NOT BY METAL BUILDING MANUFACTURER.

AN4: THE ANCHOR ROD LOCATIONS PROVIDED BY METAL BUILDING MANUFACTURER SATISFY PERTINENT REQUIREMENTS FOR THE DESIGN OF THE MATERIALS SUPPLIED BY THE METAL BUILDING MANUFACTURER. IT IS THE RESPONSIBILITY OF THE FOUNDATION ENGINEER TO MAKE CERTAIN THAT SUFFICIENT EDGE DISTANCE IS PROVIDED FOR ALL ANCHOR RODS IN THE DETAILS OF THE FOUNDATION DESIGN

AN5: DRAWINGS ARE NOT TO SCALE. SEE DETAILS FOR COLUMN ORIENTATION.

AN6: THE ANCHOR ROD PLAN INDICATES WHERE THE ANCHOR RODS ARE TO BE PLACED AS WELL AS THE FOOTPRINT OF THE METAL BUILDING. IT IS ESSENTIAL THAT THESE ANCHOR ROD PATTERNS BE FOLLOWED. IF THESE SETTINGS DIFFER FROM THE ARCHITECTURAL FOUNDATION PLANS, THE METAL BUILDING MANUFACTURER MUST BE CONTACTED IMMEDIATELY - BEFORE CONCRETE IS PLACED.

AN7: "SINGLE" CEE COLUMNS SHALL BE ORIENTED WITH THE "TOES" TOWARD THE LOW EAVE UNLESS NOTED OTHERWISE.

AN8: ALL DIMENSIONS ARE OUT TO OUT OF STEEL. IF CONCRETE NOTCH IS REQUIRED THEN THE REQUIRED DIMENSION SHOULD BE ADDED TO OBTAIN THE OUT TO OUT OF CONCRETE DIMENSIONS.

AN9: FINISH FLOOR ELEVATION = 100'-0"
BOTTOM OF BASEPLATE = 100'-0"
UNLESS NOTED OTHERWISE

MBMA MEMBER

IAS ACCREDITED CERTIFIED CSA W47.1

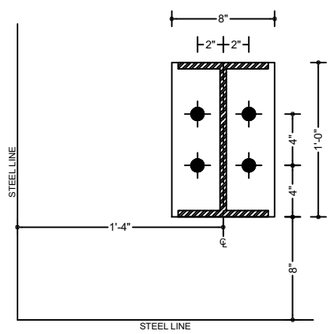
NUCOR BUILDING SYSTEMS

CERTIFIED CSA A660

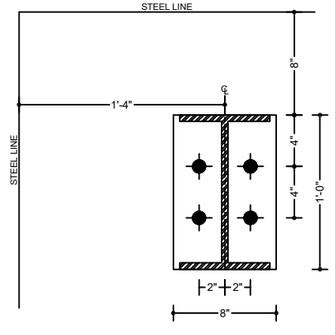
JOB NUMBER	U26H0545A
ADDRESS	THURSTON COUNTY OLYMPIA, WA 98513
PROJECT NAME	NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER
BUYER NAME	ADVANCED BUILDING STRUCTURES
DRAWING STATUS	
DRAWING TITLE	ANCHOR ROD PLAN
SHEET	F1

#	RELEASE/REVISION	DWN/CHK	ENG	DATE
0	ANCHOR RODS	WD/RA	WD	9/16/2026

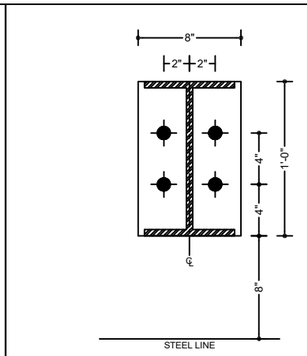
THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSIDERED AS SUCH



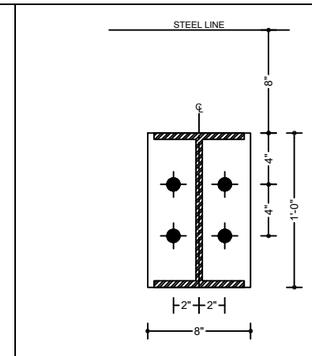
1" AB - 3" REQD. PROJECTION | A



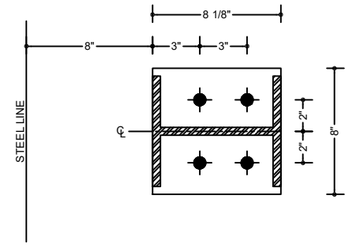
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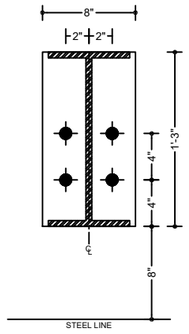
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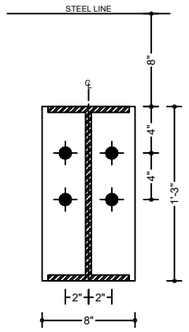
1" AB - 3" REQD. PROJECTION | F



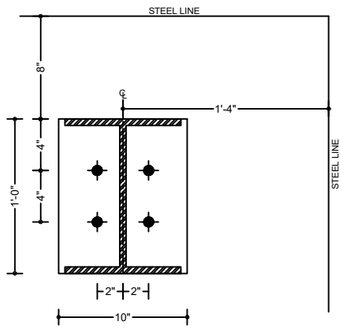
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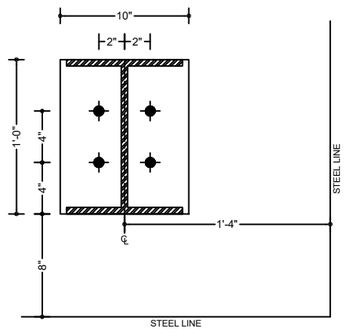
1" AB - 3" REQD. PROJECTION | Q



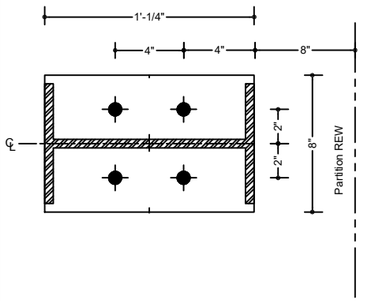
1" AB - 3" REQD. PROJECTION | R



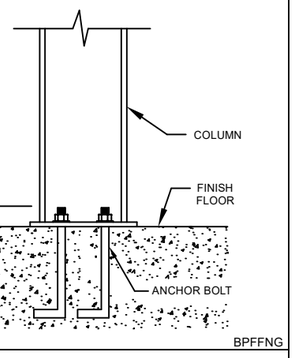
1" AB - 3" REQD. PROJECTION | S



1" AB - 3" REQD. PROJECTION | T



3/4" AB - 3" REQD. PROJECTION | W



TYPICAL COLUMN BASE PLATE DETAIL

BASEPLATE LENGTHS SHOWN IN ANCHOR ROD DETAILS ARE SUBJECT TO BE +/- 1"

MBMA METAL BUILDINGS

IAS ACCREDITED Metal Building Systems AC472

CWB CERTIFIED CSA W47.1

NUCOR BUILDING SYSTEMS

CWB CERTIFIED CSA A3000

JOB NUMBER U26H0545A

ADDRESS THURSTON COUNTY OLYMPIA, WA 98513

PROJECT NAME NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

BUYER NAME ADVANCED BUILDING STRUCTURES

DRAWING STATUS

DRAWING TITLE DETAILS

SHEET F2

#	RELEASE/REVISION	DVN/CHK	ENG	DATE
0	ANCHOR RODS	WID/RA	WD	9/16/2026

THE REGISTERED PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS EMPLOYED BY THE MANUFACTURER AND DOES NOT SERVE AS OR REPRESENT THE PROJECT ENGINEER OF RECORD AND SHALL NOT BE CONSIDERED AS SUCH

ANCHOR BOLT LAYOUTS PER PEMB MFR

DOCUMENT PROVIDED BY NUCOR

SUMMARY FOOTING DESIGNS: TYPICAL, NON COMBINED FOOTING

1 F8.0
2-4 F7.0
5 F7.0
6 F9.0
7 F8.0

WIND COL : F5.0
TYP A MEZZ : F8.5
TYPE C MEZZ F5.0

NUMBERS 1-7 REFERENCE COLUMN GRIDLINES PER PREVIOUS

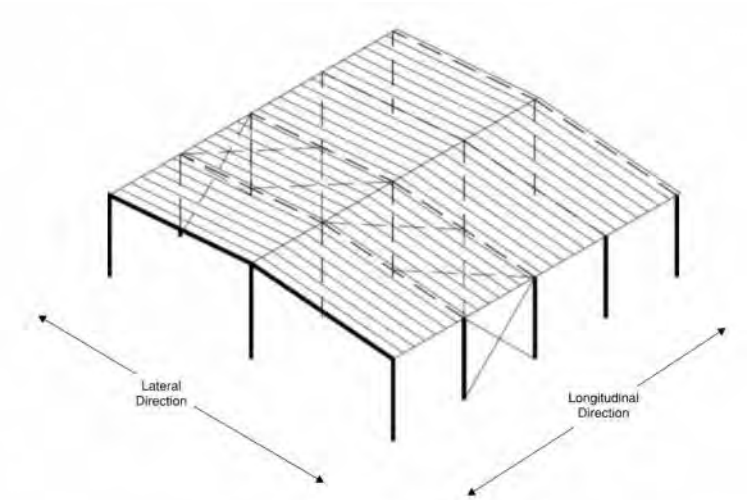
F9.0 (16" THK W (8) #6 EW T&B)
F8.0 (16" THK W (7) #6 EW T&B)
F7.0 (16" THK W (7) #6 EW T&B)
F5.0 (12" THK W| (5) #5 EW T&B)

SEE MEZZANINE FOUNDATION IN MEZZANINE GRAVITY DESIGN FOR ISOLATED MEZZANINE FOUNDATION AND COMBINED FOOTING DESIGNS

MINIMUM DESIGN PROVIDED - THESE VALUES DIFFER ON PLAN AS REQUIRED TO ACCOMODATE COMBINED REACTION FROM MEZZANINE COLUMNS

DOCUMENT PROVIDED BY NUCOR

GENERAL LOAD CASE DEFINITION



GENERAL HORIZONTAL LOADING ORIENTATION

Dead – Frame self-weight and roof secondary structure.
Collateral – Additional dead load applied on roof structure, e.g. sprinklers, root top units, etc.
Floor Dead – Self-weight of intermediate level structures and additional dead load applied.

Roof Live – Live load on roof.
Floor Live – Live load on all intermediate level structures.

Snow – Roof snow load, including snow drift (if any).
User Override Snow – Minimum roof snow (P_{min})
Alternate Snow – Unbalanced snow load due to wind in lateral direction of the frame.

Wind Case 1 To Right/Left – Wind load due to wind applied in the lateral direction with internal suction.
Wind Case 2 To Right/Left – Wind load due to wind applied in the lateral direction with internal pressure.
Long. Wind 1 To Back/Front – Wind load due to wind applied in the longitudinal direction with internal suction.
Long. Wind 2 To Back/Front – Wind load due to wind applied in the longitudinal direction with internal pressure.

If Building Enclosure = *Open – Unknow Flow*,
Wind Case 1 To Right/Left *(Open – Clear Flow)* – Wind load due to wind applied in the lateral direction with internal suction.
Wind Case 2 To Right/Left *(Open – Clear Flow)* – Wind load due to wind applied in the lateral direction with internal pressure.
Wind Case 3 To Right/Left *(Open – Obstructed Flow)* - Wind load due to wind applied in the lateral direction with internal suction.
Wind Case 4 To Right/Left *(Open – Obstructed Flow)* - Wind load due to wind applied in the lateral direction with internal pressure.
Long. Wind 1 To Back/Front *(Open – Clear Flow)* – Wind load due to wind applied in the longitudinal direction with internal suction.
Long. Wind 2 To Back/Front *(Open – Clear Flow)* – Wind load due to wind applied in the longitudinal direction with internal pressure.
Long. Wind 3 To Back/Front *(Open – Obstructed Flow)* – Wind load due to wind applied in the longitudinal direction with internal suction.
Long. Wind 4 To Back/Front *(Open – Obstructed Flow)* – Wind load due to wind applied in the longitudinal direction with internal pressure.

Seismic To Right/Left – Seismic load applied in the direction of the resisting system.

Bracing Wind To Back/Front – Wind load due to longitudinal bracing.
Bracing Seismic To Back/Front – Seismic load due to longitudinal bracing.

Crane Bracing Load, Uplift/Downward – Crane longitudinal load due to longitudinal bracing.
Crane Stop Load, Uplift/Downward – Crane stop force due to longitudinal bracing.
Crane "X" On Left *(X = Crane ID)* – Crane vertical live load without impact when crane is at left side of the aisle.
Crane "X" On Right *(X = Crane ID)* – Crane vertical live load without impact when crane is at right side of the aisle.
Crane "X" Lateral To Right/Left – Crane lateral load applied in the direction of the resisting system.

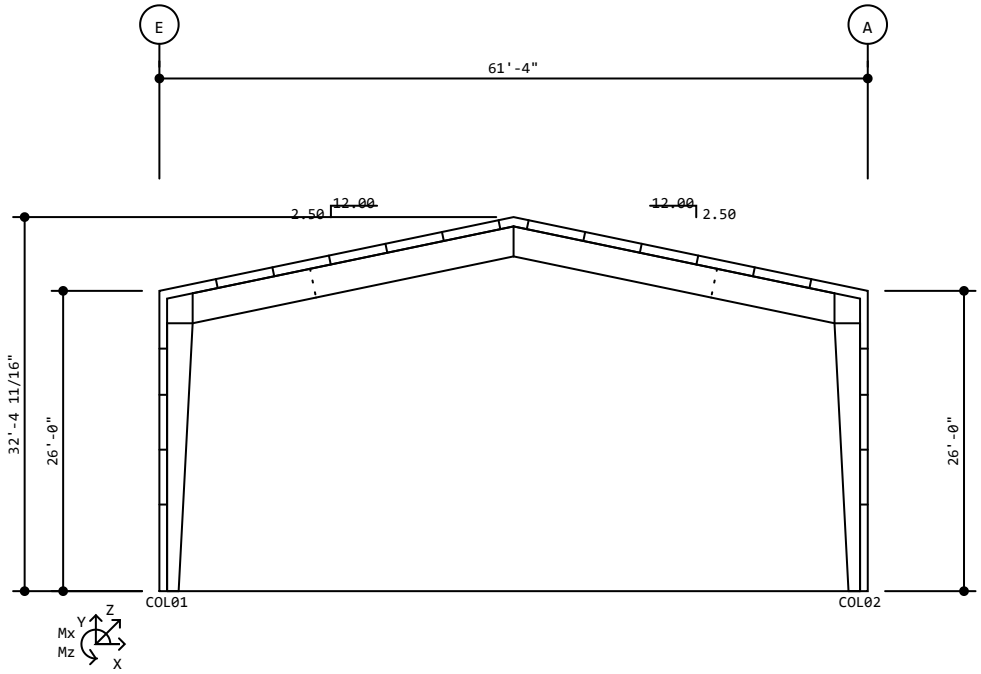
Notes:
1. All wind reactions shown in the tables are based on Ultimate design wind speed and are unfactored.
2. Seismic reactions are due to base shear. The redundancy factor and the overstrength factor have NOT been included in the reactions shown

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 1
File	:	F11 - LEW.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



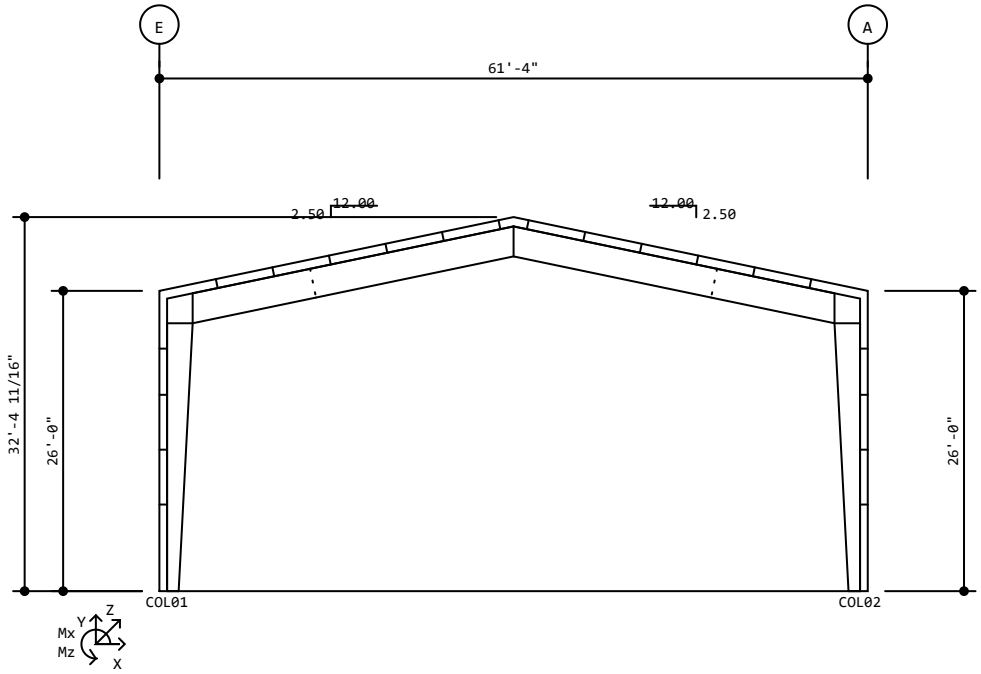
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 1 - DEAD						LOAD CASE 2 - COLLATERAL					
COL01	1	5	0	0	0	COL01	2	7	0	0	0
COL02	-1	5	0	0	0	COL02	-2	7	0	0	0
LOAD CASE 3 - ROOF LIVE						LOAD CASE 4 - SNOW					
COL01	3	13	0	0	0	COL01	2	6	0	0	0
COL02	-3	13	0	0	0	COL02	-2	6	0	0	0
LOAD CASE 5 - USER OVERRIDE SNOW						LOAD CASE 6 - WIND CASE 1 TO RIGHT					
COL01	4	16	0	0	0	COL01	-6	-7	0	0	0
COL02	-4	16	0	0	0	COL02	-2	-1	0	0	0
LOAD CASE 7 - WIND CASE 1 TO LEFT						LOAD CASE 8 - WIND CASE 2 TO RIGHT					
COL01	2	-1	0	0	0	COL01	-6	-16	0	0	0
COL02	6	-7	0	0	0	COL02	-2	-10	0	0	0
LOAD CASE 9 - WIND CASE 2 TO LEFT						LOAD CASE 10 - LONG. WIND 1 TO BACK					
COL01	2	-10	0	0	0	COL01	-1	-4	0	0	0
COL02	6	-16	0	0	0	COL02	2	-3	0	0	0
LOAD CASE 11 - LONG. WIND 1 TO FRONT						LOAD CASE 12 - LONG. WIND 2 TO BACK					
COL01	-2	-3	0	0	0	COL01	-1	-13	0	0	0
COL02	1	-4	0	0	0	COL02	1	-12	0	0	0
LOAD CASE 13 - LONG. WIND 2 TO FRONT						LOAD CASE 14 - SEISMIC TO RIGHT					
COL01	-1	-12	0	0	0	COL01	-4	-4	0	0	0
COL02	1	-13	0	0	0	COL02	-4	4	0	0	0
LOAD CASE 15 - SEISMIC TO LEFT						LOAD CASE 16 - ALTERNATE SNOW 1					
COL01	4	4	0	0	0	COL01	2	6	0	0	0
COL02	4	-4	0	0	0	COL02	-2	4	0	0	0
LOAD CASE 17 - ALTERNATE SNOW 2						LOAD CASE 18 - BRACING WIND UPLIFT					
COL01	2	4	0	0	0	COL01	0	-5	5	0	0
COL02	-2	6	0	0	0	COL02	0	-5	5	0	0

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 1
File	:	F11 - LEW.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



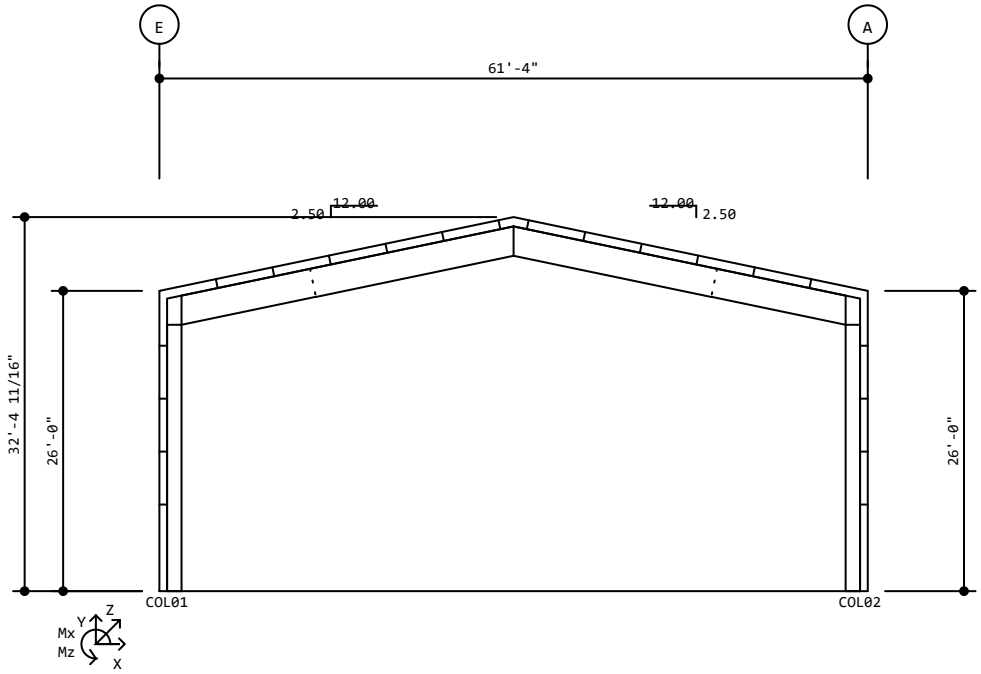
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 19 - BRACING WIND COMPRESSION						LOAD CASE 20 - BRACING SEISMIC TO BACK					
COL01	1	5	-5	0	0	COL01	1	16	-16	0	0
COL02	-1	5	-5	0	0	COL02	-1	16	-16	0	0
LOAD CASE 21 - BRACING SEISMIC TO FRONT											
COL01	-1	-16	16	0	0						
COL02	1	-16	16	0	0						

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 2-4
File	:	F12 - FL 2-4.nfr	Designer	:	BG\Weili.Du	Braced Bays	: Line(s) 2
App Version:	:	2.7.34.0	Date	:	2026-09-14		

NBG Reactions W/Bracing By Load Case Report



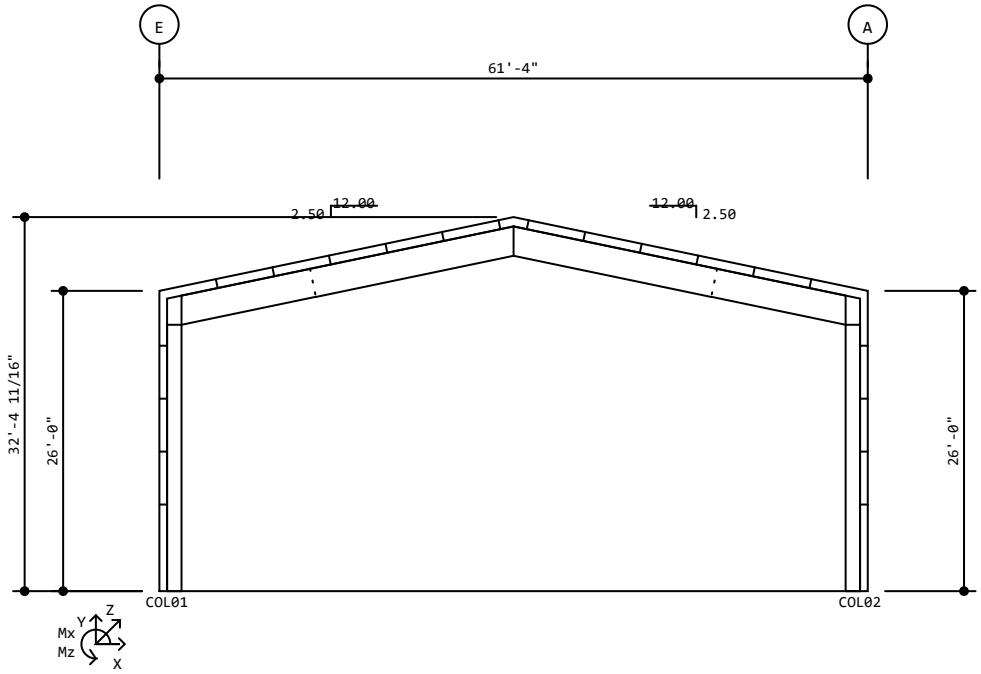
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 1 - DEAD						LOAD CASE 2 - COLLATERAL					
COL01	1	7	0	0	0	COL01	2	10	0	0	0
COL02	-1	7	0	0	0	COL02	-2	10	0	0	0
LOAD CASE 3 - ROOF LIVE						LOAD CASE 4 - SNOW					
COL01	4	18	0	0	0	COL01	2	10	0	0	0
COL02	-4	18	0	0	0	COL02	-2	10	0	0	0
LOAD CASE 5 - USER OVERRIDE SNOW						LOAD CASE 6 - WIND CASE 1 TO RIGHT					
COL01	5	22	0	0	0	COL01	-8	-6	0	0	0
COL02	-5	22	0	0	0	COL02	-4	4	0	0	0
LOAD CASE 7 - WIND CASE 1 TO LEFT						LOAD CASE 8 - WIND CASE 2 TO RIGHT					
COL01	4	4	0	0	0	COL01	-7	-19	0	0	0
COL02	8	-6	0	0	0	COL02	-5	-10	0	0	0
LOAD CASE 9 - WIND CASE 2 TO LEFT						LOAD CASE 10 - LONG. WIND 1 TO BACK					
COL01	5	-10	0	0	0	COL01	1	-2	0	0	0
COL02	7	-19	0	0	0	COL02	1	-1	0	0	0
LOAD CASE 11 - LONG. WIND 1 TO FRONT						LOAD CASE 12 - LONG. WIND 2 TO BACK					
COL01	-1	-1	0	0	0	COL01	1	-15	0	0	0
COL02	-1	-2	0	0	0	COL02	-1	-14	0	0	0
LOAD CASE 13 - LONG. WIND 2 TO FRONT						LOAD CASE 14 - SEISMIC TO RIGHT					
COL01	1	-14	0	0	0	COL01	-5	-5	0	0	0
COL02	-1	-15	0	0	0	COL02	-5	5	0	0	0
LOAD CASE 15 - SEISMIC TO LEFT						LOAD CASE 16 - ALTERNATE SNOW 1					
COL01	5	5	0	0	0	COL01	2	9	0	0	0
COL02	5	-5	0	0	0	COL02	-2	6	0	0	0
LOAD CASE 17 - ALTERNATE SNOW 2						LOAD CASE 18 - BRACING WIND UPLIFT					
COL01	2	6	0	0	0	COL01	0	-5	5	0	0
COL02	-2	9	0	0	0	COL02	0	-5	5	0	0

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 2-4
File	:	F12 - FL 2-4.nfr	Designer	:	BG\Weili.Du	Braced Bays	: Line(s) 2
App Version:	:	2.7.34.0	Date	:	2026-09-14		

NBG Reactions W/Bracing By Load Case Report



Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 19 - BRACING WIND COMPRESSION						LOAD CASE 20 - BRACING SEISMIC TO BACK					
COL01	0	5	-5	0	0	COL01	0	16	-16	0	0
COL02	0	5	-5	0	0	COL02	0	16	-16	0	0
LOAD CASE 21 - BRACING SEISMIC TO FRONT											
COL01	0	-16	16	0	0						
COL02	0	-16	16	0	0						

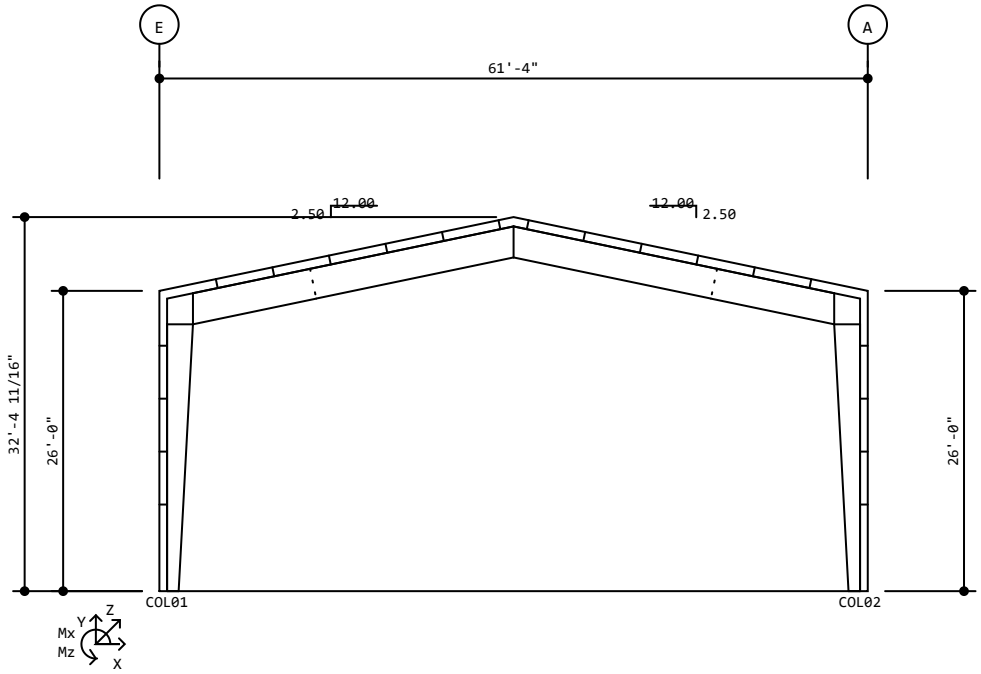
See plan for bracing locations

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 5
File	:	F13 - FL5.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



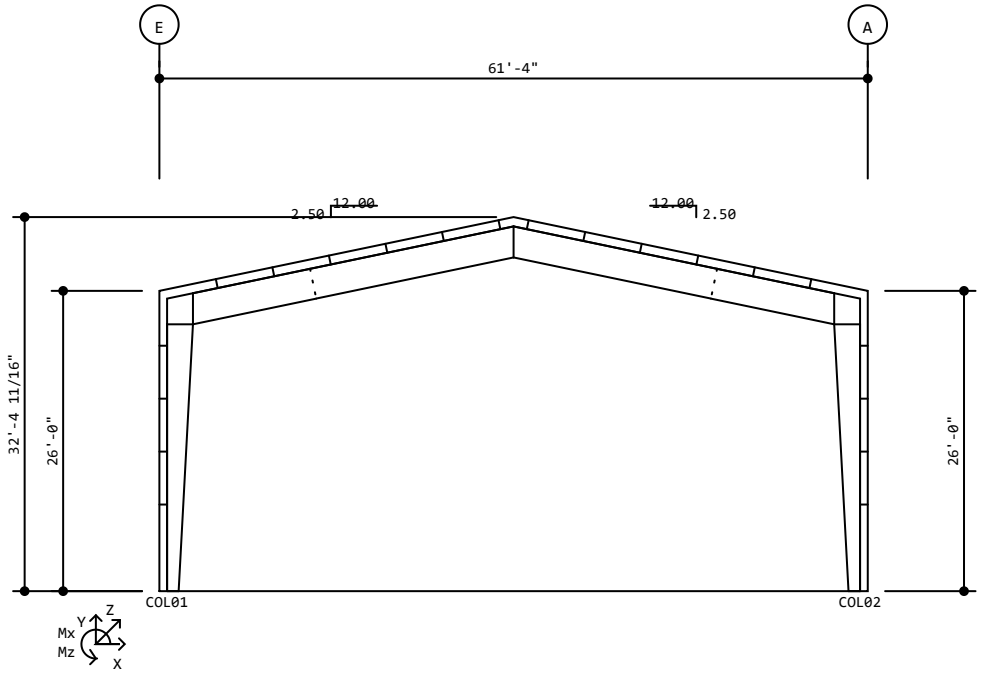
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 1 - DEAD						LOAD CASE 2 - COLLATERAL					
COL01	2	6	0	0	0	COL01	3	10	0	0	0
COL02	-2	6	0	0	0	COL02	-3	10	0	0	0
LOAD CASE 3 - ROOF LIVE						LOAD CASE 4 - SNOW					
COL01	5	18	0	0	0	COL01	3	9	0	0	0
COL02	-5	18	0	0	0	COL02	-3	9	0	0	0
LOAD CASE 5 - USER OVERRIDE SNOW						LOAD CASE 6 - WIND CASE 1 TO RIGHT					
COL01	6	22	0	0	0	COL01	-8	-6	0	0	0
COL02	-6	22	0	0	0	COL02	-4	4	0	0	0
LOAD CASE 7 - WIND CASE 1 TO LEFT						LOAD CASE 8 - WIND CASE 2 TO RIGHT					
COL01	4	4	0	0	0	COL01	-8	-19	0	0	0
COL02	8	-6	0	0	0	COL02	-4	-10	0	0	0
LOAD CASE 9 - WIND CASE 2 TO LEFT						LOAD CASE 10 - LONG. WIND 1 TO BACK					
COL01	4	-10	0	0	0	COL01	1	-2	0	0	0
COL02	8	-19	0	0	0	COL02	1	-1	0	0	0
LOAD CASE 11 - LONG. WIND 1 TO FRONT						LOAD CASE 12 - LONG. WIND 2 TO BACK					
COL01	-1	-1	0	0	0	COL01	1	-15	0	0	0
COL02	-1	-2	0	0	0	COL02	1	-14	0	0	0
LOAD CASE 13 - LONG. WIND 2 TO FRONT						LOAD CASE 14 - SEISMIC TO RIGHT					
COL01	-1	-14	0	0	0	COL01	-5	-5	0	0	0
COL02	-1	-15	0	0	0	COL02	-5	5	0	0	0
LOAD CASE 15 - SEISMIC TO LEFT						LOAD CASE 16 - ALTERNATE SNOW 1					
COL01	5	5	0	0	0	COL01	3	9	0	0	0
COL02	5	-5	0	0	0	COL02	-3	6	0	0	0
LOAD CASE 17 - ALTERNATE SNOW 2						LOAD CASE 18 - BRACING WIND UPLIFT					
COL01	3	6	0	0	0	COL01	0	-5	5	0	0
COL02	-3	9	0	0	0	COL02	0	-5	5	0	0

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 5
File	:	F13 - FL5.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



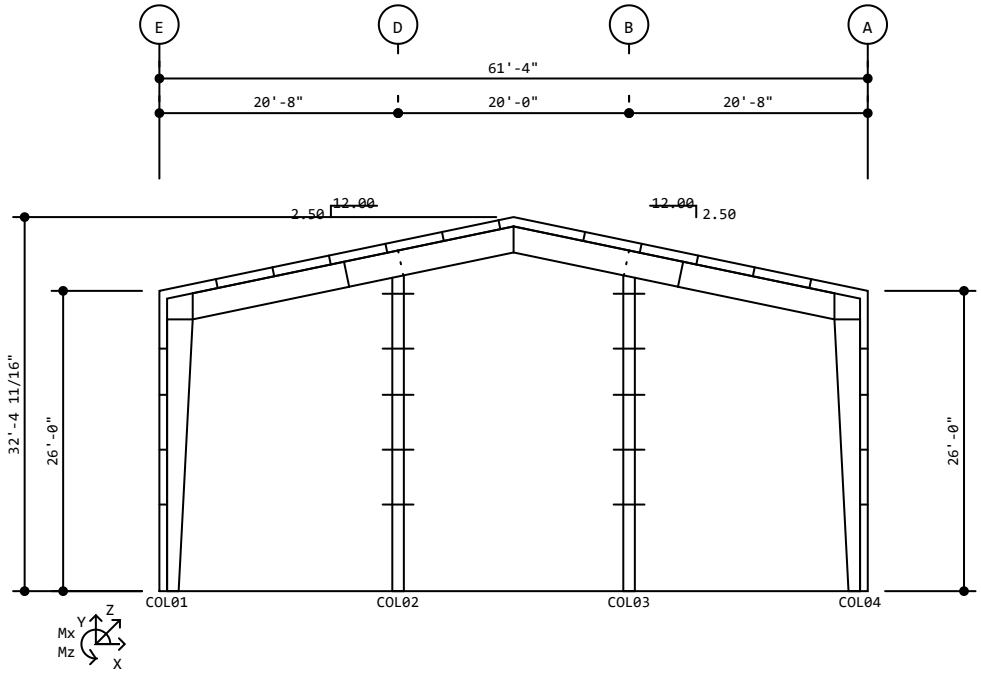
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 19 - BRACING WIND COMPRESSION						LOAD CASE 20 - BRACING SEISMIC TO BACK					
COL01	1	5	-5	0	0	COL01	1	16	-16	0	0
COL02	-1	5	-5	0	0	COL02	-1	16	-16	0	0
LOAD CASE 21 - BRACING SEISMIC TO FRONT											
COL01	-1	-16	16	0	0						
COL02	1	-16	16	0	0						

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 6
File	:	F14 - FL 6.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



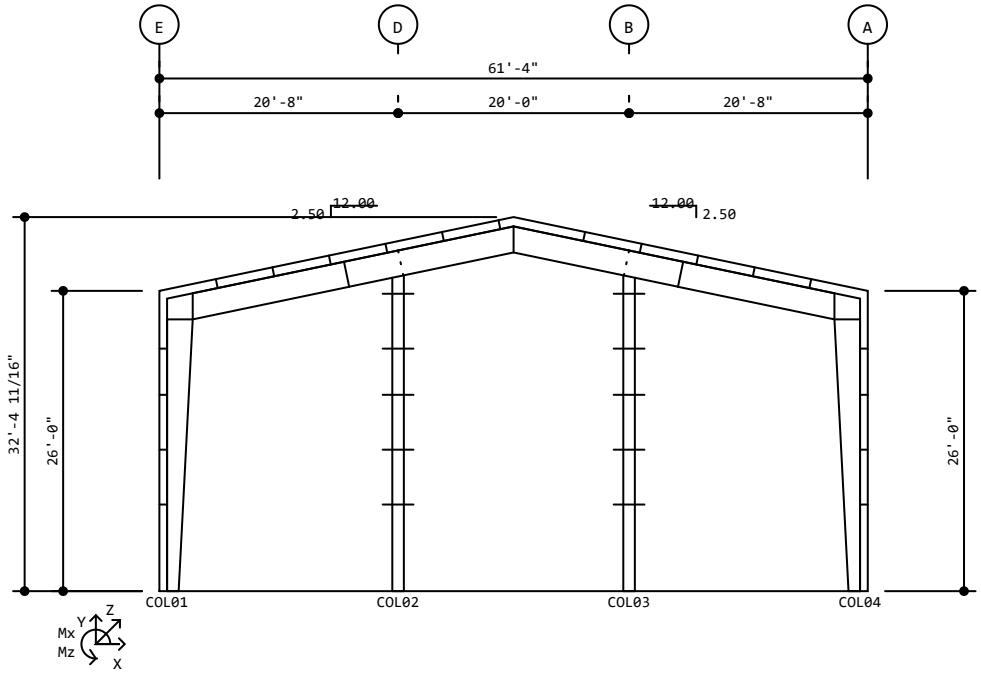
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 1 - DEAD						LOAD CASE 2 - COLLATERAL					
COL01	1	3	0	0	0	COL01	1	4	0	0	0
COL02	0	4	0	0	0	COL02	0	6	0	0	0
COL03	0	5	0	0	0	COL03	0	6	0	0	0
COL04	-1	3	0	0	0	COL04	-1	4	0	0	0
LOAD CASE 3 - ROOF LIVE						LOAD CASE 4 - SNOW					
COL01	1	8	0	0	0	COL01	1	4	0	0	0
COL02	0	11	0	0	0	COL02	0	6	0	0	0
COL03	0	11	0	0	0	COL03	0	6	0	0	0
COL04	-1	7	0	0	0	COL04	-1	4	0	0	0
LOAD CASE 5 - USER OVERRIDE SNOW						LOAD CASE 6 - WIND CASE 1 TO RIGHT					
COL01	1	9	0	0	0	COL01	-7	-8	0	0	0
COL02	0	13	0	0	0	COL02	0	3	0	0	0
COL03	0	14	0	0	0	COL03	0	-11	0	0	0
COL04	-1	9	0	0	0	COL04	-4	6	0	0	0
LOAD CASE 7 - WIND CASE 1 TO LEFT						LOAD CASE 8 - WIND CASE 2 TO RIGHT					
COL01	4	6	0	0	0	COL01	-5	-15	0	0	0
COL02	0	-11	0	0	0	COL02	0	-3	0	0	0
COL03	0	3	0	0	0	COL03	0	-16	0	0	0
COL04	7	-8	0	0	0	COL04	-6	-2	0	0	0
LOAD CASE 9 - WIND CASE 2 TO LEFT						LOAD CASE 10 - LONG. WIND 1 TO BACK					
COL01	6	-3	0	0	0	COL01	1	-3	0	0	0
COL02	0	-16	0	0	0	COL02	0	-6	0	0	0
COL03	0	-3	0	0	0	COL03	0	2	0	0	0
COL04	5	-15	0	0	0	COL04	1	-3	0	0	0
LOAD CASE 11 - LONG. WIND 1 TO FRONT						LOAD CASE 12 - LONG. WIND 2 TO BACK					
COL01	-1	-3	0	0	0	COL01	3	-10	0	0	0
COL02	0	2	0	0	0	COL02	0	-11	-6	0	0
COL03	0	-6	0	0	0	COL03	0	-4	-6	0	0
COL04	-1	-2	0	0	0	COL04	-2	-10	0	0	0

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 6
File	:	F14 - FL 6.nfr	Designer	:	BG\Weili.Du	Braced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions W/Bracing By Load Case Report



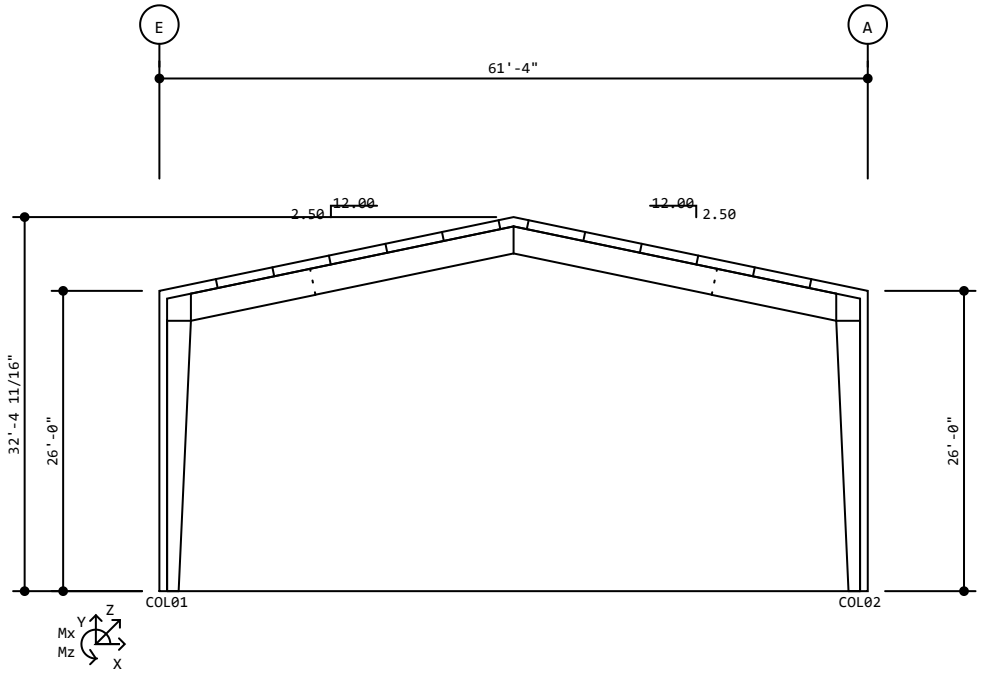
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 13 - LONG. WIND 2 TO FRONT						LOAD CASE 14 - SEISMIC TO RIGHT					
COL01	2	-11	0	0	0	COL01	-6	-10	0	0	0
COL02	0	-4	6	0	0	COL02	0	14	0	0	0
COL03	0	-11	6	0	0	COL03	0	-14	0	0	0
COL04	-3	-10	0	0	0	COL04	-6	10	0	0	0
LOAD CASE 15 - SEISMIC TO LEFT						LOAD CASE 16 - ALTERNATE SNOW 1					
COL01	6	10	0	0	0	COL01	1	3	0	0	0
COL02	0	-14	0	0	0	COL02	0	7	0	0	0
COL03	0	14	0	0	0	COL03	0	3	0	0	0
COL04	6	-10	0	0	0	COL04	-1	1	0	0	0
LOAD CASE 17 - ALTERNATE SNOW 2						LOAD CASE 18 - BRACING WIND UPLIFT					
COL01	1	1	0	0	0	COL01	0	-5	5	0	0
COL02	0	3	0	0	0	COL02	0	0	0	0	0
COL03	0	8	0	0	0	COL03	0	0	0	0	0
COL04	-1	3	0	0	0	COL04	0	0	0	0	0
LOAD CASE 19 - BRACING WIND COMPRESSION						LOAD CASE 20 - BRACING SEISMIC TO BACK					
COL01	1	5	-5	0	0	COL01	1	16	-16	0	0
COL02	0	1	0	0	0	COL02	0	1	0	0	0
COL03	0	-1	0	0	0	COL03	0	-1	0	0	0
COL04	-1	1	0	0	0	COL04	-1	1	0	0	0
LOAD CASE 21 - BRACING SEISMIC TO FRONT											
COL01	0	-16	16	0	0						
COL02	0	-1	0	0	0						
COL03	0	1	0	0	0						
COL04	0	-1	0	0	0						

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

Job #	:	U26H0545A	Job Name	:	Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 7
File	:	F15 - REW.nfr	Designer	:	BG\Weili.Du	Unbraced Bays	:
App Version:	:	2.7.34.0	Date	:	2026-09-16		

NBG Reactions By Load Case Report



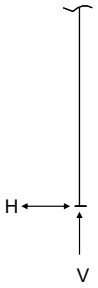
Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
LOAD CASE 1 - DEAD						LOAD CASE 2 - COLLATERAL					
COL01	2	6	0	0	0	COL01	2	7	0	0	0
COL02	-2	6	0	0	0	COL02	-2	7	0	0	0
LOAD CASE 3 - ROOF LIVE						LOAD CASE 4 - SNOW					
COL01	4	13	0	0	0	COL01	2	6	0	0	0
COL02	-4	13	0	0	0	COL02	-2	6	0	0	0
LOAD CASE 5 - USER OVERRIDE SNOW						LOAD CASE 6 - WIND CASE 1 TO RIGHT					
COL01	5	16	0	0	0	COL01	-3	-7	0	0	0
COL02	-5	16	0	0	0	COL02	-2	-1	0	0	0
LOAD CASE 7 - WIND CASE 1 TO LEFT						LOAD CASE 8 - WIND CASE 2 TO RIGHT					
COL01	2	-1	0	0	0	COL01	-6	-15	0	0	0
COL02	3	-7	0	0	0	COL02	2	-10	0	0	0
LOAD CASE 9 - WIND CASE 2 TO LEFT						LOAD CASE 10 - LONG. WIND 1 TO BACK					
COL01	-2	-10	0	0	0	COL01	-1	-4	0	0	0
COL02	6	-15	0	0	0	COL02	1	-3	0	0	0
LOAD CASE 11 - LONG. WIND 1 TO FRONT						LOAD CASE 12 - LONG. WIND 2 TO BACK					
COL01	-2	-2	0	0	0	COL01	-3	-13	0	0	0
COL02	1	-3	0	0	0	COL02	4	-12	0	0	0
LOAD CASE 13 - LONG. WIND 2 TO FRONT						LOAD CASE 14 - SEISMIC TO RIGHT					
COL01	-4	-10	0	0	0	COL01	-4	-4	0	0	0
COL02	3	-12	0	0	0	COL02	-4	4	0	0	0
LOAD CASE 15 - SEISMIC TO LEFT						LOAD CASE 16 - ALTERNATE SNOW 1					
COL01	4	4	0	0	0	COL01	2	6	0	0	0
COL02	4	-4	0	0	0	COL02	-2	4	0	0	0
LOAD CASE 17 - ALTERNATE SNOW 2											
COL01	2	4	0	0	0						
COL02	-2	6	0	0	0						

DOCUMENT PROVIDED BY NUCOR

NUCOR BUILDINGS GROUP

JOB NAME: Vocational & Emergency Operations Center JOB NUMBER: U26H0545A ENGINEER: WD

EW Wind Column Reactions



Line:	Column:	H (KIPS)	V (KIPS)	CASE
Line 1	D	6		WIND
Line 1	B	6		WIND
Line 1	D		3	DEAD
Line 1	B		3	DEAD

PCS Structural Solutions

Project: Nisqually VOC | Job Number: 26-384

Sheet: 1 of 5 | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

PEMB REACTIONS - Gridline 1

Col 1

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	1	5	0
	2	Dead	2	7	0
	3	Roof Live	3	13	0
	4	Snow	2	6	0
	5	Snow	4	16	0
	6	Wind	-6	-7	0
	7	Wind	2	-1	0
	8	Wind	-6	-16	0
	9	Wind	2	-10	0
	10	Wind	-1	-4	0
	11	Wind	-2	-3	0
	12	Wind	-1	-13	0
	13	Wind	-1	-12	0
	14	Seismic	-4	-4	0
	15	Seismic	4	4	0
	16	Snow	2	6	0
	17	Snow	2	4	0
	18	Wind	0	-5	5
	19	Wind	1	5	-5
	20	Seismic	1	16	-16
	21	Seismic	-1	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	3	3	4	2	4
	Y	12	13	16	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	3	3	2	-6	-4
	Y	12	13	4	-16	-16
	Z	0	0	0	-5	-16

Col 2

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	-1	5	0
	2	Dead	-2	7	0
	3	Roof Live	-3	13	0
	4	Snow	-2	6	0
	5	Snow	-4	16	0
	6	Wind	-2	-1	0
	7	Wind	6	-7	0
	8	Wind	-2	-10	0
	9	Wind	6	-16	0
	10	Wind	2	-3	0
	11	Wind	1	-4	0
	12	Wind	1	-12	0
	13	Wind	1	-13	0
	14	Seismic	-4	4	0
	15	Seismic	4	-4	0
	16	Snow	-2	4	0
	17	Snow	-2	6	0
	18	Wind	0	-5	5
	19	Wind	-1	5	-5
	20	Seismic	-1	16	-16
	21	Seismic	1	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	-3	-3	-2	6	4
	Y	12	13	16	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)		-3	-3	-4	-2	-4
		12	13	4	-16	-16
		0	0	0	-5	-16

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

GRIDLINE CONTROLLING VALUES

Controlling Values - Gridline

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	3	3	4	6	4
	Y	12	13	16	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-3	-3	-4	-6	-4
	Y	12	13	4	-16	-16
	Z	0	0	0	-5	-16

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

PCS Structural Solutions

Project: Nisqually VOC | Job Number: 26-384

Sheet: 2 of 5 | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

PEMB REACTIONS - Gridline 2-4

Col 1

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	1	7	0
	2	Dead	2	10	0
	3	Roof Live	4	18	0
	4	Snow	2	10	0
	5	Snow	5	22	0
	6	Wind	-8	-6	0
	7	Wind	4	4	0
	8	Wind	-7	-19	0
	9	Wind	5	-10	0
	10	Wind	1	-2	0
	11	Wind	-1	-1	0
	12	Wind	1	-15	0
	13	Wind	1	-14	0
	14	Seismic	-5	-5	0
	15	Seismic	5	5	0
	16	Snow	2	9	0
	17	Snow	2	6	0
	18	Wind	0	-5	5
	19	Wind	0	5	-5
	20	Seismic	0	16	-16
	21	Seismic	0	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	3	4	5	5	5
	Y	17	18	22	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	3	4	2	-8	-5
	Y	17	18	6	-19	-16
	Z	0	0	0	-5	-16

Col 2

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	-1	7	0
	2	Dead	-2	10	0
	3	Roof Live	-4	18	0
	4	Snow	-2	10	0
	5	Snow	-5	22	0
	6	Wind	-4	4	0
	7	Wind	8	-6	0
	8	Wind	-5	-10	0
	9	Wind	7	-19	0
	10	Wind	1	-1	0
	11	Wind	-1	-2	0
	12	Wind	-1	-14	0
	13	Wind	-1	-15	0
	14	Seismic	-5	5	0
	15	Seismic	5	-5	0
	16	Snow	-2	6	0
	17	Snow	-2	9	0
	18	Wind	0	-5	5
	19	Wind	0	5	-5
	20	Seismic	0	16	-16
	21	Seismic	0	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	-3	-4	-2	8	5
	Y	17	18	22	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-3	-4	-5	-5	-5
	Y	17	18	6	-19	-16
	Z	0	0	0	-5	-16

GRIDLINE CONTROLLING VALUES

Controlling Values - Gridline

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	3	4	5	8	5
	Y	17	18	22	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-3	-4	-5	-8	-5
	Y	17	18	6	-19	-16
	Z	0	0	0	-5	-16

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

PCS Structural Solutions

Project: Nisqually VOC | Job Number: 26-384

Sheet: 3 of 5 | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

PEMB REACTIONS - Grid 5

Col 1

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	2	6	0
	2	Dead	3	10	0
	3	Roof Live	5	18	0
	4	Snow	3	9	0
	5	Snow	6	22	0
	6	Wind	-8	-6	0
	7	Wind	4	4	0
	8	Wind	-8	-19	0
	9	Wind	4	-10	0
	10	Wind	1	-2	0
	11	Wind	-1	-1	0
	12	Wind	1	-15	0
	13	Wind	-1	-14	0
	14	Seismic	-5	-5	0
	15	Seismic	5	5	0
	16	Snow	3	9	0
	17	Snow	3	6	0
	18	Wind	-5	5	0
	19	Wind	1	5	-5
	20	Seismic	1	16	-16
	21	Seismic	-1	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	5	5	6	4	5
	Y	16	18	22	5	16
	Z	0	0	0	0	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	5	5	3	-8	-5
	Y	16	18	6	-19	-16
	Z	0	0	0	-5	-16

Col 2

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	-2	6	0
	2	Dead	-3	10	0
	3	Roof Live	-5	18	0
	4	Snow	-3	9	0
	5	Snow	-6	22	0
	6	Wind	-4	4	0
	7	Wind	8	-6	0
	8	Wind	-4	-10	0
	9	Wind	8	-19	0
	10	Wind	1	-1	0
	11	Wind	-1	-2	0
	12	Wind	1	-14	0
	13	Wind	-1	-15	0
	14	Seismic	-5	5	0
	15	Seismic	5	-5	0
	16	Snow	-3	6	0
	17	Snow	-3	9	0
	18	Wind	0	-5	5
	19	Wind	-1	5	-5
	20	Seismic	-1	16	-16
	21	Seismic	1	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	-5	-5	-3	8	5
	Y	16	18	22	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-5	-5	-6	-4	-5
	Y	16	18	6	-19	-16
	Z	0	0	0	-5	-16

GRIDLINE CONTROLLING VALUES

Controlling Values - Gridline

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	5	5	6	8	5
	Y	16	18	22	5	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-5	-5	-6	-8	-5
	Y	16	18	6	-19	-16
	Z	0	0	0	-5	-16

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

Project: Nisqually VOC | Job Number: 26-384

Sheet: 4 of 5 | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

PEMB REACTIONS - Grid 6

Col 1

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	1	3	0
	2	Dead	1	4	0
	3	Roof Live	1	8	0
	4	Snow	1	4	0
	5	Snow	1	9	0
	6	Wind	-7	-8	0
	7	Wind	4	6	0
	8	Wind	-5	-15	0
	9	Wind	6	-3	0
	10	Wind	1	-3	0
	11	Wind	-1	-3	0
	12	Wind	3	-10	0
	13	Wind	2	-11	0
	14	Seismic	-6	-10	0
	15	Seismic	6	10	0
	16	Snow	1	3	0
	17	Snow	1	1	0
	18	Wind	0	-5	5
	19	Wind	1	5	-5
	20	Seismic	1	16	-16
	21	Seismic	0	-16	16

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	2	1	1	6	6
	Y	7	8	9	6	16
	Z	0	0	0	5	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	2	1	1	-7	-6
	Y	7	8	1	-15	-16
	Z	0	0	0	-5	-16

Col 2

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case		Load Type	X	Y	Z
	1	Dead	0	4	0
	2	Dead	0	6	0
	3	Roof Live	0	11	0
	4	Snow	0	6	0
	5	Snow	0	13	0
	6	Wind	0	3	0
	7	Wind	0	-11	0
	8	Wind	0	-3	0
	9	Wind	0	-16	0
	10	Wind	0	-6	0
	11	Wind	0	2	0
	12	Wind	0	-11	-6
	13	Wind	0	-4	6
	14	Seismic	0	14	0
	15	Seismic	0	-14	0
	16	Snow	0	7	0
	17	Snow	0	3	0
	18	Wind	0	0	0
	19	Wind	0	1	0
	20	Seismic	0	1	0
	21	Seismic	0	-1	0

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	0	0	0	0	0
	Y	10	11	13	3	14
	Z	0	0	0	6	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	0	0	0	0	0
	Y	10	11	3	-16	-14
	Z	0	0	0	-6	0

PEMB REACTIONS - Grid 6 CONT'D

Col 3

COLUMN 3 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case	Load Type	X	Y	Z
1	Dead	0	5	0
2	Dead	0	6	0
3	Roof Live	0	11	0
4	Snow	0	6	0
5	Snow	0	14	0
6	Wind	0	-11	0
7	Wind	0	3	0
8	Wind	0	-16	0
9	Wind	0	-3	0
10	Wind	0	2	0
11	Wind	0	-6	0
12	Wind	0	-4	-6
13	Wind	0	-11	6
14	Seismic	0	-14	0
15	Seismic	0	14	0
16	Snow	0	3	0
17	Snow	0	8	0
18	Wind	0	0	0
19	Wind	0	-1	0
20	Seismic	0	-1	0
21	Seismic	0	1	0

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	0	0	0	0	0
	Y	11	11	14	3	14
	Z	0	0	0	6	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	0	0	0	0	0
	Y	11	11	3	-16	-14
	Z	0	0	0	-6	0

Col 4

COLUMN 4 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Load Case	Load Type	X	Y	Z
1	Dead	-1	3	0
2	Dead	-1	4	0
3	Roof Live	-1	7	0
4	Snow	-1	4	0
5	Snow	-1	9	0
6	Wind	-4	6	0
7	Wind	7	-8	0
8	Wind	-6	-2	0
9	Wind	5	-15	0
10	Wind	1	-3	0
11	Wind	-1	-2	0
12	Wind	-2	-10	0
13	Wind	-3	-10	0
14	Seismic	-6	10	0
15	Seismic	6	-10	0
16	Snow	-1	1	0
17	Snow	-1	3	0
18	Wind	0	0	0
19	Wind	-1	1	0
20	Seismic	-1	1	0
21	Seismic	0	-1	0

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	-2	-1	-1	7	6
	Y	7	7	9	6	10
	Z	0	0	0	0	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-2	-1	-1	-6	-6
	Y	7	7	1	-15	-10
	Z	0	0	0	0	0

Controlling Values - Gridline

GRIDLINE CONTROLLING VALUES (BUILDING COLUMN)

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE - Building Column)	X	2	1	1	7	6
	Y	11	11	14	6	16
	Z	0	0	0	6	16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE - Building Column)	X	-2	-1	-1	-7	-6
	Y	7	7	1	-16	-16
	Z	0	0	0	-6	-16
		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE - Wind Column)	X	0	0	0	0	0
	Y	11	11	14	3	14
	Z	0	0	0	6	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE - Wind Column)	X	0	0	0	0	0
	Y	10	11	13	3	14
	Z	0	0	0	6	0

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

GRIDLINE CONTROLLING VALUES (WIND COLUMN)

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

Project: Nisqually VOC | Job Number: 26-384

Sheet: 5 of 5 | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

PEMB REACTIONS - Grid 7

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Col 1

Load Case		Load Type	X	Y	Z
	1	Dead	2	6	0
	2	Dead	2	7	0
	3	Roof Live	4	13	0
	4	Snow	2	6	0
	5	Snow	5	16	0
	6	Wind	-3	-7	0
	7	Wind	2	-1	0
	8	Wind	-16	-15	0
	9	Wind	-2	-10	0
	10	Wind	-1	-4	0
	11	Wind	-2	-2	0
	12	Wind	-3	-13	0
	13	Wind	-4	-10	0
	14	Seismic	-4	-4	0
	15	Seismic	4	4	0
	16	Snow	2	6	0
	17	Snow	2	4	0

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	4	4	5	2	4
	Y	13	13	16	-1	4
	Z	0	0	0	0	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	4	4	2	-16	-4
	Y	13	13	4	-15	-4
	Z	0	0	0	0	0

COLUMN 1 VALUES (SEE PEMB REACTIONS FOR COLUMN DESIGNATION PER GRIDLINE)

Col 2

Load Case		Load Type	X	Y	Z
	1	Dead	-2	6	0
	2	Dead	-2	7	0
	3	Roof Live	-4	13	0
	4	Snow	-2	6	0
	5	Snow	-5	16	0
	6	Wind	-2	-1	0
	7	Wind	3	-7	0
	8	Wind	2	-10	0
	9	Wind	6	-15	0
	10	Wind	1	-3	0
	11	Wind	1	-3	0
	12	Wind	4	-12	0
	13	Wind	3	-12	0
	14	Seismic	-4	4	0
	15	Seismic	4	-4	0
	16	Snow	-2	4	0
	17	Snow	-2	6	0

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	-4	-4	-2	6	4
	Y	13	13	16	-1	4
	Z	0	0	0	0	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-4	-4	-5	-2	-4
	Y	13	13	4	-15	-4
	Z	0	0	0	0	0

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

GRIDLINE CONTROLLING VALUES

Controlling Values - Gridline

		Dead	Roof Live	Snow	Wind	EQ
Controlling Positive (DOWNWARD FORCE)	X	4	4	5	6	4
	Y	13	13	16	-1	4
	Z	0	0	0	0	0
		Dead	Roof Live	Snow	Wind	EQ
Controlling Negative (UPLIFT FORCE)	X	-4	-4	-5	-16	-4
	Y	13	13	4	-15	-4
	Z	0	0	0	0	0

CONTROLLING GRAVITY (DOWNWARD FORCE) - UNFACTORED LOADS USED FOR ENERCALC FOUNDATION DESIGN AND SIMPSON ANCHOR CAP DESIGNER.

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Compression)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

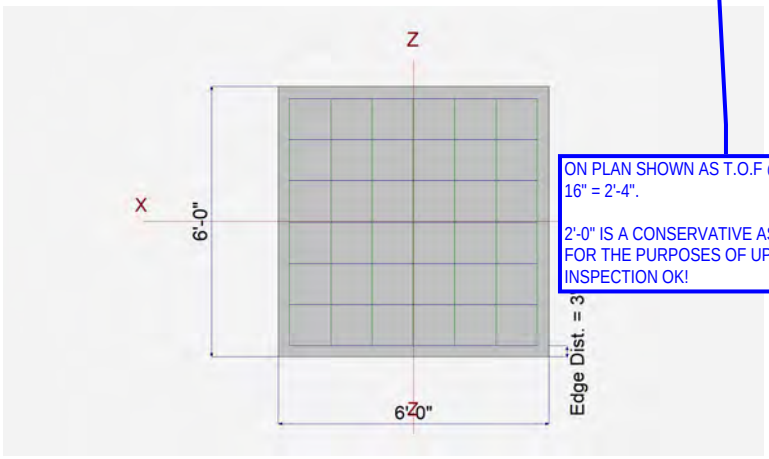
Width parallel to X-X Axis	=	6.0	ft
Length parallel to Z-Z Axis	=	6.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



ON PLAN SHOWN AS T.O.F @ -1'-0". -1'-0" + 16" = 2'-4".

2'-0" IS A CONSERVATIVE ASSUMPTION FOR THE PURPOSES OF UPLIFT. VIA INSPECTION OK!

Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Compression)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	12.0	13.0		16.0	5.0	16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	3.0	3.0		4.0	6.0	4.0		k
V-z	=					5.0	16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7375	Soil Bearing	1.475 ksf	2.0 ksf	+D+0.750S+0.5250E about X-X axis
PASS	4.854	Overturning - X-X	14.933 k-ft	72.480 k-ft	+0.60D+0.70E
PASS	6.650	Overturning - Z-Z	7.20 k-ft	47.880 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.2341	Z Flexure (+X) Bot Tens	6.757 k-ft/ft	28.867 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1347	Z Flexure (-X) Bot Tens	3.889 k-ft/ft	28.867 k-ft/ft	+1.20D+1.60S
PASS	0.673	Min Steel X Flexure Bottom	0.346 in2/ft	0.513 in2/ft	n/a
PASS	0.2071	X Flexure (+Z) Bot Tens	5.978 k-ft/ft	28.867 k-ft/ft	+1.20D+0.20S+E
PASS	0.1744	X Flexure (-Z) Bot Tens	5.035 k-ft/ft	28.867 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.673	Min Steel Z Flexure Bottom	0.346 in2/ft	0.513 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.842	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.842	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.3797	1-way Shear (+X)	18.560 psi	48.881 psi	+1.20D+1.60S+0.50W
PASS	0.2164	1-way Shear (-X)	10.576 psi	48.881 psi	+1.20D+1.60S
PASS	0.3365	1-way Shear (+Z)	16.447 psi	48.881 psi	+1.20D+0.20S+E
PASS	0.2814	1-way Shear (-Z)	13.755 psi	48.881 psi	+1.20D+1.60S+0.50W
PASS	0.3702	2-way Punching	60.833 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.60	0.60	n/a	n/a	0.300
X-X, +D+Lr	2.0	n/a	0.0	0.9611	0.9611	n/a	n/a	0.481
X-X, +D+S	2.0	n/a	0.0	1.044	1.044	n/a	n/a	0.522
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8708	0.8708	n/a	n/a	0.435
X-X, +D+0.750S	2.0	n/a	0.0	0.9333	0.9333	n/a	n/a	0.467
X-X, +D+0.60W	2.0	n/a	1.951	0.5733	0.7933	n/a	n/a	0.397
X-X, +D+0.750Lr+0.450W	2.0	n/a	1.071	0.8508	1.016	n/a	n/a	0.508
X-X, +D+0.750S+0.450W	2.0	n/a	1.004	0.9133	1.078	n/a	n/a	0.539
X-X, +0.60D+0.60W	2.0	n/a	3.008	0.3333	0.5533	n/a	n/a	0.277
X-X, +D+0.70E	2.0	n/a	5.463	0.5004	1.322	n/a	n/a	0.661
X-X, +D+0.750S+0.5250E	2.0	n/a	3.20	0.8587	1.475	n/a	n/a	0.738
X-X, +0.60D+0.70E	2.0	n/a	7.417	0.2604	1.082	n/a	n/a	0.541
Z-Z, D Only	2.0	2.222	n/a	n/a	n/a	0.490	0.710	0.355
Z-Z, +D+Lr	2.0	2.775	n/a	n/a	n/a	0.7411	1.181	0.591
Z-Z, +D+S	2.0	2.979	n/a	n/a	n/a	0.7878	1.301	0.651
Z-Z, +D+0.750Lr	2.0	2.679	n/a	n/a	n/a	0.6783	1.063	0.532
Z-Z, +D+0.750S	2.0	2.857	n/a	n/a	n/a	0.7133	1.153	0.577
Z-Z, +D+0.60W	2.0	4.293	n/a	n/a	n/a	0.4413	0.9253	0.463
Z-Z, +D+0.750Lr+0.450W	2.0	3.786	n/a	n/a	n/a	0.6418	1.225	0.613
Z-Z, +D+0.750S+0.450W	2.0	3.883	n/a	n/a	n/a	0.6768	1.315	0.658
Z-Z, +0.60D+0.60W	2.0	5.414	n/a	n/a	n/a	0.2453	0.6413	0.321
Z-Z, +D+0.70E	2.0	2.829	n/a	n/a	n/a	0.6984	1.124	0.562
Z-Z, +D+0.750S+0.5250E	2.0	3.086	n/a	n/a	n/a	0.8697	1.464	0.732
Z-Z, +0.60D+0.70E	2.0	3.046	n/a	n/a	n/a	0.5024	0.8398	0.420

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Compression)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	4.0 k-ft	73.80 k-ft	18.450	OK
X-X, +D+0.750Lr+0.450W	3.0 k-ft	100.80 k-ft	33.60	OK
X-X, +D+0.750S+0.450W	3.0 k-ft	107.550 k-ft	35.850	OK
X-X, +0.60D+0.60W	4.0 k-ft	47.880 k-ft	11.970	OK
X-X, +D+0.70E	14.933 k-ft	98.40 k-ft	6.589	OK
X-X, +D+0.750S+0.5250E	11.20 k-ft	126.0 k-ft	11.250	OK
X-X, +0.60D+0.70E	14.933 k-ft	72.480 k-ft	4.854	OK
Z-Z, D Only	4.0 k-ft	64.80 k-ft	16.20	OK
Z-Z, +D+Lr	8.0 k-ft	103.80 k-ft	12.975	OK
Z-Z, +D+S	9.333 k-ft	112.80 k-ft	12.086	OK
Z-Z, +D+0.750Lr	7.0 k-ft	94.050 k-ft	13.436	OK
Z-Z, +D+0.750S	8.0 k-ft	100.80 k-ft	12.60	OK
Z-Z, +D+0.60W	8.80 k-ft	73.80 k-ft	8.386	OK
Z-Z, +D+0.750Lr+0.450W	10.60 k-ft	100.80 k-ft	9.509	OK
Z-Z, +D+0.750S+0.450W	11.60 k-ft	107.550 k-ft	9.272	OK
Z-Z, +0.60D+0.60W	7.20 k-ft	47.880 k-ft	6.650	OK
Z-Z, +D+0.70E	7.733 k-ft	98.40 k-ft	12.724	OK
Z-Z, +D+0.750S+0.5250E	10.80 k-ft	126.0 k-ft	11.667	OK
Z-Z, +0.60D+0.70E	6.133 k-ft	72.480 k-ft	11.817	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.10	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.40D	2.10	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50Lr	2.613	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50Lr	2.613	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50S	2.80	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50S	2.80	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60Lr	4.40	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60Lr	4.40	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60Lr+0.50W	4.990	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60Lr+0.50W	4.435	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60S	5.0	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60S	5.0	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60S+0.50W	5.590	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+1.60S+0.50W	5.035	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50Lr+W	3.793	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50Lr+W	2.682	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50S+W	3.981	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.50S+W	2.870	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +0.90D+W	2.531	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +0.90D+W	1.420	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.20S+E	5.978	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +1.20D+0.20S+E	2.422	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +0.90D+E	5.128	+Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
X-X, +0.90D+E	1.572	-Z	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.40D	1.633	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.40D	2.567	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50Lr	2.046	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50Lr	3.179	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50S	2.178	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50S	3.422	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60Lr	3.467	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60Lr	5.333	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.446	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60Lr+0.50W	5.979	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60S	3.889	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60S	6.111	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60S+0.50W	3.868	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+1.60S+0.50W	6.757	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50Lr+W	2.004	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK

Project Title:
Engineer:
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Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Compression)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	4.471	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50S+W	2.136	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.50S+W	4.714	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +0.90D+W	1.008	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +0.90D+W	2.942	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.20S+E	3.267	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +1.20D+0.20S+E	5.133	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +0.90D+E	2.606	-X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK
Z-Z, +0.90D+E	4.094	+X	Bottom	0.3456	ACI 7.6.1.1	0.5133	28.867	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	4.44 psi	7.05 psi	7.05 psi	48.88 psi	0.14	OK
+1.20D+0.50Lr	5.56 psi	8.73 psi	8.73 psi	48.88 psi	0.18	OK
+1.20D+0.50S	5.92 psi	9.39 psi	9.39 psi	48.88 psi	0.19	OK
+1.20D+1.60Lr	9.43 psi	14.64 psi	14.64 psi	48.88 psi	0.30	OK
+1.20D+1.60Lr+0.50W	9.36 psi	16.42 psi	16.42 psi	48.88 psi	0.34	OK
+1.20D+1.60S	10.58 psi	16.78 psi	16.78 psi	48.88 psi	0.34	OK
+1.20D+1.60S+0.50W	10.50 psi	18.56 psi	18.56 psi	48.88 psi	0.38	OK
+1.20D+0.50Lr+W	5.41 psi	12.30 psi	12.30 psi	48.88 psi	0.25	OK
+1.20D+0.50S+W	5.77 psi	12.96 psi	12.96 psi	48.88 psi	0.27	OK
+0.90D+W	2.71 psi	8.10 psi	8.10 psi	48.88 psi	0.17	OK
+1.20D+0.20S+E	8.88 psi	14.09 psi	14.09 psi	48.88 psi	0.29	OK
+0.90D+E	7.09 psi	11.24 psi	11.24 psi	48.88 psi	0.23	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.74 psi	5.74 psi	5.74 psi	48.88 psi	0.12	OK
+1.20D+0.50Lr	7.15 psi	7.15 psi	7.15 psi	48.88 psi	0.15	OK
+1.20D+0.50S	7.66 psi	7.66 psi	7.66 psi	48.88 psi	0.16	OK
+1.20D+1.60Lr	12.03 psi	12.03 psi	12.03 psi	48.88 psi	0.25	OK
+1.20D+1.60Lr+0.50W	12.11 psi	13.66 psi	13.66 psi	48.88 psi	0.28	OK
+1.20D+1.60S	13.68 psi	13.68 psi	13.68 psi	48.88 psi	0.28	OK
+1.20D+1.60S+0.50W	13.76 psi	15.31 psi	15.31 psi	48.88 psi	0.31	OK
+1.20D+0.50Lr+W	7.31 psi	10.41 psi	10.41 psi	48.88 psi	0.21	OK
+1.20D+0.50S+W	7.82 psi	10.92 psi	10.92 psi	48.88 psi	0.22	OK
+0.90D+W	3.85 psi	6.95 psi	6.95 psi	48.88 psi	0.14	OK
+1.20D+0.20S+E	6.53 psi	16.45 psi	16.45 psi	48.88 psi	0.34	OK
+0.90D+E	4.20 psi	14.12 psi	14.12 psi	48.88 psi	0.29	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	24.05 psi	164.32 psi	0.15	OK
+1.20D+0.50Lr	29.92 psi	164.32 psi	0.18	OK
+1.20D+0.50S	32.06 psi	164.32 psi	0.20	OK
+1.20D+1.60Lr	50.38 psi	164.32 psi	0.31	OK
+1.20D+1.60Lr+0.50W	53.96 psi	164.32 psi	0.33	OK
+1.20D+1.60S	57.25 psi	164.32 psi	0.35	OK
+1.20D+1.60S+0.50W	60.83 psi	164.32 psi	0.37	OK
+1.20D+0.50Lr+W	37.07 psi	164.32 psi	0.23	OK
+1.20D+0.50S+W	39.22 psi	164.32 psi	0.24	OK
+0.90D+W	22.62 psi	164.32 psi	0.14	OK
+1.20D+0.20S+E	48.09 psi	164.32 psi	0.29	OK
+0.90D+E	38.36 psi	164.32 psi	0.23	OK

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DESCRIPTION: Gridline 1 Building Column (Uplift Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

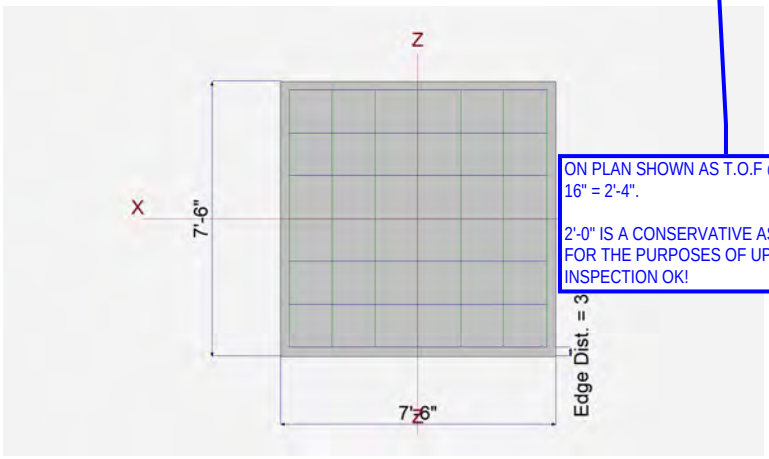
Width parallel to X-X Axis	=	7.50	ft
Length parallel to Z-Z Axis	=	7.50	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

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DESCRIPTION: Gridline 1 Building Column (Uplift Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	12.0	13.0		4.0	-16.0	-16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	-3.0	-3.0		-4.0	-6.0	-4.0		k
V-z	=					-5.0	-16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.4119	Soil Bearing	0.8238 ksf	2.0 ksf	+D+Lr about Z-Z axis
PASS	1.067	Overturning - X-X	56.933 k-ft	60.750 k-ft	+0.60D+0.70E
PASS	1.262	Overturning - Z-Z	48.133 k-ft	60.750 k-ft	+0.60D+0.70E
PASS	1.446	Uplift			
PASS	0.1569	Z Flexure (+X) Bot Tens	3.653 k-ft/ft	23.280 k-ft/ft	+1.20D+1.60Lr
PASS	0.2211	Z Flexure (-X) Bot Tens	5.147 k-ft/ft	23.280 k-ft/ft	+1.20D+1.60Lr
PASS	0.842	Min Steel X Flexure Bottom	0.346 in2/ft	0.411 in2/ft	n/a
PASS	0.1890	X Flexure (+Z) Bot Tens	4.40 k-ft/ft	23.280 k-ft/ft	+1.20D+1.60Lr
PASS	0.1890	X Flexure (-Z) Bot Tens	4.40 k-ft/ft	23.280 k-ft/ft	+1.20D+1.60Lr
PASS	0.842	Min Steel Z Flexure Bottom	0.346 in2/ft	0.411 in2/ft	n/a
PASS	0.06098	Z Flexure (+X) Top Tens	1.420 k-ft/ft	23.280 k-ft/ft	+0.90D+W
PASS	0.002341	Z Flexure (-X) Top Tens	0.05450 k-ft/ft	23.280 k-ft/ft	+0.90D+E
PASS	0.842	Min Steel X Flexure Top	0.346 in2/ft	0.411 in2/ft	n/a
PASS	0.07249	X Flexure (+Z) Top Tens	1.688 k-ft/ft	23.280 k-ft/ft	+0.90D+E
PASS	0.008832	X Flexure (-Z) Top Tens	0.2056 k-ft/ft	23.280 k-ft/ft	+0.90D+W
PASS	0.842	Min Steel Z Flexure Top	0.346 in2/ft	0.411 in2/ft	n/a
PASS	0.1998	1-way Shear (+X)	9.066 psi	45.377 psi	+1.20D+1.60Lr
PASS	0.2776	1-way Shear (-X)	12.595 psi	45.377 psi	+1.20D+1.60Lr
PASS	0.2387	1-way Shear (+Z)	10.831 psi	45.377 psi	+1.20D+1.60Lr
PASS	0.2387	1-way Shear (-Z)	10.831 psi	45.377 psi	+1.20D+1.60Lr
PASS	0.3107	2-way Punching	51.050 psi	164.317 psi	+1.20D+1.60Lr

SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.480	0.480	n/a	n/a	0.240
X-X, +D+Lr	2.0	n/a	0.0	0.7111	0.7111	n/a	n/a	0.356
X-X, +D+S	2.0	n/a	0.0	0.5511	0.5511	n/a	n/a	0.276
X-X, +D+0.750Lr	2.0	n/a	0.0	0.6533	0.6533	n/a	n/a	0.327
X-X, +D+0.750S	2.0	n/a	0.0	0.5333	0.5333	n/a	n/a	0.267
X-X, +D+0.60W	2.0	n/a	-2.759	0.3657	0.2530	n/a	n/a	0.183
X-X, +D+0.750Lr+0.450W	2.0	n/a	-1.218	0.5676	0.4831	n/a	n/a	0.284
X-X, +D+0.750S+0.450W	2.0	n/a	-1.579	0.4476	0.3631	n/a	n/a	0.224
X-X, +0.60D+0.60W	2.0	n/a	-7.273	0.1737	0.06101	n/a	n/a	0.087
X-X, +D+0.70E	2.0	n/a	-11.342	0.4912	0.07063	n/a	n/a	0.246
X-X, +D+0.750S+0.5250E	2.0	n/a	-6.222	0.5417	0.2263	n/a	n/a	0.271
X-X, +0.60D+0.70E	2.0	n/a	-35.840	0.5727	0.0	n/a	n/a	0.286
Z-Z, D Only	2.0	-1.778	n/a	n/a	n/a	0.5363	0.4237	0.268
Z-Z, +D+Lr	2.0	-2.40	n/a	n/a	n/a	0.8238	0.5985	0.412
Z-Z, +D+S	2.0	-3.613	n/a	n/a	n/a	0.6825	0.4197	0.341
Z-Z, +D+0.750Lr	2.0	-2.286	n/a	n/a	n/a	0.7519	0.5548	0.376
Z-Z, +D+0.750S	2.0	-3.20	n/a	n/a	n/a	0.6460	0.4207	0.323
Z-Z, +D+0.60W	2.0	-6.069	n/a	n/a	n/a	0.4332	0.1854	0.217
Z-Z, +D+0.750Lr+0.450W	2.0	-4.305	n/a	n/a	n/a	0.6746	0.3761	0.337
Z-Z, +D+0.750S+0.450W	2.0	-6.105	n/a	n/a	n/a	0.5687	0.2420	0.284
Z-Z, +0.60D+0.60W	2.0	-13.091	n/a	n/a	n/a	0.2187	0.01596	0.109
Z-Z, +D+0.70E	2.0	-5.873	n/a	n/a	n/a	0.3898	0.1720	0.195
Z-Z, +D+0.750S+0.5250E	2.0	-6.0	n/a	n/a	n/a	0.5361	0.2319	0.268
Z-Z, +0.60D+0.70E	2.0	-14.720	n/a	n/a	n/a	0.1752	0.002532	0.088

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Uplift Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	40.0 k-ft	101.250 k-ft	2.531	OK
X-X, +D+0.750Lr+0.450W	30.0 k-ft	137.813 k-ft	4.594	OK
X-X, +D+0.750S+0.450W	30.0 k-ft	112.50 k-ft	3.750	OK
X-X, +0.60D+0.60W	40.0 k-ft	60.750 k-ft	1.519	OK
X-X, +D+0.70E	56.933 k-ft	101.250 k-ft	1.778	OK
X-X, +D+0.750S+0.5250E	42.70 k-ft	112.50 k-ft	2.635	OK
X-X, +0.60D+0.70E	56.933 k-ft	60.750 k-ft	1.067	OK
Z-Z, D Only	4.0 k-ft	101.250 k-ft	25.313	OK
Z-Z, +D+Lr	8.0 k-ft	150.0 k-ft	18.750	OK
Z-Z, +D+S	9.333 k-ft	116.250 k-ft	12.455	OK
Z-Z, +D+0.750Lr	7.0 k-ft	137.813 k-ft	19.688	OK
Z-Z, +D+0.750S	8.0 k-ft	112.50 k-ft	14.063	OK
Z-Z, +D+0.60W	44.80 k-ft	101.250 k-ft	2.260	OK
Z-Z, +D+0.750Lr+0.450W	37.60 k-ft	137.813 k-ft	3.665	OK
Z-Z, +D+0.750S+0.450W	38.60 k-ft	112.50 k-ft	2.915	OK
Z-Z, +0.60D+0.60W	43.20 k-ft	60.750 k-ft	1.406	OK
Z-Z, +D+0.70E	49.733 k-ft	101.250 k-ft	2.036	OK
Z-Z, +D+0.750S+0.5250E	42.30 k-ft	112.50 k-ft	2.660	OK
Z-Z, +0.60D+0.70E	48.133 k-ft	60.750 k-ft	1.262	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.10	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.40D	2.10	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50Lr	2.613	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50Lr	2.613	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50S	2.050	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50S	2.050	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60Lr	4.40	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60Lr	4.40	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60Lr+0.50W	3.178	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60Lr+0.50W	3.622	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60S	2.60	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60S	2.60	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60S+0.50W	1.378	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+1.60S+0.50W	1.822	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50Lr+W	0.1681	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50Lr+W	1.057	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.50S+W	0.4944	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.20S+E	1.322	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +0.90D+E	1.157	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.40D	2.473	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.40D	1.727	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50Lr	3.066	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50Lr	2.159	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50S	2.548	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50S	1.552	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60Lr	5.147	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60Lr	3.653	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60Lr+0.50W	4.413	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60Lr+0.50W	2.387	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60S	3.489	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60S	1.711	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60S+0.50W	2.755	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+1.60S+0.50W	0.4446	+X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50Lr+W	1.599	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50S+W	1.081	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +0.90D+W	0.1270	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.20S+E	0.6466	-X	Bottom	0.3456	ACI 7.6.1.1	0.4107	23.280	OK

Project Title:
Engineer:
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Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 1 Building Column (Uplift Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50S+W	0.3944	+Z	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +0.90D+W	1.094	+Z	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +0.90D+W	0.2056	-Z	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +1.20D+0.20S+E	1.522	+Z	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
X-X, +0.90D+E	1.688	+Z	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50Lr+W	0.3741	+X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.50S+W	0.9810	+X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +0.90D+W	1.420	+X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +1.20D+0.20S+E	0.8466	+X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +0.90D+E	0.05450	-X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK
Z-Z, +0.90D+E	1.246	+X	Top	0.3456	ACI 7.6.1.1	0.4107	23.280	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	6.05 psi	4.29 psi	6.05 psi	45.38 psi	0.13	OK
+1.20D+0.50Lr	7.50 psi	5.36 psi	7.50 psi	45.38 psi	0.17	OK
+1.20D+0.50S	6.22 psi	3.87 psi	6.22 psi	45.38 psi	0.14	OK
+1.20D+1.60Lr	12.60 psi	9.07 psi	12.60 psi	45.38 psi	0.28	OK
+1.20D+1.60Lr+0.50W	10.76 psi	5.98 psi	10.76 psi	45.38 psi	0.24	OK
+1.20D+1.60S	8.50 psi	4.30 psi	8.50 psi	45.38 psi	0.19	OK
+1.20D+1.60S+0.50W	6.67 psi	1.21 psi	6.67 psi	45.38 psi	0.15	OK
+1.20D+0.50Lr+W	3.84 psi	0.82 psi	3.84 psi	45.38 psi	0.08	OK
+1.20D+0.50S+W	2.56 psi	2.31 psi	2.56 psi	45.38 psi	0.06	OK
+0.90D+W	0.24 psi	3.43 psi	3.43 psi	45.38 psi	0.08	OK
+1.20D+0.20S+E	1.52 psi	2.01 psi	2.01 psi	45.38 psi	0.04	OK
+0.90D+E	0.19 psi	3.01 psi	3.01 psi	45.38 psi	0.07	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.17 psi	5.17 psi	5.17 psi	45.38 psi	0.11	OK
+1.20D+0.50Lr	6.43 psi	6.43 psi	6.43 psi	45.38 psi	0.14	OK
+1.20D+0.50S	5.05 psi	5.05 psi	5.05 psi	45.38 psi	0.11	OK
+1.20D+1.60Lr	10.83 psi	10.83 psi	10.83 psi	45.38 psi	0.24	OK
+1.20D+1.60Lr+0.50W	8.89 psi	7.84 psi	8.89 psi	45.38 psi	0.20	OK
+1.20D+1.60S	6.40 psi	6.40 psi	6.40 psi	45.38 psi	0.14	OK
+1.20D+1.60S+0.50W	4.46 psi	3.41 psi	4.46 psi	45.38 psi	0.10	OK
+1.20D+0.50Lr+W	2.56 psi	0.46 psi	2.56 psi	45.38 psi	0.06	OK
+1.20D+0.50S+W	1.17 psi	0.93 psi	1.17 psi	45.38 psi	0.03	OK
+0.90D+W	0.55 psi	2.65 psi	2.65 psi	45.38 psi	0.06	OK
+1.20D+0.20S+E	3.12 psi	3.61 psi	3.61 psi	45.38 psi	0.08	OK
+0.90D+E	2.54 psi	4.15 psi	4.15 psi	45.38 psi	0.09	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	24.37 psi	164.32 psi	0.15	OK
+1.20D+0.50Lr	30.31 psi	164.32 psi	0.18	OK
+1.20D+0.50S	23.79 psi	164.32 psi	0.14	OK
+1.20D+1.60Lr	51.05 psi	164.32 psi	0.31	OK
+1.20D+1.60Lr+0.50W	39.45 psi	164.32 psi	0.24	OK
+1.20D+1.60S	30.17 psi	164.32 psi	0.18	OK
+1.20D+1.60S+0.50W	18.56 psi	164.32 psi	0.11	OK
+1.20D+0.50Lr+W	7.11 psi	164.32 psi	0.04	OK
+1.20D+0.50S+W	0.58 psi	164.32 psi	0.00	OK
+0.90D+W	7.54 psi	164.32 psi	0.05	OK
+1.20D+0.20S+E	1.16 psi	164.32 psi	0.01	OK
+0.90D+E	7.54 psi	164.32 psi	0.05	OK

Project Title:
Engineer:
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Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridlines 2-4 Building Column (Compression Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

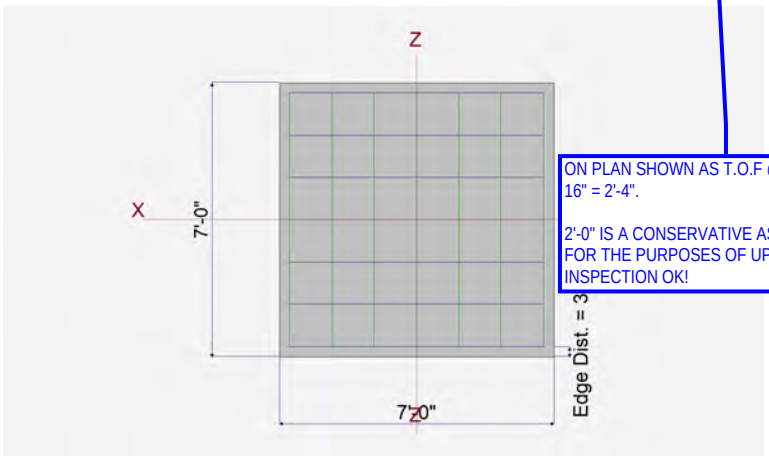
Width parallel to X-X Axis	=	7.0	ft
Length parallel to Z-Z Axis	=	7.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
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General Footing

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Gridlines 2-4 Building Column (Compression Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	17.0	18.0		22.0	5.0	16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	3.0	4.0		5.0	8.0	5.0		k
V-z	=					5.0	16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.6690	Soil Bearing	1.338 ksf	2.0 ksf	+D+0.750S+0.5250E about Z-Z axis
PASS	6.853	Overturning - X-X	14.933 k-ft	102.340 k-ft	+0.60D+0.70E
PASS	8.368	Overturning - Z-Z	8.80 k-ft	73.640 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.3515	Z Flexure (+X) Bot Tens	8.748 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2349	Z Flexure (-X) Bot Tens	5.845 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.3014	X Flexure (+Z) Bot Tens	7.501 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2823	X Flexure (-Z) Bot Tens	7.024 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.4810	1-way Shear (+X)	22.336 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.3243	1-way Shear (-X)	15.059 psi	46.432 psi	+1.20D+1.60S
PASS	0.4139	1-way Shear (+Z)	19.217 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.3882	1-way Shear (-Z)	18.027 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.5097	2-way Punching	83.747 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.6136	0.6136	n/a	n/a	0.307
X-X, +D+Lr	2.0	n/a	0.0	0.9810	0.9810	n/a	n/a	0.491
X-X, +D+S	2.0	n/a	0.0	1.063	1.063	n/a	n/a	0.532
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8891	0.8891	n/a	n/a	0.445
X-X, +D+0.750S	2.0	n/a	0.0	0.9503	0.9503	n/a	n/a	0.475
X-X, +D+0.60W	2.0	n/a	1.452	0.6056	0.7441	n/a	n/a	0.372
X-X, +D+0.750Lr+0.450W	2.0	n/a	0.7857	0.8831	0.9870	n/a	n/a	0.494
X-X, +D+0.750S+0.450W	2.0	n/a	0.7375	0.9443	1.048	n/a	n/a	0.524
X-X, +0.60D+0.60W	2.0	n/a	2.281	0.3601	0.4987	n/a	n/a	0.249
X-X, +D+0.70E	2.0	n/a	4.342	0.5836	1.101	n/a	n/a	0.551
X-X, +D+0.750S+0.5250E	2.0	n/a	2.445	0.9278	1.316	n/a	n/a	0.658
X-X, +0.60D+0.70E	2.0	n/a	6.129	0.3381	0.8553	n/a	n/a	0.428
Z-Z, D Only	2.0	1.596	n/a	n/a	n/a	0.5443	0.6829	0.342
Z-Z, +D+Lr	2.0	2.330	n/a	n/a	n/a	0.8193	1.143	0.572
Z-Z, +D+S	2.0	2.458	n/a	n/a	n/a	0.8779	1.247	0.624
Z-Z, +D+0.750Lr	2.0	2.204	n/a	n/a	n/a	0.7506	1.028	0.514
Z-Z, +D+0.750S	2.0	2.319	n/a	n/a	n/a	0.7945	1.106	0.553
Z-Z, +D+0.60W	2.0	3.774	n/a	n/a	n/a	0.4947	0.8549	0.428
Z-Z, +D+0.750Lr+0.450W	2.0	3.352	n/a	n/a	n/a	0.7134	1.157	0.579
Z-Z, +D+0.750S+0.450W	2.0	3.392	n/a	n/a	n/a	0.7573	1.235	0.618
Z-Z, +0.60D+0.60W	2.0	5.019	n/a	n/a	n/a	0.2770	0.5818	0.291
Z-Z, +D+0.70E	2.0	2.520	n/a	n/a	n/a	0.6921	0.9923	0.496
Z-Z, +D+0.750S+0.5250E	2.0	2.729	n/a	n/a	n/a	0.9053	1.338	0.669
Z-Z, +0.60D+0.70E	2.0	2.90	n/a	n/a	n/a	0.4744	0.7191	0.360

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridlines 2-4 Building Column (Compression Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	4.0 k-ft	115.733 k-ft	28.933	OK
X-X, +D+0.750Lr+0.450W	3.0 k-ft	160.358 k-ft	53.453	OK
X-X, +D+0.750S+0.450W	3.0 k-ft	170.858 k-ft	56.953	OK
X-X, +0.60D+0.60W	4.0 k-ft	73.640 k-ft	18.410	OK
X-X, +D+0.70E	14.933 k-ft	144.433 k-ft	9.672	OK
X-X, +D+0.750S+0.5250E	11.20 k-ft	192.383 k-ft	17.177	OK
X-X, +0.60D+0.70E	14.933 k-ft	102.340 k-ft	6.853	OK
Z-Z, D Only	4.0 k-ft	105.233 k-ft	26.308	OK
Z-Z, +D+Lr	9.333 k-ft	168.233 k-ft	18.025	OK
Z-Z, +D+S	10.667 k-ft	182.233 k-ft	17.084	OK
Z-Z, +D+0.750Lr	8.0 k-ft	152.483 k-ft	19.060	OK
Z-Z, +D+0.750S	9.0 k-ft	162.983 k-ft	18.109	OK
Z-Z, +D+0.60W	10.40 k-ft	115.733 k-ft	11.128	OK
Z-Z, +D+0.750Lr+0.450W	12.80 k-ft	160.358 k-ft	12.528	OK
Z-Z, +D+0.750S+0.450W	13.80 k-ft	170.858 k-ft	12.381	OK
Z-Z, +0.60D+0.60W	8.80 k-ft	73.640 k-ft	8.368	OK
Z-Z, +D+0.70E	8.667 k-ft	144.433 k-ft	16.665	OK
Z-Z, +D+0.750S+0.5250E	12.50 k-ft	192.383 k-ft	15.391	OK
Z-Z, +0.60D+0.70E	7.067 k-ft	102.340 k-ft	14.482	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.975	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	2.975	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.675	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.675	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	3.925	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	3.925	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.150	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.150	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	6.701	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	6.224	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	6.950	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	6.950	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	7.501	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	7.024	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	4.776	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	3.824	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	5.026	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	4.074	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	3.014	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	2.061	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	6.624	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	3.576	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	5.436	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	2.389	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.575	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	3.375	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	3.142	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	4.208	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	3.344	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	4.506	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	5.198	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	7.102	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	5.129	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	7.796	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	5.845	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	8.055	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	5.777	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	8.748	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	3.005	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridlines 2-4 Building Column (Compression Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	5.595	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	3.207	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	5.893	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	1.519	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	3.556	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	4.186	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	6.014	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	3.179	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	4.646	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	6.63 psi	8.63 psi	8.63 psi	46.43 psi	0.19	OK
+1.20D+0.50Lr	8.09 psi	10.76 psi	10.76 psi	46.43 psi	0.23	OK
+1.20D+0.50S	8.61 psi	11.52 psi	11.52 psi	46.43 psi	0.25	OK
+1.20D+1.60Lr	13.39 psi	18.15 psi	18.15 psi	46.43 psi	0.39	OK
+1.20D+1.60Lr+0.50W	13.24 psi	19.90 psi	19.90 psi	46.43 psi	0.43	OK
+1.20D+1.60S	15.06 psi	20.58 psi	20.58 psi	46.43 psi	0.44	OK
+1.20D+1.60S+0.50W	14.91 psi	22.34 psi	22.34 psi	46.43 psi	0.48	OK
+1.20D+0.50Lr+W	7.79 psi	14.26 psi	14.26 psi	46.43 psi	0.31	OK
+1.20D+0.50S+W	8.31 psi	15.02 psi	15.02 psi	46.43 psi	0.32	OK
+0.90D+W	3.96 psi	9.05 psi	9.05 psi	46.43 psi	0.20	OK
+1.20D+0.20S+E	10.79 psi	15.36 psi	15.36 psi	46.43 psi	0.33	OK
+0.90D+E	8.20 psi	11.87 psi	11.87 psi	46.43 psi	0.26	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.63 psi	7.63 psi	7.63 psi	46.43 psi	0.16	OK
+1.20D+0.50Lr	9.42 psi	9.42 psi	9.42 psi	46.43 psi	0.20	OK
+1.20D+0.50S	10.06 psi	10.06 psi	10.06 psi	46.43 psi	0.22	OK
+1.20D+1.60Lr	15.77 psi	15.77 psi	15.77 psi	46.43 psi	0.34	OK
+1.20D+1.60Lr+0.50W	15.98 psi	17.17 psi	17.17 psi	46.43 psi	0.37	OK
+1.20D+1.60S	17.82 psi	17.82 psi	17.82 psi	46.43 psi	0.38	OK
+1.20D+1.60S+0.50W	18.03 psi	19.22 psi	19.22 psi	46.43 psi	0.41	OK
+1.20D+0.50Lr+W	9.84 psi	12.22 psi	12.22 psi	46.43 psi	0.26	OK
+1.20D+0.50S+W	10.48 psi	12.86 psi	12.86 psi	46.43 psi	0.28	OK
+0.90D+W	5.32 psi	7.70 psi	7.70 psi	46.43 psi	0.17	OK
+1.20D+0.20S+E	9.27 psi	16.89 psi	16.89 psi	46.43 psi	0.36	OK
+0.90D+E	6.22 psi	13.84 psi	13.84 psi	46.43 psi	0.30	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	34.31 psi	164.32 psi	0.21	OK
+1.20D+0.50Lr	42.38 psi	164.32 psi	0.26	OK
+1.20D+0.50S	45.26 psi	164.32 psi	0.28	OK
+1.20D+1.60Lr	70.92 psi	164.32 psi	0.43	OK
+1.20D+1.60Lr+0.50W	74.52 psi	164.32 psi	0.45	OK
+1.20D+1.60S	80.14 psi	164.32 psi	0.49	OK
+1.20D+1.60S+0.50W	83.75 psi	164.32 psi	0.51	OK
+1.20D+0.50Lr+W	49.59 psi	164.32 psi	0.30	OK
+1.20D+0.50S+W	52.47 psi	164.32 psi	0.32	OK
+0.90D+W	29.26 psi	164.32 psi	0.18	OK
+1.20D+0.20S+E	58.81 psi	164.32 psi	0.36	OK
+0.90D+E	45.12 psi	164.32 psi	0.27	OK

Project Title:
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General Footing

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DESCRIPTION: Gridlines 2-4 Building Column (Uplift Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

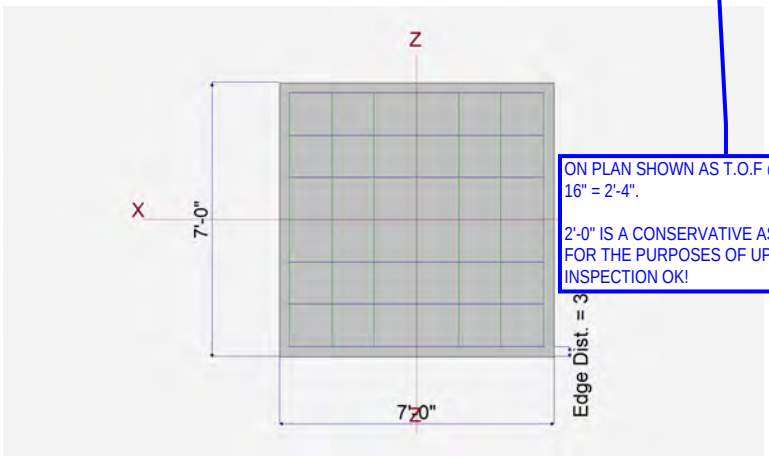
Width parallel to X-X Axis	=	7.0	ft
Length parallel to Z-Z Axis	=	7.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

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General Footing

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Gridlines 2-4 Building Column (Uplift Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	17.0	18.0		6.0	-19.0	-16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	-3.0	-4.0		-5.0	-8.0	-5.0		k
V-z	=					-5.0	-16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5715	Soil Bearing	1.143 ksf	2.0 ksf	+D+Lr about Z-Z axis
PASS	1.166	Overturning - X-X	54.133 k-ft	63.140 k-ft	+0.60D+0.70E
PASS	1.297	Overturning - Z-Z	48.70 k-ft	63.140 k-ft	+0.60D+0.60W
					SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL
PASS	1.582	Uplift			
PASS	0.2089	Z Flexure (+X) Bot Tens	5.198 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.2854	Z Flexure (-X) Bot Tens	7.102 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2471	X Flexure (+Z) Bot Tens	6.150 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.2471	X Flexure (-Z) Bot Tens	6.150 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.05631	Z Flexure (+X) Top Tens	1.401 k-ft/ft	24.886 k-ft/ft	+0.90D+W
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel X Flexure Top	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.05737	X Flexure (+Z) Top Tens	1.428 k-ft/ft	24.886 k-ft/ft	+0.90D+E
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel Z Flexure Top	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2883	1-way Shear (+X)	13.388 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.3909	1-way Shear (-X)	18.150 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.3396	1-way Shear (+Z)	15.769 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.3396	1-way Shear (-Z)	15.769 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.4316	2-way Punching	70.918 psi	164.317 psi	+1.20D+1.60Lr

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.6136	0.6136	n/a	n/a	0.307
X-X, +D+Lr	2.0	n/a	0.0	0.9810	0.9810	n/a	n/a	0.491
X-X, +D+S	2.0	n/a	0.0	0.7361	0.7361	n/a	n/a	0.368
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8891	0.8891	n/a	n/a	0.445
X-X, +D+0.750S	2.0	n/a	0.0	0.7054	0.7054	n/a	n/a	0.353
X-X, +D+0.60W	2.0	n/a	-2.571	0.4502	0.3117	n/a	n/a	0.225
X-X, +D+0.750Lr+0.450W	2.0	n/a	-1.028	0.7666	0.6627	n/a	n/a	0.383
X-X, +D+0.750S+0.450W	2.0	n/a	-1.384	0.5829	0.4790	n/a	n/a	0.292
X-X, +0.60D+0.60W	2.0	n/a	-7.229	0.2048	0.06624	n/a	n/a	0.102
X-X, +D+0.70E	2.0	n/a	-9.498	0.6436	0.1264	n/a	n/a	0.322
X-X, +D+0.750S+0.5250E	2.0	n/a	-5.136	0.7280	0.3401	n/a	n/a	0.364
X-X, +0.60D+0.70E	2.0	n/a	-26.199	0.4903	0.0	n/a	n/a	0.245
Z-Z, D Only	2.0	-1.596	n/a	n/a	n/a	0.6829	0.5443	0.342
Z-Z, +D+Lr	2.0	-2.330	n/a	n/a	n/a	1.143	0.8193	0.572
Z-Z, +D+S	2.0	-3.549	n/a	n/a	n/a	0.9208	0.5513	0.460
Z-Z, +D+0.750Lr	2.0	-2.204	n/a	n/a	n/a	1.028	0.7506	0.514
Z-Z, +D+0.750S	2.0	-3.124	n/a	n/a	n/a	0.8613	0.5496	0.431
Z-Z, +D+0.60W	2.0	-6.686	n/a	n/a	n/a	0.5611	0.2008	0.281
Z-Z, +D+0.750Lr+0.450W	2.0	-4.386	n/a	n/a	n/a	0.9363	0.4930	0.468
Z-Z, +D+0.750S+0.450W	2.0	-6.365	n/a	n/a	n/a	0.7699	0.2920	0.385
Z-Z, +0.60D+0.60W	2.0	-15.904	n/a	n/a	n/a	0.2892	0.0	0.145
Z-Z, +D+0.70E	2.0	-5.512	n/a	n/a	n/a	0.5351	0.2349	0.268
Z-Z, +D+0.750S+0.5250E	2.0	-5.732	n/a	n/a	n/a	0.7505	0.3175	0.375
Z-Z, +0.60D+0.70E	2.0	-12.398	n/a	n/a	n/a	0.2620	0.01721	0.131

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridlines 2-4 Building Column (Uplift Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	43.90 k-ft	105.233 k-ft	2.397	OK
X-X, +D+0.750Lr+0.450W	32.925 k-ft	152.483 k-ft	4.631	OK
X-X, +D+0.750S+0.450W	32.925 k-ft	120.983 k-ft	3.675	OK
X-X, +0.60D+0.60W	43.90 k-ft	63.140 k-ft	1.438	OK
X-X, +D+0.70E	54.133 k-ft	105.233 k-ft	1.944	OK
X-X, +D+0.750S+0.5250E	40.60 k-ft	120.983 k-ft	2.980	OK
X-X, +0.60D+0.70E	54.133 k-ft	63.140 k-ft	1.166	OK
Z-Z, D Only	4.0 k-ft	105.233 k-ft	26.308	OK
Z-Z, +D+Lr	9.333 k-ft	168.233 k-ft	18.025	OK
Z-Z, +D+S	10.667 k-ft	126.233 k-ft	11.834	OK
Z-Z, +D+0.750Lr	8.0 k-ft	152.483 k-ft	19.060	OK
Z-Z, +D+0.750S	9.0 k-ft	120.983 k-ft	13.443	OK
Z-Z, +D+0.60W	50.30 k-ft	105.233 k-ft	2.092	OK
Z-Z, +D+0.750Lr+0.450W	42.725 k-ft	152.483 k-ft	3.569	OK
Z-Z, +D+0.750S+0.450W	43.725 k-ft	120.983 k-ft	2.767	OK
Z-Z, +0.60D+0.60W	48.70 k-ft	63.140 k-ft	1.297	OK
Z-Z, +D+0.70E	47.867 k-ft	105.233 k-ft	2.198	OK
Z-Z, +D+0.750S+0.5250E	41.90 k-ft	120.983 k-ft	2.887	OK
Z-Z, +0.60D+0.70E	46.267 k-ft	63.140 k-ft	1.365	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.975	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	2.975	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.675	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.675	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.925	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.925	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.150	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.150	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	4.724	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	5.201	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	3.750	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	3.750	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	2.324	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	2.801	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	0.8239	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	1.776	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	0.07386	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	1.026	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	0.01364	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	2.224	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.620	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	3.375	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.575	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	4.208	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	3.142	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	3.506	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.344	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	7.102	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	5.198	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	6.296	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.629	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	4.855	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	2.645	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	4.048	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	1.077	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	2.595	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	0.004891	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	1.893	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	0.6367	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridlines 2-4 Building Column (Uplift Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.20S+E	1.614	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	0.6458	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +0.90D+W	0.9386	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	0.8237	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.428	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	0.7927	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	1.401	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	0.2142	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	0.8208	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	8.63 psi	6.63 psi	8.63 psi	46.43 psi	0.19	OK
+1.20D+0.50Lr	10.76 psi	8.09 psi	10.76 psi	46.43 psi	0.23	OK
+1.20D+0.50S	8.95 psi	6.05 psi	8.95 psi	46.43 psi	0.19	OK
+1.20D+1.60Lr	18.15 psi	13.39 psi	18.15 psi	46.43 psi	0.39	OK
+1.20D+1.60Lr+0.50W	16.06 psi	9.39 psi	16.06 psi	46.43 psi	0.35	OK
+1.20D+1.60S	12.38 psi	6.85 psi	12.38 psi	46.43 psi	0.27	OK
+1.20D+1.60S+0.50W	10.29 psi	2.86 psi	10.29 psi	46.43 psi	0.22	OK
+1.20D+0.50Lr+W	6.57 psi	0.10 psi	6.57 psi	46.43 psi	0.14	OK
+1.20D+0.50S+W	4.77 psi	1.95 psi	4.77 psi	46.43 psi	0.10	OK
+0.90D+W	1.56 psi	3.66 psi	3.66 psi	46.43 psi	0.08	OK
+1.20D+0.20S+E	4.08 psi	0.49 psi	4.08 psi	46.43 psi	0.09	OK
+0.90D+E	1.61 psi	2.06 psi	2.06 psi	46.43 psi	0.04	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.63 psi	7.63 psi	7.63 psi	46.43 psi	0.16	OK
+1.20D+0.50Lr	9.42 psi	9.42 psi	9.42 psi	46.43 psi	0.20	OK
+1.20D+0.50S	7.50 psi	7.50 psi	7.50 psi	46.43 psi	0.16	OK
+1.20D+1.60Lr	15.77 psi	15.77 psi	15.77 psi	46.43 psi	0.34	OK
+1.20D+1.60Lr+0.50W	13.32 psi	12.13 psi	13.32 psi	46.43 psi	0.29	OK
+1.20D+1.60S	9.62 psi	9.62 psi	9.62 psi	46.43 psi	0.21	OK
+1.20D+1.60S+0.50W	7.17 psi	5.98 psi	7.17 psi	46.43 psi	0.15	OK
+1.20D+0.50Lr+W	4.52 psi	2.14 psi	4.52 psi	46.43 psi	0.10	OK
+1.20D+0.50S+W	2.60 psi	0.22 psi	2.60 psi	46.43 psi	0.06	OK
+0.90D+W	0.00 psi	2.38 psi	2.38 psi	46.43 psi	0.05	OK
+1.20D+0.20S+E	5.60 psi	2.02 psi	5.60 psi	46.43 psi	0.12	OK
+0.90D+E	4.02 psi	3.76 psi	4.02 psi	46.43 psi	0.09	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	34.31 psi	164.32 psi	0.21	OK
+1.20D+0.50Lr	42.38 psi	164.32 psi	0.26	OK
+1.20D+0.50S	33.73 psi	164.32 psi	0.21	OK
+1.20D+1.60Lr	70.92 psi	164.32 psi	0.43	OK
+1.20D+1.60Lr+0.50W	57.22 psi	164.32 psi	0.35	OK
+1.20D+1.60S	43.24 psi	164.32 psi	0.26	OK
+1.20D+1.60S+0.50W	29.55 psi	164.32 psi	0.18	OK
+1.20D+0.50Lr+W	14.99 psi	164.32 psi	0.09	OK
+1.20D+0.50S+W	6.34 psi	164.32 psi	0.04	OK
+0.90D+W	5.33 psi	164.32 psi	0.03	OK
+1.20D+0.20S+E	8.07 psi	164.32 psi	0.05	OK
+0.90D+E	1.01 psi	164.32 psi	0.01	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Compression Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

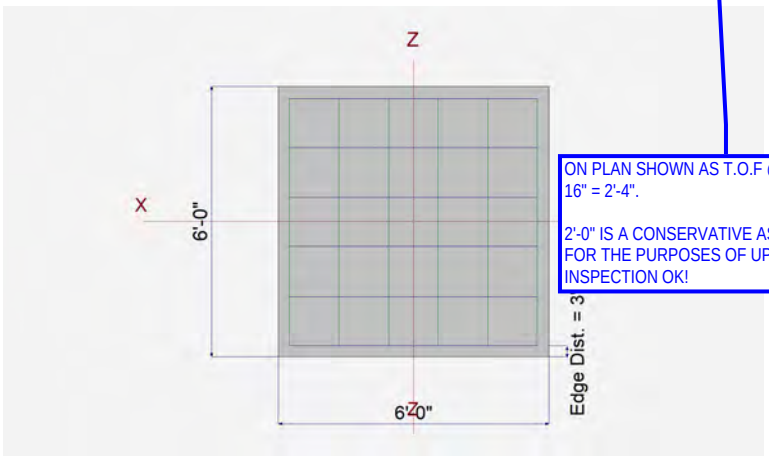
Width parallel to X-X Axis	=	6.0	ft
Length parallel to Z-Z Axis	=	6.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



ON PLAN SHOWN AS T.O.F @ -1'-0". -1'-0" + 16" = 2'-4".

2'-0" IS A CONSERVATIVE ASSUMPTION FOR THE PURPOSES OF UPLIFT. VIA INSPECTION OK!

Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Compression Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	16.0	18.0		22.0	5.0	16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	5.0	5.0		6.0	8.0	5.0		k
V-z	=					5.0	16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9235	Soil Bearing	1.847 ksf	2.0 ksf	+D+0.750S+0.5250E about Z-Z axis
PASS	5.336	Overturning - X-X	14.933 k-ft	79.680 k-ft	+0.60D+0.70E
PASS	5.296	Overturning - Z-Z	10.40 k-ft	55.080 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.3733	Z Flexure (+X) Bot Tens	9.290 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2036	Z Flexure (-X) Bot Tens	5.067 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2970	X Flexure (+Z) Bot Tens	7.390 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.2746	X Flexure (-Z) Bot Tens	6.835 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.5498	1-way Shear (+X)	25.528 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.2964	1-way Shear (-X)	13.763 psi	46.432 psi	+1.20D+1.60S
PASS	0.4356	1-way Shear (+Z)	20.228 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.4023	1-way Shear (-Z)	18.678 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.4957	2-way Punching	81.444 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.7111	0.7111	n/a	n/a	0.356
X-X, +D+Lr	2.0	n/a	0.0	1.211	1.211	n/a	n/a	0.606
X-X, +D+S	2.0	n/a	0.0	1.322	1.322	n/a	n/a	0.661
X-X, +D+0.750Lr	2.0	n/a	0.0	1.086	1.086	n/a	n/a	0.543
X-X, +D+0.750S	2.0	n/a	0.0	1.169	1.169	n/a	n/a	0.585
X-X, +D+0.60W	2.0	n/a	1.678	0.6844	0.9044	n/a	n/a	0.452
X-X, +D+0.750Lr+0.450W	2.0	n/a	0.8706	1.066	1.231	n/a	n/a	0.616
X-X, +D+0.750S+0.450W	2.0	n/a	0.8117	1.149	1.314	n/a	n/a	0.657
X-X, +0.60D+0.60W	2.0	n/a	2.614	0.40	0.620	n/a	n/a	0.310
X-X, +D+0.70E	2.0	n/a	4.870	0.6116	1.433	n/a	n/a	0.717
X-X, +D+0.750S+0.5250E	2.0	n/a	2.661	1.095	1.711	n/a	n/a	0.856
X-X, +0.60D+0.70E	2.0	n/a	6.747	0.3271	1.148	n/a	n/a	0.574
Z-Z, D Only	2.0	3.125	n/a	n/a	n/a	0.5278	0.8944	0.447
Z-Z, +D+Lr	2.0	3.670	n/a	n/a	n/a	0.8444	1.578	0.789
Z-Z, +D+S	2.0	3.697	n/a	n/a	n/a	0.9189	1.726	0.863
Z-Z, +D+0.750Lr	2.0	3.581	n/a	n/a	n/a	0.7653	1.407	0.704
Z-Z, +D+0.750S	2.0	3.610	n/a	n/a	n/a	0.8211	1.518	0.759
Z-Z, +D+0.60W	2.0	5.483	n/a	n/a	n/a	0.4351	1.154	0.577
Z-Z, +D+0.750Lr+0.450W	2.0	4.779	n/a	n/a	n/a	0.6958	1.601	0.801
Z-Z, +D+0.750S+0.450W	2.0	4.726	n/a	n/a	n/a	0.7516	1.712	0.856
Z-Z, +0.60D+0.60W	2.0	6.797	n/a	n/a	n/a	0.2240	0.7960	0.398
Z-Z, +D+0.70E	2.0	3.696	n/a	n/a	n/a	0.7106	1.334	0.667
Z-Z, +D+0.750S+0.5250E	2.0	3.842	n/a	n/a	n/a	0.9582	1.847	0.924
Z-Z, +0.60D+0.70E	2.0	3.916	n/a	n/a	n/a	0.4994	0.9761	0.488

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Compression Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	4.0 k-ft	85.80 k-ft	21.450	OK
X-X, +D+0.750Lr+0.450W	3.0 k-ft	124.050 k-ft	41.350	OK
X-X, +D+0.750S+0.450W	3.0 k-ft	133.050 k-ft	44.350	OK
X-X, +0.60D+0.60W	4.0 k-ft	55.080 k-ft	13.770	OK
X-X, +D+0.70E	14.933 k-ft	110.40 k-ft	7.393	OK
X-X, +D+0.750S+0.5250E	11.20 k-ft	151.50 k-ft	13.527	OK
X-X, +0.60D+0.70E	14.933 k-ft	79.680 k-ft	5.336	OK
Z-Z, D Only	6.667 k-ft	76.80 k-ft	11.520	OK
Z-Z, +D+Lr	13.333 k-ft	130.80 k-ft	9.810	OK
Z-Z, +D+S	14.667 k-ft	142.80 k-ft	9.736	OK
Z-Z, +D+0.750Lr	11.667 k-ft	117.30 k-ft	10.054	OK
Z-Z, +D+0.750S	12.667 k-ft	126.30 k-ft	9.971	OK
Z-Z, +D+0.60W	13.067 k-ft	85.80 k-ft	6.566	OK
Z-Z, +D+0.750Lr+0.450W	16.467 k-ft	124.050 k-ft	7.533	OK
Z-Z, +D+0.750S+0.450W	17.467 k-ft	133.050 k-ft	7.617	OK
Z-Z, +0.60D+0.60W	10.40 k-ft	55.080 k-ft	5.296	OK
Z-Z, +D+0.70E	11.333 k-ft	110.40 k-ft	9.741	OK
Z-Z, +D+0.750S+0.5250E	16.167 k-ft	151.50 k-ft	9.371	OK
Z-Z, +0.60D+0.70E	8.667 k-ft	79.680 k-ft	9.194	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.80	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	2.80	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.525	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.525	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	3.775	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	3.775	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.0	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.0	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	6.590	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	6.035	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	6.80	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	6.80	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	7.390	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	6.835	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	4.706	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	3.595	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	4.956	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	3.845	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	2.981	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	1.870	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	6.728	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	3.172	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	5.578	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	2.022	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.022	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	3.578	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	2.581	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	4.469	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.775	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	4.775	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	4.445	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	7.555	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	4.313	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	8.312	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	5.067	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	8.533	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	4.935	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	9.290	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	2.317	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Compression Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	5.983	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	2.511	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	6.289	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	1.036	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	3.814	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	3.595	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	6.305	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	2.745	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	4.855	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.49 psi	9.83 psi	9.83 psi	46.43 psi	0.21	OK
+1.20D+0.50Lr	7.01 psi	12.28 psi	12.28 psi	46.43 psi	0.26	OK
+1.20D+0.50S	7.54 psi	13.12 psi	13.12 psi	46.43 psi	0.28	OK
+1.20D+1.60Lr	12.07 psi	20.75 psi	20.75 psi	46.43 psi	0.45	OK
+1.20D+1.60Lr+0.50W	11.69 psi	22.84 psi	22.84 psi	46.43 psi	0.49	OK
+1.20D+1.60S	13.76 psi	23.43 psi	23.43 psi	46.43 psi	0.50	OK
+1.20D+1.60S+0.50W	13.38 psi	25.53 psi	25.53 psi	46.43 psi	0.55	OK
+1.20D+0.50Lr+W	6.24 psi	16.47 psi	16.47 psi	46.43 psi	0.35	OK
+1.20D+0.50S+W	6.77 psi	17.30 psi	17.30 psi	46.43 psi	0.37	OK
+0.90D+W	2.76 psi	10.51 psi	10.51 psi	46.43 psi	0.23	OK
+1.20D+0.20S+E	9.76 psi	17.32 psi	17.32 psi	46.43 psi	0.37	OK
+0.90D+E	7.45 psi	13.34 psi	13.34 psi	46.43 psi	0.29	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.66 psi	7.66 psi	7.66 psi	46.43 psi	0.16	OK
+1.20D+0.50Lr	9.64 psi	9.64 psi	9.64 psi	46.43 psi	0.21	OK
+1.20D+0.50S	10.33 psi	10.33 psi	10.33 psi	46.43 psi	0.22	OK
+1.20D+1.60Lr	16.41 psi	16.41 psi	16.41 psi	46.43 psi	0.35	OK
+1.20D+1.60Lr+0.50W	16.49 psi	18.04 psi	18.04 psi	46.43 psi	0.39	OK
+1.20D+1.60S	18.60 psi	18.60 psi	18.60 psi	46.43 psi	0.40	OK
+1.20D+1.60S+0.50W	18.68 psi	20.23 psi	20.23 psi	46.43 psi	0.44	OK
+1.20D+0.50Lr+W	9.80 psi	12.90 psi	12.90 psi	46.43 psi	0.28	OK
+1.20D+0.50S+W	10.48 psi	13.58 psi	13.58 psi	46.43 psi	0.29	OK
+0.90D+W	5.08 psi	8.18 psi	8.18 psi	46.43 psi	0.18	OK
+1.20D+0.20S+E	8.58 psi	18.50 psi	18.50 psi	46.43 psi	0.40	OK
+0.90D+E	5.43 psi	15.35 psi	15.35 psi	46.43 psi	0.33	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	32.06 psi	164.32 psi	0.20	OK
+1.20D+0.50Lr	40.36 psi	164.32 psi	0.25	OK
+1.20D+0.50S	43.23 psi	164.32 psi	0.26	OK
+1.20D+1.60Lr	68.71 psi	164.32 psi	0.42	OK
+1.20D+1.60Lr+0.50W	72.28 psi	164.32 psi	0.44	OK
+1.20D+1.60S	77.87 psi	164.32 psi	0.47	OK
+1.20D+1.60S+0.50W	81.44 psi	164.32 psi	0.50	OK
+1.20D+0.50Lr+W	47.52 psi	164.32 psi	0.29	OK
+1.20D+0.50S+W	50.38 psi	164.32 psi	0.31	OK
+0.90D+W	27.77 psi	164.32 psi	0.17	OK
+1.20D+0.20S+E	56.68 psi	164.32 psi	0.35	OK
+0.90D+E	43.51 psi	164.32 psi	0.26	OK

Project Title:
Engineer:
Project ID:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Uplift Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

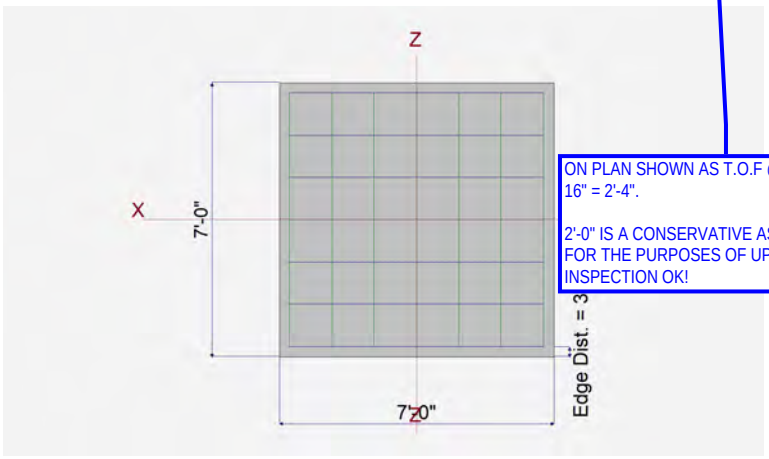
Width parallel to X-X Axis	=	7.0	ft
Length parallel to Z-Z Axis	=	7.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	7.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
Project ID:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Uplift Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	16.0	18.0		6.0	-19.0	-16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	5.0	5.0		3.0	-8.0	-5.0		k
V-z	=					-5.0	-16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.5955	Soil Bearing	1.191 ksf	2.0 ksf	+D+Lr about Z-Z axis
PASS	1.128	Overturning - X-X	54.133 k-ft	61.040 k-ft	+0.60D+0.70E
PASS	1.405	Overturning - Z-Z	46.30 k-ft	65.040 k-ft	+0.60D+0.60W
PASS	1.530	Uplift			
PASS	0.2947	Z Flexure (+X) Bot Tens	7.333 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.1875	Z Flexure (-X) Bot Tens	4.667 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2411	X Flexure (+Z) Bot Tens	6.0 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.2411	X Flexure (-Z) Bot Tens	6.0 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60Lr
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.03650	Z Flexure (+X) Top Tens	0.9083 k-ft/ft	24.886 k-ft/ft	+0.90D+W
PASS	0.009712	Z Flexure (-X) Top Tens	0.2417 k-ft/ft	24.886 k-ft/ft	+0.90D+W
PASS	0.785	Min Steel X Flexure Top	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.05869	X Flexure (+Z) Top Tens	1.461 k-ft/ft	24.886 k-ft/ft	+0.90D+E
PASS	0.003972	X Flexure (-Z) Top Tens	0.09886 k-ft/ft	24.886 k-ft/ft	+0.90D+W
PASS	0.785	Min Steel Z Flexure Top	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.4031	1-way Shear (+X)	18.718 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.2595	1-way Shear (-X)	12.051 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.3313	1-way Shear (+Z)	15.385 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.3313	1-way Shear (-Z)	15.385 psi	46.432 psi	+1.20D+1.60Lr
PASS	0.4211	2-way Punching	69.188 psi	164.317 psi	+1.20D+1.60Lr

SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.5932	0.5932	n/a	n/a	0.297
X-X, +D+Lr	2.0	n/a	0.0	0.9605	0.9605	n/a	n/a	0.480
X-X, +D+S	2.0	n/a	0.0	0.7156	0.7156	n/a	n/a	0.358
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8687	0.8687	n/a	n/a	0.434
X-X, +D+0.750S	2.0	n/a	0.0	0.6850	0.6850	n/a	n/a	0.343
X-X, +D+0.60W	2.0	n/a	-2.717	0.4298	0.2913	n/a	n/a	0.215
X-X, +D+0.750Lr+0.450W	2.0	n/a	-1.058	0.7462	0.6423	n/a	n/a	0.373
X-X, +D+0.750S+0.450W	2.0	n/a	-1.439	0.5625	0.4586	n/a	n/a	0.281
X-X, +0.60D+0.60W	2.0	n/a	-7.947	0.1925	0.05399	n/a	n/a	0.096
X-X, +D+0.70E	2.0	n/a	-10.030	0.6232	0.1060	n/a	n/a	0.312
X-X, +D+0.750S+0.5250E	2.0	n/a	-5.340	0.7076	0.3196	n/a	n/a	0.354
X-X, +0.60D+0.70E	2.0	n/a	-28.718	0.5313	0.0	n/a	n/a	0.266
Z-Z, D Only	2.0	2.752	n/a	n/a	n/a	0.4777	0.7086	0.354
Z-Z, +D+Lr	2.0	3.399	n/a	n/a	n/a	0.7296	1.191	0.596
Z-Z, +D+S	2.0	3.650	n/a	n/a	n/a	0.5309	0.9004	0.450
Z-Z, +D+0.750Lr	2.0	3.289	n/a	n/a	n/a	0.6667	1.071	0.536
Z-Z, +D+0.750S	2.0	3.456	n/a	n/a	n/a	0.5176	0.8524	0.426
Z-Z, +D+0.60W	2.0	0.1811	n/a	n/a	n/a	0.3559	0.3652	0.183
Z-Z, +D+0.750Lr+0.450W	2.0	2.422	n/a	n/a	n/a	0.5753	0.8131	0.407
Z-Z, +D+0.750S+0.450W	2.0	2.334	n/a	n/a	n/a	0.4263	0.5948	0.297
Z-Z, +0.60D+0.60W	2.0	-4.768	n/a	n/a	n/a	0.1648	0.08170	0.082
Z-Z, +D+0.70E	2.0	1.343	n/a	n/a	n/a	0.330	0.3993	0.200
Z-Z, +D+0.750S+0.5250E	2.0	2.940	n/a	n/a	n/a	0.4068	0.6204	0.310
Z-Z, +0.60D+0.70E	2.0	-1.282	n/a	n/a	n/a	0.1389	0.1158	0.069

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Uplift Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	43.90 k-ft	101.733 k-ft	2.317	OK
X-X, +D+0.750Lr+0.450W	32.925 k-ft	148.983 k-ft	4.525	OK
X-X, +D+0.750S+0.450W	32.925 k-ft	117.483 k-ft	3.568	OK
X-X, +0.60D+0.60W	43.90 k-ft	61.040 k-ft	1.390	OK
X-X, +D+0.70E	54.133 k-ft	101.733 k-ft	1.879	OK
X-X, +D+0.750S+0.5250E	40.60 k-ft	117.483 k-ft	2.894	OK
X-X, +0.60D+0.70E	54.133 k-ft	61.040 k-ft	1.128	OK
Z-Z, D Only	6.667 k-ft	101.733 k-ft	15.260	OK
Z-Z, +D+Lr	13.333 k-ft	164.733 k-ft	12.355	OK
Z-Z, +D+S	10.667 k-ft	122.733 k-ft	11.506	OK
Z-Z, +D+0.750Lr	11.667 k-ft	148.983 k-ft	12.770	OK
Z-Z, +D+0.750S	9.667 k-ft	117.483 k-ft	12.153	OK
Z-Z, +D+0.60W	46.567 k-ft	108.133 k-ft	2.322	OK
Z-Z, +D+0.750Lr+0.450W	41.592 k-ft	153.783 k-ft	3.697	OK
Z-Z, +D+0.750S+0.450W	39.592 k-ft	122.283 k-ft	3.089	OK
Z-Z, +0.60D+0.60W	46.30 k-ft	65.040 k-ft	1.405	OK
Z-Z, +D+0.70E	45.867 k-ft	106.40 k-ft	2.320	OK
Z-Z, +D+0.750S+0.5250E	39.067 k-ft	120.983 k-ft	3.097	OK
Z-Z, +0.60D+0.70E	43.867 k-ft	65.040 k-ft	1.483	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.80	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	2.80	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.525	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	3.525	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.775	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.775	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.0	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	6.0	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	4.574	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	5.051	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	3.60	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	3.60	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	2.174	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	2.651	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	0.6739	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	1.626	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	0.8761	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	2.074	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.587	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.133	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	3.467	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	2.716	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	4.334	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.061	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	3.489	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	4.667	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	7.333	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.860	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	5.765	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	2.572	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	4.628	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	1.765	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	3.060	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	1.102	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	1.198	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	0.4476	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	0.3524	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	0.3976	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	0.7024	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 5 Building Column (Uplift Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50S+W	0.07614	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	1.051	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	0.09886	-Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	0.9737	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.461	+Z	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	0.2417	-X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	0.9083	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	0.1524	-X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	0.2476	+X	Top	0.3456	ACI 7.6.1.1	0.440	24.886	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.51 psi	8.85 psi	8.85 psi	46.43 psi	0.19	OK
+1.20D+0.50Lr	7.02 psi	11.06 psi	11.06 psi	46.43 psi	0.24	OK
+1.20D+0.50S	5.33 psi	8.90 psi	8.90 psi	46.43 psi	0.19	OK
+1.20D+1.60Lr	12.05 psi	18.72 psi	18.72 psi	46.43 psi	0.40	OK
+1.20D+1.60Lr+0.50W	9.96 psi	14.72 psi	14.72 psi	46.43 psi	0.32	OK
+1.20D+1.60S	6.66 psi	11.80 psi	11.80 psi	46.43 psi	0.25	OK
+1.20D+1.60S+0.50W	4.57 psi	7.81 psi	7.81 psi	46.43 psi	0.17	OK
+1.20D+0.50Lr+W	2.83 psi	3.07 psi	3.07 psi	46.43 psi	0.07	OK
+1.20D+0.50S+W	1.15 psi	0.91 psi	1.15 psi	46.43 psi	0.02	OK
+0.90D+W	0.64 psi	2.31 psi	2.31 psi	46.43 psi	0.05	OK
+1.20D+0.20S+E	1.03 psi	1.79 psi	1.79 psi	46.43 psi	0.04	OK
+0.90D+E	0.39 psi	0.63 psi	0.63 psi	46.43 psi	0.01	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	7.18 psi	7.18 psi	7.18 psi	46.43 psi	0.15	OK
+1.20D+0.50Lr	9.04 psi	9.04 psi	9.04 psi	46.43 psi	0.19	OK
+1.20D+0.50S	7.12 psi	7.12 psi	7.12 psi	46.43 psi	0.15	OK
+1.20D+1.60Lr	15.39 psi	15.39 psi	15.39 psi	46.43 psi	0.33	OK
+1.20D+1.60Lr+0.50W	12.94 psi	11.75 psi	12.94 psi	46.43 psi	0.28	OK
+1.20D+1.60S	9.23 psi	9.23 psi	9.23 psi	46.43 psi	0.20	OK
+1.20D+1.60S+0.50W	6.78 psi	5.59 psi	6.78 psi	46.43 psi	0.15	OK
+1.20D+0.50Lr+W	4.14 psi	1.76 psi	4.14 psi	46.43 psi	0.09	OK
+1.20D+0.50S+W	2.22 psi	0.16 psi	2.22 psi	46.43 psi	0.05	OK
+0.90D+W	0.28 psi	2.67 psi	2.67 psi	46.43 psi	0.06	OK
+1.20D+0.20S+E	5.22 psi	2.40 psi	5.22 psi	46.43 psi	0.11	OK
+0.90D+E	3.92 psi	3.77 psi	3.92 psi	46.43 psi	0.08	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	32.29 psi	164.32 psi	0.20	OK
+1.20D+0.50Lr	40.65 psi	164.32 psi	0.25	OK
+1.20D+0.50S	32.00 psi	164.32 psi	0.19	OK
+1.20D+1.60Lr	69.19 psi	164.32 psi	0.42	OK
+1.20D+1.60Lr+0.50W	55.50 psi	164.32 psi	0.34	OK
+1.20D+1.60S	41.51 psi	164.32 psi	0.25	OK
+1.20D+1.60S+0.50W	27.82 psi	164.32 psi	0.17	OK
+1.20D+0.50Lr+W	13.26 psi	164.32 psi	0.08	OK
+1.20D+0.50S+W	4.61 psi	164.32 psi	0.03	OK
+0.90D+W	6.63 psi	164.32 psi	0.04	OK
+1.20D+0.20S+E	6.34 psi	164.32 psi	0.04	OK
+0.90D+E	2.31 psi	164.32 psi	0.01	OK

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 6 Building Column (Compression Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

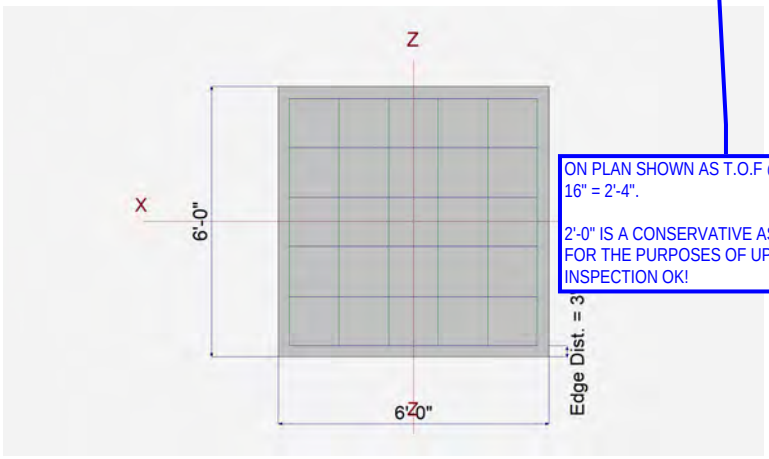
Width parallel to X-X Axis	=	6.0	ft
Length parallel to Z-Z Axis	=	6.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



ON PLAN SHOWN AS T.O.F @ -1'-0". -1'-0" + 16" = 2'-4".

2'-0" IS A CONSERVATIVE ASSUMPTION FOR THE PURPOSES OF UPLIFT. VIA INSPECTION OK!

Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
Project ID:
Project Descr:

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 6 Building Column (Compression Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	11.0	11.0		14.0	6.0	16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	2.0	1.0		1.0	7.0	6.0		k
V-z	=					6.0	16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7025	Soil Bearing	1.405 ksf	2.0 ksf	+D+0.750S+0.5250E about X-X axis
PASS	4.733	Overturning - X-X	14.933 k-ft	70.680 k-ft	+0.60D+0.70E
PASS	6.650	Overturning - Z-Z	7.20 k-ft	47.880 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.2274	Z Flexure (+X) Bot Tens	5.658 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1610	Z Flexure (-X) Bot Tens	4.006 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2322	X Flexure (+Z) Bot Tens	5.778 k-ft/ft	24.886 k-ft/ft	+1.20D+0.20S+E
PASS	0.1805	X Flexure (-Z) Bot Tens	4.492 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.884	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.884	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.3343	1-way Shear (+X)	15.521 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.2354	1-way Shear (-X)	10.931 psi	46.432 psi	+1.20D+1.60S
PASS	0.3424	1-way Shear (+Z)	15.90 psi	46.432 psi	+1.20D+0.20S+E
PASS	0.2642	1-way Shear (-Z)	12.267 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.3362	2-way Punching	55.251 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.5722	0.5722	n/a	n/a	0.286
X-X, +D+Lr	2.0	n/a	0.0	0.8778	0.8778	n/a	n/a	0.439
X-X, +D+S	2.0	n/a	0.0	0.9611	0.9611	n/a	n/a	0.481
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8014	0.8014	n/a	n/a	0.401
X-X, +D+0.750S	2.0	n/a	0.0	0.8639	0.8639	n/a	n/a	0.432
X-X, +D+0.60W	2.0	n/a	2.380	0.5402	0.8042	n/a	n/a	0.402
X-X, +D+0.750Lr+0.450W	2.0	n/a	1.369	0.7774	0.9754	n/a	n/a	0.488
X-X, +D+0.750S+0.450W	2.0	n/a	1.278	0.8399	1.038	n/a	n/a	0.519
X-X, +0.60D+0.60W	2.0	n/a	3.609	0.3113	0.5753	n/a	n/a	0.288
X-X, +D+0.70E	2.0	n/a	5.635	0.4727	1.294	n/a	n/a	0.647
X-X, +D+0.750S+0.5250E	2.0	n/a	3.403	0.7892	1.405	n/a	n/a	0.703
X-X, +0.60D+0.70E	2.0	n/a	7.606	0.2438	1.065	n/a	n/a	0.533
Z-Z, D Only	2.0	1.553	n/a	n/a	n/a	0.4989	0.6456	0.323
Z-Z, +D+Lr	2.0	1.519	n/a	n/a	n/a	0.7678	0.9878	0.494
Z-Z, +D+S	2.0	1.387	n/a	n/a	n/a	0.8511	1.071	0.536
Z-Z, +D+0.750Lr	2.0	1.525	n/a	n/a	n/a	0.7006	0.9022	0.451
Z-Z, +D+0.750S	2.0	1.415	n/a	n/a	n/a	0.7631	0.9647	0.482
Z-Z, +D+0.60W	2.0	4.099	n/a	n/a	n/a	0.4449	0.8996	0.450
Z-Z, +D+0.750Lr+0.450W	2.0	2.992	n/a	n/a	n/a	0.6601	1.093	0.547
Z-Z, +D+0.750S+0.450W	2.0	2.793	n/a	n/a	n/a	0.7226	1.155	0.578
Z-Z, +0.60D+0.60W	2.0	5.414	n/a	n/a	n/a	0.2453	0.6413	0.321
Z-Z, +D+0.70E	2.0	3.120	n/a	n/a	n/a	0.6560	1.111	0.556
Z-Z, +D+0.750S+0.5250E	2.0	2.390	n/a	n/a	n/a	0.8809	1.314	0.657
Z-Z, +0.60D+0.70E	2.0	3.667	n/a	n/a	n/a	0.4564	0.8524	0.426

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Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	4.80 k-ft	72.60 k-ft	15.125	OK
X-X, +D+0.750Lr+0.450W	3.60 k-ft	94.650 k-ft	26.292	OK
X-X, +D+0.750S+0.450W	3.60 k-ft	101.40 k-ft	28.167	OK
X-X, +0.60D+0.60W	4.80 k-ft	47.880 k-ft	9.975	OK
X-X, +D+0.70E	14.933 k-ft	95.40 k-ft	6.388	OK
X-X, +D+0.750S+0.5250E	11.20 k-ft	118.50 k-ft	10.580	OK
X-X, +0.60D+0.70E	14.933 k-ft	70.680 k-ft	4.733	OK
Z-Z, D Only	2.667 k-ft	61.80 k-ft	23.175	OK
Z-Z, +D+Lr	4.0 k-ft	94.80 k-ft	23.70	OK
Z-Z, +D+S	4.0 k-ft	103.80 k-ft	25.950	OK
Z-Z, +D+0.750Lr	3.667 k-ft	86.550 k-ft	23.605	OK
Z-Z, +D+0.750S	3.667 k-ft	93.30 k-ft	25.445	OK
Z-Z, +D+0.60W	8.267 k-ft	72.60 k-ft	8.782	OK
Z-Z, +D+0.750Lr+0.450W	7.867 k-ft	94.650 k-ft	12.032	OK
Z-Z, +D+0.750S+0.450W	7.867 k-ft	101.40 k-ft	12.890	OK
Z-Z, +0.60D+0.60W	7.20 k-ft	47.880 k-ft	6.650	OK
Z-Z, +D+0.70E	8.267 k-ft	95.40 k-ft	11.540	OK
Z-Z, +D+0.750S+0.5250E	7.867 k-ft	118.50 k-ft	15.064	OK
Z-Z, +0.60D+0.70E	7.20 k-ft	70.680 k-ft	9.817	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.925	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	1.925	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	2.338	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	2.338	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.525	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.525	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	3.850	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	3.850	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	4.558	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	3.892	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	4.450	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	4.450	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	5.158	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	4.492	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	3.754	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	2.421	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	3.942	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	2.608	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	2.654	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	1.321	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	5.778	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	2.222	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	5.015	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.460	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	1.614	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.236	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	2.015	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	2.660	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.203	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.847	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	3.406	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	4.294	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.392	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	5.058	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	4.006	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	4.894	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	3.992	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	5.658	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	1.988	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

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Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	4.187	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	2.175	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	4.375	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	1.010	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	2.965	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	3.045	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	4.955	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	2.371	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	4.104	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	4.40 psi	6.13 psi	6.13 psi	46.43 psi	0.13	OK
+1.20D+0.50Lr	5.49 psi	7.29 psi	7.29 psi	46.43 psi	0.16	OK
+1.20D+0.50S	6.01 psi	7.81 psi	7.81 psi	46.43 psi	0.17	OK
+1.20D+1.60Lr	9.29 psi	11.77 psi	11.77 psi	46.43 psi	0.25	OK
+1.20D+1.60Lr+0.50W	9.23 psi	13.88 psi	13.88 psi	46.43 psi	0.30	OK
+1.20D+1.60S	10.93 psi	13.41 psi	13.41 psi	46.43 psi	0.29	OK
+1.20D+1.60S+0.50W	10.87 psi	15.52 psi	15.52 psi	46.43 psi	0.33	OK
+1.20D+0.50Lr+W	5.38 psi	11.51 psi	11.51 psi	46.43 psi	0.25	OK
+1.20D+0.50S+W	5.89 psi	12.03 psi	12.03 psi	46.43 psi	0.26	OK
+0.90D+W	2.71 psi	8.16 psi	8.16 psi	46.43 psi	0.18	OK
+1.20D+0.20S+E	8.27 psi	13.61 psi	13.61 psi	46.43 psi	0.29	OK
+0.90D+E	6.44 psi	11.27 psi	11.27 psi	46.43 psi	0.24	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.27 psi	5.27 psi	5.27 psi	46.43 psi	0.11	OK
+1.20D+0.50Lr	6.39 psi	6.39 psi	6.39 psi	46.43 psi	0.14	OK
+1.20D+0.50S	6.91 psi	6.91 psi	6.91 psi	46.43 psi	0.15	OK
+1.20D+1.60Lr	10.53 psi	10.53 psi	10.53 psi	46.43 psi	0.23	OK
+1.20D+1.60Lr+0.50W	10.63 psi	12.49 psi	12.49 psi	46.43 psi	0.27	OK
+1.20D+1.60S	12.17 psi	12.17 psi	12.17 psi	46.43 psi	0.26	OK
+1.20D+1.60S+0.50W	12.27 psi	14.13 psi	14.13 psi	46.43 psi	0.30	OK
+1.20D+0.50Lr+W	6.59 psi	10.30 psi	10.30 psi	46.43 psi	0.22	OK
+1.20D+0.50S+W	7.10 psi	10.82 psi	10.82 psi	46.43 psi	0.23	OK
+0.90D+W	3.58 psi	7.30 psi	7.30 psi	46.43 psi	0.16	OK
+1.20D+0.20S+E	5.98 psi	15.90 psi	15.90 psi	46.43 psi	0.34	OK
+0.90D+E	3.90 psi	13.81 psi	13.81 psi	46.43 psi	0.30	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	22.04 psi	164.32 psi	0.13	OK
+1.20D+0.50Lr	26.77 psi	164.32 psi	0.16	OK
+1.20D+0.50S	28.91 psi	164.32 psi	0.18	OK
+1.20D+1.60Lr	44.09 psi	164.32 psi	0.27	OK
+1.20D+1.60Lr+0.50W	48.38 psi	164.32 psi	0.29	OK
+1.20D+1.60S	50.96 psi	164.32 psi	0.31	OK
+1.20D+1.60S+0.50W	55.25 psi	164.32 psi	0.34	OK
+1.20D+0.50Lr+W	35.36 psi	164.32 psi	0.22	OK
+1.20D+0.50S+W	37.50 psi	164.32 psi	0.23	OK
+0.90D+W	22.76 psi	164.32 psi	0.14	OK
+1.20D+0.20S+E	45.80 psi	164.32 psi	0.28	OK
+0.90D+E	37.07 psi	164.32 psi	0.23	OK

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DESCRIPTION: Gridline 6 Building Column (Uplift Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

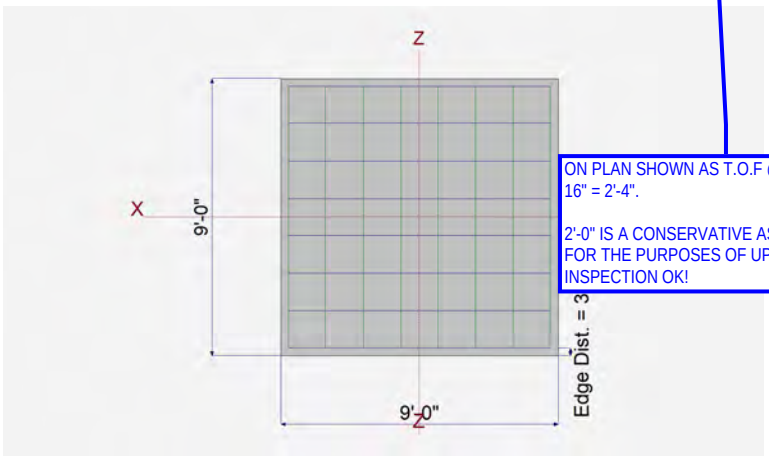
Width parallel to X-X Axis	=	9.0	ft
Length parallel to Z-Z Axis	=	9.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		8.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		8.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	8.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	8.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 6 Building Column (Uplift Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	7.0	7.0		1.0	-16.0	-16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	-2.0	-1.0		-1.0	-7.0	-6.0		k
V-z	=					-6.0	-16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.2361	Soil Bearing	0.4721 ksf	2.0 ksf	+D+Lr about Z-Z axis
PASS	1.182	Overturning - X-X	65.333 k-ft	77.220 k-ft	+0.60D+0.70E
PASS	1.341	Overturning - Z-Z	57.60 k-ft	77.220 k-ft	+0.60D+0.70E
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	1.532	Uplift			
PASS	0.09699	Z Flexure (+X) Bot Tens	2.154 k-ft/ft	22.205 k-ft/ft	+1.20D+1.60Lr
PASS	0.1237	Z Flexure (-X) Bot Tens	2.746 k-ft/ft	22.205 k-ft/ft	+1.20D+1.60Lr
PASS	0.884	Min Steel X Flexure Bottom	0.346 in2/ft	0.391 in2/ft	n/a
PASS	0.1103	X Flexure (+Z) Bot Tens	2.450 k-ft/ft	22.205 k-ft/ft	+1.20D+1.60Lr
PASS	0.1103	X Flexure (-Z) Bot Tens	2.450 k-ft/ft	22.205 k-ft/ft	+1.20D+1.60Lr
PASS	0.884	Min Steel Z Flexure Bottom	0.346 in2/ft	0.391 in2/ft	n/a
PASS	0.08396	Z Flexure (+X) Top Tens	1.864 k-ft/ft	22.205 k-ft/ft	+0.90D+W
PASS	0.02859	Z Flexure (-X) Top Tens	0.6348 k-ft/ft	22.205 k-ft/ft	+0.90D+E
PASS	0.884	Min Steel X Flexure Top	0.346 in2/ft	0.391 in2/ft	n/a
PASS	0.1046	X Flexure (+Z) Top Tens	2.322 k-ft/ft	22.205 k-ft/ft	+0.90D+E
PASS	0.03459	X Flexure (-Z) Top Tens	0.7681 k-ft/ft	22.205 k-ft/ft	+0.90D+W
PASS	0.884	Min Steel Z Flexure Top	0.346 in2/ft	0.391 in2/ft	n/a
PASS	0.1055	1-way Shear (+X)	4.708 psi	44.645 psi	+1.20D+1.60Lr
PASS	0.1322	1-way Shear (-X)	5.901 psi	44.645 psi	+1.20D+1.60Lr
PASS	0.1188	1-way Shear (+Z)	5.305 psi	44.645 psi	+1.20D+1.60Lr
PASS	0.1188	1-way Shear (-Z)	5.305 psi	44.645 psi	+1.20D+1.60Lr
PASS	0.1739	2-way Punching	28.577 psi	164.317 psi	+1.20D+1.60Lr

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.3531	0.3531	n/a	n/a	0.177
X-X, +D+Lr	2.0	n/a	0.0	0.4395	0.4395	n/a	n/a	0.220
X-X, +D+S	2.0	n/a	0.0	0.3654	0.3654	n/a	n/a	0.183
X-X, +D+0.750Lr	2.0	n/a	0.0	0.4179	0.4179	n/a	n/a	0.209
X-X, +D+0.750S	2.0	n/a	0.0	0.3623	0.3623	n/a	n/a	0.181
X-X, +D+0.60W	2.0	n/a	-3.032	0.2737	0.1955	n/a	n/a	0.137
X-X, +D+0.750Lr+0.450W	2.0	n/a	-1.621	0.3583	0.2997	n/a	n/a	0.179
X-X, +D+0.750S+0.450W	2.0	n/a	-1.950	0.3028	0.2441	n/a	n/a	0.151
X-X, +0.60D+0.60W	2.0	n/a	-7.619	0.1324	0.05422	n/a	n/a	0.066
X-X, +D+0.70E	2.0	n/a	-10.299	0.3365	0.09314	n/a	n/a	0.168
X-X, +D+0.750S+0.5250E	2.0	n/a	-6.415	0.3499	0.1674	n/a	n/a	0.175
X-X, +0.60D+0.70E	2.0	n/a	-30.067	0.2197	0.0	n/a	n/a	0.110
Z-Z, D Only	2.0	-1.119	n/a	n/a	n/a	0.3748	0.3314	0.187
Z-Z, +D+Lr	2.0	-1.348	n/a	n/a	n/a	0.4721	0.4069	0.236
Z-Z, +D+S	2.0	-1.622	n/a	n/a	n/a	0.3980	0.3328	0.199
Z-Z, +D+0.750Lr	2.0	-1.30	n/a	n/a	n/a	0.4478	0.3880	0.224
Z-Z, +D+0.750S	2.0	-1.499	n/a	n/a	n/a	0.3922	0.3325	0.196
Z-Z, +D+0.60W	2.0	-5.221	n/a	n/a	n/a	0.3019	0.1672	0.151
Z-Z, +D+0.750Lr+0.450W	2.0	-3.542	n/a	n/a	n/a	0.3931	0.2649	0.197
Z-Z, +D+0.750S+0.450W	2.0	-4.262	n/a	n/a	n/a	0.3376	0.2094	0.169
Z-Z, +0.60D+0.60W	2.0	-11.429	n/a	n/a	n/a	0.1520	0.03467	0.076
Z-Z, +D+0.70E	2.0	-5.701	n/a	n/a	n/a	0.2822	0.1475	0.141
Z-Z, +D+0.750S+0.5250E	2.0	-4.506	n/a	n/a	n/a	0.3227	0.1945	0.161
Z-Z, +0.60D+0.70E	2.0	-14.497	n/a	n/a	n/a	0.1322	0.01491	0.066

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DESCRIPTION: Gridline 6 Building Column (Uplift Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	48.0 k-ft	128.70 k-ft	2.681	OK
X-X, +D+0.750Lr+0.450W	36.0 k-ft	152.325 k-ft	4.231	OK
X-X, +D+0.750S+0.450W	36.0 k-ft	132.075 k-ft	3.669	OK
X-X, +0.60D+0.60W	48.0 k-ft	77.220 k-ft	1.609	OK
X-X, +D+0.70E	65.333 k-ft	128.70 k-ft	1.970	OK
X-X, +D+0.750S+0.5250E	49.0 k-ft	132.075 k-ft	2.695	OK
X-X, +0.60D+0.70E	65.333 k-ft	77.220 k-ft	1.182	OK
Z-Z, D Only	2.667 k-ft	128.70 k-ft	48.263	OK
Z-Z, +D+Lr	4.0 k-ft	160.20 k-ft	40.050	OK
Z-Z, +D+S	4.0 k-ft	133.20 k-ft	33.30	OK
Z-Z, +D+0.750Lr	3.667 k-ft	152.325 k-ft	41.543	OK
Z-Z, +D+0.750S	3.667 k-ft	132.075 k-ft	36.020	OK
Z-Z, +D+0.60W	51.467 k-ft	128.70 k-ft	2.501	OK
Z-Z, +D+0.750Lr+0.450W	40.267 k-ft	152.325 k-ft	3.783	OK
Z-Z, +D+0.750S+0.450W	40.267 k-ft	132.075 k-ft	3.280	OK
Z-Z, +0.60D+0.60W	50.40 k-ft	77.220 k-ft	1.532	OK
Z-Z, +D+0.70E	58.667 k-ft	128.70 k-ft	2.194	OK
Z-Z, +D+0.750S+0.5250E	45.667 k-ft	132.075 k-ft	2.892	OK
Z-Z, +0.60D+0.70E	57.60 k-ft	77.220 k-ft	1.341	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.225	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.40D	1.225	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50Lr	1.488	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50Lr	1.488	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50S	1.113	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50S	1.113	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60Lr	2.450	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60Lr	2.450	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60Lr+0.50W	1.228	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60Lr+0.50W	1.672	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60S	1.250	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60S	1.250	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60S+0.50W	0.02780	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+1.60S+0.50W	0.4722	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.20S+E	0.2601	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +0.90D+E	0.04793	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.40D	1.432	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.40D	1.018	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50Lr	1.702	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50Lr	1.273	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50S	1.327	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50S	0.8977	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60Lr	2.746	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60Lr	2.154	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60Lr+0.50W	2.006	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60Lr+0.50W	0.8945	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60S	1.546	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60S	0.9537	+X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60S+0.50W	0.8055	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50Lr+W	0.2208	-X	Bottom	0.3456	ACI 7.6.1.1	0.3911	22.205	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50Lr+W	0.9569	+Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50Lr+W	0.06810	-Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50S+W	1.332	+Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.50S+W	0.4431	-Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +0.90D+W	1.657	+Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK

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DESCRIPTION: Gridline 6 Building Column (Uplift Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +0.90D+W	0.7681	-Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +1.20D+0.20S+E	2.110	+Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
X-X, +0.90D+E	2.322	+Z	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+1.60S+0.50W	0.3055	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50Lr+W	1.246	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50S+W	0.1542	-X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.50S+W	1.621	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +0.90D+W	0.5607	-X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +0.90D+W	1.864	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.20S+E	0.2880	-X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +1.20D+0.20S+E	1.562	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +0.90D+E	0.6348	-X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK
Z-Z, +0.90D+E	1.790	+X	Top	0.3456	ACI 7.6.1.1	0.3911	22.205	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	3.07 psi	2.24 psi	3.07 psi	44.65 psi	0.07	OK
+1.20D+0.50Lr	3.65 psi	2.79 psi	3.65 psi	44.65 psi	0.08	OK
+1.20D+0.50S	2.84 psi	1.98 psi	2.84 psi	44.65 psi	0.06	OK
+1.20D+1.60Lr	5.90 psi	4.71 psi	5.90 psi	44.65 psi	0.13	OK
+1.20D+1.60Lr+0.50W	4.26 psi	2.02 psi	4.26 psi	44.65 psi	0.10	OK
+1.20D+1.60S	3.30 psi	2.11 psi	3.30 psi	44.65 psi	0.07	OK
+1.20D+1.60S+0.50W	1.66 psi	0.58 psi	1.66 psi	44.65 psi	0.04	OK
+1.20D+0.50Lr+W	0.37 psi	2.59 psi	2.59 psi	44.65 psi	0.06	OK
+1.20D+0.50S+W	0.45 psi	3.40 psi	3.40 psi	44.65 psi	0.08	OK
+0.90D+W	1.31 psi	3.94 psi	3.94 psi	44.65 psi	0.09	OK
+1.20D+0.20S+E	0.72 psi	3.29 psi	3.29 psi	44.65 psi	0.07	OK
+0.90D+E	1.46 psi	3.79 psi	3.79 psi	44.65 psi	0.08	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	2.65 psi	2.65 psi	2.65 psi	44.65 psi	0.06	OK
+1.20D+0.50Lr	3.22 psi	3.22 psi	3.22 psi	44.65 psi	0.07	OK
+1.20D+0.50S	2.41 psi	2.41 psi	2.41 psi	44.65 psi	0.05	OK
+1.20D+1.60Lr	5.31 psi	5.31 psi	5.31 psi	44.65 psi	0.12	OK
+1.20D+1.60Lr+0.50W	3.59 psi	2.69 psi	3.59 psi	44.65 psi	0.08	OK
+1.20D+1.60S	2.71 psi	2.71 psi	2.71 psi	44.65 psi	0.06	OK
+1.20D+1.60S+0.50W	0.99 psi	0.09 psi	0.99 psi	44.65 psi	0.02	OK
+1.20D+0.50Lr+W	0.21 psi	2.01 psi	2.01 psi	44.65 psi	0.04	OK
+1.20D+0.50S+W	1.03 psi	2.82 psi	2.82 psi	44.65 psi	0.06	OK
+0.90D+W	1.73 psi	3.52 psi	3.52 psi	44.65 psi	0.08	OK
+1.20D+0.20S+E	0.38 psi	4.39 psi	4.39 psi	44.65 psi	0.10	OK
+0.90D+E	0.10 psi	5.00 psi	5.00 psi	44.65 psi	0.11	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	14.29 psi	164.32 psi	0.09	OK
+1.20D+0.50Lr	17.35 psi	164.32 psi	0.11	OK
+1.20D+0.50S	12.98 psi	164.32 psi	0.08	OK
+1.20D+1.60Lr	28.58 psi	164.32 psi	0.17	OK
+1.20D+1.60Lr+0.50W	16.91 psi	164.32 psi	0.10	OK
+1.20D+1.60S	14.58 psi	164.32 psi	0.09	OK
+1.20D+1.60S+0.50W	2.92 psi	164.32 psi	0.02	OK
+1.20D+0.50Lr+W	5.98 psi	164.32 psi	0.04	OK
+1.20D+0.50S+W	10.35 psi	164.32 psi	0.06	OK
+0.90D+W	14.14 psi	164.32 psi	0.09	OK
+1.20D+0.20S+E	10.79 psi	164.32 psi	0.07	OK
+0.90D+E	14.14 psi	164.32 psi	0.09	OK

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General Footing

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DESCRIPTION: Gridline 6 Wind Column (Typ Controlling)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

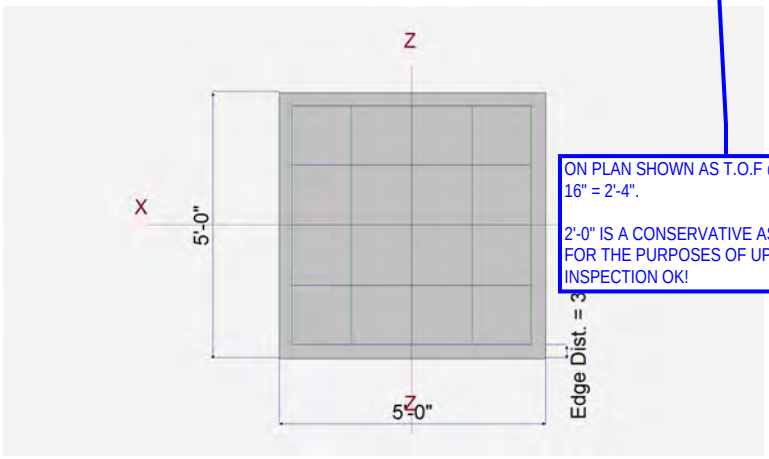
Width parallel to X-X Axis	=	5.0	ft
Length parallel to Z-Z Axis	=	5.0	ft
Footing Thickness	=	12.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		5.0
Reinforcing Bar Size	=	#	5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		5.0
Reinforcing Bar Size	=	#	5

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	5.0
Reinforcing Bar Size	=	5

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 6 Wind Column (Typ Controlling)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	11.0	11.0		14.0	3.0	14.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=					6.0			k
V-z	=								k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7045	Soil Bearing	1.409 ksf	2.0 ksf	+D+0.750S+0.5250E about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	8.490	Overturning - Z-Z	3.60 k-ft	30.563 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.4070	Z Flexure (+X) Bot Tens	4.937 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.3668	Z Flexure (-X) Bot Tens	4.450 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60S
PASS	0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.3823	X Flexure (+Z) Bot Tens	4.638 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.3823	X Flexure (-Z) Bot Tens	4.638 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.785	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.5473	1-way Shear (+X)	25.563 psi	46.704 psi	+1.20D+1.60S+0.50W
PASS	0.4940	1-way Shear (-X)	23.074 psi	46.704 psi	+1.20D+1.60S
PASS	0.5149	1-way Shear (+Z)	24.046 psi	46.704 psi	+1.20D+1.60S+0.50W
PASS	0.5149	1-way Shear (-Z)	24.046 psi	46.704 psi	+1.20D+1.60S+0.50W
PASS	0.6812	2-way Punching	111.932 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.6950	0.6950	n/a	n/a	0.348
X-X, +D+Lr	2.0	n/a	0.0	1.135	1.135	n/a	n/a	0.568
X-X, +D+S	2.0	n/a	0.0	1.255	1.255	n/a	n/a	0.628
X-X, +D+0.750Lr	2.0	n/a	0.0	1.025	1.025	n/a	n/a	0.513
X-X, +D+0.750S	2.0	n/a	0.0	1.115	1.115	n/a	n/a	0.558
X-X, +D+0.60W	2.0	n/a	0.0	0.7670	0.7670	n/a	n/a	0.384
X-X, +D+0.750Lr+0.450W	2.0	n/a	0.0	1.079	1.079	n/a	n/a	0.540
X-X, +D+0.750S+0.450W	2.0	n/a	0.0	1.169	1.169	n/a	n/a	0.585
X-X, +0.60D+0.60W	2.0	n/a	0.0	0.4890	0.4890	n/a	n/a	0.245
X-X, +D+0.70E	2.0	n/a	0.0	1.087	1.087	n/a	n/a	0.544
X-X, +D+0.750S+0.5250E	2.0	n/a	0.0	1.409	1.409	n/a	n/a	0.705
X-X, +0.60D+0.70E	2.0	n/a	0.0	0.8090	0.8090	n/a	n/a	0.405
Z-Z, D Only	2.0	0.0	n/a	n/a	n/a	0.6950	0.6950	0.348
Z-Z, +D+Lr	2.0	0.0	n/a	n/a	n/a	1.135	1.135	0.568
Z-Z, +D+S	2.0	0.0	n/a	n/a	n/a	1.255	1.255	0.628
Z-Z, +D+0.750Lr	2.0	0.0	n/a	n/a	n/a	1.025	1.025	0.513
Z-Z, +D+0.750S	2.0	0.0	n/a	n/a	n/a	1.115	1.115	0.558
Z-Z, +D+0.60W	2.0	2.253	n/a	n/a	n/a	0.5959	0.9381	0.469
Z-Z, +D+0.750Lr+0.450W	2.0	1.201	n/a	n/a	n/a	0.9507	1.207	0.604
Z-Z, +D+0.750S+0.450W	2.0	1.109	n/a	n/a	n/a	1.041	1.297	0.649
Z-Z, +0.60D+0.60W	2.0	3.534	n/a	n/a	n/a	0.3179	0.6601	0.330
Z-Z, +D+0.70E	2.0	0.0	n/a	n/a	n/a	1.087	1.087	0.544
Z-Z, +D+0.750S+0.5250E	2.0	0.0	n/a	n/a	n/a	1.409	1.409	0.705
Z-Z, +0.60D+0.70E	2.0	0.0	n/a	n/a	n/a	0.8090	0.8090	0.405

Project Title:
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General Footing

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DESCRIPTION: Gridline 6 Wind Column (Typ Controlling)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr+0.450W	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S+0.450W	None	0.0 k-ft	Infinity	OK
X-X, +0.60D+0.60W	None	0.0 k-ft	Infinity	OK
X-X, +D+0.70E	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S+0.5250E	None	0.0 k-ft	Infinity	OK
X-X, +0.60D+0.70E	None	0.0 k-ft	Infinity	OK
Z-Z, D Only	None	0.0 k-ft	Infinity	OK
Z-Z, +D+Lr	None	0.0 k-ft	Infinity	OK
Z-Z, +D+S	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750S	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.60W	3.60 k-ft	47.938 k-ft	13.316	OK
Z-Z, +D+0.750Lr+0.450W	2.70 k-ft	67.438 k-ft	24.977	OK
Z-Z, +D+0.750S+0.450W	2.70 k-ft	73.063 k-ft	27.060	OK
Z-Z, +0.60D+0.60W	3.60 k-ft	30.563 k-ft	8.490	OK
Z-Z, +D+0.70E	None	0.0 k-ft	Infinity	OK
Z-Z, +D+0.750S+0.5250E	None	0.0 k-ft	Infinity	OK
Z-Z, +0.60D+0.70E	None	0.0 k-ft	Infinity	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.925	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.40D	1.925	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr	2.338	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr	2.338	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50S	2.525	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50S	2.525	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	3.850	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr	3.850	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+0.50W	4.038	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60Lr+0.50W	4.038	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60S	4.450	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60S	4.450	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60S+0.50W	4.638	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60S+0.50W	4.638	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+W	2.713	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50Lr+W	2.713	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50S+W	2.90	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.50S+W	2.90	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+W	1.613	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+W	1.613	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.20S+E	3.750	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+0.20S+E	3.750	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+E	2.988	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D+E	2.988	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.925	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.925	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr	2.338	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr	2.338	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50S	2.525	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50S	2.525	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.850	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr	3.850	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.738	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60Lr+0.50W	4.337	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60S	4.450	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60S	4.450	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60S+0.50W	4.338	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60S+0.50W	4.937	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50Lr+W	2.113	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

Project Title:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 6 Wind Column (Typ Controlling)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	3.312	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50S+W	2.30	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.50S+W	3.50	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+W	1.013	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+W	2.212	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.20S+E	3.750	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+0.20S+E	3.750	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+E	2.988	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D+E	2.988	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	9.98 psi	9.98 psi	9.98 psi	46.70 psi	0.21	OK
+1.20D+0.50Lr	12.12 psi	12.12 psi	12.12 psi	46.70 psi	0.26	OK
+1.20D+0.50S	13.09 psi	13.09 psi	13.09 psi	46.70 psi	0.28	OK
+1.20D+1.60Lr	19.96 psi	19.96 psi	19.96 psi	46.70 psi	0.43	OK
+1.20D+1.60Lr+0.50W	19.42 psi	22.45 psi	22.45 psi	46.70 psi	0.48	OK
+1.20D+1.60S	23.07 psi	23.07 psi	23.07 psi	46.70 psi	0.49	OK
+1.20D+1.60S+0.50W	22.53 psi	25.56 psi	25.56 psi	46.70 psi	0.55	OK
+1.20D+0.50Lr+W	11.03 psi	17.10 psi	17.10 psi	46.70 psi	0.37	OK
+1.20D+0.50S+W	12.00 psi	18.07 psi	18.07 psi	46.70 psi	0.39	OK
+0.90D+W	5.33 psi	11.39 psi	11.39 psi	46.70 psi	0.24	OK
+1.20D+0.20S+E	19.44 psi	19.44 psi	19.44 psi	46.70 psi	0.42	OK
+0.90D+E	15.49 psi	15.49 psi	15.49 psi	46.70 psi	0.33	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	9.98 psi	9.98 psi	9.98 psi	46.70 psi	0.21	OK
+1.20D+0.50Lr	12.12 psi	12.12 psi	12.12 psi	46.70 psi	0.26	OK
+1.20D+0.50S	13.09 psi	13.09 psi	13.09 psi	46.70 psi	0.28	OK
+1.20D+1.60Lr	19.96 psi	19.96 psi	19.96 psi	46.70 psi	0.43	OK
+1.20D+1.60Lr+0.50W	20.94 psi	20.94 psi	20.94 psi	46.70 psi	0.45	OK
+1.20D+1.60S	23.07 psi	23.07 psi	23.07 psi	46.70 psi	0.49	OK
+1.20D+1.60S+0.50W	24.05 psi	24.05 psi	24.05 psi	46.70 psi	0.51	OK
+1.20D+0.50Lr+W	14.07 psi	14.07 psi	14.07 psi	46.70 psi	0.30	OK
+1.20D+0.50S+W	15.04 psi	15.04 psi	15.04 psi	46.70 psi	0.32	OK
+0.90D+W	8.36 psi	8.36 psi	8.36 psi	46.70 psi	0.18	OK
+1.20D+0.20S+E	19.44 psi	19.44 psi	19.44 psi	46.70 psi	0.42	OK
+0.90D+E	15.49 psi	15.49 psi	15.49 psi	46.70 psi	0.33	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	46.46 psi	164.32 psi	0.28	OK
+1.20D+0.50Lr	56.42 psi	164.32 psi	0.34	OK
+1.20D+0.50S	60.94 psi	164.32 psi	0.37	OK
+1.20D+1.60Lr	92.92 psi	164.32 psi	0.57	OK
+1.20D+1.60Lr+0.50W	97.45 psi	164.32 psi	0.59	OK
+1.20D+1.60S	107.40 psi	164.32 psi	0.65	OK
+1.20D+1.60S+0.50W	111.93 psi	164.32 psi	0.68	OK
+1.20D+0.50Lr+W	65.47 psi	164.32 psi	0.40	OK
+1.20D+0.50S+W	70.00 psi	164.32 psi	0.43	OK
+0.90D+W	38.92 psi	164.32 psi	0.24	OK
+1.20D+0.20S+E	90.51 psi	164.32 psi	0.55	OK
+0.90D+E	72.11 psi	164.32 psi	0.44	OK

Project Title:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 7 Building Column (Compression Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

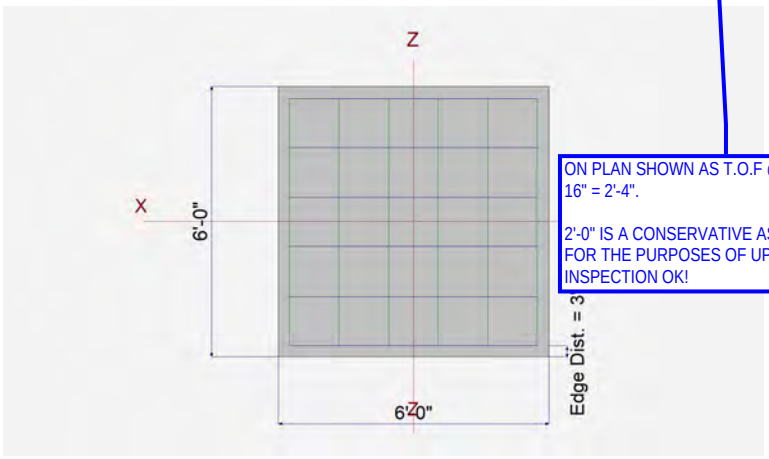
Width parallel to X-X Axis	=	6.0	ft
Length parallel to Z-Z Axis	=	6.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



ON PLAN SHOWN AS T.O.F @ -1'-0". -1'-0" + 16" = 2'-4".

2'-0" IS A CONSERVATIVE ASSUMPTION FOR THE PURPOSES OF UPLIFT. VIA INSPECTION OK!

Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		6.0
Reinforcing Bar Size	=	#	6

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=	6.0
Reinforcing Bar Size	=	6

Rebar Centerline to Edge of Concrete...

at Top of footing	=	3.0 in

Project Title:
Engineer:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 7 Building Column (Compression Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	12.0	13.0		16.0	5.0	16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	3.0	3.0		4.0	6.0	4.0		k
V-z	=					5.0	16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.7375	Soil Bearing	1.475 ksf	2.0 ksf	+D+0.750S+0.5250E about X-X axis
PASS	4.854	Overturning - X-X	14.933 k-ft	72.480 k-ft	+0.60D+0.70E
PASS	6.650	Overturning - Z-Z	7.20 k-ft	47.880 k-ft	+0.60D+0.60W
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	n/a	Uplift			
PASS	0.2715	Z Flexure (+X) Bot Tens	6.757 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.1563	Z Flexure (-X) Bot Tens	3.889 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S
PASS	0.785	Min Steel X Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.2402	X Flexure (+Z) Bot Tens	5.978 k-ft/ft	24.886 k-ft/ft	+1.20D+0.20S+E
PASS	0.2023	X Flexure (-Z) Bot Tens	5.035 k-ft/ft	24.886 k-ft/ft	+1.20D+1.60S+0.50W
PASS	0.785	Min Steel Z Flexure Bottom	0.346 in2/ft	0.440 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.898	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.898	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.3997	1-way Shear (+X)	18.560 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.2278	1-way Shear (-X)	10.576 psi	46.432 psi	+1.20D+1.60S
PASS	0.3542	1-way Shear (+Z)	16.447 psi	46.432 psi	+1.20D+0.20S+E
PASS	0.2962	1-way Shear (-Z)	13.755 psi	46.432 psi	+1.20D+1.60S+0.50W
PASS	0.3702	2-way Punching	60.833 psi	164.317 psi	+1.20D+1.60S+0.50W

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.60	0.60	n/a	n/a	0.300
X-X, +D+Lr	2.0	n/a	0.0	0.9611	0.9611	n/a	n/a	0.481
X-X, +D+S	2.0	n/a	0.0	1.044	1.044	n/a	n/a	0.522
X-X, +D+0.750Lr	2.0	n/a	0.0	0.8708	0.8708	n/a	n/a	0.435
X-X, +D+0.750S	2.0	n/a	0.0	0.9333	0.9333	n/a	n/a	0.467
X-X, +D+0.60W	2.0	n/a	1.951	0.5733	0.7933	n/a	n/a	0.397
X-X, +D+0.750Lr+0.450W	2.0	n/a	1.071	0.8508	1.016	n/a	n/a	0.508
X-X, +D+0.750S+0.450W	2.0	n/a	1.004	0.9133	1.078	n/a	n/a	0.539
X-X, +0.60D+0.60W	2.0	n/a	3.008	0.3333	0.5533	n/a	n/a	0.277
X-X, +D+0.70E	2.0	n/a	5.463	0.5004	1.322	n/a	n/a	0.661
X-X, +D+0.750S+0.5250E	2.0	n/a	3.20	0.8587	1.475	n/a	n/a	0.738
X-X, +0.60D+0.70E	2.0	n/a	7.417	0.2604	1.082	n/a	n/a	0.541
Z-Z, D Only	2.0	2.222	n/a	n/a	n/a	0.490	0.710	0.355
Z-Z, +D+Lr	2.0	2.775	n/a	n/a	n/a	0.7411	1.181	0.591
Z-Z, +D+S	2.0	2.979	n/a	n/a	n/a	0.7878	1.301	0.651
Z-Z, +D+0.750Lr	2.0	2.679	n/a	n/a	n/a	0.6783	1.063	0.532
Z-Z, +D+0.750S	2.0	2.857	n/a	n/a	n/a	0.7133	1.153	0.577
Z-Z, +D+0.60W	2.0	4.293	n/a	n/a	n/a	0.4413	0.9253	0.463
Z-Z, +D+0.750Lr+0.450W	2.0	3.786	n/a	n/a	n/a	0.6418	1.225	0.613
Z-Z, +D+0.750S+0.450W	2.0	3.883	n/a	n/a	n/a	0.6768	1.315	0.658
Z-Z, +0.60D+0.60W	2.0	5.414	n/a	n/a	n/a	0.2453	0.6413	0.321
Z-Z, +D+0.70E	2.0	2.829	n/a	n/a	n/a	0.6984	1.124	0.562
Z-Z, +D+0.750S+0.5250E	2.0	3.086	n/a	n/a	n/a	0.8697	1.464	0.732
Z-Z, +0.60D+0.70E	2.0	3.046	n/a	n/a	n/a	0.5024	0.8398	0.420

Project Title:
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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 7 Building Column (Compression Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	4.0 k-ft	73.80 k-ft	18.450	OK
X-X, +D+0.750Lr+0.450W	3.0 k-ft	100.80 k-ft	33.60	OK
X-X, +D+0.750S+0.450W	3.0 k-ft	107.550 k-ft	35.850	OK
X-X, +0.60D+0.60W	4.0 k-ft	47.880 k-ft	11.970	OK
X-X, +D+0.70E	14.933 k-ft	98.40 k-ft	6.589	OK
X-X, +D+0.750S+0.5250E	11.20 k-ft	126.0 k-ft	11.250	OK
X-X, +0.60D+0.70E	14.933 k-ft	72.480 k-ft	4.854	OK
Z-Z, D Only	4.0 k-ft	64.80 k-ft	16.20	OK
Z-Z, +D+Lr	8.0 k-ft	103.80 k-ft	12.975	OK
Z-Z, +D+S	9.333 k-ft	112.80 k-ft	12.086	OK
Z-Z, +D+0.750Lr	7.0 k-ft	94.050 k-ft	13.436	OK
Z-Z, +D+0.750S	8.0 k-ft	100.80 k-ft	12.60	OK
Z-Z, +D+0.60W	8.80 k-ft	73.80 k-ft	8.386	OK
Z-Z, +D+0.750Lr+0.450W	10.60 k-ft	100.80 k-ft	9.509	OK
Z-Z, +D+0.750S+0.450W	11.60 k-ft	107.550 k-ft	9.272	OK
Z-Z, +0.60D+0.60W	7.20 k-ft	47.880 k-ft	6.650	OK
Z-Z, +D+0.70E	7.733 k-ft	98.40 k-ft	12.724	OK
Z-Z, +D+0.750S+0.5250E	10.80 k-ft	126.0 k-ft	11.667	OK
Z-Z, +0.60D+0.70E	6.133 k-ft	72.480 k-ft	11.817	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.10	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.40D	2.10	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	2.613	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr	2.613	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.80	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S	2.80	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	4.40	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr	4.40	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	4.990	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60Lr+0.50W	4.435	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	5.0	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S	5.0	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	5.590	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+1.60S+0.50W	5.035	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	3.793	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50Lr+W	2.682	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	3.981	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.50S+W	2.870	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	2.531	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+W	1.420	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	5.978	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +1.20D+0.20S+E	2.422	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	5.128	+Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
X-X, +0.90D+E	1.572	-Z	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	1.633	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.40D	2.567	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	2.046	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr	3.179	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	2.178	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S	3.422	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	3.467	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr	5.333	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	3.446	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60Lr+0.50W	5.979	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	3.889	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S	6.111	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	3.868	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+1.60S+0.50W	6.757	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50Lr+W	2.004	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

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General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Gridline 7 Building Column (Compression Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
Z-Z, +1.20D+0.50Lr+W	4.471	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	2.136	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.50S+W	4.714	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	1.008	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+W	2.942	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	3.267	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +1.20D+0.20S+E	5.133	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	2.606	-X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK
Z-Z, +0.90D+E	4.094	+X	Bottom	0.3456	ACI 7.6.1.1	0.440	24.886	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	4.44 psi	7.05 psi	7.05 psi	46.43 psi	0.15	OK
+1.20D+0.50Lr	5.56 psi	8.73 psi	8.73 psi	46.43 psi	0.19	OK
+1.20D+0.50S	5.92 psi	9.39 psi	9.39 psi	46.43 psi	0.20	OK
+1.20D+1.60Lr	9.43 psi	14.64 psi	14.64 psi	46.43 psi	0.32	OK
+1.20D+1.60Lr+0.50W	9.36 psi	16.42 psi	16.42 psi	46.43 psi	0.35	OK
+1.20D+1.60S	10.58 psi	16.78 psi	16.78 psi	46.43 psi	0.36	OK
+1.20D+1.60S+0.50W	10.50 psi	18.56 psi	18.56 psi	46.43 psi	0.40	OK
+1.20D+0.50Lr+W	5.41 psi	12.30 psi	12.30 psi	46.43 psi	0.26	OK
+1.20D+0.50S+W	5.77 psi	12.96 psi	12.96 psi	46.43 psi	0.28	OK
+0.90D+W	2.71 psi	8.10 psi	8.10 psi	46.43 psi	0.17	OK
+1.20D+0.20S+E	8.88 psi	14.09 psi	14.09 psi	46.43 psi	0.30	OK
+0.90D+E	7.09 psi	11.24 psi	11.24 psi	46.43 psi	0.24	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.74 psi	5.74 psi	5.74 psi	46.43 psi	0.12	OK
+1.20D+0.50Lr	7.15 psi	7.15 psi	7.15 psi	46.43 psi	0.15	OK
+1.20D+0.50S	7.66 psi	7.66 psi	7.66 psi	46.43 psi	0.16	OK
+1.20D+1.60Lr	12.03 psi	12.03 psi	12.03 psi	46.43 psi	0.26	OK
+1.20D+1.60Lr+0.50W	12.11 psi	13.66 psi	13.66 psi	46.43 psi	0.29	OK
+1.20D+1.60S	13.68 psi	13.68 psi	13.68 psi	46.43 psi	0.29	OK
+1.20D+1.60S+0.50W	13.76 psi	15.31 psi	15.31 psi	46.43 psi	0.33	OK
+1.20D+0.50Lr+W	7.31 psi	10.41 psi	10.41 psi	46.43 psi	0.22	OK
+1.20D+0.50S+W	7.82 psi	10.92 psi	10.92 psi	46.43 psi	0.24	OK
+0.90D+W	3.85 psi	6.95 psi	6.95 psi	46.43 psi	0.15	OK
+1.20D+0.20S+E	6.53 psi	16.45 psi	16.45 psi	46.43 psi	0.35	OK
+0.90D+E	4.20 psi	14.12 psi	14.12 psi	46.43 psi	0.30	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	24.05 psi	164.32 psi	0.15	OK
+1.20D+0.50Lr	29.92 psi	164.32 psi	0.18	OK
+1.20D+0.50S	32.06 psi	164.32 psi	0.20	OK
+1.20D+1.60Lr	50.38 psi	164.32 psi	0.31	OK
+1.20D+1.60Lr+0.50W	53.96 psi	164.32 psi	0.33	OK
+1.20D+1.60S	57.25 psi	164.32 psi	0.35	OK
+1.20D+1.60S+0.50W	60.83 psi	164.32 psi	0.37	OK
+1.20D+0.50Lr+W	37.07 psi	164.32 psi	0.23	OK
+1.20D+0.50S+W	39.22 psi	164.32 psi	0.24	OK
+0.90D+W	22.62 psi	164.32 psi	0.14	OK
+1.20D+0.20S+E	48.09 psi	164.32 psi	0.29	OK
+0.90D+E	38.36 psi	164.32 psi	0.23	OK

Project Title:
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General Footing

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DESCRIPTION: Gridline 7 Building Column (Uplift Force)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	2.0	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	2.0	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

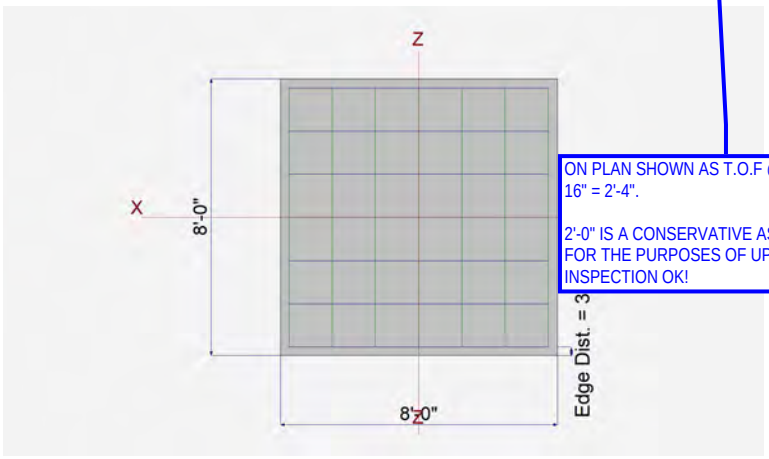
Width parallel to X-X Axis	=	8.0	ft
Length parallel to Z-Z Axis	=	8.0	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=		in
pz : parallel to Z-Z Axis	=		in
Height	=		in

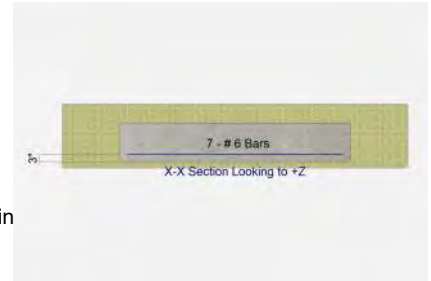
Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation		n/a
# Bars required within zone		n/a
# Bars required on each side of zone		n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6
Bars parallel to Z-Z Axis (resisting X Flexure)			
Number of Bars	=		7.0
Reinforcing Bar Size	=	#	6
Rebar Centerline to Edge of Concrete...			
at Bottom of footing	=		3.0 in





Top Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)		
Number of Bars	=	7.0
Reinforcing Bar Size	=	6
Bars parallel to Z-Z Axis (resisting X Flexure)		
Number of Bars	=	7.0
Reinforcing Bar Size	=	6
Rebar Centerline to Edge of Concrete...		
at Top of footing	=	3.0 in

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DESCRIPTION: Gridline 7 Building Column (Uplift Force)

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	12.0	13.0		4.0	-16.0	-16.0		k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=	-3.0	-3.0		-4.0	-6.0	-4.0		k
V-z	=					-5.0	-16.0		k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.3751	Soil Bearing	0.7501 ksf	2.0 ksf	+D+Lr about Z-Z axis
PASS	1.168	Overturning - X-X	59.733 k-ft	69.760 k-ft	+0.60D+0.70E
PASS	1.370	Overturning - Z-Z	50.933 k-ft	69.760 k-ft	+0.60D+0.70E
			SLIDING CHECK WOULD NORMALLY BE HERE -- RESOLVED BY BUILDING TENSION TIES, BY INSPECTION OK FOR FOOTING - TYPICAL		
PASS	1.557	Uplift	-1.557 k	2.427 k	+0.60D+0.70E
PASS	0.1692	Z Flexure (+X) Bot Tens	3.70 k-ft/ft	21.869 k-ft/ft	+1.20D+1.60Lr
PASS	0.2332	Z Flexure (-X) Bot Tens	5.10 k-ft/ft	21.869 k-ft/ft	+1.20D+1.60Lr
PASS	0.898	Min Steel X Flexure Bottom	0.346 in2/ft	0.385 in2/ft	n/a
PASS	0.2012	X Flexure (+Z) Bot Tens	4.40 k-ft/ft	21.869 k-ft/ft	+1.20D+1.60Lr
PASS	0.2012	X Flexure (-Z) Bot Tens	4.40 k-ft/ft	21.869 k-ft/ft	+1.20D+1.60Lr
PASS	0.898	Min Steel Z Flexure Bottom	0.346 in2/ft	0.385 in2/ft	n/a
PASS	0.06287	Z Flexure (+X) Top Tens	1.375 k-ft/ft	21.869 k-ft/ft	+0.90D+W
PASS	0.004194	Z Flexure (-X) Top Tens	0.09172 k-ft/ft	21.869 k-ft/ft	+0.90D+E
PASS	0.898	Min Steel X Flexure Top	0.346 in2/ft	0.385 in2/ft	n/a
PASS	0.08487	X Flexure (+Z) Top Tens	1.856 k-ft/ft	21.869 k-ft/ft	+0.90D+E
PASS	0.01067	X Flexure (-Z) Top Tens	0.2334 k-ft/ft	21.869 k-ft/ft	+0.90D+W
PASS	0.898	Min Steel Z Flexure Top	0.346 in2/ft	0.385 in2/ft	n/a
PASS	0.1937	1-way Shear (+X)	8.603 psi	44.411 psi	+1.20D+1.60Lr
PASS	0.2636	1-way Shear (-X)	11.705 psi	44.411 psi	+1.20D+1.60Lr
PASS	0.2286	1-way Shear (+Z)	10.154 psi	44.411 psi	+1.20D+1.60Lr
PASS	0.2286	1-way Shear (-Z)	10.154 psi	44.411 psi	+1.20D+1.60Lr
PASS	0.3107	2-way Punching	51.050 psi	164.317 psi	+1.20D+1.60Lr

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	2.0	n/a	0.0	0.4542	0.4542	n/a	n/a	0.227
X-X, +D+Lr	2.0	n/a	0.0	0.6573	0.6573	n/a	n/a	0.329
X-X, +D+S	2.0	n/a	0.0	0.5167	0.5167	n/a	n/a	0.258
X-X, +D+0.750Lr	2.0	n/a	0.0	0.6065	0.6065	n/a	n/a	0.303
X-X, +D+0.750S	2.0	n/a	0.0	0.5010	0.5010	n/a	n/a	0.251
X-X, +D+0.60W	2.0	n/a	-2.466	0.3506	0.2578	n/a	n/a	0.175
X-X, +D+0.750Lr+0.450W	2.0	n/a	-1.139	0.5288	0.4592	n/a	n/a	0.264
X-X, +D+0.750S+0.450W	2.0	n/a	-1.448	0.4233	0.3537	n/a	n/a	0.212
X-X, +0.60D+0.60W	2.0	n/a	-6.122	0.1689	0.07609	n/a	n/a	0.084
X-X, +D+0.70E	2.0	n/a	-10.030	0.4524	0.1059	n/a	n/a	0.226
X-X, +D+0.750S+0.5250E	2.0	n/a	-5.679	0.4997	0.2399	n/a	n/a	0.250
X-X, +0.60D+0.70E	2.0	n/a	-28.718	0.3209	0.0	n/a	n/a	0.161
Z-Z, D Only	2.0	-1.651	n/a	n/a	n/a	0.5006	0.4078	0.250
Z-Z, +D+Lr	2.0	-2.282	n/a	n/a	n/a	0.7501	0.5645	0.375
Z-Z, +D+S	2.0	-3.387	n/a	n/a	n/a	0.6249	0.4084	0.313
Z-Z, +D+0.750Lr	2.0	-2.164	n/a	n/a	n/a	0.6877	0.5253	0.344
Z-Z, +D+0.750S	2.0	-2.994	n/a	n/a	n/a	0.5939	0.4082	0.297
Z-Z, +D+0.60W	2.0	-5.425	n/a	n/a	n/a	0.4063	0.2021	0.203
Z-Z, +D+0.750Lr+0.450W	2.0	-4.023	n/a	n/a	n/a	0.6170	0.3710	0.309
Z-Z, +D+0.750S+0.450W	2.0	-5.598	n/a	n/a	n/a	0.5231	0.2540	0.262
Z-Z, +0.60D+0.60W	2.0	-11.020	n/a	n/a	n/a	0.2060	0.03897	0.103
Z-Z, +D+0.70E	2.0	-5.194	n/a	n/a	n/a	0.3689	0.1894	0.185
Z-Z, +D+0.750S+0.5250E	2.0	-5.476	n/a	n/a	n/a	0.4951	0.2445	0.248
Z-Z, +0.60D+0.70E	2.0	-11.795	n/a	n/a	n/a	0.1687	0.02634	0.084

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DESCRIPTION: Gridline 7 Building Column (Uplift Force)

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
X-X, D Only	None	0.0 k-ft	Infinity	OK
X-X, +D+Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750Lr	None	0.0 k-ft	Infinity	OK
X-X, +D+0.750S	None	0.0 k-ft	Infinity	OK
X-X, +D+0.60W	42.40 k-ft	116.267 k-ft	2.742	OK
X-X, +D+0.750Lr+0.450W	31.80 k-ft	155.267 k-ft	4.883	OK
X-X, +D+0.750S+0.450W	31.80 k-ft	128.267 k-ft	4.034	OK
X-X, +0.60D+0.60W	42.40 k-ft	69.760 k-ft	1.645	OK
X-X, +D+0.70E	59.733 k-ft	116.267 k-ft	1.946	OK
X-X, +D+0.750S+0.5250E	44.80 k-ft	128.267 k-ft	2.863	OK
X-X, +0.60D+0.70E	59.733 k-ft	69.760 k-ft	1.168	OK
Z-Z, D Only	4.0 k-ft	116.267 k-ft	29.067	OK
Z-Z, +D+Lr	8.0 k-ft	168.267 k-ft	21.033	OK
Z-Z, +D+S	9.333 k-ft	132.267 k-ft	14.171	OK
Z-Z, +D+0.750Lr	7.0 k-ft	155.267 k-ft	22.181	OK
Z-Z, +D+0.750S	8.0 k-ft	128.267 k-ft	16.033	OK
Z-Z, +D+0.60W	47.20 k-ft	116.267 k-ft	2.463	OK
Z-Z, +D+0.750Lr+0.450W	39.40 k-ft	155.267 k-ft	3.941	OK
Z-Z, +D+0.750S+0.450W	40.40 k-ft	128.267 k-ft	3.175	OK
Z-Z, +0.60D+0.60W	45.60 k-ft	69.760 k-ft	1.530	OK
Z-Z, +D+0.70E	52.533 k-ft	116.267 k-ft	2.213	OK
Z-Z, +D+0.750S+0.5250E	44.40 k-ft	128.267 k-ft	2.889	OK
Z-Z, +0.60D+0.70E	50.933 k-ft	69.760 k-ft	1.370	OK

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	2.10	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.40D	2.10	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50Lr	2.613	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50Lr	2.613	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50S	2.050	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50S	2.050	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60Lr	4.40	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60Lr	4.40	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60Lr+0.50W	3.192	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60Lr+0.50W	3.608	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60S	2.60	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60S	2.60	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60S+0.50W	1.392	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+1.60S+0.50W	1.808	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50Lr+W	0.1959	+Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50Lr+W	1.029	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.50S+W	0.4666	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.20S+E	1.233	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +0.90D+E	0.8106	-Z	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.40D	2.450	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.40D	1.750	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50Lr	3.037	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50Lr	2.188	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50S	2.517	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50S	1.583	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60Lr	5.10	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60Lr	3.70	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60Lr+0.50W	4.350	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60Lr+0.50W	2.450	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60S	3.433	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60S	1.767	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60S+0.50W	2.683	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+1.60S+0.50W	0.5168	+X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50Lr+W	1.537	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50S+W	1.017	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +0.90D+W	0.07493	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.20S+E	0.5999	-X	Bottom	0.3456	ACI 7.6.1.1	0.3850	21.869	OK

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DESCRIPTION: Gridline 7 Building Column (Uplift Force)

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.20D+0.50S+W	0.3666	+Z	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +0.90D+W	1.067	+Z	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +0.90D+W	0.2334	-Z	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +1.20D+0.20S+E	1.433	+Z	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
X-X, +0.90D+E	1.856	+Z	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50Lr+W	0.3124	+X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.50S+W	0.9166	+X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +0.90D+W	1.375	+X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +1.20D+0.20S+E	0.7999	+X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +0.90D+E	0.09172	-X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK
Z-Z, +0.90D+E	1.208	+X	Top	0.3456	ACI 7.6.1.1	0.3850	21.869	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	5.62 psi	4.07 psi	5.62 psi	44.41 psi	0.13	OK
+1.20D+0.50Lr	6.97 psi	5.09 psi	6.97 psi	44.41 psi	0.16	OK
+1.20D+0.50S	5.77 psi	3.70 psi	5.77 psi	44.41 psi	0.13	OK
+1.20D+1.60Lr	11.71 psi	8.60 psi	11.71 psi	44.41 psi	0.26	OK
+1.20D+1.60Lr+0.50W	9.95 psi	5.74 psi	9.95 psi	44.41 psi	0.22	OK
+1.20D+1.60S	7.85 psi	4.15 psi	7.85 psi	44.41 psi	0.18	OK
+1.20D+1.60S+0.50W	6.09 psi	1.29 psi	6.09 psi	44.41 psi	0.14	OK
+1.20D+0.50Lr+W	3.46 psi	0.64 psi	3.46 psi	44.41 psi	0.08	OK
+1.20D+0.50S+W	2.26 psi	2.03 psi	2.26 psi	44.41 psi	0.05	OK
+0.90D+W	0.11 psi	3.11 psi	3.11 psi	44.41 psi	0.07	OK
+1.20D+0.20S+E	1.32 psi	1.78 psi	1.78 psi	44.41 psi	0.04	OK
+0.90D+E	0.26 psi	2.74 psi	2.74 psi	44.41 psi	0.06	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	4.85 psi	4.85 psi	4.85 psi	44.41 psi	0.11	OK
+1.20D+0.50Lr	6.03 psi	6.03 psi	6.03 psi	44.41 psi	0.14	OK
+1.20D+0.50S	4.73 psi	4.73 psi	4.73 psi	44.41 psi	0.11	OK
+1.20D+1.60Lr	10.15 psi	10.15 psi	10.15 psi	44.41 psi	0.23	OK
+1.20D+1.60Lr+0.50W	8.31 psi	7.39 psi	8.31 psi	44.41 psi	0.19	OK
+1.20D+1.60S	6.00 psi	6.00 psi	6.00 psi	44.41 psi	0.14	OK
+1.20D+1.60S+0.50W	4.15 psi	3.23 psi	4.15 psi	44.41 psi	0.09	OK
+1.20D+0.50Lr+W	2.34 psi	0.49 psi	2.34 psi	44.41 psi	0.05	OK
+1.20D+0.50S+W	1.04 psi	0.81 psi	1.04 psi	44.41 psi	0.02	OK
+0.90D+W	0.58 psi	2.42 psi	2.42 psi	44.41 psi	0.05	OK
+1.20D+0.20S+E	2.72 psi	3.19 psi	3.19 psi	44.41 psi	0.07	OK
+0.90D+E	1.72 psi	4.35 psi	4.35 psi	44.41 psi	0.10	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	24.37 psi	164.32 psi	0.15	OK
+1.20D+0.50Lr	30.31 psi	164.32 psi	0.18	OK
+1.20D+0.50S	23.79 psi	164.32 psi	0.14	OK
+1.20D+1.60Lr	51.05 psi	164.32 psi	0.31	OK
+1.20D+1.60Lr+0.50W	39.45 psi	164.32 psi	0.24	OK
+1.20D+1.60S	30.17 psi	164.32 psi	0.18	OK
+1.20D+1.60S+0.50W	18.56 psi	164.32 psi	0.11	OK
+1.20D+0.50Lr+W	7.11 psi	164.32 psi	0.04	OK
+1.20D+0.50S+W	0.58 psi	164.32 psi	0.00	OK
+0.90D+W	7.54 psi	164.32 psi	0.05	OK
+1.20D+0.20S+E	1.16 psi	164.32 psi	0.01	OK
+0.90D+E	7.54 psi	164.32 psi	0.05	OK

GRIDLINE 1 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	1
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

1.Project information

Project description:
Location:
Design name: Design

Comment:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-19
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 9.500
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 12.13
C_{min} (inch): 1.88
S_{min} (inch): 4.00

Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB8 (1"Ø)



Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 8.00 x 0.25

EMBEDMENT IS EMBEDMENT INTO FOOTING

∴ TOTAL EMBEDMENT = FFE - T.O.F - EFFECTIVE EMBEDMENT PER SIMPSON ANCHORCAP

10" ACCEPTED ON PLAN FOR SIMPLICITY

GRIDLINE 1 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

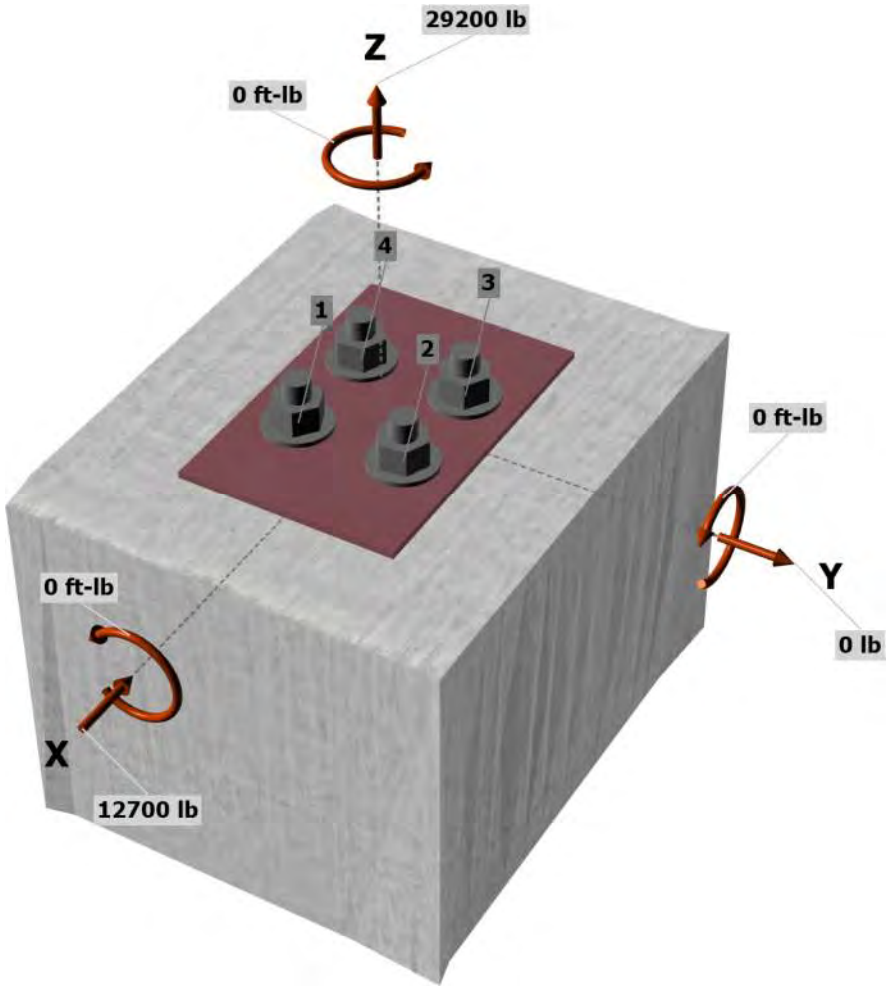
Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	2
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: U = 0.9D + 1.0E
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.10.5.2 not applicable
Ductility section for shear: 17.10.6.2 not applicable
Ω_0 factor: 2.5
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	F	L	Lr/S/R	S	W	*Strength level loads*
N_a [lb]:	-12000	16000	0	0	-13000	4000	16000	*29200*
V_{ax} [lb]:	-3000	-4000	0	0	-3000	-4000	-6000	*-12700*
V_{ay} [lb]:	0	0	0	0	0	0	0	*0*
M_x [ft-lb]:	0	0	0	0	0	0	0	*0*
M_y [ft-lb]:	0	0	0	0	0	0	0	*0*
M_z [ft-lb]:	0	0	0	0	0	0	0	*0*

<Figure 1>



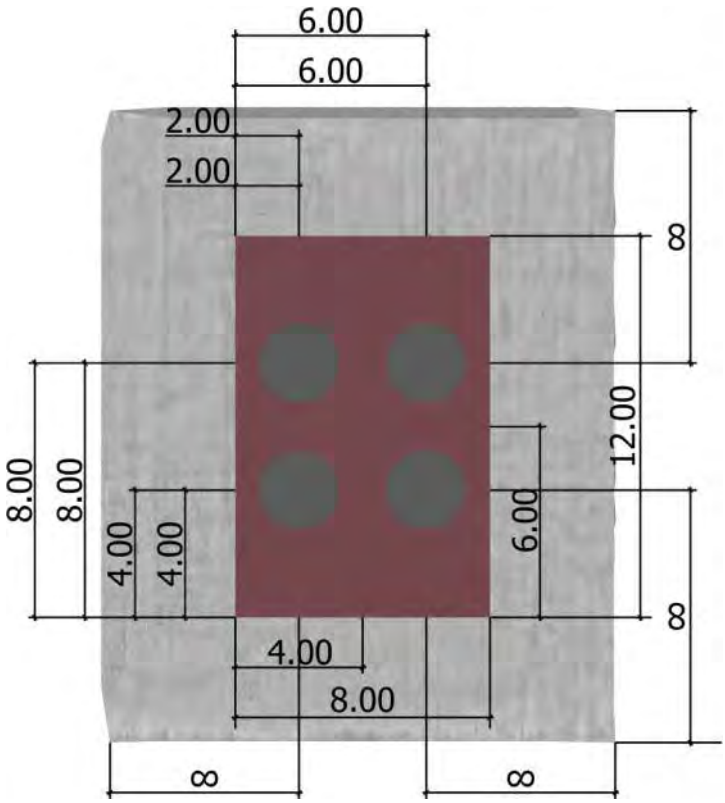
GRIDLINE 1 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
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E-mail:			

<Figure 2>

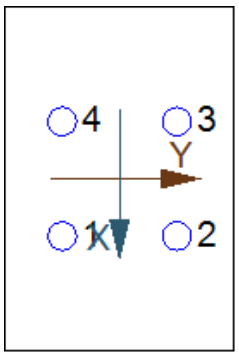


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	7300.0	-3175.0	0.0	3175.0
2	7300.0	-3175.0	0.0	3175.0
3	7300.0	-3175.0	0.0	3175.0
4	7300.0	-3175.0	0.0	3175.0
Sum	29200.0	-12700.0	0.0	12700.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 29200
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

GRIDLINE 1 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

4. Steel Strength of Anchor in Tension (Sec. 17.6.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
35133	0.75	26350

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.6.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.6.2.2.1)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	3000	9.500	38491

$0.75\phi N_{cbg} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.6.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
1242.56	812.25	-	1.000	1.000	1.00	1.000	38491	0.70	30913

6. Pullout Strength of Anchor in Tension (Sec. 17.6.3)

$0.75\phi N_{pn} = 0.75\phi \Psi_{c,P} N_p = 0.75\phi \Psi_{c,P} 8 A_{brg} f'_c$ (Sec. 17.5.1.2, Eq. 17.6.3.1 & 17.6.3.2.2a)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	5.15	3000	0.70	64940

7. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

8. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1242.56	812.25	1.000	1.000	1.000	1.000	38491	0.70	82435

9. Results

Interaction of Tensile and Shear Forces (Sec. 17.8)

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	7300	26350	0.28	Pass
Concrete breakout	**29200**	**30913**	**0.94**	**Pass (Governs)**
Pullout	7300	64940	0.11	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, øV_n (lb)	Ratio	Status
Steel	**3175**	**13709**	**0.23**	**Pass (Governs)**
Pryout	12700	82435	0.15	Pass

Interaction check	$N_{ua}/\phi N_n$	$V_{ua}/\phi V_n$	Utilization Ratio	Permissible	Status
Sec. 17.8.3	0.94	0.23	98.0%	1.0	Pass

PAB8 (1"Ø) with hef = 9.500 inch meets the selected design criteria.

10. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Table 17.9.2(a) for torqued cast-in-place anchor is waived per designer option.\n
- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.5.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.6.2 for shear need not be satisfied – designer to verify.

- Designer must exercise own judgment to determine if this design is suitable.

GRIDLINE 2-4 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	1
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

1.Project information

Project description:
Location:
Design name: Design

Comment:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-19
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 10.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 12.63
C_{min} (inch): 1.88
S_{min} (inch): 4.00

Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB8 (1"Ø)



Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 15.00 x 8.00 x 0.25

EMBEDMENT IS EMBEDMENT INTO FOOTING

∴ TOTAL EMBEDMENT = FFE - T.O.F - EFFECTIVE EMBEDMENT PER SIMPSON ANCHORCAP

GRIDLINE 2-4 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

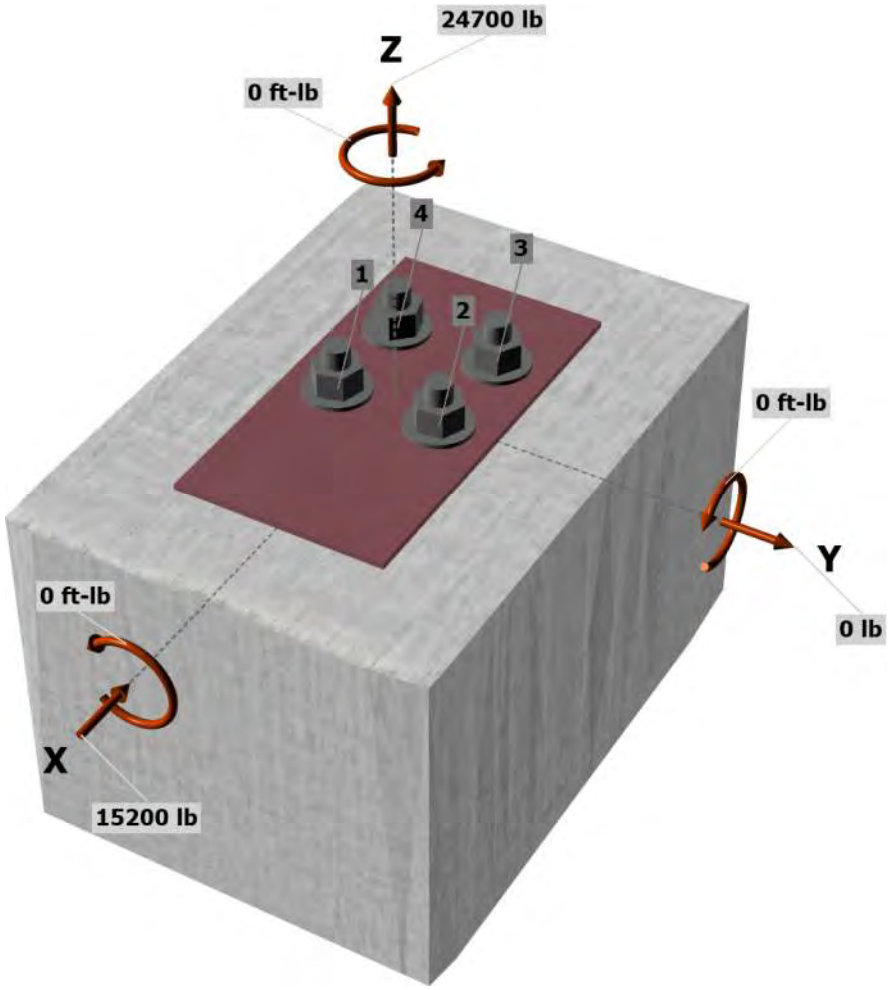
Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	2
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: U = 0.9D + 1.0E
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.10.5.2 not applicable
Ductility section for shear: 17.10.6.2 not applicable
Ω_0 factor: 2.5
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	F	L	Lr/S/R	S	W	*Strength level loads*
N_a [lb]:	-17000	16000	0	0	-18000	-6000	19000	*24700*
V_{ax} [lb]:	-3000	-5000	0	0	-4000	-5000	-8000	*-15200*
V_{ay} [lb]:	0	0	0	0	0	0	0	*0*
M_x [ft-lb]:	0	0	0	0	0	0	0	*0*
M_y [ft-lb]:	0	0	0	0	0	0	0	*0*
M_z [ft-lb]:	0	0	0	0	0	0	0	*0*

<Figure 1>



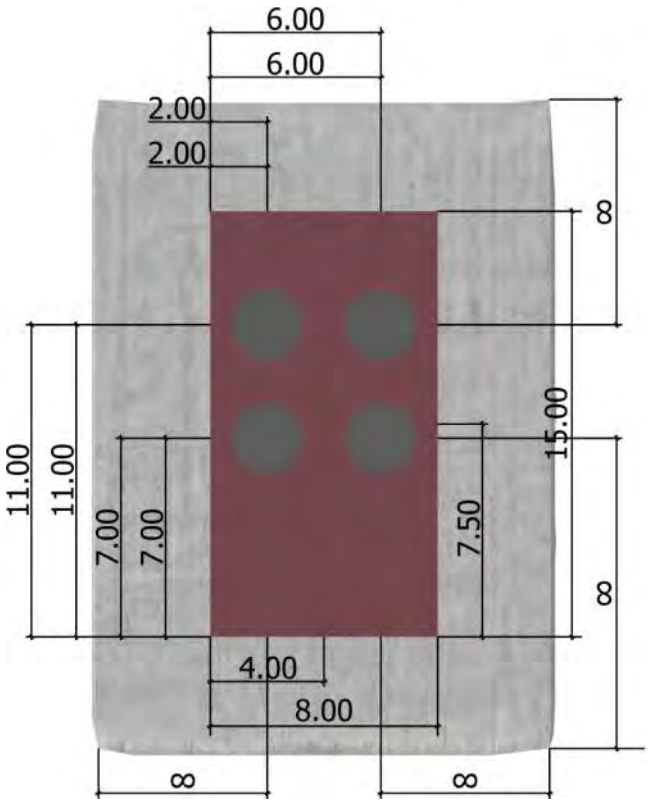
GRIDLINE 2-4 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

<Figure 2>

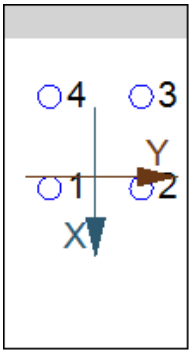


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	9768.7	-3800.0	0.0	3800.0
2	9768.7	-3800.0	0.0	3800.0
3	3766.0	-3800.0	0.0	3800.0
4	3766.0	-3800.0	0.0	3800.0
Sum	27069.4	-15200.0	0.0	15200.0

Maximum concrete compression strain (‰): 0.09
Maximum concrete compression stress (psi): 397
Resultant tension force (lb): 27069
Resultant compression force (lb): 2369
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.89
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



GRIDLINE 2-4 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

4. Steel Strength of Anchor in Tension (Sec. 17.6.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
35133	0.75	26350

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.6.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.6.2.2.1)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	3000	10.000	41569

$0.75\phi N_{cbg} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.6.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
1350.56	900.00	-	0.944	1.000	1.00	1.000	41569	0.70	30921

6. Pullout Strength of Anchor in Tension (Sec. 17.6.3)

$0.75\phi N_{pn} = 0.75\phi \Psi_{c,P} N_p = 0.75\phi \Psi_{c,P} 8 A_{brg} f'_c$ (Sec. 17.5.1.2, Eq. 17.6.3.1 & 17.6.3.2.2a)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	5.15	3000	0.70	64940

7. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

8. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1350.56	900.00	1.000	1.000	1.000	1.000	41569	0.70	87332

9. Results

Interaction of Tensile and Shear Forces (Sec. R17.8)

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	9769	26350	0.37	Pass
Concrete breakout	**27069**	**30921**	**0.88**	**Pass (Governs)**
Pullout	9769	64940	0.15	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, øV_n (lb)	Ratio	Status
Steel	**3800**	**13709**	**0.28**	**Pass (Governs)**
Pryout	15200	87332	0.17	Pass

Interaction check	$(N_{ua}/\phi N_{ua})^{5/3}$	$(V_{ua}/\phi V_{ua})^{5/3}$	Utilization Ratio	Permissible	Status
Sec. R17.8	0.80	0.12	91.9%	1.0	Pass

PAB8 (1"Ø) with hef = 10.000 inch meets the selected design criteria.

10. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Table 17.9.2(a) for torqued cast-in-place anchor is waived per designer option.\n
- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.5.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.6.2 for shear need not be satisfied – designer to verify.

- Designer must exercise own judgment to determine if this design is suitable.

GRIDLINE 5 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Engineer:	DMS	Page:	1
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

1.Project information

Project description:
Location:
Design name: Design

Comment:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-19
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 10.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 12.63
C_{min} (inch): 1.88
S_{min} (inch): 4.00

Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB8 (1"Ø)



Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 8.00 x 0.25

EMBEDMENT IS EMBEDMENT INTO FOOTING

∴ TOTAL EMBEDMENT = FFE - T.O.F - EFFECTIVE EMBEDMENT PER SIMPSON ANCHORCAP

GRIDLINE 5 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

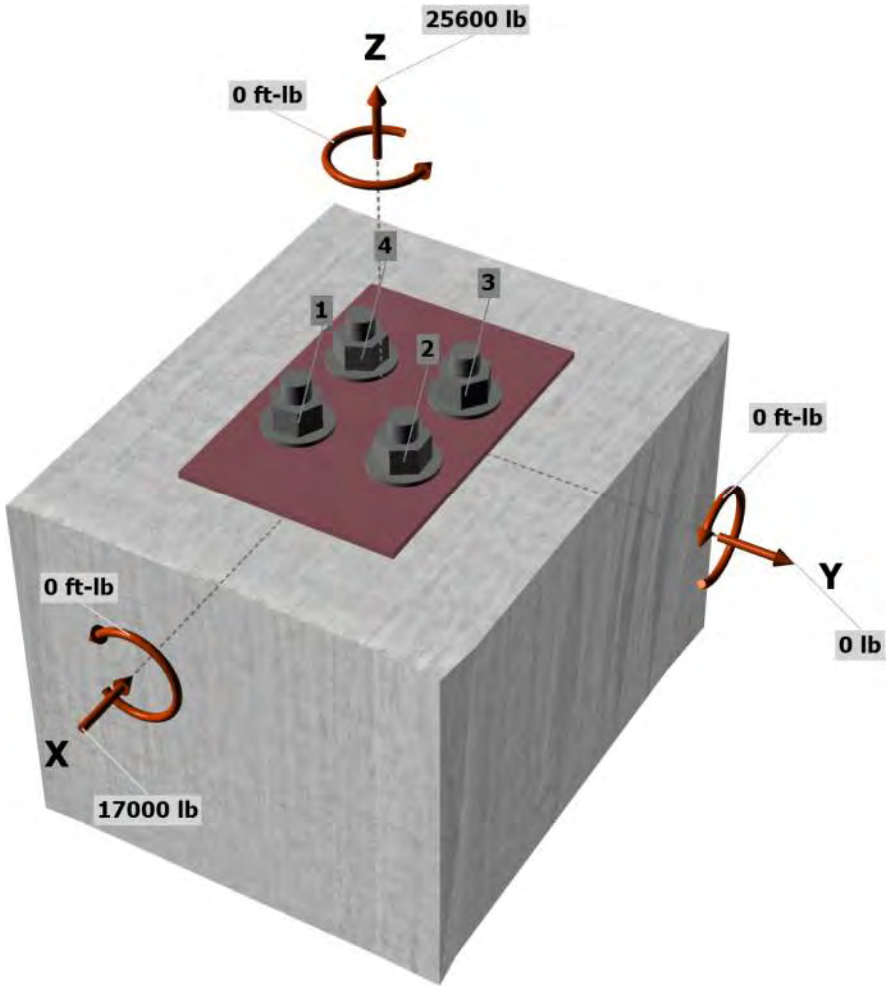
Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	2
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: U = 0.9D + 1.0E
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.10.5.2 not applicable
Ductility section for shear: 17.10.6.2 not applicable
Ω_0 factor: 2.5
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	F	L	Lr/S/R	S	W	*Strength level loads*
N_a [lb]:	-16000	16000	0	0	-18000	-6000	19000	*25600*
V_{ax} [lb]:	-5000	-5000	0	0	-5000	-6000	-8000	*-17000*
V_{ay} [lb]:	0	0	0	0	0	0	0	*0*
M_x [ft-lb]:	0	0	0	0	0	0	0	*0*
M_y [ft-lb]:	0	0	0	0	0	0	0	*0*
M_z [ft-lb]:	0	0	0	0	0	0	0	*0*

<Figure 1>



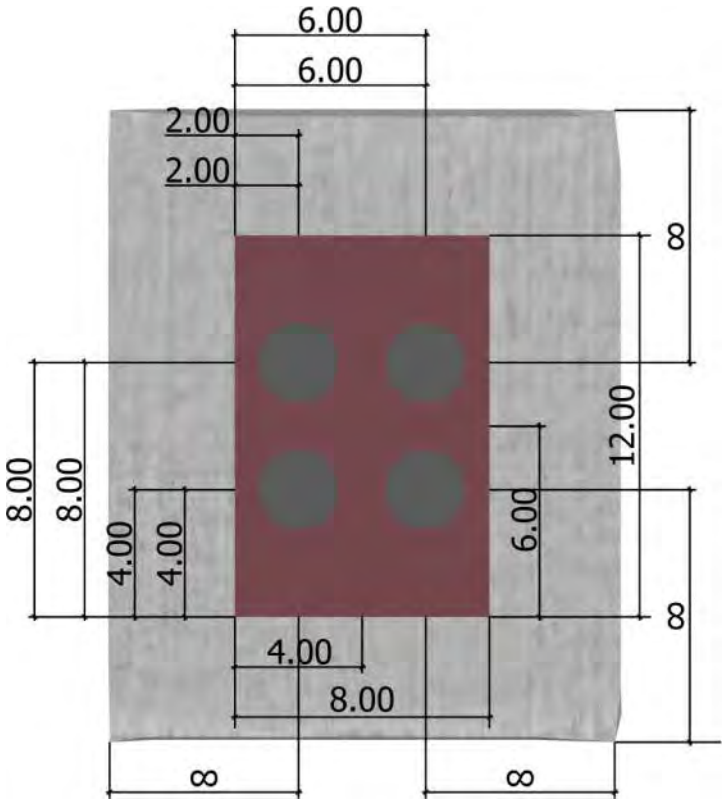
GRIDLINE 5 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
Engineer:	DMS	Page:	3
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

<Figure 2>

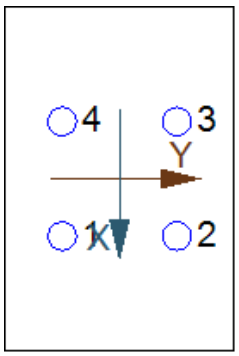


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	6400.0	-4250.0	0.0	4250.0
2	6400.0	-4250.0	0.0	4250.0
3	6400.0	-4250.0	0.0	4250.0
4	6400.0	-4250.0	0.0	4250.0
Sum	25600.0	-17000.0	0.0	17000.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 25600
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

GRIDLINE 5 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

4. Steel Strength of Anchor in Tension (Sec. 17.6.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
35133	0.75	26350

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.6.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.6.2.2.1)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	3000	10.000	41569

$0.75\phi N_{cbg} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.6.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
1350.56	900.00	-	1.000	1.000	1.00	1.000	41569	0.70	32749

6. Pullout Strength of Anchor in Tension (Sec. 17.6.3)

$0.75\phi N_{pn} = 0.75\phi \Psi_{c,P} N_p = 0.75\phi \Psi_{c,P} 8 A_{brg} f'_c$ (Sec. 17.5.1.2, Eq. 17.6.3.1 & 17.6.3.2.2a)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	5.15	3000	0.70	64940

7. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

8. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1350.56	900.00	1.000	1.000	1.000	1.000	41569	0.70	87332

9. Results

Interaction of Tensile and Shear Forces (Sec. R17.8)

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	6400	26350	0.24	Pass
Concrete breakout	**25600**	**32749**	**0.78**	**Pass (Governs)**
Pullout	6400	64940	0.10	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, øV_n (lb)	Ratio	Status
Steel	**4250**	**13709**	**0.31**	**Pass (Governs)**
Pryout	17000	87332	0.19	Pass

Interaction check	$(N_{ua}/\phi N_{ua})^{5/3}$	$(V_{ua}/\phi V_{ua})^{5/3}$	Utilization Ratio	Permissible	Status
Sec. R17.8	0.66	0.14	80.5%	1.0	Pass

PAB8 (1"Ø) with hef = 10.000 inch meets the selected design criteria.

10. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Table 17.9.2(a) for torqued cast-in-place anchor is waived per designer option.\n
- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.5.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.6.2 for shear need not be satisfied – designer to verify.

- Designer must exercise own judgment to determine if this design is suitable.

GRIDLINE 6 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Engineer:	DMS	Page:	1
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

1.Project information

Project description:
Location:
Design name: Design

Comment:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-19
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 10.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 12.63
C_{min} (inch): 1.88
S_{min} (inch): 4.00

Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB8 (1"Ø)



Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 8.00 x 0.25

EMBEDMENT IS EMBEDMENT INTO FOOTING

∴ TOTAL EMBEDMENT = FFE - T.O.F - EFFECTIVE EMBEDMENT PER SIMPSON ANCHORCAP

GRIDLINE 6 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

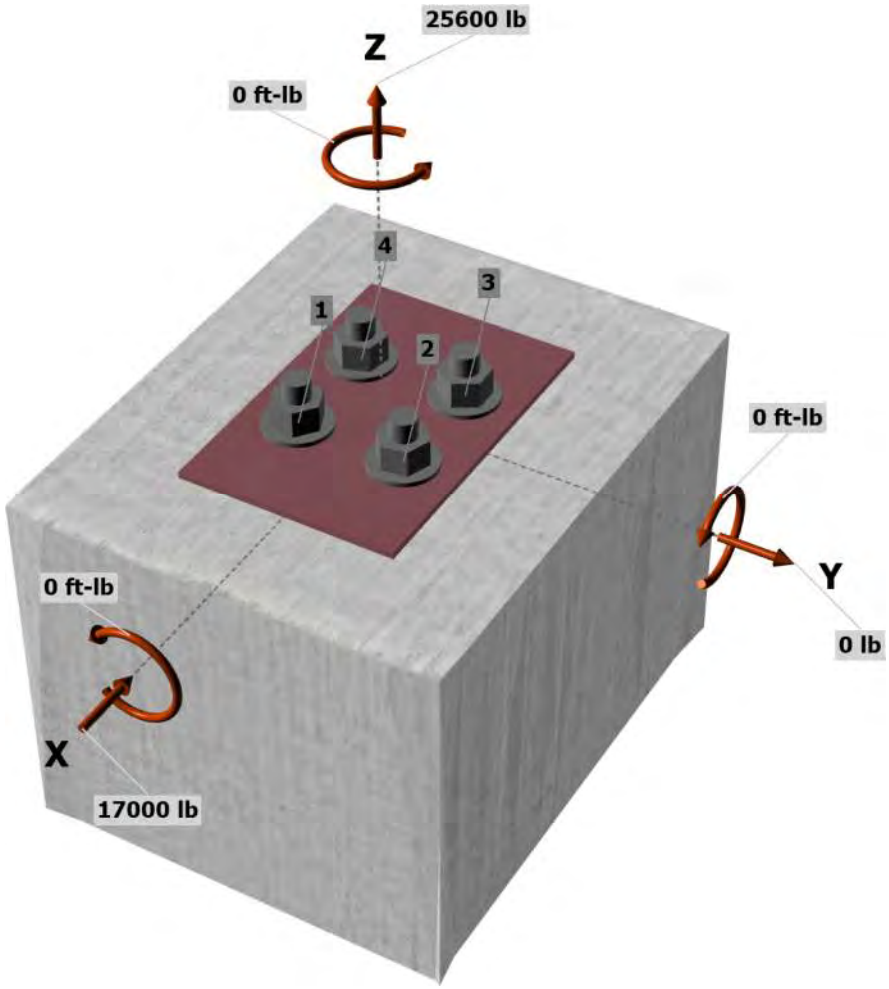
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Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: U = 0.9D + 1.0E
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.10.5.2 not applicable
Ductility section for shear: 17.10.6.2 not applicable
Ω_0 factor: 2.5
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	F	L	Lr/S/R	S	W	*Strength level loads*
N_a [lb]:	-16000	16000	0	0	-18000	-6000	19000	*25600*
V_{ax} [lb]:	-5000	-5000	0	0	-5000	-6000	-8000	*-17000*
V_{ay} [lb]:	0	0	0	0	0	0	0	*0*
M_x [ft-lb]:	0	0	0	0	0	0	0	*0*
M_y [ft-lb]:	0	0	0	0	0	0	0	*0*
M_z [ft-lb]:	0	0	0	0	0	0	0	*0*

<Figure 1>



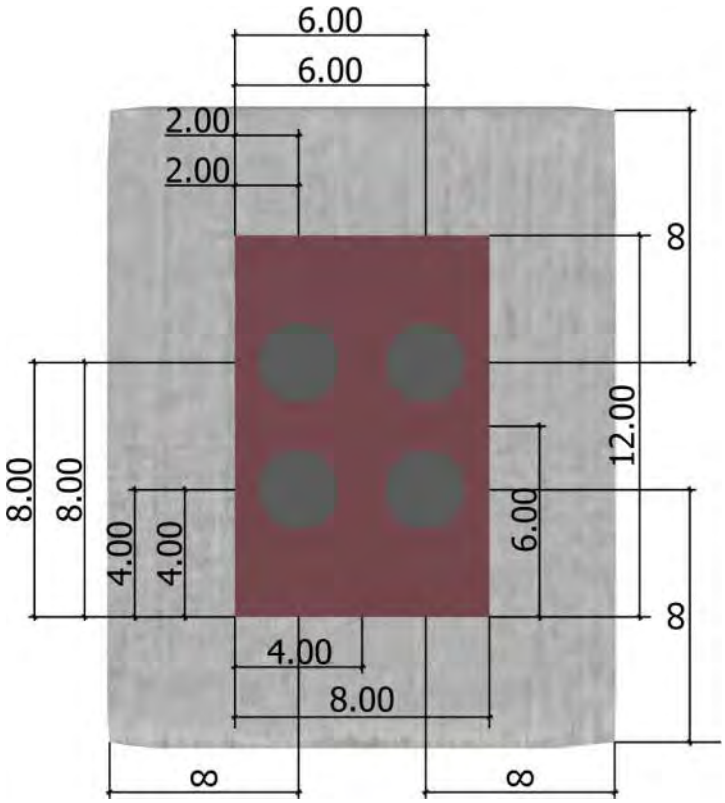
GRIDLINE 6 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

Company:	PCS STRUCTURAL SOLUTIONS	Date:	10/1/2026
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Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

<Figure 2>

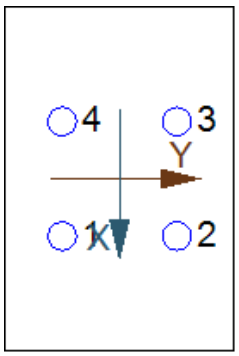


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	6400.0	-4250.0	0.0	4250.0
2	6400.0	-4250.0	0.0	4250.0
3	6400.0	-4250.0	0.0	4250.0
4	6400.0	-4250.0	0.0	4250.0
Sum	25600.0	-17000.0	0.0	17000.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 25600
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



Input data and results must be checked for agreement with the existing circumstances, the standards and guidelines must be checked for plausibility.

GRIDLINE 6 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

4. Steel Strength of Anchor in Tension (Sec. 17.6.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
35133	0.75	26350

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.6.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.6.2.2.1)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	3000	10.000	41569

$0.75\phi N_{cbg} = 0.75\phi (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.6.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	$0.75\phi N_{cbg}$ (lb)
1350.56	900.00	-	1.000	1.000	1.00	1.000	41569	0.70	32749

6. Pullout Strength of Anchor in Tension (Sec. 17.6.3)

$0.75\phi N_{pn} = 0.75\phi \Psi_{c,P} N_p = 0.75\phi \Psi_{c,P} 8 A_{brg} f'_c$ (Sec. 17.5.1.2, Eq. 17.6.3.1 & 17.6.3.2.2a)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	$0.75\phi N_{pn}$ (lb)
1.0	5.15	3000	0.70	64940

7. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

8. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp} (A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1350.56	900.00	1.000	1.000	1.000	1.000	41569	0.70	87332

9. Results

Interaction of Tensile and Shear Forces (Sec. R17.8)

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	6400	26350	0.24	Pass
Concrete breakout	**25600**	**32749**	**0.78**	**Pass (Governs)**
Pullout	6400	64940	0.10	Pass

Shear	Factored Load, V_{ua} (lb)	Design Strength, øV_n (lb)	Ratio	Status
Steel	**4250**	**13709**	**0.31**	**Pass (Governs)**
Pryout	17000	87332	0.19	Pass

Interaction check	$(N_{ua}/\phi N_{ua})^{5/3}$	$(V_{ua}/\phi V_{ua})^{5/3}$	Utilization Ratio	Permissible	Status
Sec. R17.8	0.66	0.14	80.5%	1.0	Pass

PAB8 (1"Ø) with hef = 10.000 inch meets the selected design criteria.

10. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Table 17.9.2(a) for torqued cast-in-place anchor is waived per designer option.\n
- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.5.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.6.2 for shear need not be satisfied – designer to verify.

- Designer must exercise own judgment to determine if this design is suitable.

GRIDLINE 7 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
Version 3.4.2606.1

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Engineer:	DMS	Page:	1
Project:	NISQUALLY VOC		
Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

1.Project information

Project description:
Location:
Design name: Design

Comment:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-19
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.000
Effective Embedment depth, h_{ef} (inch): 10.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 12.63
C_{min} (inch): 1.88
S_{min} (inch): 4.00

Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB8 (1"Ø)



Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 3000
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental edge reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: Yes
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 12.00 x 10.00 x 0.25

EMBEDMENT IS EMBEDMENT INTO FOOTING

∴ TOTAL EMBEDMENT = FFE - T.O.F - EFFECTIVE EMBEDMENT PER SIMPSON ANCHORCAP

GRIDLINE 7 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
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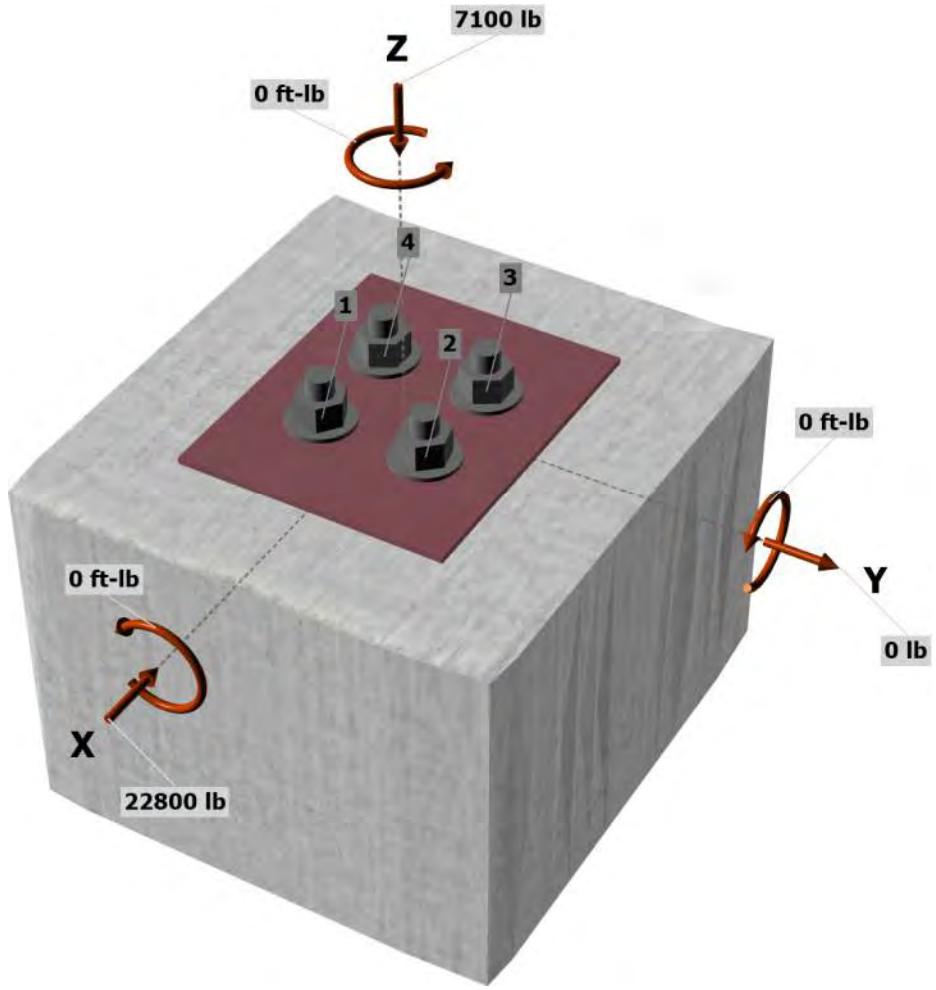
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Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: U = 1.2D + 1.0W + 1.0L + 0.5(Lr or S or R)
Seismic design: Yes
Anchors subjected to sustained tension: Not applicable
Ductility section for tension: 17.10.5.2 not applicable
Ductility section for shear: 17.10.6.2 not applicable
Ω_0 factor: 2.5
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Service level loads:

	D	E	F	L	Lr/S/R	S	W	*Strength level loads*
N_a [lb]:	-13000	4000	0	0	-13000	-4000	15000	*-7100*
V_{ax} [lb]:	-4000	-4000	0	0	-4000	-5000	-16000	*-22800*
V_{ay} [lb]:	0	0	0	0	0	0	0	*0*
M_x [ft-lb]:	0	0	0	0	0	0	0	*0*
M_y [ft-lb]:	0	0	0	0	0	0	0	*0*
M_z [ft-lb]:	0	0	0	0	0	0	0	*0*

<Figure 1>



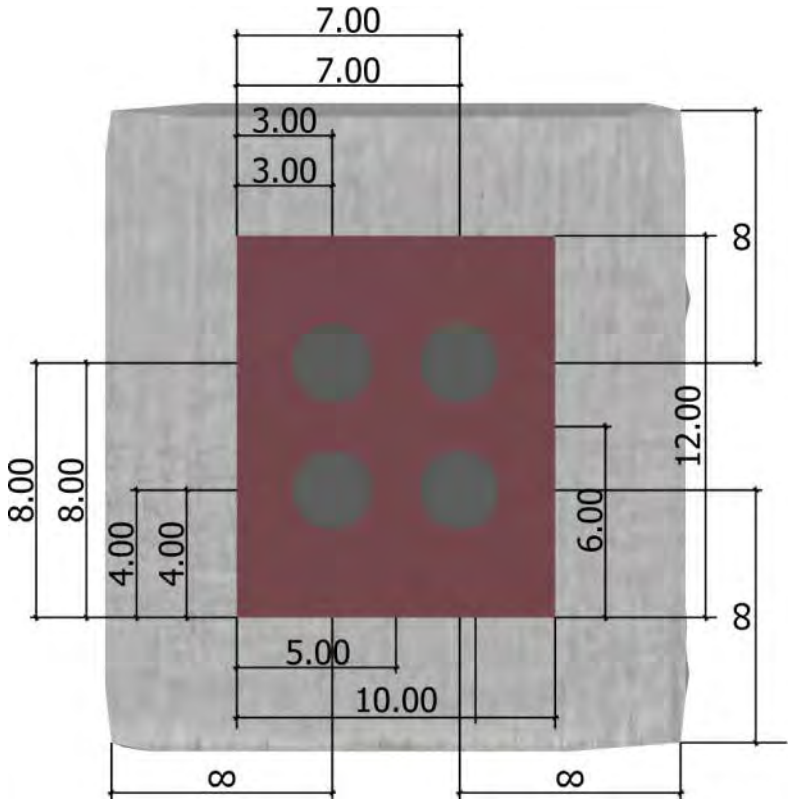
GRIDLINE 7 PEMB ANCHORAGE

SIMPSON Strong-Tie

Anchor Designer™ for Concrete Software
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Address:	11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA		
Phone:			
E-mail:			

<Figure 2>

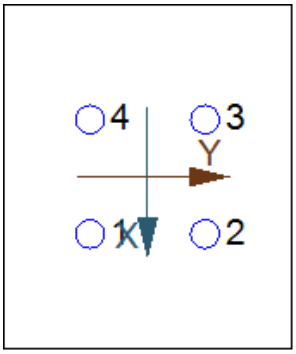


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	0.0	-5700.0	0.0	5700.0
2	0.0	-5700.0	0.0	5700.0
3	0.0	-5700.0	0.0	5700.0
4	0.0	-5700.0	0.0	5700.0
Sum	0.0	-22800.0	0.0	22800.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 0
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00
Eccentricity of resultant shear forces in x-axis, e'_{Vx} (inch): 0.00
Eccentricity of resultant shear forces in y-axis, e'_{Vy} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Shear (Sec. 17.7.1)

V_{sa} (lb)	ϕ_{grout}	ϕ	$\phi_{grout}\phi V_{sa}$ (lb)
21090	1.0	0.65	13709

5. Concrete Pryout Strength of Anchor in Shear (Sec. 17.7.3)

$\phi V_{cpg} = \phi k_{cp} N_{cbg} = \phi k_{cp}(A_{Nc} / A_{Nco}) \Psi_{ec,N} \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.5.1.2 & Eq. 17.7.3.1b)

k_{cp}	A_{Nc} (in^2)	A_{Nco} (in^2)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕV_{cpg} (lb)
2.0	1350.56	900.00	1.000	1.000	1.000	1.000	41569	0.70	87332

6. Results

Interaction of Tensile and Shear Forces (Sec. 17.8)

Shear	Factored Load, V_{ua} (lb)	Design Strength, øV_n (lb)	Ratio	Status
Steel	**5700**	**13709**	**0.42**	**Pass (Governs)**
Pryout	22800	87332	0.26	Pass

PAB8 (1"Ø) with hef = 10.000 inch meets the selected design criteria.

7. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Table 17.9.2(a) for torqued cast-in-place anchor is waived per designer option.\n
- Per designer input, the tensile component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor tensile force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.5.2 for tension need not be satisfied – designer to verify.

- Per designer input, the shear component of the strength-level earthquake force applied to anchors does not exceed 20 percent of the total factored anchor shear force associated with the same load combination. Therefore the ductility requirements of ACI 318 17.10.6.2 for shear need not be satisfied – designer to verify.

- Designer must exercise own judgment to determine if this design is suitable.

2.0 – MEZZANINE GRAVITY DESIGN

TYPICAL EDGE BM DESIGN: GRID 2→2a

SPAN: 18'-8

TYPICAL LOADING: W3 DECK W/ 2½" TOPPING NWT CONC

$\Delta_{LL} = \ell/360$ DL = 50psf

$\Delta_{TL} = \ell/240$ LL = 50psf (+ 15psf PARTITION)

TRIBUTARY AREA = 6'-0" EA SIDE

NON-COMPOSITE DESIGN (25psf LL; 50psf DL)

$\phi M_n = \phi F_y Z$ $F_y = 50^{ksi}$ $M_u \leq \phi M_n$

$\phi = 0.9$

$Z = ?$

UNIFORM DIST. OF LOAD:

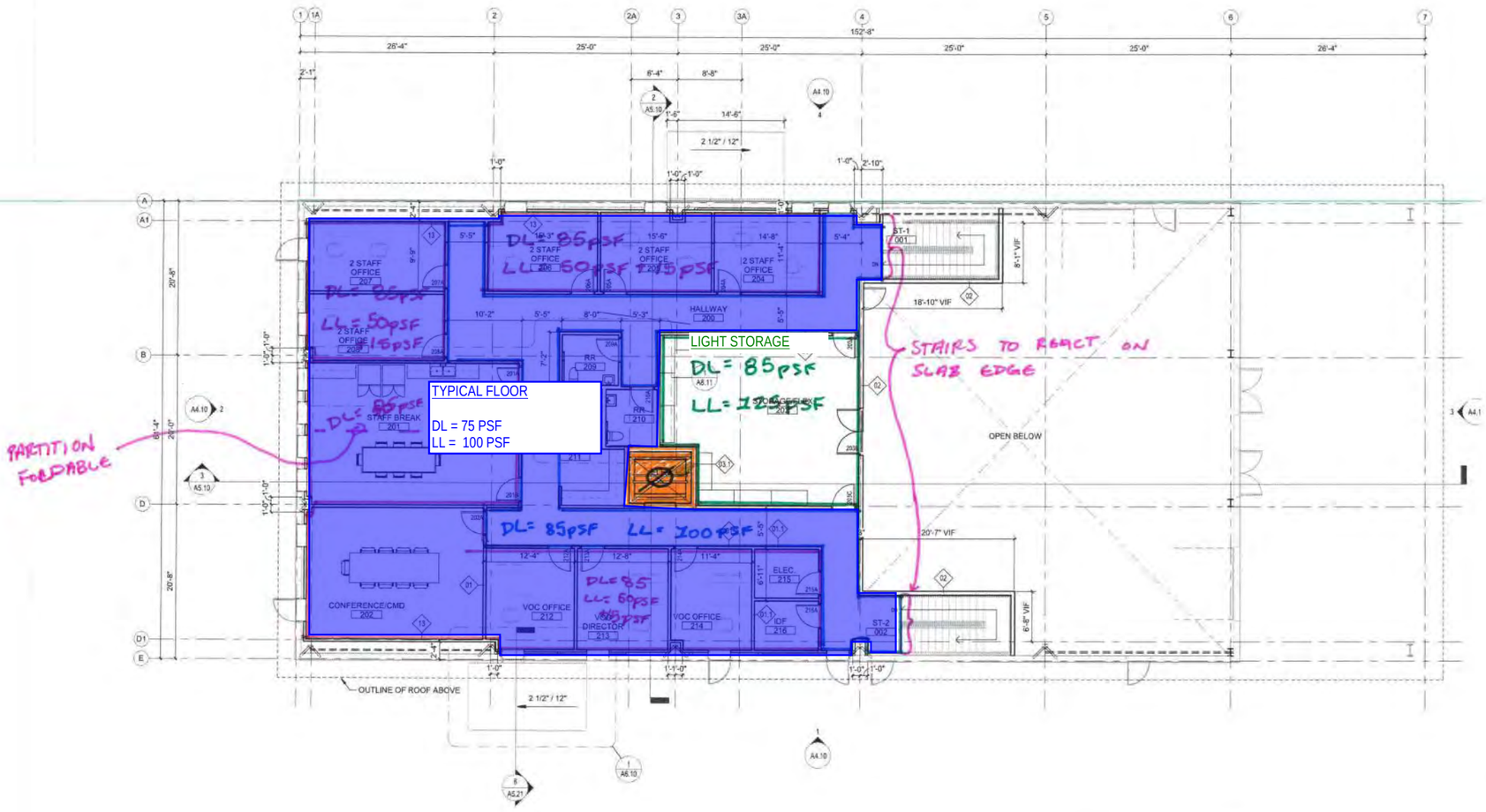
DL = 300plf LRFD: 1.2D + 1.6LL = 840plf

LL = 300plf ASD: 1.0D + 1.0L = 600plf

LL_{ONLY} = 300plf

PROGRESS

LOAD MAP: MEZZANINE



1 A3.11 SECOND FLOOR PLAN - PHASE 2
Scale: 1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES - FLOOR PLAN

1. ALL DIMENSIONS ARE FROM FACE OF STUD UNLESS NOTED OTHERWISE
2. WATER RESISTANT GWB TO BE USED AT ALL WET AREAS
3. PRIOR TO COMPLETION OF CONSTRUCTION, CLEAN ALL SURFACES INCLUDING, BUT NOT LIMITED TO, WINDOWS, STOREFRONTS, SWITCH &OUTLET PLATES, HVAC GRILLES, CEILING GRID, RESTROOM FIXTURES & ACCESSORIES. RESTORE ANY OF THE ABOVE TO LIKE-NEW GOOD WORKING CONDITION AS REQUIRED
4. ALL MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS TO BE BIDDER-DESIGNED. SUBCONTRACTORS SHALL BE RESPONSIBLE FOR PREPARATION OF DESIGN PLANS, ENGINEERING, AND PERMITS

KEYNOTES - FLOOR PLAN

LEGEND - FLOOR PLAN - PHASE 1

- NEW WALL CONSTRUCTION
- WALL TAG - SEE SCHEDULE
- DOOR TAG - SEE SCHEDULE
- WINDOW TAG - SEE SCHEDULE
- HOSE BIB; TAMPER RESISTANT WITH SLIM PROFILE

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER - DESIGN DEVELOPMENT

ADDRESS TBD
11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA 98513

ISSUE LIST

SECOND FLOOR PLAN - PHASE 2

A3.11

Beam Design Criteria

TABLES SELECTED:

Master Steel Table: ramaisc
Default Steel Table: ramaisc
Alternate Steel Table: ramaisc

UNBRACED LENGTH:

Check Unbraced Length
Do Not Consider Point of Inflection as Brace Point
Noncomposite/Precomposite Beam Design:
Deck Perpendicular to Beam Braces flange
Deck Parallel to Beam does not Brace flange
Calculate Cb for all Simple Span Beams
Use Cb=1 for all Cantilevers

SPAN/DEPTH CRITERIA:

Maximum Span/Depth Ratio (ft/ft): 0.00

COMPOSITE IEFF:

Do Not Reduce Ieff per AISC 360 Commentary

DEMAND/CAPACITY LIMITS:

	Strength	Deflection
Steel Beam:	1.000	1.000
C-Beams:	1.000	1.000

DEFLECTION CRITERIA:

Default Criteria	L/d	Δ (in)
Unshored		
Initial (Construction Load):	0.0	0.0
Post Composite		
Live Load:	360.0	0.0
Total Superimposed:	240.0	0.0
Total (Init+Superimp-Camber):	240.0	0.0
Shored		
Dead Load:	0.0	0.0
Live Load:	360.0	0.0
Total Load:	240.0	0.0
Noncomposite		
Dead Load:	0.0	0.0
Live Load:	360.0	0.0
Total Load:	240.0	0.0

Note: 0.0 indicates No Limit

CAMBER CRITERIA FOR COMPOSITE BEAMS:

Do not Camber

CAMBER CRITERIA FOR NONCOMPOSITE BEAMS:

Do not Camber

STUD CRITERIA:

Stud Distribution: Use Optimum
Maximum % of Full Composite Allowed: 100.00
Minimum % of Full Composite Allowed - Short Span: 25.00
Minimum % of Full Composite Allowed - Long Span: 50.00
Long Span Defined as Span Greater Than: 30.00 ft
Maximum Rows of Studs Allowed: 2
Minimum Flange Width for 2 Rows of Studs (in): 5.500
Minimum Flange Width for 3 Rows of Studs (in): 8.500
Maximum Stud Spacing - Deck Parallel: Per Code
Maximum Stud Spacing - Deck Not Parallel: Per Code
Ductility of Shear Connection:
Enforce AISC 360-16 Commentary I3.2d(1) for Spans greater than 30'

WEB OPENING CRITERIA:

Stiffener Fy (ksi): 36.000

Stiffener Dimensions

Minimum Width (in): 1.000
Minimum Thickness (in): 0.250
Increment of Width (in): 0.250
Increment of Thickness (in): 0.125
Increment of Length (in): 1.000

Do Not Allow Stiffeners on One Side of web
Allow Stiffeners on Two Sides of web

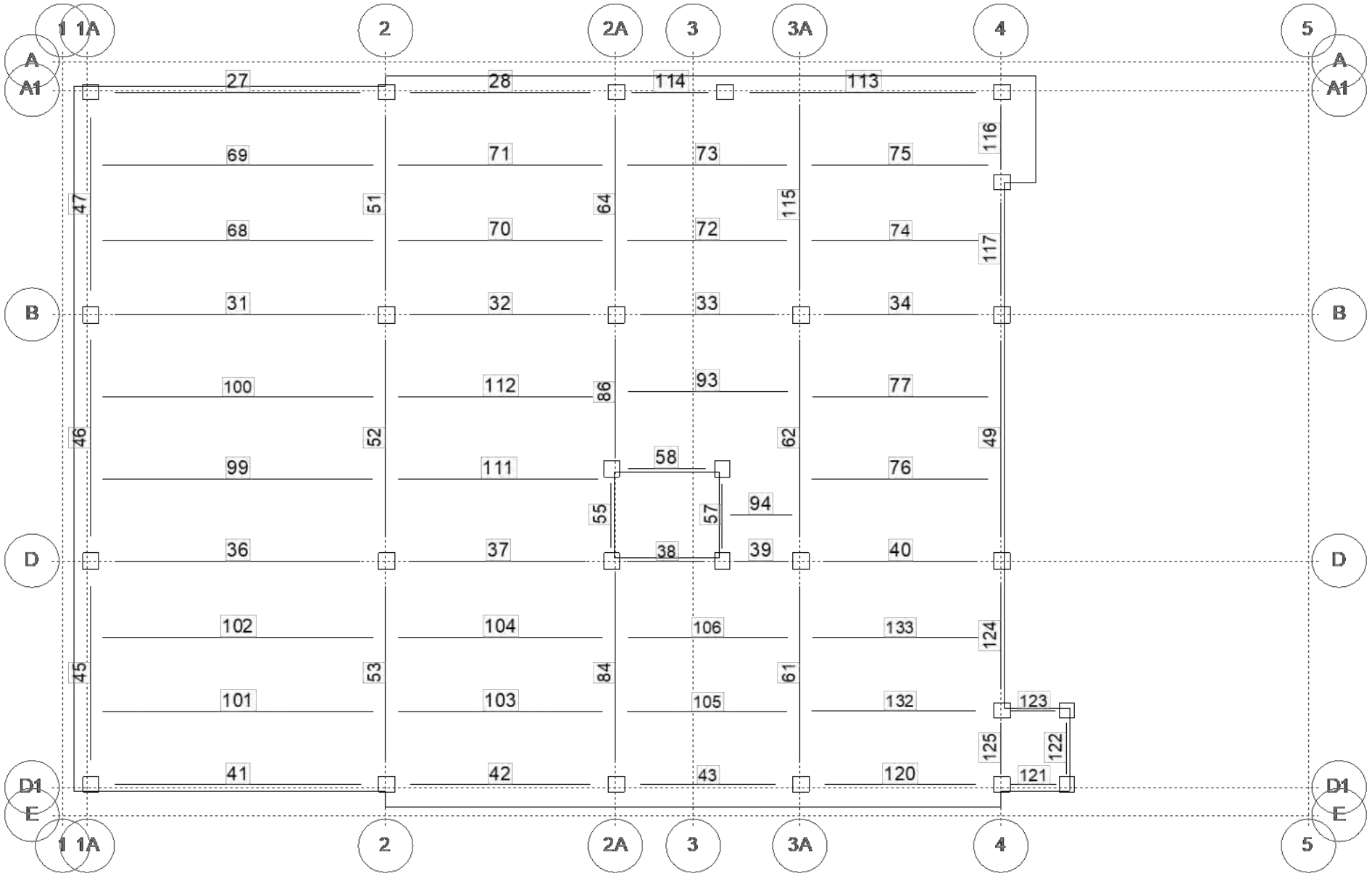
Floor Map

RAM Steel 25.00.02.42
DataBase: 26384 NISQ VOC Mezzanine 2026-09-14
Building Code: IBC

09/29/26 12:28:06
Steel Code: AISC360-22 LRFD

Floor Type: Mezzanine (14'-0")

Beam Numbers



Beam Summary

STEEL BEAM DESIGN SUMMARY:

Demand/Capacity Limits for: Strength: 1.000 Deflection: 1.000

Floor Type: Mezzanine (14'-0")

Beam #	Length ft	+Mu kip-ft	-Mu kip-ft	ΦMn kip-ft	Fy ksi	Beam Size		Studs
27	24.04	80.1	0.0	289.9	50.0	W16X31	u	12
28	18.67	59.6	0.0	290.1	50.0	W16X31	u	12
31	24.04	145.6	0.0	302.7	50.0	W16X31	u	14
32	18.67	87.9	0.0	302.0	50.0	W16X31	u	14
33	15.00	60.4	0.0	290.2	50.0	W16X31	u	13
34	16.33	74.9	0.0	301.6	50.0	W16X31	u	14
36	24.04	145.6	0.0	302.7	50.0	W16X31	u	14
37	18.31	84.5	0.0	302.0	50.0	W16X31	u	14
38	9.00	17.4	0.0	193.5	50.0	W14X26	u	1,7
39	6.36	8.3	0.0	193.8	50.0	W14X26	u	6
40	16.33	71.7	0.0	301.6	50.0	W16X31	u	14
41	24.04	80.1	0.0	289.9	50.0	W16X31	u	12
42	18.67	66.3	0.0	301.7	50.0	W16X31	u	14
43	15.00	42.8	0.0	290.1	50.0	W16X31	u	12
45	18.13	157.0	0.0	306.4	50.0	W16X31	u	4,3,5
46	20.00	191.1	0.0	306.7	50.0	W16X31	u	5,3,5
47	18.13	157.0	0.0	306.4	50.0	W16X31	u	5,3,4
49	20.00	135.4	0.0	394.4	50.0	W18X40	u	10
51	18.13	249.4	0.0	412.1	50.0	W18X40	u	6,3,5
52	20.00	300.6	0.0	412.4	50.0	W18X40	u	6,3,6
53	18.13	249.4	0.0	412.1	50.0	W18X40	u	5,3,6
55	7.50	14.6	0.0	187.0	50.0	W14X26	u	3,2
57	7.50	15.3	0.0	187.0	50.0	W14X26	u	4
58	9.00	15.4	0.0	193.5	50.0	W14X26	u	7
61	18.13	183.5	0.0	412.1	50.0	W18X40	u	6,2,6
62	20.00	223.5	0.0	427.5	50.0	W18X40	u	2,2,3,1,6
64	18.13	197.6	0.0	412.1	50.0	W18X40	u	6,3,5
68	24.04	139.4	0.0	302.7	50.0	W16X31	u	14
69	24.04	137.1	0.0	302.7	50.0	W16X31	u	14
70	18.67	84.1	0.0	302.0	50.0	W16X31	u	14
71	18.67	82.7	0.0	302.0	50.0	W16X31	u	14
72	15.00	55.1	0.0	290.2	50.0	W16X31	u	13
73	15.00	53.4	0.0	290.2	50.0	W16X31	u	12

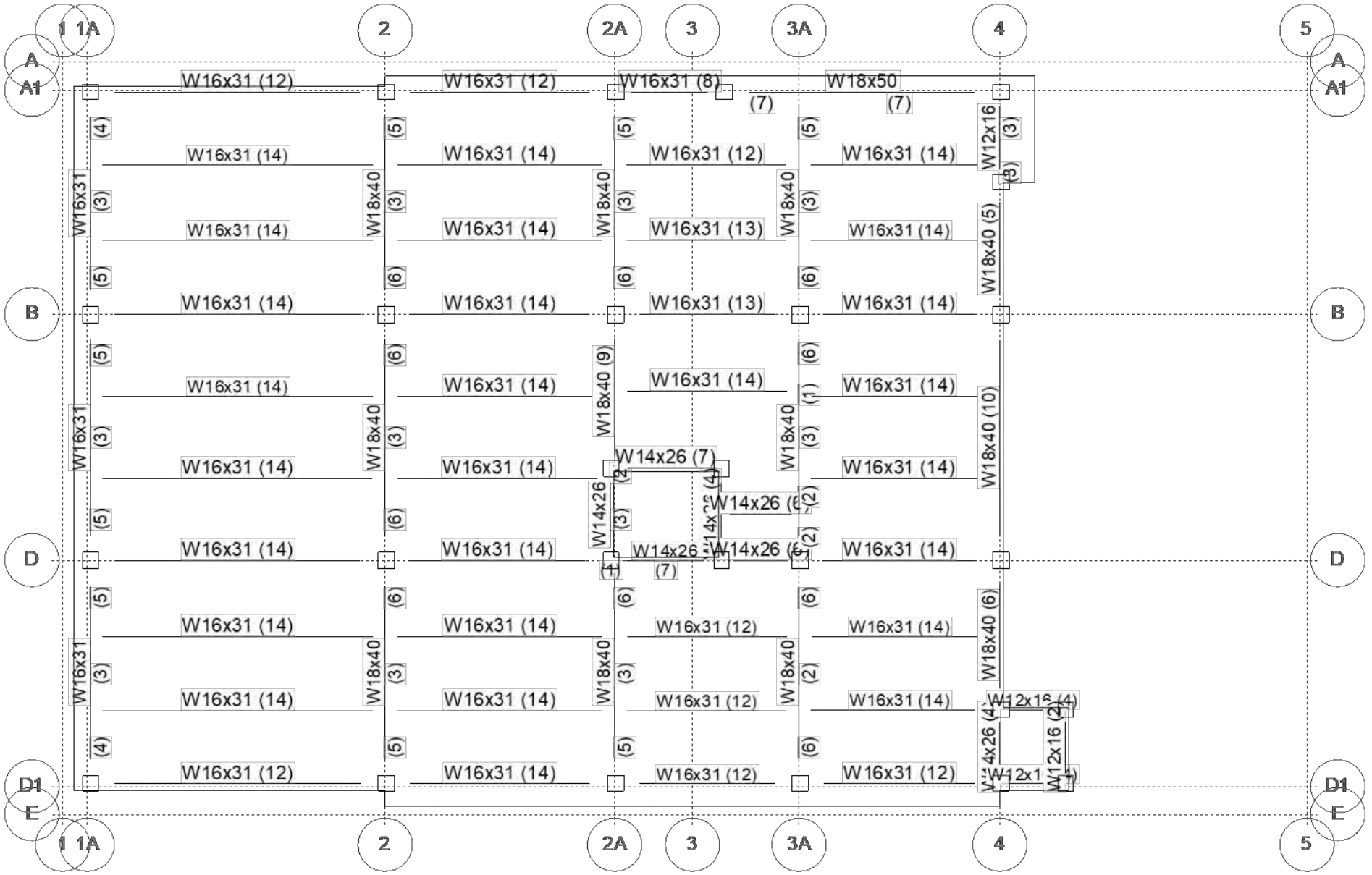
Beam Summary

74	16.33	65.5	0.0	301.6	50.0	W16X31	u	14
75	16.33	63.3	0.0	301.6	50.0	W16X31	u	14
76	16.33	79.0	0.0	301.6	50.0	W16X31	u	14
77	16.33	79.0	0.0	301.6	50.0	W16X31	u	14
84	18.13	197.0	0.0	412.1	50.0	W18X40	u	5,3,6
86	12.50	110.7	0.0	377.7	50.0	W18X40	u	9
93	15.00	68.6	0.0	290.2	50.0	W16X31	u	14
94	6.36	12.3	0.0	193.8	50.0	W14X26	u	6
99	24.04	151.9	0.0	302.7	50.0	W16X31	u	14
100	24.04	151.9	0.0	302.7	50.0	W16X31	u	14
101	24.04	137.1	0.0	302.7	50.0	W16X31	u	14
102	24.04	139.4	0.0	302.7	50.0	W16X31	u	14
103	18.67	82.7	0.0	302.0	50.0	W16X31	u	14
104	18.67	84.1	0.0	302.0	50.0	W16X31	u	14
105	15.00	53.4	0.0	290.2	50.0	W16X31	u	12
106	15.00	54.3	0.0	290.2	50.0	W16X31	u	12
111	18.31	88.1	0.0	302.0	50.0	W16X31	u	14
112	18.67	91.6	0.0	302.0	50.0	W16X31	u	14
113	22.48	207.6	0.0	487.9	50.0	W18X50	u	7,7
114	8.85	13.4	0.0	264.2	50.0	W16X31	u	8
115	18.13	185.6	0.0	412.1	50.0	W18X40	u	6,3,5
116	7.33	21.6	0.0	121.8	50.0	W12X16		3,3
117	10.80	44.4	0.0	338.8	50.0	W18X40	u	5
120	16.33	51.4	0.0	290.3	50.0	W16X31	u	12
121	5.29	3.9	0.0	102.0	50.0	W12X16		4
122	6.00	0.4	0.0	92.5	50.0	W12X16		2
123	5.29	3.6	0.0	101.7	50.0	W12X16		4
124	12.13	49.7	0.0	358.2	50.0	W18X40	u	6
125	6.00	0.2	0.0	187.3	50.0	W14X26	u	4
132	16.33	63.3	0.0	301.6	50.0	W16X31	u	14
133	16.33	63.8	0.0	301.6	50.0	W16X31	u	14

* after Size denotes beam failed stress/capacity criteria.
after Size denotes beam failed deflection criteria.
u after Size denotes this size has been assigned by the User.

Floor Map

Floor Type: Mezzanine (14'-0") **Beam Designs**

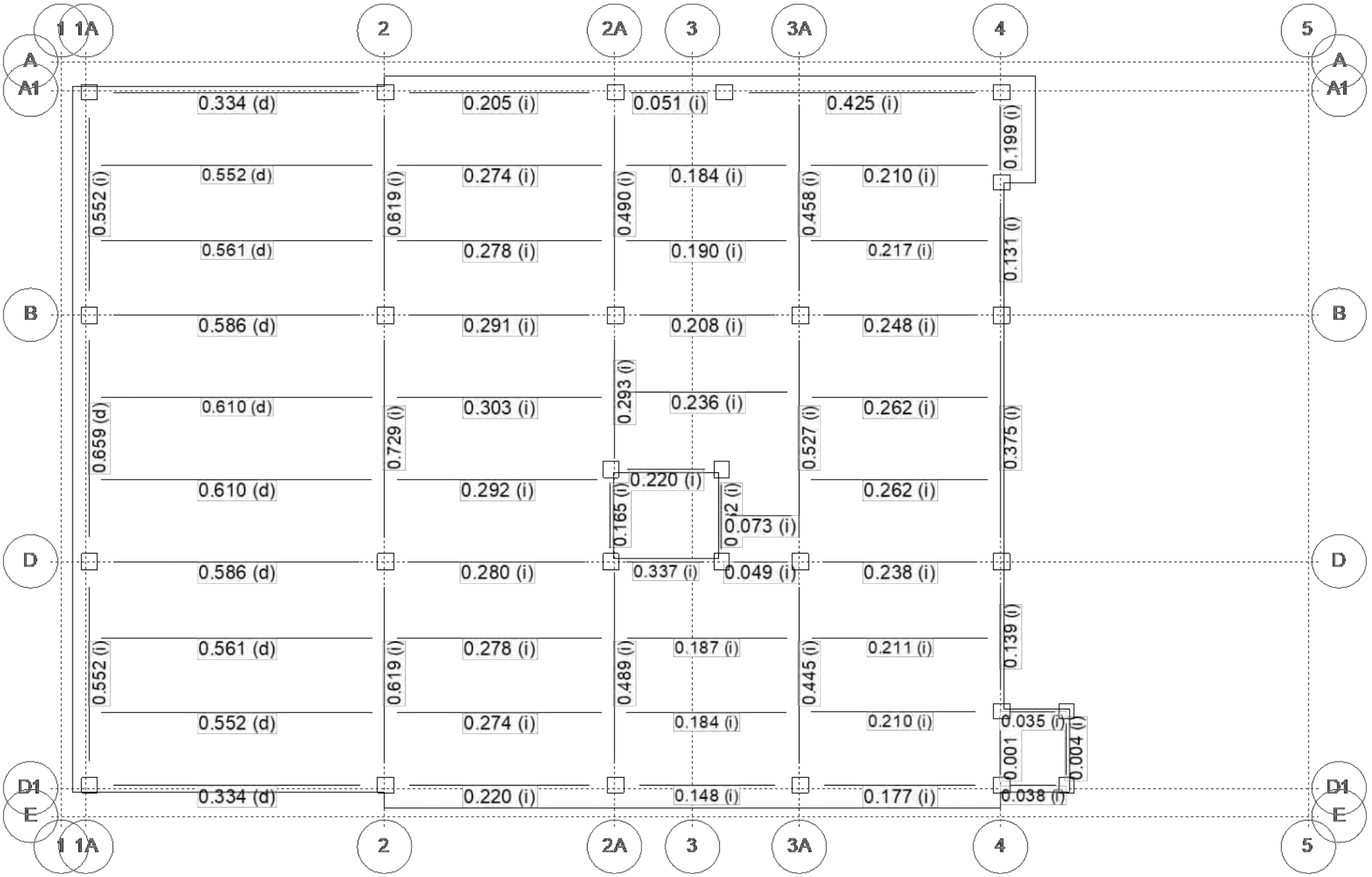


Floor Map

RAM Steel 25.00.02.42
DataBase: 26384 NISQ VOC Mezzanine 2026-09-14
Building Code: IBC

09/29/26 12:28:06
Steel Code: AISC360-22 LRFD

Floor Type: Mezzanine (14'-0") **Demand / Capacity Ratios: Controlling**



Project ID: Nisqually VOC
Project # : 26-384
Bay ID : 1-Mezzanine (14'-0"): ?-? , ?-?

VIBRATION ANALYSIS:

Activity: Walking
Occupancy Category: Paper Office
Evaluation Criterion: Walking
References: Murray, T.M., Allen, D.E., Ungar, E.E, Davis, D.B. "Vibrations of Steel-Framed Structural Systems Due To Human Activity", AISC Design Guide #11 2nd Ed, 2016
Murray, T.M., and Davis, B., "Vibration of Steel Joist-Concrete Floor Systems", SJI Technical Digest No. 5, 2014
Constant Force, P_o = 65. lb
Modal Damping Ratio, β = 0.020
Acceleration Limit, a_o/g x 100% = 0.50 %
Girders are not continuous at columns

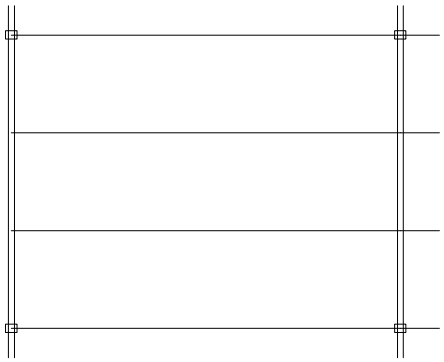
EVALUATION: Combined Mode a_p/g= 0.223 % <= 0.50 %
The system SATISFIES THE CRITERION.

PARAMETER SUMMARY:

Parameter	Beam Panel	Left Girder Panel	Right Girder Panel	System
Member	W16X31	W16X31	W18X40	
Uniform Load, plf	411.6	849.9	1494.9	
Effective I, in^4	1440.9	1317.4	2212.0	
Frequency, Hz	13.00	15.21	14.86	9.78
Panel Width, ft	22.25	28.47	28.47	
Panel Weight, k	54.7	36.5	36.1	47.6

FRAMING:

Girder Span = 18.13 ft
Beam Spans:
Left = 0.00 ft
Center = 24.04 ft
Right = 18.67 ft



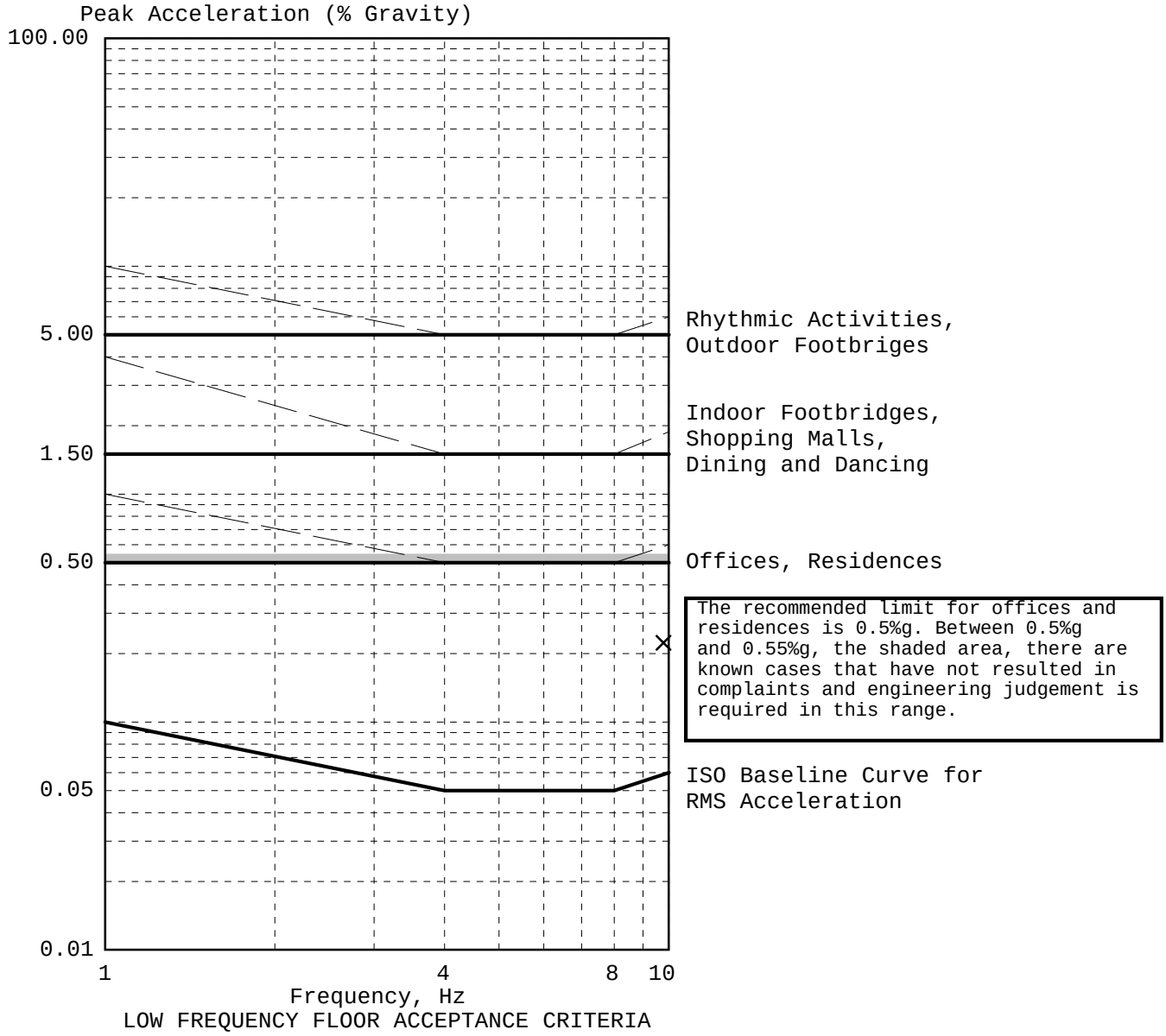
Girders/Walls:
Left -W16X31
Right-W18X40

Beam -W16X31
Left connection:
Web Shear Connection
Right connection:
Web Shear Connection
3 spaces at 72.50 in

Floor Width = 56.25 ft
Floor Length= 42.71 ft

Concrete: dc = 5.50 in
f'c = 4.00 ksi
wt. = 150.0 pcf
Deck Height = 3.00 in

Loading: Dead = 0.00 psf
Live = 11.00 psf
Collateral = 0.00 psf



LOW FREQUENCY FLOOR ACCEPTANCE CRITERIA

Note: Floors with a frequency below 3 Hz are not recommended

Gravity Column Design Criteria

DEFAULT SPLICE LEVELS:

Level	Splice
Mezzanine	Y

DEMAND/CAPACITY LIMIT FOR STRENGTH:

Columns: 1.000
Baseplates: 1.000

DESIGN DEFAULTS:

Maximum Angle from column axis at which beam reaction is not split between column sides for calculating unbalanced moments: 30.0 deg.
Skip-load the Live Load around Column

STANDARD COLUMN TRIAL GROUPS:

	Trial Group 1	Trial Group 2	Trial Group 3
I Section	W14	W12	W10
Rect. HSS	HSS22X22	HSS20X20	HSS18X18
Round HSS	HSS20	HSS18	HSS16

HANGING COLUMN TRIAL GROUPS:

	Trial Group 1	Trial Group 2	Trial Group 3
I Section	W14	W12	W10
Rect. HSS	HSS22X22	HSS20X20	HSS18X18
Round HSS	HSS20	HSS18	HSS16
Channel	C15	C12	C10
Tee	WT22	WT20X16	WT20X12
Flat Bar	FlatBar	FlatBar	FlatBar
Round Bar	RoundBar	RoundBar	RoundBar
Single Angle	L12X12	L10X10	L8X8
Double Angle	2L12X12	2L10X10	2L8X8

COLUMN BRACING:

Deck Braces Column
Maximum Angle from column axis for which beam braces column: 60.0 deg.

BASE PLATES:

Design Code: AISC360-22 LRFD

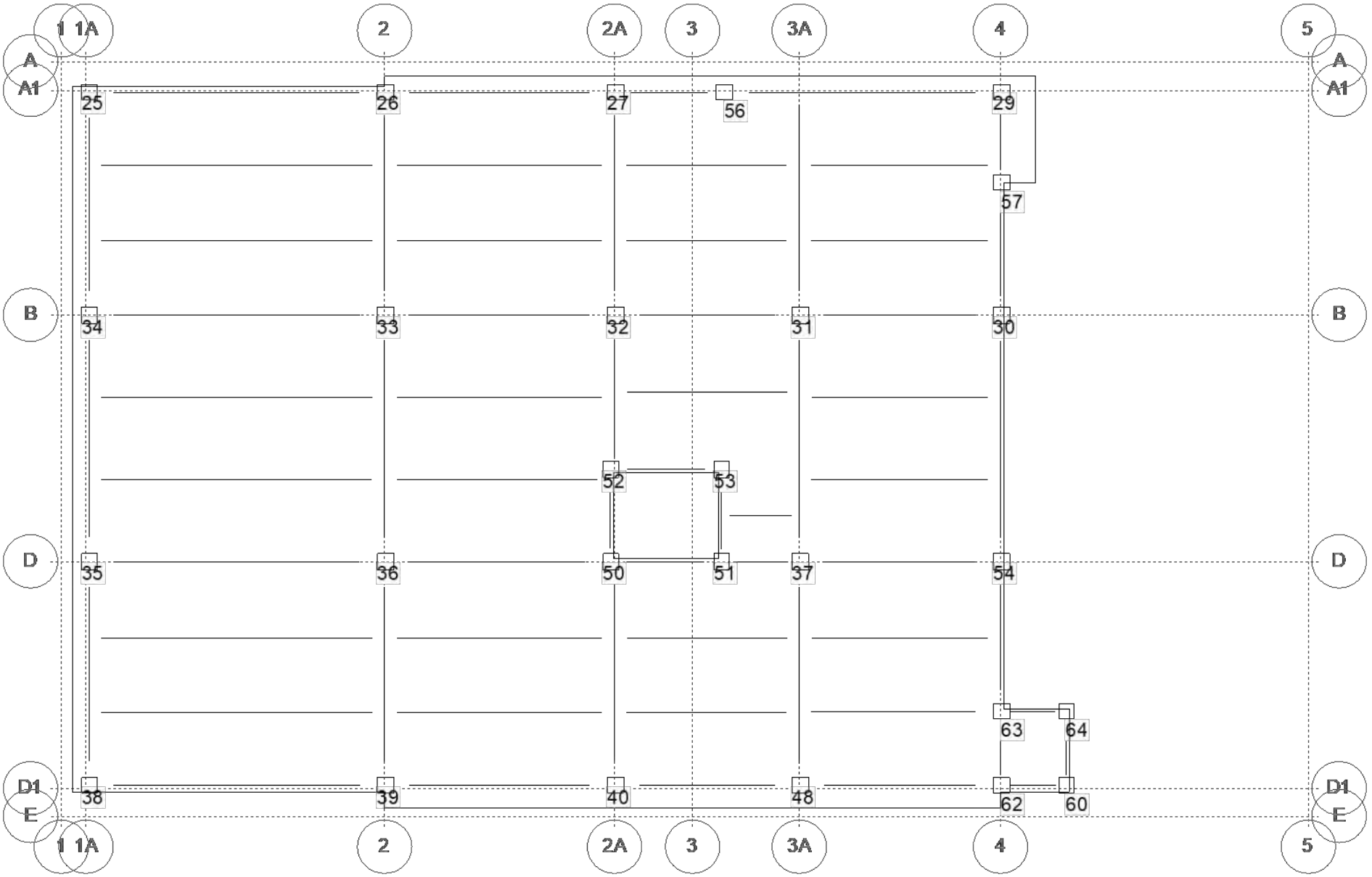
Plate Fy (ksi)	36.000
Minimum Dimension From Face of Column to Edge of Plate (in)	1.000
Minimum Dimension From Side of Column to Edge of Plate (in)	1.000
Increment of Plate Dimensions (in)	0.250
Increment of Plate Thickness (in)	0.125
Minimum Footing Dimension Parallel to Web (ft)	10.00
Minimum Footing Dimension Perpendicular to Web (ft)	10.00
Keep Base Plate Square:	N

Floor Map

RAM Steel 25.00.02.42
DataBase: 26384 NISQ VOC Mezzanine 2026-09-14
Building Code: IBC

10/01/26 11:50:44
Steel Code: AISC360-22 LRFD

Floor Type: Mezzanine (14'-0")



Gravity Column Design Summary

DEMAND/CAPACITY LIMIT FOR STRENGTH : 1.000

Column Line 2.29ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	41.0	5.6	-11.4	1	0.64 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 2.29ft-20.67ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	67.8	10.1	-6.8	10	0.82 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 2.29ft-40.67ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	67.8	10.1	6.8	6	0.82 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 2.29ft-58.79ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	41.0	5.6	11.4	1	0.64 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 26.33ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	62.9	3.1	-17.4	8	0.87 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 2-D

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	99.3	-6.9	-11.3	16	0.71 Eq H1-1a	0.0	50 HSS6X6X3/8

Column Line 2-B

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	99.6	-6.9	11.4	15	0.71 Eq H1-1a	0.0	50 HSS6X6X3/8

Column Line 26.33ft-58.79ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	61.7	-2.9	17.4	12	0.85 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 44.64ft-20.67ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	47.8	11.1	-1.1	8	0.58 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 44.64ft-28.17ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	41.2	9.7	7.3	1	0.65 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 45.00ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size

Mezzanine	53.2	-3.6	-13.7	12	0.73 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 2A-B

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	67.5	-4.8	-9.9	16	0.77 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 45.00ft-58.79ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	49.1	-4.1	13.7	12	0.72 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 53.64ft-20.67ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	13.2	-1.5	-1.8	12	0.13 Eq H1-1b	0.0	50 HSS5X5X3/8

Column Line 53.64ft-28.17ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	10.8	-2.5	1.8	1	0.14 Eq H1-1b	0.0	50 HSS5X5X3/8

Column Line 53.85ft-58.79ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	41.4	0.0	14.6	6	0.59 Eq H1-1a	90.0	50 HSS5X5X3/8

Column Line 60.00ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	49.1	2.9	-12.7	8	0.67 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 3A-D

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	67.8	6.3	-7.2	17	0.74 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 3A-B

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	75.9	4.6	8.3	14	0.78 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 76.33ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	14.5	0.0	-4.6	10	0.16 Eq H1-1b	90.0	50 HSS5X5X3/8

Column Line 76.33ft-8.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	25.9	3.6	-5.9	10	0.32 Eq H1-1b	90.0	50 HSS5X5X3/8

Column Line 4-D

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size

Gravity Column Design Summary

Mezzanine	42.9	-7.3	-6.8	10	0.59 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 4-B

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	43.2	-7.6	7.0	6	0.61 Eq H1-1a	0.0	50 HSS5X5X3/8

Column Line 76.33ft-51.46ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	21.0	4.5	0.0	8	0.18 Eq H1-1b	90.0	50 HSS5X5X3/8

Column Line 76.33ft-58.79ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	30.7	-10.0	2.6	1	0.42 Eq H1-1b	0.0	50 HSS5X5X3/8

Column Line 81.62ft-2.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	3.5	0.1	-1.2	1	0.04 Eq H1-1b	90.0	50 HSS5X5X3/8

Column Line 81.62ft-8.54ft

Level	Pu	Mux	Muy	LC	Interaction Eq.	Angle	Fy Size
Mezzanine	3.3	-0.1	-1.1	1	0.04 Eq H1-1b	90.0	50 HSS5X5X3/8

Column Load Summary

UNFACTORED COLUMN LOADS:

Units: kips

Column Line 2.29ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	38	14.00	16.9	0.3	12.7	0.0	17.2	29.9

Column Line 2.29ft-20.67ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	35	14.00	33.5	0.3	25.5	0.0	33.8	59.3

Column Line 2.29ft-40.67ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	34	14.00	33.5	0.3	25.5	0.0	33.8	59.3

Column Line 2.29ft-58.79ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	25	14.00	16.9	0.3	12.7	0.0	17.2	29.9

Column Line 26.33ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	39	14.00	28.8	0.3	21.7	0.0	29.1	50.7

Column Line 2-D

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	36	14.00	53.3	0.4	40.5	0.0	53.7	94.2

Column Line 2-B

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	33	14.00	53.5	0.4	40.7	0.0	53.9	94.5

Column Line 26.33ft-58.79ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	26	14.00	28.2	0.3	21.2	0.0	28.5	49.7

Column Line 44.64ft-20.67ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	50	14.00	23.6	0.3	17.8	0.0	23.9	41.7

Column Load Summary

Column Line 44.64ft-28.17ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	52	14.00	16.7	0.3	13.1	0.0	17.0	30.0

Column Line 45.00ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	40	14.00	24.3	0.3	18.4	0.0	24.6	43.0

Column Line 2A-B

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	32	14.00	34.5	0.3	27.1	0.0	34.7	61.9

Column Line 45.00ft-58.79ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	27	14.00	21.5	0.3	16.2	0.0	21.8	38.1

Column Line 53.64ft-20.67ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	51	14.00	6.2	0.3	5.1	0.0	6.5	11.6

Column Line 53.64ft-28.17ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	53	14.00	3.9	0.3	3.6	0.0	4.2	7.8

Column Line 53.85ft-58.79ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	56	14.00	18.4	0.3	13.8	0.0	18.7	32.5

Column Line 60.00ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	48	14.00	22.7	0.3	17.1	0.0	22.9	40.0

Column Line 3A-D

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	37	14.00	33.4	0.3	28.2	0.0	33.7	61.9

Column Line 3A-B

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	31	14.00	38.3	0.3	33.7	0.0	38.6	72.4

Column Load Summary

Column Line 76.33ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	62	14.00	6.5	0.3	4.9	0.0	6.8	11.7

Column Line 76.33ft-8.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	63	14.00	11.2	0.3	8.4	0.0	11.5	19.9

Column Line 4-D

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	54	14.00	18.2	0.3	15.6	0.0	18.5	34.0

Column Line 4-B

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	30	14.00	17.7	0.3	15.8	0.0	18.0	33.9

Column Line 76.33ft-51.46ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	57	14.00	10.6	0.3	8.1	0.0	10.8	18.9

Column Line 76.33ft-58.79ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	29	14.00	12.7	0.3	9.5	0.0	13.0	22.4

Column Line 81.62ft-2.54ft

Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	60	14.00	1.3	0.3	1.0	0.0	1.6	2.6

Column Line 81.62ft-8.54ft

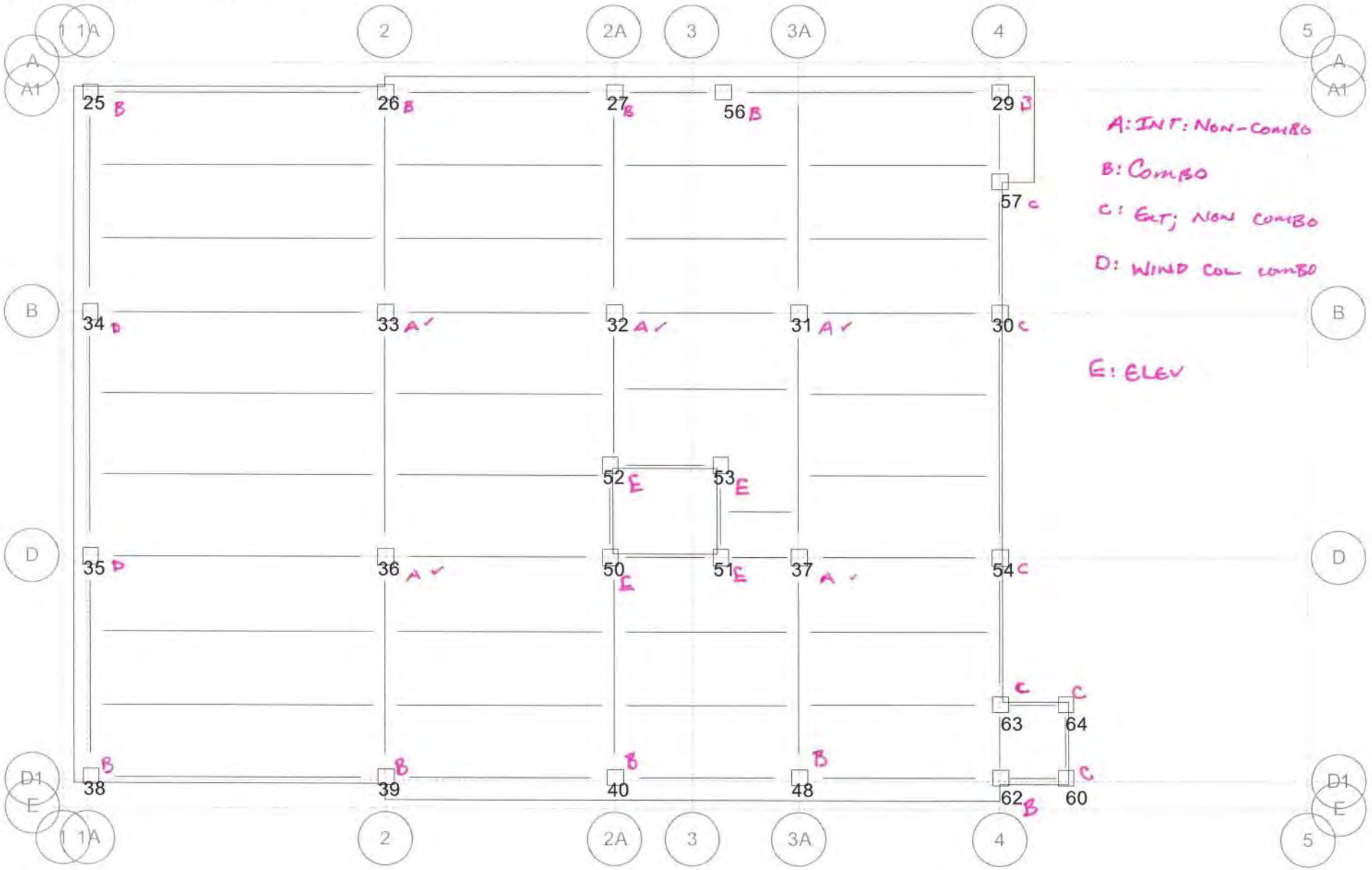
Level	Col#	Length	Dead	Self	+Live	-Live	MinTot	MaxTot
Mezzanine	64	14.00	1.2	0.3	0.9	0.0	1.5	2.5

Floor Map A: 31, 32, 33, 36, 37

RAM Steel 25.00.02.42
DataBase: 26384 NISQ VOC Mezzanine 2026-09-14
Building Code: IBC

09/29/26 11:09:38
Steel Code: AISC360-22 LRFD

Floor Type: Mezzanine (14'-0")



MEZZANINE FOUNDATION DESIGN

Type A: STANDALONE INT FOOTING

Type B: COMBINED W/ BLDG COL

Type C: STANDALONE LIGHT LOAD

Type D: COMB WIND COL

COLUMN FOUNDATIONS:

TYPE A FOOTING: COL #'s 31, 32, 33, 36, 37

DL, CONT, UNFACTORED: 53.5^{k} (+0.4 SELF)

LL, CONT, UNFACTORED: 40.7^{k}

ΣF_{ASD}: 94.5^{k}

ASSP: 1500 psf MIN BRG AREA: $\frac{94.5^{k}}{1.5^{ksf}}$ = 63 SF (F8.0) MIN INC FOR FTG WT ?

SEE ENGECALC FOR VERIFY

TYPE B FOOTING: COL #'s 25, 26, 27, 56, 29, 38, 39, 40, 48, 62

MAXIMUM COMBINED LOAD: 50.8^{k} (COL #39)

DL = 28.8^{k} + 0.3^{k}

LL = 21.7^{k}

SEE PEMB FOOTING DESIGN FOR TYPES B/D DESIGN; SPECIAL CASE FOOTING COMBINED W/ BLDG COL } FTGS TO BE CHECKED AS RESULT OF SHEAR WALLS

TYPE C FOOTING: COL #'s 57, 30, 54, 63, 64, 60

DL, CONT, UNF: 18.2^{k} + 0.3^{k}

LL, CONT, UNF: 15.6^{k}

∴ ΣF_{ASD} = 34.1^{k} ∴ MIN BRG AREA = $\frac{34.1^{k}}{1.5^{ksf}}$ = ≈F5.0

MEZZANINE FOUNDATION DESIGN

TYPE D FTG = COL #'S 34 + 35

MAX COMB LOAD = 59.3^k

DL = 33.5^k

LL = 25.5^k

* SEE NOTE ON TYPE B

TYPE E: COL #S 50, 51, 52, 53 [ELEVATORS W/ PLINTHS]

DL, CONT, UNF. = 23.6^k

LL, CONT, UNF = 17.8^k

SEE SECTION FOR ELEVATOR SUMP + ELEVATOR PLINTHS/FTGS

MEZZANINE FOUNDATION DESIGN

FOOTING SUMMARY

Type A: F9.0 (94K RXN) [F8.5 w/ 7FT 6W W/O SOIL WT

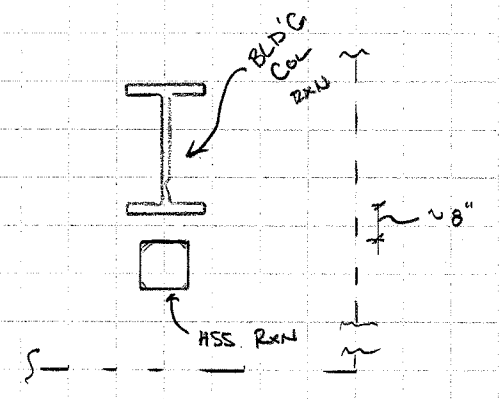
Type C: F5.0

PCS Structural Solutions

Project: Nisqually VOC | Job No: 26-364
Subject: Combined Footings | Sheet 1 | Name: DMS
Originating Office: ☐ Seattle ☒ Tacoma ☐ Portland | Date: 09/30/2026

MEZZANINE FOUNDATION DESIGN - SPECIAL CASES: COMBINED FOOTINGS

ASSUMED ALIGNED COLUMNS:



WORST CASE: GRIDLINE 2-4 RXNS

GRID 2-4 (F7.0)

HSS COL TYPE B

DL = 28.8^k + 0.3^k } DESPITE SHEAR WALLS, LATERAL IS TAKEN
LL = 21.7^k } THRU WALL ANCHORAGE

PER ENERCALC: F8.0 OKAY!

FOR OFFSET FOOTING; F8.5 x F8.5 REQUIRED

TYPICAL TYPE A MEZZANINE FOUNDATION

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Typical Mezzanine Foundations - Type A - Interior

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	1.50	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	1.50	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

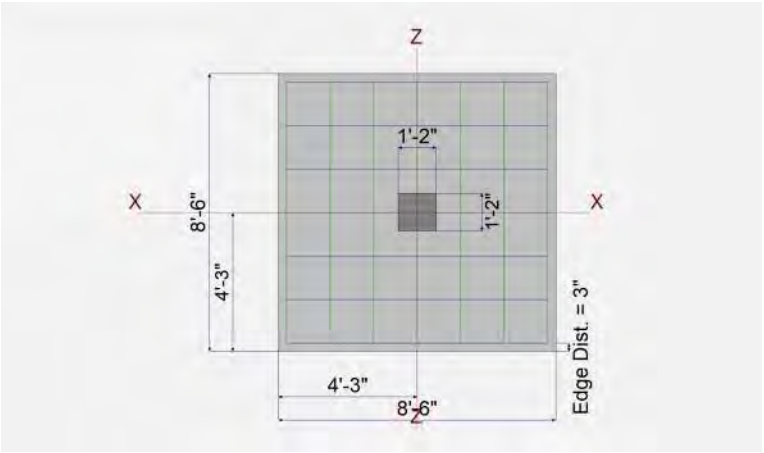
Width parallel to X-X Axis	=	8.50	ft
Length parallel to Z-Z Axis	=	8.50	ft
Footing Thickness	=	16.0	in

Pedestal dimensions...

px : parallel to X-X Axis	=	14.0	in
pz : parallel to Z-Z Axis	=	14.0	in
Height	=	1.0	in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	7

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		7.0
Reinforcing Bar Size	=	#	7

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=		3.0 in





TYPICAL TYPE A MEZZANINE FOUNDATION

General Footing

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Typical Mezzanine Foundations - Type A - Interior

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	53.50		40.70					k
OB : Overburden	=								ksf
M-xx	=								k-ft
M-zz	=								k-ft
V-x	=								k
V-z	=								k

DESIGN SUMMARY

Design OK

	Min. Ratio	Item	Applied	Capacity	Governing Load Combination
PASS	0.9980	Soil Bearing	1.497 ksf	1.50 ksf	+D+L about Z-Z axis
PASS	n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS	n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS	n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS	n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS	0.4324	Z Flexure (+X) Bot Tens	12.032 k-ft/ft	27.829 k-ft/ft	+1.20D+1.60L
PASS	0.4324	Z Flexure (-X) Bot Tens	12.032 k-ft/ft	27.829 k-ft/ft	+1.20D+1.60L
PASS	0.699	Min Steel X Flexure Bottom	0.346 in2/ft	0.494 in2/ft	n/a
PASS	0.4324	X Flexure (+Z) Bot Tens	12.032 k-ft/ft	27.829 k-ft/ft	+1.20D+1.60L
PASS	0.4324	X Flexure (-Z) Bot Tens	12.032 k-ft/ft	27.829 k-ft/ft	+1.20D+1.60L
PASS	0.699	Min Steel Z Flexure Bottom	0.346 in2/ft	0.494 in2/ft	n/a
PASS	0.0	Z Flexure (+X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	Z Flexure (-X) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.898	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.0	X Flexure (+Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.0	X Flexure (-Z) Top Tens	0 k-ft/ft	0.0 k-ft/ft	
PASS	0.898	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	0.6062	1-way Shear (+X)	29.258 psi	48.263 psi	+1.20D+1.60L
PASS	0.6062	1-way Shear (-X)	29.258 psi	48.263 psi	+1.20D+1.60L
PASS	0.6062	1-way Shear (+Z)	29.258 psi	48.263 psi	+1.20D+1.60L
PASS	0.6062	1-way Shear (-Z)	29.258 psi	48.263 psi	+1.20D+1.60L
PASS	0.5227	2-way Punching	85.882 psi	164.317 psi	+1.20D+1.60L

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	1.50	n/a	0.0	0.9338	0.9338	n/a	n/a	0.623
X-X, +D+L	1.50	n/a	0.0	1.497	1.497	n/a	n/a	0.998
X-X, +D+0.750L	1.50	n/a	0.0	1.356	1.356	n/a	n/a	0.904
X-X, +0.60D	1.50	n/a	0.0	0.5603	0.5603	n/a	n/a	0.374
Z-Z, D Only	1.50	0.0	n/a	n/a	n/a	0.9338	0.9338	0.623
Z-Z, +D+L	1.50	0.0	n/a	n/a	n/a	1.497	1.497	0.998
Z-Z, +D+0.750L	1.50	0.0	n/a	n/a	n/a	1.356	1.356	0.904
Z-Z, +0.60D	1.50	0.0	n/a	n/a	n/a	0.5603	0.5603	0.374

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

All units k

Sliding Stability

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	6.969	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK

TYPICAL TYPE A MEZZANINE FOUNDATION

General Footing

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Typical Mezzanine Foundations - Type A - Interior

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	6.969	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D+1.60L	12.032	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D+1.60L	12.032	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D+L	9.760	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D+L	9.760	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D	5.973	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +1.20D	5.973	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +0.90D	4.480	+Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
X-X, +0.90D	4.480	-Z	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.40D	6.969	-X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.40D	6.969	+X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D+1.60L	12.032	-X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D+1.60L	12.032	+X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D+L	9.760	-X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D+L	9.760	+X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D	5.973	-X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +1.20D	5.973	+X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +0.90D	4.480	-X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK
Z-Z, +0.90D	4.480	+X	Bottom	0.3456	ACI 7.6.1.1	0.4941	27.829	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	16.95 psi	16.95 psi	16.95 psi	48.26 psi	0.35	OK
+1.20D+1.60L	29.26 psi	29.26 psi	29.26 psi	48.26 psi	0.61	OK
+1.20D+L	23.73 psi	23.73 psi	23.73 psi	48.26 psi	0.49	OK
+1.20D	14.53 psi	14.53 psi	14.53 psi	48.26 psi	0.30	OK
+0.90D	10.89 psi	10.89 psi	10.89 psi	48.26 psi	0.23	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	16.95 psi	16.95 psi	16.95 psi	48.26 psi	0.35	OK
+1.20D+1.60L	29.26 psi	29.26 psi	29.26 psi	48.26 psi	0.61	OK
+1.20D+L	23.73 psi	23.73 psi	23.73 psi	48.26 psi	0.49	OK
+1.20D	14.53 psi	14.53 psi	14.53 psi	48.26 psi	0.30	OK
+0.90D	10.89 psi	10.89 psi	10.89 psi	48.26 psi	0.23	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	49.74 psi	164.32 psi	0.30	OK
+1.20D+1.60L	85.88 psi	164.32 psi	0.52	OK
+1.20D+L	69.66 psi	164.32 psi	0.42	OK
+1.20D	42.64 psi	164.32 psi	0.26	OK
+0.90D	31.98 psi	164.32 psi	0.19	OK

TYPICAL TYPE C MEZZANINE FOUNDATION

General Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Typical Mezzanine Foundations - Type C - Interior

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	=	3.0	ksi
fy : Rebar Yield	=	60.0	ksi
Ec : Concrete Elastic Modulus	=	3,122.0	ksi
Concrete Density	=	145.0	pcf
φ Values Flexure	=	0.90	
Shear	=	0.750	

Analysis Settings

Min Steel % Bending Reinf.	=	
Min Allow % Temp Reinf.	=	
Min. Overturning Safety Factor	=	1.0 : 1
Min. Sliding Safety Factor	=	1.0 : 1
Add Ftg Wt for Soil Pressure	:	Yes
Use ftg wt for stability, moments & shears	:	Yes
Add Pedestal Wt for Soil Pressure	:	No
Use Pedestal wt for stability, mom & shear	:	No

Soil Design Values

Allowable Soil Bearing	=	1.50	ksf
Soil Density	=	110.0	pcf
Increase Bearing By Footing Weight	=	No	
Soil Passive Resistance (for Sliding)	=	221.0	pcf
Soil/Concrete Friction Coeff.	=	0.370	

Increases based on footing Depth

Footing base depth below soil surface	=	1.50	ft
Allow press. increase per foot of depth	=		ksf
when footing base is below	=		ft

Increases based on footing plan dimension

Allowable pressure increase per foot of depth	=		ksf
when max. length or width is greater than	=		ft

Dimensions

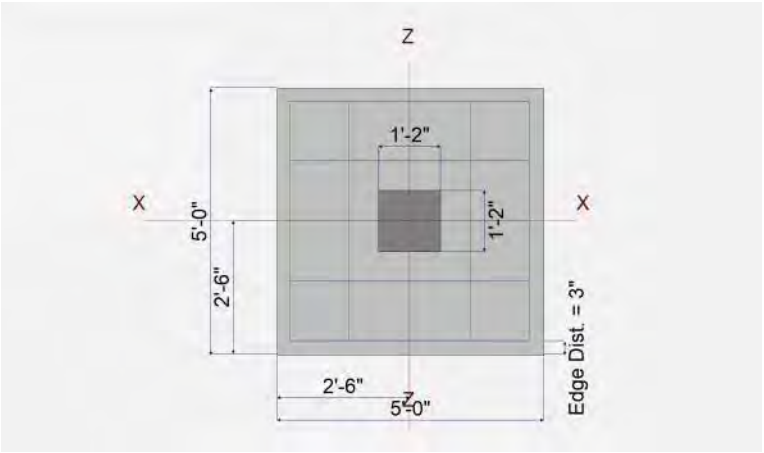
Width parallel to X-X Axis	=	5.0 ft
Length parallel to Z-Z Axis	=	5.0 ft
Footing Thickness	=	12.0 in

Pedestal dimensions...

px : parallel to X-X Axis	=	14.0 in
pz : parallel to Z-Z Axis	=	14.0 in
Height	=	1.0 in

Bandwidth Distribution Check (ACI 15.4.4.2)

Direction Requiring Closer Separation	n/a
# Bars required within zone	n/a
# Bars required on each side of zone	n/a



Bottom Reinforcing

Bars parallel to X-X Axis (resisting Z Flexure)

Number of Bars	=		5
Reinforcing Bar Size	=	#	5

Bars parallel to Z-Z Axis (resisting X Flexure)

Number of Bars	=		5
Reinforcing Bar Size	=	#	5

Rebar Centerline to Edge of Concrete...

at Bottom of footing	=	3.0 in





TYPICAL TYPE C MEZZANINE FOUNDATION

General Footing

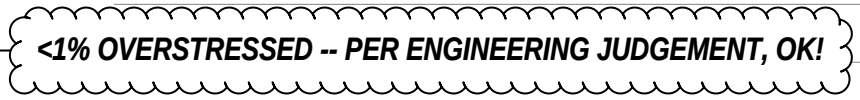
Project File: 26-384 Nisqually VOC.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Typical Mezzanine Foundations - Type C - Interior

Applied Loads

		D	Lr	L	S	W	E	H	
P : Column Load	=	18.50		15.60					k
OB : Overburden	=								ksf
M-xx									k-ft
M-zz									k-ft
V-x									k
V-z	=								k



DESIGN SUMMARY

Design N.G.

Min. Ratio	Item	Applied	Capacity	Governing Load Combination
FAIL 1.006	Soil Bearing	1.509 ksf	1.50 ksf	+D+L about Z-Z axis
PASS n/a	Overturning - X-X	0.0 k-ft	0.0 k-ft	No Overturning
PASS n/a	Overturning - Z-Z	0.0 k-ft	0.0 k-ft	No Overturning
PASS n/a	Sliding - X-X	0.0 k	0.0 k	No Sliding
PASS n/a	Sliding - Z-Z	0.0 k	0.0 k	No Sliding
PASS n/a	Uplift	0.0 k	0.0 k	No Uplift
PASS 0.2856	Z Flexure (+X) Bot Tens	3.465 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS 0.2856	Z Flexure (-X) Bot Tens	3.465 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
0.836	Min Steel X Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS 0.2856	X Flexure (+Z) Bot Tens	3.465 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
PASS 0.2856	X Flexure (-Z) Bot Tens	3.465 k-ft/ft	12.131 k-ft/ft	+1.20D+1.60L
0.836	Min Steel Z Flexure Bottom	0.259 in2/ft	0.310 in2/ft	n/a
PASS	Z Flexure (+X) Top Tens	k-ft/ft	k-ft/ft	
PASS	Z Flexure (-X) Top Tens	k-ft/ft	k-ft/ft	
0.000	Min Steel X Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS	X Flexure (+Z) Top Tens	k-ft/ft	k-ft/ft	
PASS	X Flexure (-Z) Top Tens	k-ft/ft	k-ft/ft	
0.000	Min Steel Z Flexure Top	0.000 in2/ft	0.000 in2/ft	n/a
PASS 0.4301	1-way Shear (+X)	20.087 psi	46.704 psi	+1.20D+1.60L
PASS 0.4301	1-way Shear (-X)	20.087 psi	46.704 psi	+1.20D+1.60L
PASS 0.4301	1-way Shear (+Z)	20.087 psi	46.704 psi	+1.20D+1.60L
PASS 0.4301	1-way Shear (-Z)	20.087 psi	46.704 psi	+1.20D+1.60L
PASS 0.2966	2-way Punching	48.732 psi	164.317 psi	+1.20D+1.60L

Detailed Results

Soil Bearing

Rotation Axis & Load Combination...	Gross Allowable	Xecc (in)	Zecc (in)	Actual Soil Bearing Stress @ Location Bottom, -Z	Top, +Z	Left, -X	Right, +X	Actual / Allow Ratio
X-X, D Only	1.50	n/a	0.0	0.8850	0.8850	n/a	n/a	0.590
X-X, +D+L	1.50	n/a	0.0	1.509	1.509	n/a	n/a	1.006
X-X, +D+0.750L	1.50	n/a	0.0	1.353	1.353	n/a	n/a	0.902
X-X, +0.60D	1.50	n/a	0.0	0.5310	0.5310	n/a	n/a	0.354
Z-Z, D Only	1.50	0.0	n/a	n/a	n/a	0.8850	0.8850	0.590
Z-Z, +D+L	1.50	0.0	n/a	n/a	n/a	1.509	1.509	1.006
Z-Z, +D+0.750L	1.50	0.0	n/a	n/a	n/a	1.353	1.353	0.902
Z-Z, +0.60D	1.50	0.0	n/a	n/a	n/a	0.5310	0.5310	0.354

Overturning Stability

Rotation Axis & Load Combination...	Overturning Moment	Resisting Moment	Stability Ratio	Status
Footing Has NO Overturning				

Sliding Stability

All units k

Force Application Axis Load Combination...	Sliding Force	Resisting Force	Stability Ratio	Status
Footing Has NO Sliding				

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.903	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

TYPICAL TYPE C MEZZANINE FOUNDATION

General Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Typical Mezzanine Foundations - Type C - Interior

Footing Flexure

Flexure Axis & Load Combination	Mu k-ft	Side	Tension Surface	As Req'd in^2	Gvrn. As in^2	Actual As in^2	Phi*Mn k-ft	Status
X-X, +1.40D	1.903	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.465	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+1.60L	3.465	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	2.777	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D+L	2.777	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	1.631	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +1.20D	1.631	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.223	+Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
X-X, +0.90D	1.223	-Z	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.903	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.40D	1.903	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.465	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+1.60L	3.465	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	2.777	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D+L	2.777	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.631	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +1.20D	1.631	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.223	-X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK
Z-Z, +0.90D	1.223	+X	Bottom	0.2592	ACI 7.6.1.1	0.310	12.131	OK

One Way Shear X

Load Combination...	Vu @ -X	Vu @ +X	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	11.03 psi	11.03 psi	11.03 psi	46.70 psi	0.24	OK
+1.20D+1.60L	20.09 psi	20.09 psi	20.09 psi	46.70 psi	0.43	OK
+1.20D+L	16.10 psi	16.10 psi	16.10 psi	46.70 psi	0.34	OK
+1.20D	9.46 psi	9.46 psi	9.46 psi	46.70 psi	0.20	OK
+0.90D	7.09 psi	7.09 psi	7.09 psi	46.70 psi	0.15	OK

One Way Shear Z

Load Combination...	Vu @ -Z	Vu @ +Z	Vu:Max	Phi Vn	Vu / Phi*Vn	Status
+1.40D	11.03 psi	11.03 psi	11.03 psi	46.70 psi	0.24	OK
+1.20D+1.60L	20.09 psi	20.09 psi	20.09 psi	46.70 psi	0.43	OK
+1.20D+L	16.10 psi	16.10 psi	16.10 psi	46.70 psi	0.34	OK
+1.20D	9.46 psi	9.46 psi	9.46 psi	46.70 psi	0.20	OK
+0.90D	7.09 psi	7.09 psi	7.09 psi	46.70 psi	0.15	OK

Two-Way "Punching" Shear

All units k

Load Combination...	Vu	Phi*Vn	Vu / Phi*Vn	Status
+1.40D	26.76 psi	164.32 psi	0.16	OK
+1.20D+1.60L	48.73 psi	164.32 psi	0.30	OK
+1.20D+L	39.06 psi	164.32 psi	0.24	OK
+1.20D	22.94 psi	164.32 psi	0.14	OK
+0.90D	17.21 psi	164.32 psi	0.10	OK

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength	3.0	ksi
fy : Rebar Yield	60.0	ksi
Ec : Concrete Elastic Modulus	3,122.0	ksi
Concrete Density	150.0	pcf
ϕ : Phi Values Flexure :	0.90	
Shear :	0.750	

Analysis/Design Settings

Calculate footing weight as dead load ?	Yes
Calculate Pedestal weight as dead load ?	Yes
Min Steel Ratio per ACI 7.6.1.1 (ratio=Steel Area/Concrete Area)	0.0018
Min. Overturning Safety Factor	1.0: 1
Min. Sliding Safety Factor	1.0: 1

Soil Information

Allowable Soil Bearing	2.0	ksf
Increase Bearing By Footing Weight	No	
Soil Passive Sliding Resistance	231.0	pcf
(Uses entry for "Footing base depth below soil surface" for force)		
Coefficient of Soil/Concrete Friction	0.370	

Soil Bearing Increase

Footing base depth below soil surface	2.0 ft
Increases based on footing Depth	
Allowable pressure increase per foot	ksf
when base of footing is below	ft
Increases based on footing Width . . .	
Allowable pressure increase per foot	ksf
when maximum length or width is greater tha	ft
Maximum Allowed Bearing Pressure	10.0 ksf
(A value of zero implies no limit)	
Adjusted Allowable Soil Bearing	ksf
(Allowable Soil Bearing adjusted for footing weight and depth & width increases as specified by user.)	

Dimensions & Reinforcing

Distance Left of Column #1	=	3.50 ft
Between Columns	=	1.0 ft
Distance Right of Column #2	=	3.50 ft
Total Footing Length	=	8.0 ft
Footing Width	=	8.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

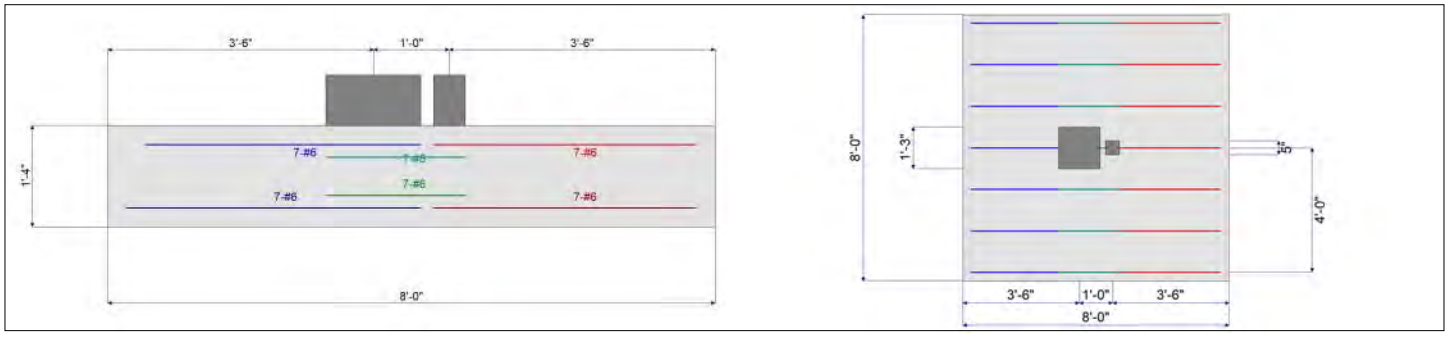
		Col #1	Col #2
Sq. Dim.	=	15.0	5.0 in
Height	=	8.0	8.0 in

Rebar Center to Concrete Edge @ Top	=	3.0 in	
Rebar Center to Concrete Edge @ Bottom	=	3.0 in	

Bars left of Col #1	Count	Size #	As Provided
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Btwn Cols			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Right of Col #2			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080

Applied Loads

Applied @ Left Column		D	Lr	L	S	W	E	H	
Axial Load Downward	=	17.0	18.0		22.0	5.0	16.0		k
Moment (+CW)	=								k-ft
Shear (+X)	=	3.0	4.0		5.0	8.0	5.0		k
Applied @ Right Column									
Axial Load Downward	=	29.10		21.70					k
Moment (+CW)	=								k-ft
Shear (+X)	=								k
Overburden	=								



ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

DESIGN SUMMARY

Design OK

Factor of Safety		Item	Applied	Capacity	Governing Load Combination
PASS	11.492	Overturning	13.20 k-ft	151.688 k-ft	+0.60D+0.60W
PASS	2.653	Sliding	6.60 k	17.510 k	+0.60D+0.60W
PASS	No Uplift	Uplift	0.0 k	0.0 k	No Uplift

Utilization Ratio		Item	Applied	Capacity	Governing Load Combination
PASS	0.9025	Soil Bearing	1.805 ksf	2.0 ksf	+D+0.750L+0.750S+0.5250E
PASS	0.4009	1-way Shear - Col #1	17.806 psi	44.411 psi	+1.20D+L+1.60S
PASS	0.6213	1-way Shear - Col #2	27.592 psi	44.411 psi	+1.20D+L+1.60S
PASS	0.2112	2-way Punching - Col #1	34.703 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS	0.3564	2-way Punching - Col #2	58.565 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS	No Tension	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS	0.2891	Flexure - Left of Col #1 - Bottom	50.576 k-ft	174.949 k-ft	+1.20D+L+1.60S
PASS	No Tension	Flexure - Between Cols - Top	0.0 k-ft	0.0 k-ft	N/A
PASS	0.5459	Flexure - Between Cols - Bottom	95.499 k-ft	174.949 k-ft	+1.20D+L+1.60S
PASS	No Tension	Flexure - Right of Col #2 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS	0.4816	Flexure - Right of Col #2 - Bottom	84.255 k-ft	174.949 k-ft	+1.20D+L+1.60S

Soil Bearing

Load Combination...	Total Bearing	Eccentricity from Ftg CL	Actual Soil Bearing Stress @ Left Edge	@ Right Edge	Allowable	Actual / Allow Ratio
D Only	59.07 k	0.203 ft	0.78 ksf	1.06 ksf	2.00 ksf	0.532
+D+L	80.77 k	0.283 ft	1.00 ksf	1.53 ksf	2.00 ksf	0.764
+D+Lr	77.07 k	0.142 ft	1.08 ksf	1.33 ksf	2.00 ksf	0.666
+D+S	81.07 k	0.135 ft	1.14 ksf	1.40 ksf	2.00 ksf	0.698
+D+0.750Lr+0.750L	88.85 k	0.218 ft	1.16 ksf	1.61 ksf	2.00 ksf	0.807
+D+0.750L+0.750S	91.85 k	0.211 ft	1.21 ksf	1.66 ksf	2.00 ksf	0.831
+D+0.60W	62.07 k	0.323 ft	0.74 ksf	1.20 ksf	2.00 ksf	0.602
+D+0.750Lr+0.750L+0.450W	91.10 k	0.279 ft	1.13 ksf	1.72 ksf	2.00 ksf	0.860
+D+0.750L+0.750S+0.450W	94.10 k	0.270 ft	1.17 ksf	1.77 ksf	2.00 ksf	0.884
+0.60D+0.60W	38.44 k	0.398 ft	0.42 ksf	0.78 ksf	2.00 ksf	0.390
+D+0.70E	70.27 k	0.190 ft	0.94 ksf	1.25 ksf	2.00 ksf	0.627
+D+0.750L+0.750S+0.5250E	100.25 k	0.204 ft	1.33 ksf	1.81 ksf	2.00 ksf	0.903
+0.60D+0.70E	46.64 k	0.184 ft	0.63 ksf	0.83 ksf	2.00 ksf	0.415

Overturning Stability

Load Combination...	Moments about Left Edge k-ft Overturning	Resisting	Ratio	Moments about Right Edg k-ft Overturning	Resisting	Ratio
D Only	0.00	0.00	999.000	6.00	230.31	38.386
+D+L	0.00	0.00	999.000	6.00	306.26	51.044
+D+Lr	0.00	0.00	999.000	14.00	311.31	22.237
+D+S	0.00	0.00	999.000	16.00	329.31	20.582
+D+0.750Lr+0.750L	0.00	0.00	999.000	12.00	348.03	29.002
+D+0.750L+0.750S	0.00	0.00	999.000	13.50	361.53	26.780
+D+0.60W	0.00	0.00	999.000	15.60	243.81	15.629
+D+0.750Lr+0.750L+0.450W	0.00	0.00	999.000	19.20	358.15	18.654
+D+0.750L+0.750S+0.450W	0.00	0.00	999.000	20.70	371.65	17.954
+0.60D+0.60W	0.00	0.00	999.000	13.20	151.69	11.492
+D+0.70E	0.00	0.00	999.000	13.00	280.71	21.593
+D+0.750L+0.750S+0.5250E	0.00	0.00	999.000	18.75	399.33	21.297
+0.60D+0.70E	0.00	0.00	999.000	10.60	188.59	17.791

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
D Only	3.00 k	25.14 k	8.381
+D+L	3.00 k	33.17 k	11.057
+D+Lr	7.00 k	31.80 k	4.543
+D+S	8.00 k	33.28 k	4.16
+D+0.750Lr+0.750L	6.00 k	36.16 k	6.027
+D+0.750L+0.750S	6.75 k	37.27 k	5.521

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
+D+0.60W	7.80 k	26.25 k	3.366
+D+0.750Lr+0.750L+0.450W	9.60 k	36.99 k	3.853
+D+0.750L+0.750S+0.450W	10.35 k	38.10 k	3.681
+0.60D+0.60W	6.60 k	17.51 k	2.653
+D+0.70E	6.50 k	29.29 k	4.506
+D+0.750L+0.750S+0.5250E	9.38 k	40.38 k	4.307
+0.60D+0.70E	5.30 k	20.54 k	3.876

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+0.60D+0.70E	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.020	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.040	0	0.000	0	0.000	0.000	0.000
+1.20D+L+1.60S	0.021	0.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.038	0.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.059	0.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.085	0.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.116	0.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.152	0.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.192	0.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.238	0.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.287	0.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.342	0.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.402	0.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.466	0.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.535	0.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.609	0.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.688	0.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.771	0.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.860	0.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.953	0.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	1.051	0.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	1.154	0.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.262	0.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.374	0.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.491	0.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.614	0.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.741	0.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+L+1.60S	1.872	0.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	2.009	0.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	2.151	0.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	2.297	0.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.449	0.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+L+1.60S	2.605	0.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.015
+1.20D+L+1.60S	2.766	0.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+L+1.60S	2.932	0.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+L+1.60S	3.103	0.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.018
+1.20D+L+1.60S	3.279	0.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+L+1.60S	3.459	0.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020
+1.20D+L+1.60S	3.645	0.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.021
+1.20D+L+1.60S	3.836	0.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.022
+1.20D+L+1.60S	4.031	0.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.023
+1.20D+L+1.60S	4.231	0.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024
+1.20D+L+1.60S	4.437	0.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.025
+1.20D+L+1.60S	4.647	0.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.027
+1.20D+L+1.60S	4.862	0.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.028
+1.20D+L+1.60S	5.082	0.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+L+1.60S	5.307	0.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.030
+1.20D+L+1.60S	5.537	0.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+L+1.60S	5.772	0.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.033
+1.20D+L+1.60S	6.012	1.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.034
+1.20D+L+1.60S	6.256	1.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.036
+1.20D+L+1.60S	6.506	1.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.037

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	6.761	1.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039
+1.20D+L+1.60S	7.020	1.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.040
+1.20D+L+1.60S	7.285	1.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.042
+1.20D+L+1.60S	7.555	1.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.043
+1.20D+L+1.60S	7.829	1.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.045
+1.20D+L+1.60S	8.109	1.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.046
+1.20D+L+1.60S	8.394	1.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.048
+1.20D+L+1.60S	8.683	1.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.050
+1.20D+L+1.60S	8.978	1.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.051
+1.20D+L+1.60S	9.277	1.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.053
+1.20D+L+1.60S	9.582	1.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.055
+1.20D+L+1.60S	9.892	1.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.057
+1.20D+L+1.60S	10.206	1.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.058
+1.20D+L+1.60S	10.526	1.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.060
+1.20D+L+1.60S	10.851	1.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.062
+1.20D+L+1.60S	11.180	1.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.064
+1.20D+L+1.60S	11.515	1.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.066
+1.20D+L+1.60S	11.855	1.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.068
+1.20D+L+1.60S	12.200	1.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.070
+1.20D+L+1.60S	12.550	1.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.072
+1.20D+L+1.60S	12.905	1.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.074
+1.20D+L+1.60S	13.265	1.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.076
+1.20D+L+1.60S	13.630	1.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.078
+1.20D+L+1.60S	14.000	1.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.080
+1.20D+L+1.60S	14.375	1.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.082
+1.20D+L+1.60S	14.756	1.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.084
+1.20D+L+1.60S	15.141	1.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.087
+1.20D+L+1.60S	15.531	1.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.089
+1.20D+L+1.60S	15.927	1.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.091
+1.20D+L+1.60S	16.328	1.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.093
+1.20D+L+1.60S	16.733	1.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.096
+1.20D+L+1.60S	17.144	1.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.098
+1.20D+L+1.60S	17.560	1.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.100
+1.20D+L+1.60S	17.981	1.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.103
+1.20D+L+1.60S	18.407	1.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.105
+1.20D+L+1.60S	18.839	1.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.108
+1.20D+L+1.60S	19.275	1.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.110
+1.20D+L+1.60S	19.717	1.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.113
+1.20D+L+1.60S	20.163	1.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.115
+1.20D+L+1.60S	20.615	1.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.118
+1.20D+L+1.60S	21.072	1.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.120
+1.20D+L+1.60S	21.534	1.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.123
+1.20D+L+1.60S	22.002	1.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.126
+1.20D+L+1.60S	22.474	1.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.128
+1.20D+L+1.60S	22.952	1.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.131
+1.20D+L+1.60S	23.434	1.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.134
+1.20D+L+1.60S	23.922	1.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.137
+1.20D+L+1.60S	24.415	2.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.140
+1.20D+L+1.60S	24.914	2.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.142
+1.20D+L+1.60S	25.417	2.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.145
+1.20D+L+1.60S	25.926	2.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.148
+1.20D+L+1.60S	26.440	2.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.151
+1.20D+L+1.60S	26.959	2.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.154
+1.20D+L+1.60S	27.483	2.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.157
+1.20D+L+1.60S	28.012	2.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.160
+1.20D+L+1.60S	28.547	2.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.163
+1.20D+L+1.60S	29.087	2.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.166
+1.20D+L+1.60S	29.632	2.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.169
+1.20D+L+1.60S	30.182	2.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.173
+1.20D+L+1.60S	30.738	2.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.176
+1.20D+L+1.60S	31.299	2.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.179
+1.20D+L+1.60S	31.865	2.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.182
+1.20D+L+1.60S	32.436	2.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.185

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	33.012	2.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.189
+1.20D+L+1.60S	33.594	2.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.192
+1.20D+L+1.60S	34.181	2.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.195
+1.20D+L+1.60S	34.773	2.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.199
+1.20D+L+1.60S	35.371	2.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.202
+1.20D+L+1.60S	35.974	2.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.206
+1.20D+L+1.60S	36.582	2.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.209
+1.20D+L+1.60S	37.195	2.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.213
+1.20D+L+1.60S	37.814	2.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.216
+1.20D+L+1.60S	38.437	2.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.220
+1.20D+L+1.60S	39.067	2.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.223
+1.20D+L+1.60S	39.701	2.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.227
+1.20D+L+1.60S	40.341	2.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.231
+1.20D+L+1.60S	40.986	2.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.234
+1.20D+L+1.60S	41.636	2.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.238
+1.20D+L+1.60S	42.292	2.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.242
+1.20D+L+1.60S	42.953	2.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.246
+1.20D+L+1.60S	43.619	2.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.249
+1.20D+L+1.60S	44.291	2.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.253
+1.20D+L+1.60S	44.968	2.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.257
+1.20D+L+1.60S	45.650	2.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.261
+1.20D+L+1.60S	46.338	2.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.265
+1.20D+L+1.60S	47.031	2.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.269
+1.20D+L+1.60S	47.729	2.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.273
+1.20D+L+1.60S	48.433	2.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.277
+1.20D+L+1.60S	49.142	2.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.281
+1.20D+L+1.60S	49.857	2.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.285
+1.20D+L+1.60S	50.576	2.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.289
+1.20D+L+1.60S	51.301	2.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.293
+1.20D+L+1.60S	52.018	2.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.297
+1.20D+L+1.60S	52.723	2.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.301
+1.20D+L+1.60S	53.415	2.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.305
+1.20D+L+1.60S	54.095	2.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.309
+1.20D+L+1.60S	54.762	2.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.313
+1.20D+L+1.60S	55.417	3.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.317
+1.20D+L+1.60S	56.059	3.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.320
+1.20D+L+1.60S	56.689	3.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.324
+1.20D+L+1.60S	57.306	3.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.328
+1.20D+L+1.60S	57.911	3.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	58.504	3.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	59.084	3.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.338
+1.20D+L+1.60S	59.652	3.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.341
+1.20D+L+1.60S	60.207	3.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344
+1.20D+L+1.60S	60.750	3.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.347
+1.20D+L+1.60S	61.281	3.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.350
+1.20D+L+1.60S	61.799	3.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.353
+1.20D+L+1.60S	62.304	3.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.356
+1.20D+L+1.60S	62.798	3.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.359
+1.20D+L+1.60S	63.278	3.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.362
+1.20D+L+1.60S	63.747	3.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.364
+1.20D+L+1.60S	64.203	3.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.367
+1.20D+L+1.60S	64.647	3.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.370
+1.20D+L+1.60S	65.078	3.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.372
+1.20D+L+1.60S	65.497	3.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.374
+1.20D+L+1.60S	65.904	3.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.377
+1.20D+L+1.60S	66.298	3.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.379
+1.20D+L+1.60S	66.680	3.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+L+1.60S	67.049	3.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.383
+1.20D+L+1.60S	67.406	3.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.385
+1.20D+L+1.60S	67.751	3.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.387
+1.20D+L+1.60S	91.284	3.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.522
+1.20D+L+1.60S	91.604	3.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.524
+1.20D+L+1.60S	91.912	3.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.525

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	92.207	3.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.527
+1.20D+L+1.60S	92.490	3.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.529
+1.20D+L+1.60S	92.761	3.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.530
+1.20D+L+1.60S	93.020	3.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.532
+1.20D+L+1.60S	93.266	3.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.533
+1.20D+L+1.60S	93.500	3.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.534
+1.20D+L+1.60S	93.722	3.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.536
+1.20D+L+1.60S	93.931	3.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.537
+1.20D+L+1.60S	94.128	3.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.538
+1.20D+L+1.60S	94.313	3.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.539
+1.20D+L+1.60S	94.485	3.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.540
+1.20D+L+1.60S	94.645	3.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.541
+1.20D+L+1.60S	94.793	3.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.542
+1.20D+L+1.60S	94.929	3.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.543
+1.20D+L+1.60S	95.052	3.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.543
+1.20D+L+1.60S	95.163	3.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.544
+1.20D+L+1.60S	95.262	3.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.349	3.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.423	3.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.485	3.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.535	3.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.573	4.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.598	4.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.611	4.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.547
+1.20D+L+1.60S	95.612	4.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.547
+1.20D+L+1.60S	95.601	4.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.577	4.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.542	4.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.499	4.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.461	4.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.546
+1.20D+L+1.60S	95.429	4.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.402	4.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.382	4.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.366	4.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.357	4.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.353	4.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.350	4.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.308	4.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.545
+1.20D+L+1.60S	95.217	4.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.544
+1.20D+L+1.60S	95.078	4.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.543
+1.20D+L+1.60S	94.889	4.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.542
+1.20D+L+1.60S	94.652	4.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.541
+1.20D+L+1.60S	94.367	4.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.539
+1.20D+L+1.60S	94.033	4.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.537
+1.20D+L+1.60S	93.650	4.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.535
+1.20D+L+1.60S	93.218	4.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.533
+1.20D+L+1.60S	92.738	4.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.530
+1.20D+L+1.60S	92.209	4.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.527
+1.20D+L+1.60S	91.631	4.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.524
+1.20D+L+1.60S	91.005	4.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.520
+1.20D+L+1.60S	90.330	4.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.516
+1.20D+L+1.60S	89.607	4.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	88.835	4.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.508
+1.20D+L+1.60S	88.014	4.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.503
+1.20D+L+1.60S	87.145	4.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.498
+1.20D+L+1.60S	86.227	4.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.493
+1.20D+L+1.60S	85.261	4.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.487
+1.20D+L+1.60S	84.255	4.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.482
+1.20D+L+1.60S	83.250	4.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.476
+1.20D+L+1.60S	82.251	4.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.470
+1.20D+L+1.60S	81.258	4.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.464
+1.20D+L+1.60S	80.271	4.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.459
+1.20D+L+1.60S	79.289	4.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.453

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	78.313	4.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.448
+1.20D+L+1.60S	77.343	4.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.442
+1.20D+L+1.60S	76.379	4.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.437
+1.20D+L+1.60S	75.421	4.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.431
+1.20D+L+1.60S	74.468	4.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.426
+1.20D+L+1.60S	73.522	4.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.420
+1.20D+L+1.60S	72.581	4.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.415
+1.20D+L+1.60S	71.646	4.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.410
+1.20D+L+1.60S	70.717	5.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.404
+1.20D+L+1.60S	69.793	5.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.399
+1.20D+L+1.60S	68.876	5.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.394
+1.20D+L+1.60S	67.964	5.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.388
+1.20D+L+1.60S	67.058	5.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.383
+1.20D+L+1.60S	66.158	5.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.378
+1.20D+L+1.60S	65.264	5.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.373
+1.20D+L+1.60S	64.376	5.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.368
+1.20D+L+1.60S	63.494	5.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.363
+1.20D+L+1.60S	62.617	5.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.358
+1.20D+L+1.60S	61.747	5.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.353
+1.20D+L+1.60S	60.882	5.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.348
+1.20D+L+1.60S	60.023	5.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.343
+1.20D+L+1.60S	59.170	5.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.338
+1.20D+L+1.60S	58.323	5.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	57.482	5.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.329
+1.20D+L+1.60S	56.647	5.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.324
+1.20D+L+1.60S	55.818	5.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.319
+1.20D+L+1.60S	54.994	5.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.314
+1.20D+L+1.60S	54.177	5.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.310
+1.20D+L+1.60S	53.366	5.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.305
+1.20D+L+1.60S	52.560	5.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.300
+1.20D+L+1.60S	51.760	5.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.296
+1.20D+L+1.60S	50.967	5.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.291
+1.20D+L+1.60S	50.179	5.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.287
+1.20D+L+1.60S	49.397	5.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.282
+1.20D+L+1.60S	48.621	5.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.278
+1.20D+L+1.60S	47.851	5.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.274
+1.20D+L+1.60S	47.087	5.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.269
+1.20D+L+1.60S	46.330	5.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.265
+1.20D+L+1.60S	45.578	5.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.261
+1.20D+L+1.60S	44.832	5.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.256
+1.20D+L+1.60S	44.092	5.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.252
+1.20D+L+1.60S	43.357	5.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.248
+1.20D+L+1.60S	42.629	5.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.244
+1.20D+L+1.60S	41.907	5.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.240
+1.20D+L+1.60S	41.191	5.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.235
+1.20D+L+1.60S	40.481	5.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.231
+1.20D+L+1.60S	39.777	5.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.227
+1.20D+L+1.60S	39.079	5.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.223
+1.20D+L+1.60S	38.387	5.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.219
+1.20D+L+1.60S	37.701	5.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.215
+1.20D+L+1.60S	37.021	5.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.212
+1.20D+L+1.60S	36.347	5.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.208
+1.20D+L+1.60S	35.679	5.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.204
+1.20D+L+1.60S	35.017	5.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.200
+1.20D+L+1.60S	34.362	5.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.196
+1.20D+L+1.60S	33.712	5.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.193
+1.20D+L+1.60S	33.068	5.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.189
+1.20D+L+1.60S	32.430	5.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.185
+1.20D+L+1.60S	31.799	6.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.182
+1.20D+L+1.60S	31.173	6.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.178
+1.20D+L+1.60S	30.554	6.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.175
+1.20D+L+1.60S	29.940	6.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.171
+1.20D+L+1.60S	29.333	6.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.168

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	28.732	6.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.164
+1.20D+L+1.60S	28.137	6.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.161
+1.20D+L+1.60S	27.547	6.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.157
+1.20D+L+1.60S	26.964	6.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.154
+1.20D+L+1.60S	26.388	6.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.151
+1.20D+L+1.60S	25.817	6.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.148
+1.20D+L+1.60S	25.252	6.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.144
+1.20D+L+1.60S	24.694	6.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.141
+1.20D+L+1.60S	24.141	6.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.138
+1.20D+L+1.60S	23.595	6.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.135
+1.20D+L+1.60S	23.055	6.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.132
+1.20D+L+1.60S	22.521	6.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.129
+1.20D+L+1.60S	21.993	6.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.126
+1.20D+L+1.60S	21.471	6.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.123
+1.20D+L+1.60S	20.955	6.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.120
+1.20D+L+1.60S	20.446	6.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.117
+1.20D+L+1.60S	19.942	6.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.114
+1.20D+L+1.60S	19.445	6.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.111
+1.20D+L+1.60S	18.954	6.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.108
+1.20D+L+1.60S	18.469	6.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.106
+1.20D+L+1.60S	17.991	6.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.103
+1.20D+L+1.60S	17.518	6.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.100
+1.20D+L+1.60S	17.052	6.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.097
+1.20D+L+1.60S	16.592	6.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.095
+1.20D+L+1.60S	16.138	6.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.092
+1.20D+L+1.60S	15.690	6.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.090
+1.20D+L+1.60S	15.248	6.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.087
+1.20D+L+1.60S	14.813	6.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.085
+1.20D+L+1.60S	14.384	6.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.082
+1.20D+L+1.60S	13.961	6.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.080
+1.20D+L+1.60S	13.544	6.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.077
+1.20D+L+1.60S	13.134	6.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.075
+1.20D+L+1.60S	12.729	6.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.073
+1.20D+L+1.60S	12.331	6.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.070
+1.20D+L+1.60S	11.939	6.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.068
+1.20D+L+1.60S	11.554	6.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.066
+1.20D+L+1.60S	11.175	6.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.064
+1.20D+L+1.60S	10.801	6.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.062
+1.20D+L+1.60S	10.435	6.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.060
+1.20D+L+1.60S	10.074	6.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.058
+1.20D+L+1.60S	9.720	6.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.056
+1.20D+L+1.60S	9.372	6.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.054
+1.20D+L+1.60S	9.030	6.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.052
+1.20D+L+1.60S	8.694	6.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.050
+1.20D+L+1.60S	8.365	6.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.048
+1.20D+L+1.60S	8.042	7.000	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.046
+1.20D+L+1.60S	7.725	7.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.044
+1.20D+L+1.60S	7.415	7.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.042
+1.20D+L+1.60S	7.111	7.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.041
+1.20D+L+1.60S	6.813	7.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039
+1.20D+L+1.60S	6.521	7.100	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.037
+1.20D+L+1.60S	6.236	7.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.036
+1.20D+L+1.60S	5.957	7.140	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.034
+1.20D+L+1.60S	5.685	7.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+L+1.60S	5.419	7.180	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.031
+1.20D+L+1.60S	5.159	7.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+L+1.60S	4.905	7.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.028
+1.20D+L+1.60S	4.658	7.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.027
+1.20D+L+1.60S	4.417	7.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.025
+1.20D+L+1.60S	4.182	7.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024
+1.20D+L+1.60S	3.954	7.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.023
+1.20D+L+1.60S	3.732	7.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.021
+1.20D+L+1.60S	3.517	7.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	3.308	7.360	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+L+1.60S	3.105	7.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.018
+1.20D+L+1.60S	2.908	7.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+L+1.60S	2.718	7.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+L+1.60S	2.535	7.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+L+1.60S	2.357	7.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.187	7.480	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	2.022	7.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	1.864	7.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	1.712	7.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+L+1.60S	1.567	7.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.428	7.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.296	7.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.170	7.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.050	7.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	0.937	7.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.830	7.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.730	7.700	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.636	7.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.548	7.740	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.467	7.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.393	7.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.325	7.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.263	7.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.208	7.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.159	7.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.117	7.880	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.081	7.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.052	7.920	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.029	7.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.013	7.960	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.000	7.980	0	0.000	0	0.000	0.000	0.000
+1.20D+L+1.60S	0.000	8.000	0	0.000	0	0.000	0.000	0.000

One Way Shear

Load Combination...	Left of Column #1			Right of Column #1			Left of Column #2			Right of Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	9.9	44.4	0.224	4.2	44.4	0.094	16.3	44.4	0.366	4.2	44.4	0.094
+1.20D+0.50Lr+1.60L	14.6	44.4	0.329	11.4	44.4	0.256	25.6	44.4	0.576	11.4	44.4	0.256
+1.20D+1.60L+0.50S	15.0	44.4	0.338	10.6	44.4	0.238	26.0	44.4	0.586	10.6	44.4	0.238
+1.20D+1.60Lr+L	16.7	44.4	0.375	0.6	44.4	0.014	26.2	44.4	0.590	0.6	44.4	0.014
+1.20D+1.60Lr+0.50W	13.6	44.4	0.307	9.7	44.4	0.219	21.5	44.4	0.483	9.7	44.4	0.219
+1.20D+L+1.60S	17.8	44.4	0.401	3.2	44.4	0.072	27.6	44.4	0.621	3.2	44.4	0.072
+1.20D+1.60S+0.50W	14.8	44.4	0.333	12.3	44.4	0.277	22.9	44.4	0.515	12.3	44.4	0.277
+1.20D+0.50Lr+L+W	12.5	44.4	0.280	3.1	44.4	0.070	24.7	44.4	0.555	3.1	44.4	0.070
+1.20D+L+0.50S+W	12.8	44.4	0.289	2.3	44.4	0.052	25.1	44.4	0.565	2.3	44.4	0.052
+0.90D+W	5.9	44.4	0.132	1.3	44.4	0.030	13.2	44.4	0.297	1.3	44.4	0.030
+1.20D+L+0.20S+E	14.8	44.4	0.333	2.2	44.4	0.050	24.7	44.4	0.557	2.2	44.4	0.050
+0.90D+E	9.1	44.4	0.204	4.0	44.4	0.090	14.2	44.4	0.320	4.0	44.4	0.090

Two Way Shear

Load Combination...	Column #1			Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	12.8	164.3	0.078	23.0	164.3	0.140
+1.20D+0.50Lr+1.60L	14.7	164.3	0.089	27.6	164.3	0.168
+1.20D+1.60L+0.50S	16.0	164.3	0.097	29.7	164.3	0.181

ALIGNED COMBINED FOOTING - 12" GAP

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column)

Two Way Shear

Load Combination...	Column #1 vu (psi)	Column #1 Φ vn (psi)	Column #1 vu / Φ vn	Column #2 vu (psi)	Column #2 Φ vn (psi)	Column #2 vu / Φ vn
+1.20D+1.60Lr+L	27.9	164.3	0.170	48.6	164.3	0.296
+1.20D+1.60Lr+0.50W	30.7	164.3	0.187	52.0	164.3	0.316
+1.20D+L+1.60S	31.9	164.3	0.194	55.2	164.3	0.336
+1.20D+1.60S+0.50W	34.7	164.3	0.211	58.6	164.3	0.356
+1.20D+0.50Lr+L+W	18.6	164.3	0.113	33.3	164.3	0.202
+1.20D+L+0.50S+W	19.9	164.3	0.121	35.3	164.3	0.215
+0.90D+W	11.5	164.3	0.070	19.9	164.3	0.121
+1.20D+L+0.20S+E	22.6	164.3	0.138	39.9	164.3	0.243
+0.90D+E	18.3	164.3	0.111	31.3	164.3	0.190

OFFSET COMBINED FOOTING - 2'-8" GAP (X-AXIS OFFSET)

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength		3.0 ksi
fy : Rebar Yield		60.0 ksi
Ec : Concrete Elastic Modulus		3,122.0 ksi
Concrete Density		150.0 pcf
ϕ : Phi Values	Flexure :	0.90
	Shear :	0.750

Analysis/Design Settings

Calculate footing weight as dead load ?	Yes
Calculate Pedestal weight as dead load ?	Yes
Min Steel Ratio per ACI 7.6.1.1 (ratio=Steel Area/Concrete Area)	0.0018
Min. Overturning Safety Factor	1.0: 1
Min. Sliding Safety Factor	1.0: 1

Soil Information

Allowable Soil Bearing	2.0 ksf
Increase Bearing By Footing Weight	No
Soil Passive Sliding Resistance	231.0 pcf
(Uses entry for "Footing base depth below soil surface" for force)	
Coefficient of Soil/Concrete Friction	0.370

Soil Bearing Increase

Footing base depth below soil surface	2.0 ft
Increases based on footing Depth	
Allowable pressure increase per foot	ksf
when base of footing is below	ft
Increases based on footing Width . . .	
Allowable pressure increase per foot	ksf
when maximum length or width is greater tha	ft
Maximum Allowed Bearing Pressure	10.0 ksf
(A value of zero implies no limit)	
Adjusted Allowable Soil Bearing	ksf
(Allowable Soil Bearing adjusted for footing weight and depth & width increases as specified by user.)	

Dimensions & Reinforcing

Distance Left of Column #1	=	3.0 ft
Between Columns	=	2.667 ft
Distance Right of Column #2	=	3.0 ft
Total Footing Length	=	8.667 ft
Footing Width	=	8.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

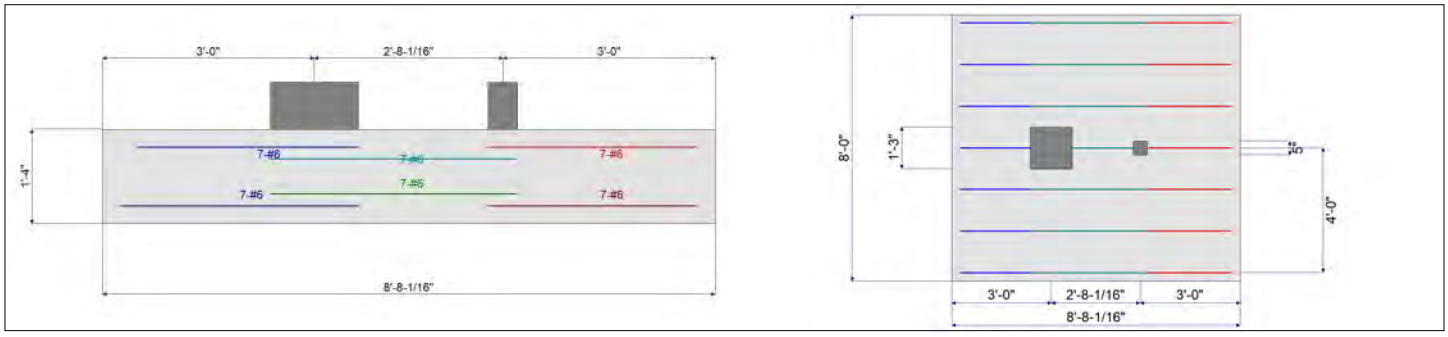
		Col #1	Col #2
Sq. Dim.	=	15.0	5.0 in
Height	=	8.0	8.0 in

Rebar Center to Concrete Edge @ Top	=	3.0 in	
Rebar Center to Concrete Edge @ Bottom	=	3.0 in	

Bars left of Col #1	Count	Size #	As Provided
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Btwn Cols			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Right of Col #2			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080

Applied Loads

Applied @ Left Column		D	Lr	L	S	W	E	H	
Axial Load Downward	=	17.0	18.0		22.0	5.0	16.0		k
Moment (+CW)	=								k-ft
Shear (+X)	=	3.0	4.0		5.0	8.0	5.0		k
Applied @ Right Column									
Axial Load Downward	=	29.10		21.70					k
Moment (+CW)	=								k-ft
Shear (+X)	=								k
Overburden	=								



OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

DESIGN SUMMARY

Design OK

Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS 12.409	Overturning	13.20 k-ft	163.803 k-ft	+0.60D+0.60W
PASS 2.689	Sliding	6.60 k	17.747 k	+0.60D+0.60W
PASS No Uplift	Uplift	0.0 k	0.0 k	No Uplift

Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS 0.8523	Soil Bearing	1.705 ksf	2.0 ksf	+D+0.750L+0.750S+0.450W
PASS 0.2658	1-way Shear - Col #1	11.805 psi	44.411 psi	+1.20D+L+1.60S
PASS 0.4856	1-way Shear - Col #2	21.564 psi	44.411 psi	+1.20D+1.60L+0.50S
PASS 0.2131	2-way Punching - Col #1	35.019 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS 0.3585	2-way Punching - Col #2	58.911 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS No Tension	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.1814	Flexure - Left of Col #1 - Bottom	31.741 k-ft	174.949 k-ft	+1.20D+L+1.60S
PASS No Tension	Flexure - Between Cols - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.3723	Flexure - Between Cols - Bottom	65.129 k-ft	174.949 k-ft	+1.20D+1.60S+0.50W
PASS No Tension	Flexure - Right of Col #2 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.3438	Flexure - Right of Col #2 - Bottom	60.147 k-ft	174.949 k-ft	+1.20D+1.60L+0.50S

Soil Bearing

Load Combination...	Total Bearing	Eccentricity from Ftg CL	Actual Soil Bearing Stress @ Left Edge	@ Right Edge	Allowable	Actual / Allow Ratio
D Only	60.14 k	0.365 ft	0.65 ksf	1.09 ksf	2.00 ksf	0.543
+D+L	81.84 k	0.622 ft	0.67 ksf	1.69 ksf	2.00 ksf	0.844
+D+Lr	78.14 k	0.076 ft	1.07 ksf	1.19 ksf	2.00 ksf	0.593
+D+S	82.14 k	0.032 ft	1.16 ksf	1.21 ksf	2.00 ksf	0.605
+D+0.750Lr+0.750L	89.92 k	0.352 ft	0.98 ksf	1.61 ksf	2.00 ksf	0.806
+D+0.750L+0.750S	92.92 k	0.314 ft	1.05 ksf	1.63 ksf	2.00 ksf	0.815
+D+0.60W	63.14 k	0.436 ft	0.64 ksf	1.19 ksf	2.00 ksf	0.593
+D+0.750Lr+0.750L+0.450W	92.17 k	0.389 ft	0.97 ksf	1.69 ksf	2.00 ksf	0.843
+D+0.750L+0.750S+0.450W	95.17 k	0.350 ft	1.04 ksf	1.70 ksf	2.00 ksf	0.852
+0.60D+0.60W	39.08 k	0.480 ft	0.38 ksf	0.75 ksf	2.00 ksf	0.375
+D+0.70E	71.34 k	0.196 ft	0.89 ksf	1.17 ksf	2.00 ksf	0.584
+D+0.750L+0.750S+0.5250E	101.32 k	0.229 ft	1.23 ksf	1.69 ksf	2.00 ksf	0.846
+0.60D+0.70E	47.28 k	0.111 ft	0.63 ksf	0.73 ksf	2.00 ksf	0.367

Overturning Stability

Load Combination...	Moments about Left Edge k-ft Overturning	Resisting	Ratio	Moments about Right Edg k-ft Overturning	Resisting	Ratio
D Only	0.00	0.00	999.000	6.00	244.67	40.778
+D+L	0.00	0.00	999.000	6.00	309.77	51.628
+D+Lr	0.00	0.00	999.000	14.00	346.68	24.763
+D+S	0.00	0.00	999.000	16.00	369.34	23.084
+D+0.750Lr+0.750L	0.00	0.00	999.000	12.00	370.00	30.833
+D+0.750L+0.750S	0.00	0.00	999.000	13.50	387.00	28.667
+D+0.60W	0.00	0.00	999.000	15.60	261.67	16.774
+D+0.750Lr+0.750L+0.450W	0.00	0.00	999.000	19.20	382.75	19.935
+D+0.750L+0.750S+0.450W	0.00	0.00	999.000	20.70	399.75	19.312
+0.60D+0.60W	0.00	0.00	999.000	13.20	163.80	12.409
+D+0.70E	0.00	0.00	999.000	13.00	308.14	23.703
+D+0.750L+0.750S+0.5250E	0.00	0.00	999.000	18.75	434.60	23.179
+0.60D+0.70E	0.00	0.00	999.000	10.60	210.27	19.837

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
D Only	3.00 k	25.54 k	8.512
+D+L	3.00 k	33.57 k	11.189
+D+Lr	7.00 k	32.20 k	4.6
+D+S	8.00 k	33.68 k	4.21
+D+0.750Lr+0.750L	6.00 k	36.55 k	6.092
+D+0.750L+0.750S	6.75 k	37.66 k	5.58

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
+D+0.60W	7.80 k	26.65 k	3.416
+D+0.750Lr+0.750L+0.450W	9.60 k	37.39 k	3.894
+D+0.750L+0.750S+0.450W	10.35 k	38.50 k	3.719
+0.60D+0.60W	6.60 k	17.75 k	2.689
+D+0.70E	6.50 k	29.68 k	4.566
+D+0.750L+0.750S+0.5250E	9.38 k	40.77 k	4.349
+0.60D+0.70E	5.30 k	20.78 k	3.921

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+0.60D+0.70E	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.022	0	0.000	0	0.000	0.000	0.000
+1.20D+L+1.60S	0.010	0.043	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.023	0.065	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.041	0.087	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.065	0.108	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.093	0.130	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.127	0.152	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.166	0.173	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.210	0.195	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.260	0.217	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.314	0.238	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.374	0.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.439	0.282	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.509	0.303	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.585	0.325	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.666	0.347	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.752	0.368	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.843	0.390	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.940	0.412	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	1.042	0.433	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	1.149	0.455	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.261	0.477	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.379	0.498	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.502	0.520	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.630	0.542	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.763	0.563	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+L+1.60S	1.902	0.585	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	2.046	0.607	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	2.196	0.628	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.350	0.650	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.510	0.672	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+L+1.60S	2.676	0.693	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.015
+1.20D+L+1.60S	2.846	0.715	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+L+1.60S	3.022	0.737	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+L+1.60S	3.204	0.758	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.018
+1.20D+L+1.60S	3.390	0.780	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+L+1.60S	3.582	0.802	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020
+1.20D+L+1.60S	3.780	0.823	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.022
+1.20D+L+1.60S	3.983	0.845	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.023
+1.20D+L+1.60S	4.191	0.867	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024
+1.20D+L+1.60S	4.404	0.888	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.025
+1.20D+L+1.60S	4.623	0.910	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.026
+1.20D+L+1.60S	4.847	0.932	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.028
+1.20D+L+1.60S	5.077	0.953	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+L+1.60S	5.311	0.975	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.030
+1.20D+L+1.60S	5.552	0.997	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+L+1.60S	5.797	1.018	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.033
+1.20D+L+1.60S	6.049	1.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.035
+1.20D+L+1.60S	6.305	1.062	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.036
+1.20D+L+1.60S	6.567	1.083	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.038
+1.20D+L+1.60S	6.834	1.105	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039
+1.20D+L+1.60S	7.107	1.127	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.041

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	7.385	1.148	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.042
+1.20D+L+1.60S	7.668	1.170	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.044
+1.20D+L+1.60S	7.957	1.192	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.045
+1.20D+L+1.60S	8.252	1.213	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.047
+1.20D+L+1.60S	8.552	1.235	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.049
+1.20D+L+1.60S	8.857	1.257	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.051
+1.20D+L+1.60S	9.168	1.278	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.052
+1.20D+L+1.60S	9.484	1.300	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.054
+1.20D+L+1.60S	9.805	1.322	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.056
+1.20D+L+1.60S	10.132	1.343	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.058
+1.20D+L+1.60S	10.465	1.365	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.060
+1.20D+L+1.60S	10.803	1.387	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.062
+1.20D+L+1.60S	11.146	1.408	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.064
+1.20D+L+1.60S	11.495	1.430	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.066
+1.20D+L+1.60S	11.849	1.452	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.068
+1.20D+L+1.60S	12.209	1.473	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.070
+1.20D+L+1.60S	12.575	1.495	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.072
+1.20D+L+1.60S	12.946	1.517	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.074
+1.20D+L+1.60S	13.322	1.538	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.076
+1.20D+L+1.60S	13.704	1.560	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.078
+1.20D+L+1.60S	14.091	1.582	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.081
+1.20D+L+1.60S	14.484	1.603	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.083
+1.20D+L+1.60S	14.882	1.625	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.085
+1.20D+L+1.60S	15.286	1.647	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.087
+1.20D+L+1.60S	15.696	1.668	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.090
+1.20D+L+1.60S	16.111	1.690	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.092
+1.20D+L+1.60S	16.531	1.712	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.094
+1.20D+L+1.60S	16.957	1.733	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.097
+1.20D+L+1.60S	17.389	1.755	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.099
+1.20D+L+1.60S	17.826	1.777	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.102
+1.20D+L+1.60S	18.269	1.798	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.104
+1.20D+L+1.60S	18.717	1.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.107
+1.20D+L+1.60S	19.171	1.842	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.110
+1.20D+L+1.60S	19.630	1.863	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.112
+1.20D+L+1.60S	20.095	1.885	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.115
+1.20D+L+1.60S	20.565	1.907	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.118
+1.20D+L+1.60S	21.041	1.928	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.120
+1.20D+L+1.60S	21.523	1.950	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.123
+1.20D+L+1.60S	22.010	1.972	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.126
+1.20D+L+1.60S	22.503	1.993	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.129
+1.20D+L+1.60S	23.002	2.015	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.131
+1.20D+L+1.60S	23.506	2.037	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.134
+1.20D+L+1.60S	24.015	2.058	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.137
+1.20D+L+1.60S	24.530	2.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.140
+1.20D+L+1.60S	25.051	2.102	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.143
+1.20D+L+1.60S	25.578	2.123	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.146
+1.20D+L+1.60S	26.110	2.145	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.149
+1.20D+L+1.60S	26.648	2.167	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.152
+1.20D+L+1.60S	27.191	2.188	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.155
+1.20D+L+1.60S	27.740	2.210	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.159
+1.20D+L+1.60S	28.295	2.232	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.162
+1.20D+L+1.60S	28.855	2.253	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.165
+1.20D+L+1.60S	29.421	2.275	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.168
+1.20D+L+1.60S	29.993	2.297	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.171
+1.20D+L+1.60S	30.570	2.318	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.175
+1.20D+L+1.60S	31.153	2.340	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.178
+1.20D+L+1.60S	31.741	2.362	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.181
+1.20D+L+1.60S	32.334	2.383	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.185
+1.20D+L+1.60S	32.916	2.405	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.188
+1.20D+L+1.60S	33.482	2.427	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.191
+1.20D+L+1.60S	34.032	2.448	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.195
+1.20D+L+1.60S	34.568	2.470	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.198
+1.20D+L+1.60S	35.088	2.492	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.201

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	35.593	2.513	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.203
+1.20D+L+1.60S	36.083	2.535	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.206
+1.20D+L+1.60S	36.558	2.557	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.209
+1.20D+L+1.60S	37.017	2.578	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.212
+1.20D+L+1.60S	37.461	2.600	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.214
+1.20D+L+1.60S	37.890	2.622	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.217
+1.20D+L+1.60S	38.304	2.643	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.219
+1.20D+L+1.60S	38.702	2.665	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.221
+1.20D+L+1.60S	39.085	2.687	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.223
+1.20D+L+1.60S	39.453	2.708	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.226
+1.20D+L+1.60S	39.806	2.730	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.228
+1.20D+L+1.60S	40.144	2.752	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.229
+1.20D+L+1.60S	40.466	2.773	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.231
+1.20D+L+1.60S	40.773	2.795	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.233
+1.20D+L+1.60S	41.065	2.817	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.235
+1.20D+L+1.60S	41.342	2.838	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.236
+1.20D+L+1.60S	41.604	2.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.238
+1.20D+L+1.60S	41.850	2.882	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.239
+1.20D+L+1.60S	42.081	2.903	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.241
+1.20D+L+1.60S	42.298	2.925	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.242
+1.20D+L+1.60S	42.499	2.947	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.243
+1.20D+L+1.60S	42.684	2.968	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.244
+1.20D+L+1.60S	42.855	2.990	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.245
+1.20D+1.60S+0.50W	70.513	3.012	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.403
+1.20D+1.60S+0.50W	70.563	3.033	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.403
+1.20D+1.60S+0.50W	70.596	3.055	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.404
+1.20D+1.60S+0.50W	70.613	3.077	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.404
+1.20D+1.60S+0.50W	70.612	3.098	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.404
+1.20D+1.60S+0.50W	70.595	3.120	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.404
+1.20D+1.60S+0.50W	70.560	3.142	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.403
+1.20D+1.60S+0.50W	70.509	3.163	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.403
+1.20D+1.60S+0.50W	70.441	3.185	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.403
+1.20D+1.60S+0.50W	70.356	3.207	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.402
+1.20D+1.60S+0.50W	70.255	3.228	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.402
+1.20D+1.60S+0.50W	70.136	3.250	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.401
+1.20D+1.60S+0.50W	70.001	3.272	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.400
+1.20D+1.60S+0.50W	69.849	3.293	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.399
+1.20D+1.60S+0.50W	69.680	3.315	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.398
+1.20D+1.60S+0.50W	69.494	3.337	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.397
+1.20D+1.60S+0.50W	69.291	3.358	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.396
+1.20D+1.60S+0.50W	69.072	3.380	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.395
+1.20D+1.60S+0.50W	68.835	3.402	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.393
+1.20D+1.60S+0.50W	68.582	3.423	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.392
+1.20D+1.60S+0.50W	68.312	3.445	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.390
+1.20D+1.60S+0.50W	68.025	3.467	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.389
+1.20D+1.60S+0.50W	67.721	3.488	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.387
+1.20D+1.60S+0.50W	67.401	3.510	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.385
+1.20D+1.60S+0.50W	67.063	3.532	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.383
+1.20D+1.60S+0.50W	66.709	3.553	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+1.60S+0.50W	66.338	3.575	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.379
+1.20D+1.60S+0.50W	65.950	3.597	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.377
+1.20D+1.60S+0.50W	65.545	3.618	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.375
+1.20D+1.60S+0.50W	65.129	3.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.372
+1.20D+1.60S+0.50W	64.716	3.662	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.370
+1.20D+1.60S+0.50W	64.309	3.683	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.368
+1.20D+1.60S+0.50W	63.907	3.705	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.365
+1.20D+1.60S+0.50W	63.510	3.727	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.363
+1.20D+1.60S+0.50W	63.118	3.748	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.361
+1.20D+1.60S+0.50W	62.731	3.770	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.359
+1.20D+L+1.60S	62.382	3.792	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.357
+1.20D+L+1.60S	62.152	3.813	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.355
+1.20D+L+1.60S	61.929	3.835	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.354
+1.20D+L+1.60S	61.711	3.857	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.353

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	61.499	3.878	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.352
+1.20D+L+1.60S	61.293	3.900	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.350
+1.20D+L+1.60S	61.093	3.922	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.349
+1.20D+L+1.60S	60.899	3.943	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.348
+1.20D+L+1.60S	60.711	3.965	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.347
+1.20D+L+1.60S	60.529	3.987	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.346
+1.20D+L+1.60S	60.353	4.008	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.345
+1.20D+L+1.60S	60.184	4.030	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344
+1.20D+L+1.60S	60.020	4.052	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.343
+1.20D+L+1.60S	59.862	4.073	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.342
+1.20D+L+1.60S	59.710	4.095	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.341
+1.20D+L+1.60S	59.564	4.117	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.340
+1.20D+L+1.60S	59.425	4.138	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.340
+1.20D+L+1.60S	59.291	4.160	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.339
+1.20D+L+1.60S	59.164	4.182	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.338
+1.20D+L+1.60S	59.042	4.203	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.337
+1.20D+L+1.60S	58.927	4.225	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.337
+1.20D+L+1.60S	58.817	4.247	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.336
+1.20D+L+1.60S	58.714	4.268	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.336
+1.20D+L+1.60S	58.617	4.290	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.335
+1.20D+L+1.60S	58.526	4.312	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.335
+1.20D+L+1.60S	58.440	4.334	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	58.361	4.355	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	58.289	4.377	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.222	4.399	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.161	4.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.107	4.442	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.058	4.464	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.016	4.485	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	57.980	4.507	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.949	4.529	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.925	4.550	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.908	4.572	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.896	4.594	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.890	4.615	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.891	4.637	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.898	4.659	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.911	4.680	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.930	4.702	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.955	4.724	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	57.987	4.745	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.331
+1.20D+L+1.60S	58.024	4.767	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.068	4.789	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.118	4.810	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.332
+1.20D+L+1.60S	58.174	4.832	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.236	4.854	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.305	4.875	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.380	4.897	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	58.461	4.919	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	58.548	4.940	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.335
+1.20D+L+1.60S	58.641	4.962	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.335
+1.20D+L+1.60S	58.741	4.984	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.336
+1.20D+L+1.60S	58.847	5.005	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.336
+1.20D+L+1.60S	58.959	5.027	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.337
+1.20D+L+1.60S	59.077	5.049	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.338
+1.20D+L+1.60S	59.202	5.070	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.338
+1.20D+L+1.60S	59.332	5.092	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.339
+1.20D+L+1.60S	59.470	5.114	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.340
+1.20D+L+1.60S	59.613	5.135	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.341
+1.20D+L+1.60S	59.762	5.157	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.342
+1.20D+L+1.60S	59.918	5.179	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.342
+1.20D+L+1.60S	60.080	5.200	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.343
+1.20D+1.60L+0.50S	60.258	5.222	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60L+0.50S	60.672	5.244	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.347
+1.20D+1.60L+0.50S	61.092	5.265	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.349
+1.20D+1.60L+0.50S	61.518	5.287	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.352
+1.20D+1.60L+0.50S	61.950	5.309	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.354
+1.20D+1.60L+0.50S	62.388	5.330	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.357
+1.20D+1.60L+0.50S	62.832	5.352	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.359
+1.20D+1.60L+0.50S	63.283	5.374	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.362
+1.20D+1.60L+0.50S	63.739	5.395	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.364
+1.20D+1.60L+0.50S	64.201	5.417	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.367
+1.20D+1.60L+0.50S	64.669	5.439	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.370
+1.20D+1.60L+0.50S	65.144	5.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.372
+1.20D+1.60L+0.50S	65.579	5.482	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.375
+1.20D+1.60L+0.50S	65.943	5.504	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.377
+1.20D+1.60L+0.50S	66.234	5.525	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.379
+1.20D+1.60L+0.50S	66.452	5.547	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.380
+1.20D+1.60L+0.50S	66.598	5.569	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+1.60L+0.50S	66.672	5.590	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+1.60L+0.50S	66.674	5.612	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+1.60L+0.50S	66.603	5.634	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.381
+1.20D+1.60L+0.50S	66.460	5.655	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.380
+1.20D+1.60L+0.50S	66.245	5.677	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.379
+1.20D+1.60L+0.50S	65.957	5.699	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.377
+1.20D+1.60L+0.50S	65.598	5.720	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.375
+1.20D+1.60L+0.50S	65.166	5.742	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.372
+1.20D+1.60L+0.50S	64.661	5.764	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.370
+1.20D+1.60L+0.50S	64.085	5.785	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.366
+1.20D+1.60L+0.50S	63.436	5.807	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.363
+1.20D+1.60L+0.50S	62.715	5.829	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.358
+1.20D+1.60L+0.50S	61.922	5.850	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.354
+1.20D+1.60L+0.50S	61.056	5.872	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.349
+1.20D+1.60L+0.50S	60.147	5.894	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344
+1.20D+1.60L+0.50S	59.242	5.915	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.339
+1.20D+1.60L+0.50S	58.344	5.937	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+1.60L+0.50S	57.453	5.959	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.328
+1.20D+1.60L+0.50S	56.567	5.980	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.323
+1.20D+1.60L+0.50S	55.688	6.002	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.318
+1.20D+1.60L+0.50S	54.816	6.024	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.313
+1.20D+1.60L+0.50S	53.950	6.045	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.308
+1.20D+1.60L+0.50S	53.090	6.067	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.303
+1.20D+1.60L+0.50S	52.237	6.089	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.299
+1.20D+1.60L+0.50S	51.390	6.110	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.294
+1.20D+1.60L+0.50S	50.550	6.132	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.289
+1.20D+1.60L+0.50S	49.716	6.154	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.284
+1.20D+1.60L+0.50S	48.888	6.175	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.279
+1.20D+1.60L+0.50S	48.067	6.197	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.275
+1.20D+1.60L+0.50S	47.253	6.219	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.270
+1.20D+1.60L+0.50S	46.445	6.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.265
+1.20D+1.60L+0.50S	45.643	6.262	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.261
+1.20D+1.60L+0.50S	44.849	6.284	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.256
+1.20D+1.60L+0.50S	44.060	6.305	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.252
+1.20D+1.60L+0.50S	43.278	6.327	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.247
+1.20D+1.60L+0.50S	42.503	6.349	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.243
+1.20D+1.60L+0.50S	41.735	6.370	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.239
+1.20D+1.60L+0.50S	40.973	6.392	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.234
+1.20D+1.60L+0.50S	40.217	6.414	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.230
+1.20D+1.60L+0.50S	39.468	6.435	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.226
+1.20D+1.60L+0.50S	38.726	6.457	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.221
+1.20D+1.60L+0.50S	37.991	6.479	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.217
+1.20D+1.60L+0.50S	37.262	6.500	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.213
+1.20D+1.60L+0.50S	36.539	6.522	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.209
+1.20D+1.60L+0.50S	35.824	6.544	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.205
+1.20D+1.60L+0.50S	35.115	6.565	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.201
+1.20D+1.60L+0.50S	34.413	6.587	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.197

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60L+0.50S	33.717	6.609	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.193
+1.20D+1.60L+0.50S	33.029	6.630	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.189
+1.20D+1.60L+0.50S	32.347	6.652	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.185
+1.20D+1.60L+0.50S	31.672	6.674	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.181
+1.20D+1.60L+0.50S	31.003	6.695	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.177
+1.20D+1.60L+0.50S	30.341	6.717	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.173
+1.20D+1.60L+0.50S	29.686	6.739	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.170
+1.20D+1.60L+0.50S	29.038	6.760	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.166
+1.20D+1.60L+0.50S	28.397	6.782	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.162
+1.20D+1.60L+0.50S	27.762	6.804	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.159
+1.20D+1.60L+0.50S	27.135	6.825	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.155
+1.20D+1.60L+0.50S	26.514	6.847	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.152
+1.20D+1.60L+0.50S	25.900	6.869	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.148
+1.20D+1.60L+0.50S	25.293	6.890	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.145
+1.20D+1.60L+0.50S	24.693	6.912	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.141
+1.20D+1.60L+0.50S	24.099	6.934	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.138
+1.20D+1.60L+0.50S	23.513	6.955	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.134
+1.20D+1.60L+0.50S	22.933	6.977	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.131
+1.20D+1.60L+0.50S	22.361	6.999	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.128
+1.20D+1.60L+0.50S	21.795	7.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.125
+1.20D+1.60L+0.50S	21.236	7.042	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.121
+1.20D+1.60L+0.50S	20.685	7.064	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.118
+1.20D+1.60L+0.50S	20.140	7.085	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.115
+1.20D+1.60L+0.50S	19.602	7.107	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.112
+1.20D+1.60L+0.50S	19.071	7.129	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.109
+1.20D+1.60L+0.50S	18.547	7.150	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.106
+1.20D+1.60L+0.50S	18.031	7.172	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.103
+1.20D+1.60L+0.50S	17.521	7.194	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.100
+1.20D+1.60L+0.50S	17.018	7.215	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.097
+1.20D+1.60L+0.50S	16.523	7.237	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.094
+1.20D+1.60L+0.50S	16.034	7.259	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.092
+1.20D+1.60L+0.50S	15.553	7.280	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.089
+1.20D+1.60L+0.50S	15.078	7.302	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.086
+1.20D+1.60L+0.50S	14.611	7.324	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.084
+1.20D+1.60L+0.50S	14.151	7.345	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.081
+1.20D+1.60L+0.50S	13.698	7.367	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.078
+1.20D+1.60L+0.50S	13.252	7.389	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.076
+1.20D+1.60L+0.50S	12.813	7.410	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.073
+1.20D+1.60L+0.50S	12.381	7.432	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.071
+1.20D+1.60L+0.50S	11.957	7.454	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.068
+1.20D+1.60L+0.50S	11.540	7.475	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.066
+1.20D+1.60L+0.50S	11.129	7.497	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.064
+1.20D+1.60L+0.50S	10.727	7.519	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.061
+1.20D+1.60L+0.50S	10.331	7.540	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.059
+1.20D+1.60L+0.50S	9.943	7.562	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.057
+1.20D+1.60L+0.50S	9.561	7.584	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.055
+1.20D+1.60L+0.50S	9.187	7.605	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.053
+1.20D+1.60L+0.50S	8.821	7.627	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.050
+1.20D+1.60L+0.50S	8.461	7.649	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.048
+1.20D+1.60L+0.50S	8.109	7.670	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.046
+1.20D+1.60L+0.50S	7.765	7.692	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.044
+1.20D+1.60L+0.50S	7.427	7.714	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.042
+1.20D+1.60L+0.50S	7.097	7.735	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.041
+1.20D+1.60L+0.50S	6.774	7.757	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039
+1.20D+1.60L+0.50S	6.459	7.779	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.037
+1.20D+1.60L+0.50S	6.151	7.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.035
+1.20D+1.60L+0.50S	5.850	7.822	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.033
+1.20D+1.60L+0.50S	5.557	7.844	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+1.60L+0.50S	5.271	7.865	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.030
+1.20D+1.60L+0.50S	4.992	7.887	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+1.60L+0.50S	4.721	7.909	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.027
+1.20D+1.60L+0.50S	4.458	7.930	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.025
+1.20D+1.60L+0.50S	4.201	7.952	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024

OFFSET COMBINED FOOTING - 2'-8"
GAP (X-AXIS OFFSET)

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+1.60L+0.50S	3.953	7.974	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.023
+1.20D+1.60L+0.50S	3.711	7.995	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.021
+1.20D+1.60L+0.50S	3.478	8.017	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020
+1.20D+1.60L+0.50S	3.251	8.039	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+1.60L+0.50S	3.032	8.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+1.60L+0.50S	2.821	8.082	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+1.60L+0.50S	2.617	8.104	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.015
+1.20D+1.60L+0.50S	2.421	8.125	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+1.60L+0.50S	2.232	8.147	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+1.60L+0.50S	2.051	8.169	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+1.60L+0.50S	1.878	8.190	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+1.60L+0.50S	1.712	8.212	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+1.60L+0.50S	1.553	8.234	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+1.60L+0.50S	1.403	8.255	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+1.60L+0.50S	1.260	8.277	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+1.60L+0.50S	1.124	8.299	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+1.60L+0.50S	0.996	8.320	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+1.60L+0.50S	0.876	8.342	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+1.60L+0.50S	0.763	8.364	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+1.60L+0.50S	0.659	8.385	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+1.60L+0.50S	0.562	8.407	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+1.60L+0.50S	0.472	8.429	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+1.60L+0.50S	0.390	8.450	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+1.60L+0.50S	0.316	8.472	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+1.60L+0.50S	0.250	8.494	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+1.60L+0.50S	0.192	8.515	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+1.60L+0.50S	0.141	8.537	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+1.60L+0.50S	0.098	8.559	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+1.60L+0.50S	0.063	8.580	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+1.60L+0.50S	0.035	8.602	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+1.60L+0.50S	0.016	8.624	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+1.60L+0.50S	0.000	8.645	0	0.000	0	0.000	0.000	0.000
+1.20D+1.60L+0.50S	0.000	8.667	0	0.000	0	0.000	0.000	0.000

One Way Shear

Load Combination...	Left of Column #1			Right of Column #1			Left of Column #2			Right of Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	5.6	44.4	0.127	2.4	44.4	0.055	13.0	44.4	0.292	2.7	44.4	0.061
+1.20D+0.50Lr+1.60L	7.4	44.4	0.166	7.1	44.4	0.160	21.4	44.4	0.482	7.5	44.4	0.169
+1.20D+1.60L+0.50S	7.7	44.4	0.174	6.5	44.4	0.147	21.6	44.4	0.486	6.9	44.4	0.156
+1.20D+1.60Lr+L	10.7	44.4	0.240	1.2	44.4	0.027	19.4	44.4	0.437	0.8	44.4	0.018
+1.20D+1.60Lr+0.50W	10.1	44.4	0.227	7.5	44.4	0.170	14.2	44.4	0.320	7.2	44.4	0.162
+1.20D+L+1.60S	11.8	44.4	0.266	3.0	44.4	0.068	19.9	44.4	0.449	2.6	44.4	0.058
+1.20D+1.60S+0.50W	11.2	44.4	0.252	9.4	44.4	0.211	14.8	44.4	0.332	9.0	44.4	0.202
+1.20D+0.50Lr+L+W	7.0	44.4	0.157	1.0	44.4	0.022	19.4	44.4	0.437	1.4	44.4	0.030
+1.20D+L+0.50S+W	7.3	44.4	0.165	0.4	44.4	0.009	19.6	44.4	0.441	0.8	44.4	0.018
+0.90D+W	3.6	44.4	0.080	1.7	44.4	0.039	9.9	44.4	0.224	1.5	44.4	0.035
+1.20D+L+0.20S+E	8.9	44.4	0.201	0.7	44.4	0.016	19.0	44.4	0.427	1.1	44.4	0.025
+0.90D+E	6.3	44.4	0.143	3.3	44.4	0.074	9.9	44.4	0.222	3.0	44.4	0.068

Two Way Shear

Load Combination...	Column #1			Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	13.4	164.3	0.081	23.0	164.3	0.140
+1.20D+0.50Lr+1.60L	15.7	164.3	0.096	27.6	164.3	0.168
+1.20D+1.60L+0.50S	17.0	164.3	0.103	29.7	164.3	0.180

OFFSET COMBINED FOOTING - 2'-8" GAP (X-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Two Way Shear

Load Combination...	Column #1 vu (psi)	Column #1 Φ vn (psi)	Column #1 vu / Φ vn	Column #2 vu (psi)	Column #2 Φ vn (psi)	Column #2 vu / Φ vn
+1.20D+1.60Lr+L	28.6	164.3	0.174	48.7	164.3	0.297
+1.20D+1.60Lr+0.50W	31.0	164.3	0.189	52.3	164.3	0.318
+1.20D+L+1.60S	32.5	164.3	0.198	55.4	164.3	0.337
+1.20D+1.60S+0.50W	35.0	164.3	0.213	58.9	164.3	0.359
+1.20D+0.50Lr+L+W	19.5	164.3	0.119	33.2	164.3	0.202
+1.20D+L+0.50S+W	20.7	164.3	0.126	35.3	164.3	0.215
+0.90D+W	11.9	164.3	0.072	19.9	164.3	0.121
+1.20D+L+0.20S+E	23.4	164.3	0.142	40.0	164.3	0.243
+0.90D+E	18.6	164.3	0.113	31.4	164.3	0.191

OFFSET COMBINED FOOTING - 2'-8" GAP (Y-AXIS OFFSET)

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : ACI 318-19
Load Combinations Used : ASCE 7-16

General Information

Material Properties

f'c : Concrete 28 day strength		3.0 ksi
fy : Rebar Yield		60.0 ksi
Ec : Concrete Elastic Modulus		3,122.0 ksi
Concrete Density		150.0 pcf
ϕ : Phi Values	Flexure :	0.90
	Shear :	0.750

Analysis/Design Settings

Calculate footing weight as dead load ?	Yes
Calculate Pedestal weight as dead load ?	Yes
Min Steel Ratio per ACI 7.6.1.1 (ratio=Steel Area/Concrete Area)	0.0018
Min. Overturning Safety Factor	1.0: 1
Min. Sliding Safety Factor	1.0: 1

Soil Information

Allowable Soil Bearing	2.0 ksf
Increase Bearing By Footing Weight	No
Soil Passive Sliding Resistance	231.0 pcf
(Uses entry for "Footing base depth below soil surface" for force)	
Coefficient of Soil/Concrete Friction	0.370

Soil Bearing Increase

Footing base depth below soil surface	2.0 ft
Increases based on footing Depth	
Allowable pressure increase per foot	ksf
when base of footing is below	ft
Increases based on footing Width . . .	
Allowable pressure increase per foot	ksf
when maximum length or width is greater tha	ft
Maximum Allowed Bearing Pressure	10.0 ksf
(A value of zero implies no limit)	
Adjusted Allowable Soil Bearing	ksf
(Allowable Soil Bearing adjusted for footing weight and depth & width increases as specified by user.)	

Dimensions & Reinforcing

Distance Left of Column #1	=	3.50 ft
Between Columns	=	1.417 ft
Distance Right of Column #2	=	3.50 ft
Total Footing Length	=	8.417 ft
Footing Width	=	8.0 ft
Footing Thickness	=	16.0 in

Pedestal dimensions...

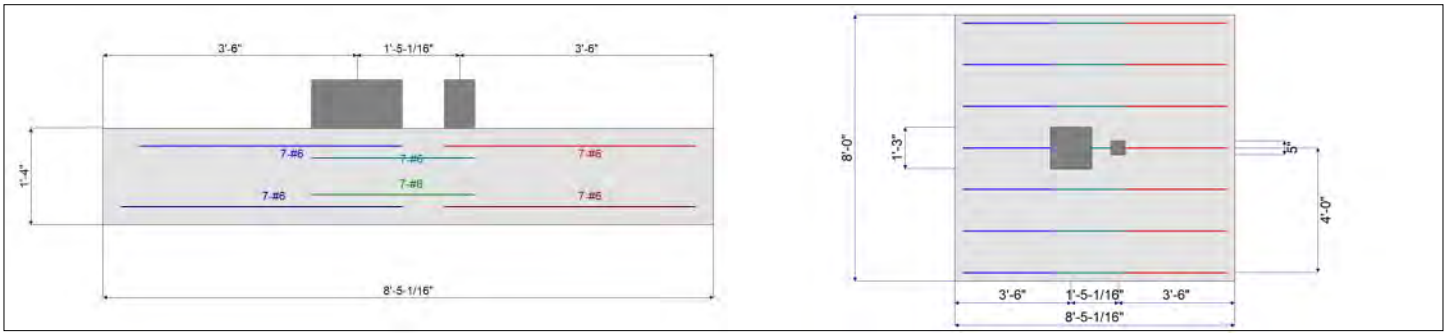
		Col #1	Col #2
Sq. Dim.	=	15.0	5.0 in
Height	=	8.0	8.0 in

Rebar Center to Concrete Edge @ Top	=	3.0 in
Rebar Center to Concrete Edge @ Bottom	=	3.0 in

Bars left of Col #1	Count	Size #	As Provided
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Btwn Cols			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080
Bars Right of Col #2			
Bottom Bars	7.0	6	3.080
Top Bars	7.0	6	3.080

Applied Loads

Applied @ Left Column		D	Lr	L	S	W	E	H	
Axial Load Downward	=	17.0	18.0		22.0	5.0	16.0		k
Moment (+CW)	=								k-ft
Shear (+X)	=	3.0	4.0		5.0	8.0	5.0		k
Applied @ Right Column									
Axial Load Downward	=	29.10		21.70					k
Moment (+CW)	=								k-ft
Shear (+X)	=								k
Overburden	=								



OFFSET COMBINED FOOTING - 2'-8" GAP (Y-AXIS OFFSET)

Combined Footing

Project File: 26-384 Nisqually VOC.ec6

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

DESIGN SUMMARY

Design OK

Factor of Safety	Item	Applied	Capacity	Governing Load Combination
PASS 12.160	Overturning	13.20 k-ft	160.518 k-ft	+0.60D+0.60W
PASS 2.675	Sliding	6.60 k	17.658 k	+0.60D+0.60W
PASS No Uplift	Uplift	0.0 k	0.0 k	No Uplift

Utilization Ratio	Item	Applied	Capacity	Governing Load Combination
PASS 0.8608	Soil Bearing	1.722 ksf	2.0 ksf	+D+0.750L+0.750S+0.5250E
PASS 0.3797	1-way Shear - Col #1	16.863 psi	44.411 psi	+1.20D+L+1.60S
PASS 0.5918	1-way Shear - Col #2	26.282 psi	44.411 psi	+1.20D+L+1.60S
PASS 0.2125	2-way Punching - Col #1	34.922 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS 0.3576	2-way Punching - Col #2	58.758 psi	164.317 psi	+1.20D+1.60S+0.50W
PASS No Tension	Flexure - Left of Col #1 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.2762	Flexure - Left of Col #1 - Bottom	48.312 k-ft	174.949 k-ft	+1.20D+L+1.60S
PASS No Tension	Flexure - Between Cols - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.5163	Flexure - Between Cols - Bottom	90.328 k-ft	174.949 k-ft	+1.20D+L+1.60S
PASS No Tension	Flexure - Right of Col #2 - Top	0.0 k-ft	0.0 k-ft	N/A
PASS 0.4573	Flexure - Right of Col #2 - Bottom	80.005 k-ft	174.949 k-ft	+1.20D+L+1.60S

Soil Bearing

Load Combination...	Total Bearing	Eccentricity from Ftg CL	Actual Soil Bearing Stress @ Left Edge	@ Right Edge	Allowable	Actual / Allow Ratio
D Only	59.74 k	0.242 ft	0.73 ksf	1.04 ksf	2.00 ksf	0.520
+D+L	81.44 k	0.367 ft	0.89 ksf	1.52 ksf	2.00 ksf	0.762
+D+Lr	77.74 k	0.125 ft	1.05 ksf	1.26 ksf	2.00 ksf	0.629
+D+S	81.74 k	0.109 ft	1.12 ksf	1.31 ksf	2.00 ksf	0.654
+D+0.750Lr+0.750L	89.52 k	0.251 ft	1.09 ksf	1.57 ksf	2.00 ksf	0.783
+D+0.750L+0.750S	92.52 k	0.236 ft	1.14 ksf	1.60 ksf	2.00 ksf	0.802
+D+0.60W	62.74 k	0.350 ft	0.70 ksf	1.16 ksf	2.00 ksf	0.582
+D+0.750Lr+0.750L+0.450W	91.77 k	0.306 ft	1.07 ksf	1.66 ksf	2.00 ksf	0.829
+D+0.750L+0.750S+0.450W	94.77 k	0.289 ft	1.12 ksf	1.70 ksf	2.00 ksf	0.848
+0.60D+0.60W	38.84 k	0.416 ft	0.41 ksf	0.75 ksf	2.00 ksf	0.374
+D+0.70E	70.94 k	0.191 ft	0.91 ksf	1.20 ksf	2.00 ksf	0.598
+D+0.750L+0.750S+0.5250E	100.92 k	0.209 ft	1.28 ksf	1.72 ksf	2.00 ksf	0.861
+0.60D+0.70E	47.04 k	0.165 ft	0.62 ksf	0.78 ksf	2.00 ksf	0.390

Overturning Stability

Load Combination...	Moments about Left Edge k-ft Overturning	Resisting	Ratio	Moments about Right Edg k-ft Overturning	Resisting	Ratio
D Only	0.00	0.00	999.000	6.00	242.94	40.491
+D+L	0.00	0.00	999.000	6.00	318.89	53.149
+D+Lr	0.00	0.00	999.000	14.00	331.45	23.675
+D+S	0.00	0.00	999.000	16.00	351.12	21.945
+D+0.750Lr+0.750L	0.00	0.00	999.000	12.00	366.29	30.524
+D+0.750L+0.750S	0.00	0.00	999.000	13.50	381.04	28.225
+D+0.60W	0.00	0.00	999.000	15.60	257.70	16.519
+D+0.750Lr+0.750L+0.450W	0.00	0.00	999.000	19.20	377.35	19.654
+D+0.750L+0.750S+0.450W	0.00	0.00	999.000	20.70	392.10	18.942
+0.60D+0.60W	0.00	0.00	999.000	13.20	160.52	12.160
+D+0.70E	0.00	0.00	999.000	13.00	298.02	22.924
+D+0.750L+0.750S+0.5250E	0.00	0.00	999.000	18.75	422.34	22.525
+0.60D+0.70E	0.00	0.00	999.000	10.60	200.84	18.947

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
D Only	3.00 k	25.39 k	8.463
+D+L	3.00 k	33.42 k	11.139
+D+Lr	7.00 k	32.05 k	4.578
+D+S	8.00 k	33.53 k	4.191
+D+0.750Lr+0.750L	6.00 k	36.41 k	6.068
+D+0.750L+0.750S	6.75 k	37.52 k	5.558

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Sliding Stability

Load Combination...	Sliding Force	Resisting Force	Sliding Safety Ratio
+D+0.60W	7.80 k	26.50 k	3.397
+D+0.750Lr+0.750L+0.450W	9.60 k	37.24 k	3.879
+D+0.750L+0.750S+0.450W	10.35 k	38.35 k	3.705
+0.60D+0.60W	6.60 k	17.66 k	2.675
+D+0.70E	6.50 k	29.53 k	4.544
+D+0.750L+0.750S+0.5250E	9.38 k	40.62 k	4.333
+0.60D+0.70E	5.30 k	20.69 k	3.904

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+0.60D+0.70E	0.000	0.000	0	0.000	0	0.000	0.000	0.000
+0.60D+0.70E	0.000	0.021	0	0.000	0	0.000	0.000	0.000
+1.20D+L+1.60S	0.010	0.042	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.023	0.063	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.040	0.084	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.063	0.105	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.091	0.126	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.123	0.147	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.161	0.168	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.204	0.189	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.252	0.210	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.305	0.231	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.363	0.253	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.426	0.274	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.494	0.295	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.567	0.316	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.646	0.337	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.729	0.358	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.818	0.379	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.912	0.400	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	1.010	0.421	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	1.114	0.442	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	1.223	0.463	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.337	0.484	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.457	0.505	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.581	0.526	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.710	0.547	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+L+1.60S	1.845	0.568	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	1.985	0.589	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	2.130	0.610	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	2.280	0.631	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.435	0.652	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+L+1.60S	2.596	0.673	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.015
+1.20D+L+1.60S	2.761	0.694	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+L+1.60S	2.932	0.715	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+L+1.60S	3.108	0.736	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.018
+1.20D+L+1.60S	3.289	0.758	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+L+1.60S	3.475	0.779	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020
+1.20D+L+1.60S	3.667	0.800	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.021
+1.20D+L+1.60S	3.863	0.821	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.022
+1.20D+L+1.60S	4.065	0.842	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.023
+1.20D+L+1.60S	4.272	0.863	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024
+1.20D+L+1.60S	4.484	0.884	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.026
+1.20D+L+1.60S	4.702	0.905	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.027
+1.20D+L+1.60S	4.924	0.926	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.028
+1.20D+L+1.60S	5.152	0.947	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+L+1.60S	5.385	0.968	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.031
+1.20D+L+1.60S	5.624	0.989	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+L+1.60S	5.867	1.010	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.034
+1.20D+L+1.60S	6.116	1.031	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.035
+1.20D+L+1.60S	6.370	1.052	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.036
+1.20D+L+1.60S	6.629	1.073	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.038
+1.20D+L+1.60S	6.894	1.094	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	7.164	1.115	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.041
+1.20D+L+1.60S	7.439	1.136	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.043
+1.20D+L+1.60S	7.719	1.157	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.044
+1.20D+L+1.60S	8.005	1.178	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.046
+1.20D+L+1.60S	8.296	1.199	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.047
+1.20D+L+1.60S	8.592	1.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.049
+1.20D+L+1.60S	8.893	1.242	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.051
+1.20D+L+1.60S	9.200	1.263	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.053
+1.20D+L+1.60S	9.512	1.284	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.054
+1.20D+L+1.60S	9.829	1.305	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.056
+1.20D+L+1.60S	10.152	1.326	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.058
+1.20D+L+1.60S	10.480	1.347	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.060
+1.20D+L+1.60S	10.813	1.368	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.062
+1.20D+L+1.60S	11.151	1.389	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.064
+1.20D+L+1.60S	11.495	1.410	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.066
+1.20D+L+1.60S	11.844	1.431	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.068
+1.20D+L+1.60S	12.199	1.452	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.070
+1.20D+L+1.60S	12.558	1.473	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.072
+1.20D+L+1.60S	12.924	1.494	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.074
+1.20D+L+1.60S	13.294	1.515	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.076
+1.20D+L+1.60S	13.670	1.536	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.078
+1.20D+L+1.60S	14.051	1.557	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.080
+1.20D+L+1.60S	14.438	1.578	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.083
+1.20D+L+1.60S	14.829	1.599	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.085
+1.20D+L+1.60S	15.227	1.620	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.087
+1.20D+L+1.60S	15.629	1.641	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.089
+1.20D+L+1.60S	16.037	1.662	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.092
+1.20D+L+1.60S	16.451	1.683	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.094
+1.20D+L+1.60S	16.869	1.704	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.096
+1.20D+L+1.60S	17.293	1.725	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.099
+1.20D+L+1.60S	17.723	1.747	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.101
+1.20D+L+1.60S	18.158	1.768	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.104
+1.20D+L+1.60S	18.598	1.789	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.106
+1.20D+L+1.60S	19.044	1.810	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.109
+1.20D+L+1.60S	19.495	1.831	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.111
+1.20D+L+1.60S	19.951	1.852	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.114
+1.20D+L+1.60S	20.413	1.873	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.117
+1.20D+L+1.60S	20.880	1.894	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.119
+1.20D+L+1.60S	21.353	1.915	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.122
+1.20D+L+1.60S	21.831	1.936	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.125
+1.20D+L+1.60S	22.315	1.957	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.128
+1.20D+L+1.60S	22.804	1.978	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.130
+1.20D+L+1.60S	23.298	1.999	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.133
+1.20D+L+1.60S	23.798	2.020	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.136
+1.20D+L+1.60S	24.304	2.041	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.139
+1.20D+L+1.60S	24.815	2.062	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.142
+1.20D+L+1.60S	25.331	2.083	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.145
+1.20D+L+1.60S	25.853	2.104	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.148
+1.20D+L+1.60S	26.380	2.125	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.151
+1.20D+L+1.60S	26.913	2.146	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.154
+1.20D+L+1.60S	27.451	2.167	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.157
+1.20D+L+1.60S	27.994	2.188	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.160
+1.20D+L+1.60S	28.544	2.209	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.163
+1.20D+L+1.60S	29.098	2.231	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.166
+1.20D+L+1.60S	29.658	2.252	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.170
+1.20D+L+1.60S	30.224	2.273	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.173
+1.20D+L+1.60S	30.795	2.294	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.176
+1.20D+L+1.60S	31.372	2.315	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.179
+1.20D+L+1.60S	31.954	2.336	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.183
+1.20D+L+1.60S	32.542	2.357	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.186
+1.20D+L+1.60S	33.135	2.378	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.189
+1.20D+L+1.60S	33.734	2.399	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.193
+1.20D+L+1.60S	34.338	2.420	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.196

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	34.948	2.441	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.200
+1.20D+L+1.60S	35.563	2.462	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.203
+1.20D+L+1.60S	36.184	2.483	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.207
+1.20D+L+1.60S	36.810	2.504	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.210
+1.20D+L+1.60S	37.442	2.525	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.214
+1.20D+L+1.60S	38.080	2.546	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.218
+1.20D+L+1.60S	38.723	2.567	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.221
+1.20D+L+1.60S	39.371	2.588	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.225
+1.20D+L+1.60S	40.026	2.609	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.229
+1.20D+L+1.60S	40.685	2.630	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.233
+1.20D+L+1.60S	41.351	2.651	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.236
+1.20D+L+1.60S	42.022	2.672	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.240
+1.20D+L+1.60S	42.698	2.693	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.244
+1.20D+L+1.60S	43.380	2.714	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.248
+1.20D+L+1.60S	44.068	2.736	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.252
+1.20D+L+1.60S	44.762	2.757	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.256
+1.20D+L+1.60S	45.461	2.778	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.260
+1.20D+L+1.60S	46.165	2.799	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.264
+1.20D+L+1.60S	46.875	2.820	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.268
+1.20D+L+1.60S	47.591	2.841	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.272
+1.20D+L+1.60S	48.312	2.862	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.276
+1.20D+L+1.60S	49.038	2.883	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.280
+1.20D+L+1.60S	49.754	2.904	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.284
+1.20D+L+1.60S	50.455	2.925	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.288
+1.20D+L+1.60S	51.142	2.946	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.292
+1.20D+L+1.60S	51.815	2.967	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.296
+1.20D+L+1.60S	52.474	2.988	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.300
+1.20D+L+1.60S	53.119	3.009	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.304
+1.20D+L+1.60S	53.750	3.030	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.307
+1.20D+L+1.60S	54.367	3.051	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.311
+1.20D+L+1.60S	54.969	3.072	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.314
+1.20D+L+1.60S	55.558	3.093	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.318
+1.20D+L+1.60S	56.132	3.114	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.321
+1.20D+L+1.60S	56.692	3.135	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.324
+1.20D+L+1.60S	57.239	3.156	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.327
+1.20D+L+1.60S	57.771	3.177	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.330
+1.20D+L+1.60S	58.289	3.198	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.333
+1.20D+L+1.60S	58.793	3.220	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.336
+1.20D+L+1.60S	59.283	3.241	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.339
+1.20D+L+1.60S	59.759	3.262	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.342
+1.20D+L+1.60S	60.221	3.283	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344
+1.20D+L+1.60S	60.669	3.304	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.347
+1.20D+L+1.60S	61.103	3.325	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.349
+1.20D+L+1.60S	61.522	3.346	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.352
+1.20D+L+1.60S	61.928	3.367	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.354
+1.20D+L+1.60S	62.320	3.388	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.356
+1.20D+L+1.60S	62.698	3.409	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.358
+1.20D+L+1.60S	63.061	3.430	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.360
+1.20D+L+1.60S	63.411	3.451	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.362
+1.20D+L+1.60S	63.747	3.472	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.364
+1.20D+L+1.60S	64.068	3.493	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.366
+1.20D+L+1.60S	87.576	3.514	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.501
+1.20D+L+1.60S	87.870	3.535	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.502
+1.20D+L+1.60S	88.150	3.556	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.504
+1.20D+L+1.60S	88.415	3.577	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.505
+1.20D+L+1.60S	88.667	3.598	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.507
+1.20D+L+1.60S	88.905	3.619	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.508
+1.20D+L+1.60S	89.128	3.640	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.509
+1.20D+L+1.60S	89.338	3.661	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.511
+1.20D+L+1.60S	89.534	3.682	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.716	3.703	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.884	3.725	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	90.038	3.746	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.515

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	90.178	3.767	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.515
+1.20D+L+1.60S	90.304	3.788	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.516
+1.20D+L+1.60S	90.416	3.809	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.517
+1.20D+L+1.60S	90.514	3.830	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.517
+1.20D+L+1.60S	90.599	3.851	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.518
+1.20D+L+1.60S	90.669	3.872	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.518
+1.20D+L+1.60S	90.726	3.893	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.768	3.914	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.797	3.935	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.812	3.956	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.812	3.977	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.799	3.998	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.772	4.019	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.731	4.040	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.519
+1.20D+L+1.60S	90.677	4.061	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.518
+1.20D+L+1.60S	90.608	4.082	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.518
+1.20D+L+1.60S	90.526	4.103	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.517
+1.20D+L+1.60S	90.429	4.124	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.517
+1.20D+L+1.60S	90.328	4.145	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.516
+1.20D+L+1.60S	90.233	4.166	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.516
+1.20D+L+1.60S	90.144	4.187	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.515
+1.20D+L+1.60S	90.061	4.209	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.515
+1.20D+L+1.60S	89.984	4.230	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	89.912	4.251	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	89.847	4.272	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	89.787	4.293	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.734	4.314	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.686	4.335	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.644	4.356	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.608	4.377	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.578	4.398	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.554	4.419	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.537	4.440	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.525	4.461	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.519	4.482	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.519	4.503	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.524	4.524	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.536	4.545	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.554	4.566	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.578	4.587	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.608	4.608	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.644	4.629	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.686	4.650	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.734	4.671	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.788	4.692	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.846	4.714	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	89.868	4.735	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.514
+1.20D+L+1.60S	89.836	4.756	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.749	4.777	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.513
+1.20D+L+1.60S	89.609	4.798	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.512
+1.20D+L+1.60S	89.414	4.819	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.511
+1.20D+L+1.60S	89.165	4.840	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.510
+1.20D+L+1.60S	88.863	4.861	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.508
+1.20D+L+1.60S	88.505	4.882	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.506
+1.20D+L+1.60S	88.094	4.903	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.504
+1.20D+L+1.60S	87.629	4.924	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.501
+1.20D+L+1.60S	87.109	4.945	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.498
+1.20D+L+1.60S	86.536	4.966	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.495
+1.20D+L+1.60S	85.908	4.987	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.491
+1.20D+L+1.60S	85.226	5.008	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.487
+1.20D+L+1.60S	84.490	5.029	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.483
+1.20D+L+1.60S	83.700	5.050	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.478
+1.20D+L+1.60S	82.856	5.071	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.474

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	81.958	5.092	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.468
+1.20D+L+1.60S	81.006	5.113	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.463
+1.20D+L+1.60S	80.005	5.134	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.457
+1.20D+L+1.60S	79.000	5.155	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.452
+1.20D+L+1.60S	78.002	5.176	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.446
+1.20D+L+1.60S	77.009	5.197	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.440
+1.20D+L+1.60S	76.023	5.219	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.435
+1.20D+L+1.60S	75.043	5.240	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.429
+1.20D+L+1.60S	74.069	5.261	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.423
+1.20D+L+1.60S	73.102	5.282	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.418
+1.20D+L+1.60S	72.140	5.303	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.412
+1.20D+L+1.60S	71.184	5.324	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.407
+1.20D+L+1.60S	70.235	5.345	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.401
+1.20D+L+1.60S	69.292	5.366	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.396
+1.20D+L+1.60S	68.355	5.387	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.391
+1.20D+L+1.60S	67.424	5.408	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.385
+1.20D+L+1.60S	66.499	5.429	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.380
+1.20D+L+1.60S	65.581	5.450	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.375
+1.20D+L+1.60S	64.668	5.471	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.370
+1.20D+L+1.60S	63.762	5.492	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.364
+1.20D+L+1.60S	62.862	5.513	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.359
+1.20D+L+1.60S	61.968	5.534	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.354
+1.20D+L+1.60S	61.081	5.555	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.349
+1.20D+L+1.60S	60.199	5.576	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.344
+1.20D+L+1.60S	59.324	5.597	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.339
+1.20D+L+1.60S	58.455	5.618	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.334
+1.20D+L+1.60S	57.593	5.639	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.329
+1.20D+L+1.60S	56.736	5.660	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.324
+1.20D+L+1.60S	55.886	5.681	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.319
+1.20D+L+1.60S	55.042	5.703	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.315
+1.20D+L+1.60S	54.204	5.724	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.310
+1.20D+L+1.60S	53.372	5.745	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.305
+1.20D+L+1.60S	52.547	5.766	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.300
+1.20D+L+1.60S	51.728	5.787	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.296
+1.20D+L+1.60S	50.915	5.808	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.291
+1.20D+L+1.60S	50.108	5.829	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.286
+1.20D+L+1.60S	49.308	5.850	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.282
+1.20D+L+1.60S	48.514	5.871	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.277
+1.20D+L+1.60S	47.726	5.892	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.273
+1.20D+L+1.60S	46.944	5.913	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.268
+1.20D+L+1.60S	46.169	5.934	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.264
+1.20D+L+1.60S	45.400	5.955	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.260
+1.20D+L+1.60S	44.637	5.976	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.255
+1.20D+L+1.60S	43.881	5.997	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.251
+1.20D+L+1.60S	43.130	6.018	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.247
+1.20D+L+1.60S	42.387	6.039	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.242
+1.20D+L+1.60S	41.649	6.060	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.238
+1.20D+L+1.60S	40.918	6.081	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.234
+1.20D+L+1.60S	40.193	6.102	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.230
+1.20D+L+1.60S	39.474	6.123	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.226
+1.20D+L+1.60S	38.762	6.144	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.222
+1.20D+L+1.60S	38.056	6.165	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.218
+1.20D+L+1.60S	37.356	6.186	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.214
+1.20D+L+1.60S	36.663	6.208	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.210
+1.20D+L+1.60S	35.976	6.229	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.206
+1.20D+L+1.60S	35.295	6.250	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.202
+1.20D+L+1.60S	34.621	6.271	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.198
+1.20D+L+1.60S	33.953	6.292	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.194
+1.20D+L+1.60S	33.292	6.313	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.190
+1.20D+L+1.60S	32.636	6.334	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.187
+1.20D+L+1.60S	31.988	6.355	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.183
+1.20D+L+1.60S	31.345	6.376	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.179
+1.20D+L+1.60S	30.709	6.397	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.176

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	30.079	6.418	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.172
+1.20D+L+1.60S	29.456	6.439	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.168
+1.20D+L+1.60S	28.839	6.460	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.165
+1.20D+L+1.60S	28.228	6.481	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.161
+1.20D+L+1.60S	27.624	6.502	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.158
+1.20D+L+1.60S	27.026	6.523	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.154
+1.20D+L+1.60S	26.435	6.544	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.151
+1.20D+L+1.60S	25.850	6.565	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.148
+1.20D+L+1.60S	25.272	6.586	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.144
+1.20D+L+1.60S	24.700	6.607	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.141
+1.20D+L+1.60S	24.134	6.628	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.138
+1.20D+L+1.60S	23.575	6.649	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.135
+1.20D+L+1.60S	23.022	6.670	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.132
+1.20D+L+1.60S	22.475	6.692	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.128
+1.20D+L+1.60S	21.935	6.713	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.125
+1.20D+L+1.60S	21.402	6.734	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.122
+1.20D+L+1.60S	20.875	6.755	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.119
+1.20D+L+1.60S	20.354	6.776	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.116
+1.20D+L+1.60S	19.840	6.797	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.113
+1.20D+L+1.60S	19.332	6.818	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.111
+1.20D+L+1.60S	18.831	6.839	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.108
+1.20D+L+1.60S	18.336	6.860	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.105
+1.20D+L+1.60S	17.848	6.881	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.102
+1.20D+L+1.60S	17.366	6.902	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.099
+1.20D+L+1.60S	16.891	6.923	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.097
+1.20D+L+1.60S	16.422	6.944	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.094
+1.20D+L+1.60S	15.960	6.965	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.091
+1.20D+L+1.60S	15.504	6.986	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.089
+1.20D+L+1.60S	15.055	7.007	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.086
+1.20D+L+1.60S	14.612	7.028	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.084
+1.20D+L+1.60S	14.176	7.049	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.081
+1.20D+L+1.60S	13.746	7.070	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.079
+1.20D+L+1.60S	13.323	7.091	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.076
+1.20D+L+1.60S	12.906	7.112	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.074
+1.20D+L+1.60S	12.496	7.133	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.071
+1.20D+L+1.60S	12.092	7.154	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.069
+1.20D+L+1.60S	11.695	7.175	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.067
+1.20D+L+1.60S	11.304	7.197	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.065
+1.20D+L+1.60S	10.920	7.218	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.062
+1.20D+L+1.60S	10.543	7.239	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.060
+1.20D+L+1.60S	10.172	7.260	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.058
+1.20D+L+1.60S	9.808	7.281	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.056
+1.20D+L+1.60S	9.450	7.302	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.054
+1.20D+L+1.60S	9.099	7.323	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.052
+1.20D+L+1.60S	8.754	7.344	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.050
+1.20D+L+1.60S	8.416	7.365	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.048
+1.20D+L+1.60S	8.084	7.386	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.046
+1.20D+L+1.60S	7.760	7.407	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.044
+1.20D+L+1.60S	7.441	7.428	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.043
+1.20D+L+1.60S	7.130	7.449	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.041
+1.20D+L+1.60S	6.824	7.470	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.039
+1.20D+L+1.60S	6.526	7.491	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.037
+1.20D+L+1.60S	6.234	7.512	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.036
+1.20D+L+1.60S	5.949	7.533	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.034
+1.20D+L+1.60S	5.670	7.554	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.032
+1.20D+L+1.60S	5.398	7.575	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.031
+1.20D+L+1.60S	5.133	7.596	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.029
+1.20D+L+1.60S	4.874	7.617	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.028
+1.20D+L+1.60S	4.622	7.638	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.026
+1.20D+L+1.60S	4.376	7.659	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.025
+1.20D+L+1.60S	4.137	7.681	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.024
+1.20D+L+1.60S	3.905	7.702	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.022
+1.20D+L+1.60S	3.680	7.723	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.021

OFFSET COMBINED FOOTING - 2'-8"
GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Z-Axis Footing Flexure - Maximum Values for Load Combination

Load Combination...	Mu (ft-k)	Distance from left (ft)	Tension Side	As Req'd (in^2)	Governed by	Actual As (in^2)	Phi*Mn (ft-k)	Mu / PhiMn
+1.20D+L+1.60S	3.461	7.744	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.020
+1.20D+L+1.60S	3.249	7.765	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.019
+1.20D+L+1.60S	3.043	7.786	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.017
+1.20D+L+1.60S	2.844	7.807	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.016
+1.20D+L+1.60S	2.652	7.828	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.015
+1.20D+L+1.60S	2.467	7.849	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.014
+1.20D+L+1.60S	2.288	7.870	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.013
+1.20D+L+1.60S	2.116	7.891	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.012
+1.20D+L+1.60S	1.950	7.912	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.011
+1.20D+L+1.60S	1.791	7.933	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.010
+1.20D+L+1.60S	1.639	7.954	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.494	7.975	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.009
+1.20D+L+1.60S	1.355	7.996	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.008
+1.20D+L+1.60S	1.224	8.017	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.007
+1.20D+L+1.60S	1.098	8.038	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	0.980	8.059	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.006
+1.20D+L+1.60S	0.868	8.080	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.005
+1.20D+L+1.60S	0.763	8.101	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.665	8.122	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.004
+1.20D+L+1.60S	0.574	8.143	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.489	8.164	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.003
+1.20D+L+1.60S	0.411	8.186	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.340	8.207	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.275	8.228	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.002
+1.20D+L+1.60S	0.217	8.249	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.167	8.270	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.122	8.291	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.001
+1.20D+L+1.60S	0.085	8.312	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.054	8.333	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.031	8.354	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.014	8.375	Bottom	2.765	ACI 7.6.1.1	3.080	174.949	0.000
+1.20D+L+1.60S	0.000	8.396	0	0.000	0	0.000	0.000	0.000
+1.20D+L+1.60S	0.000	8.417	0	0.000	0	0.000	0.000	0.000

One Way Shear

Load Combination...	Left of Column #1			Right of Column #1			Left of Column #2			Right of Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	9.1	44.4	0.205	3.8	44.4	0.086	15.9	44.4	0.357	3.8	44.4	0.086
+1.20D+0.50Lr+1.60L	13.1	44.4	0.295	10.4	44.4	0.234	25.3	44.4	0.569	10.4	44.4	0.234
+1.20D+1.60L+0.50S	13.5	44.4	0.304	9.7	44.4	0.218	25.6	44.4	0.577	9.7	44.4	0.218
+1.20D+1.60Lr+L	15.6	44.4	0.352	0.7	44.4	0.015	25.1	44.4	0.565	0.7	44.4	0.015
+1.20D+1.60Lr+0.50W	13.3	44.4	0.298	9.1	44.4	0.204	20.0	44.4	0.451	9.1	44.4	0.204
+1.20D+L+1.60S	16.9	44.4	0.380	3.1	44.4	0.069	26.3	44.4	0.592	3.1	44.4	0.069
+1.20D+1.60S+0.50W	14.5	44.4	0.326	11.4	44.4	0.258	21.2	44.4	0.478	11.4	44.4	0.258
+1.20D+0.50Lr+L+W	11.4	44.4	0.257	2.7	44.4	0.061	23.9	44.4	0.539	2.7	44.4	0.061
+1.20D+L+0.50S+W	11.8	44.4	0.266	2.0	44.4	0.045	24.3	44.4	0.547	2.0	44.4	0.045
+0.90D+W	5.5	44.4	0.124	1.3	44.4	0.030	12.6	44.4	0.284	1.3	44.4	0.030
+1.20D+L+0.20S+E	13.7	44.4	0.309	1.9	44.4	0.044	23.9	44.4	0.538	1.9	44.4	0.044
+0.90D+E	8.7	44.4	0.196	3.8	44.4	0.085	13.4	44.4	0.302	3.8	44.4	0.085

Two Way Shear

Load Combination...	Column #1			Column #2		
	vu (psi)	Φ vn (psi)	vu / Φ vn	vu (psi)	Φ vn (psi)	vu / Φ vn
+1.40D	13.0	164.3	0.079	23.1	164.3	0.141
+1.20D+0.50Lr+1.60L	15.0	164.3	0.092	27.8	164.3	0.169
+1.20D+1.60L+0.50S	16.3	164.3	0.099	29.8	164.3	0.182

OFFSET COMBINED FOOTING - 2'-8" GAP (Y-AXIS OFFSET)

DESCRIPTION: Special Worst Case Combined Footing (Gridline 2-4 PEMB Reactions, Type B Mezzanine Column - Offset

Two Way Shear

Load Combination...	Column #1 vu (psi)	Column #1 Φ vn (psi)	Column #1 vu / Φ vn	Column #2 vu (psi)	Column #2 Φ vn (psi)	Column #2 vu / Φ vn
+1.20D+1.60Lr+L	28.2	164.3	0.171	48.8	164.3	0.297
+1.20D+1.60Lr+0.50W	30.9	164.3	0.188	52.1	164.3	0.317
+1.20D+L+1.60S	32.2	164.3	0.196	55.4	164.3	0.337
+1.20D+1.60S+0.50W	34.9	164.3	0.213	58.8	164.3	0.358
+1.20D+0.50Lr+L+W	18.9	164.3	0.115	33.4	164.3	0.203
+1.20D+L+0.50S+W	20.2	164.3	0.123	35.5	164.3	0.216
+0.90D+W	11.6	164.3	0.071	20.0	164.3	0.121
+1.20D+L+0.20S+E	22.9	164.3	0.139	40.1	164.3	0.244
+0.90D+E	18.5	164.3	0.112	31.4	164.3	0.191

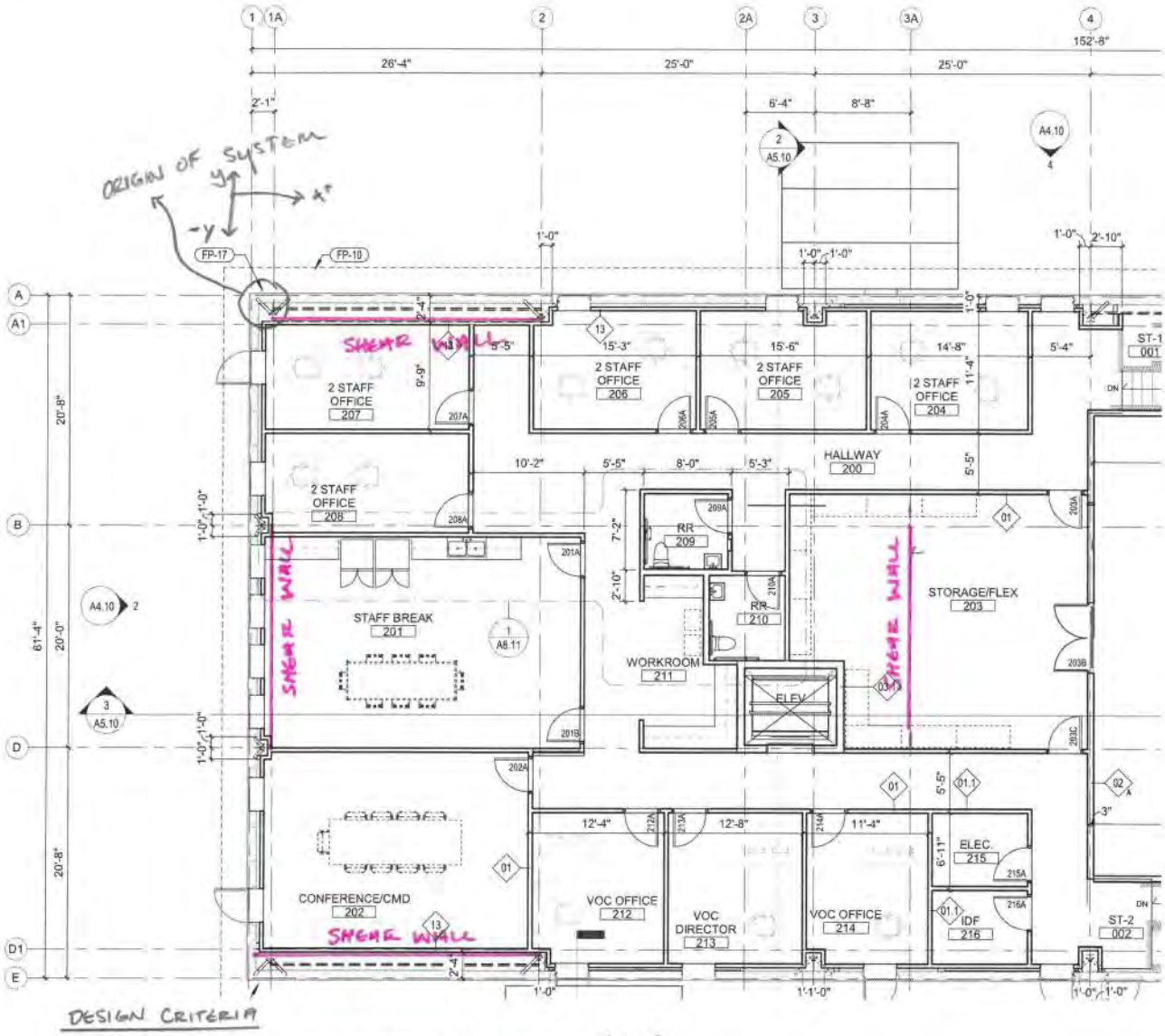
3.0 – MEZZANINE LATERAL DESIGN

PCS Structural Solutions

Project: NISQUALLY VOC Job No: 26-384

Subject: SHEAR WALL DES Sheet 1 Name: DMS

Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland Date: 2026-09-21



DESIGN CRITERIA

SYSTEM: LIGHT FRAMED SHEAR WALLS (CFS)

R = 7 Ω_0 = 2½ C_D = 4½

S_{DS} = 0.843 $C_s = \frac{S_{DS}}{\frac{R}{I_e}}$ $C_{s,min} = 0.044 S_{DS} I_e$

C_s = 0.120

V: BASE SHEAR = $C_s W$ = 0.120W

SEE NEXT Pg FOR W

RIGID DIAPHRAGM

W3 DECK W 2½" TOPP. (NWT)

FORCE DIST BASED ON STIFFNESS OF VERTICAL ELEMENTS

CENTROID:

x = 458 in

y = -348 in

LATERAL DESIGN CONT'D

PER PREV:

$C_s = 0.120$

$V = C_s W$

$W = DL = 71.8 psf (FLOOR AREA) + 25\% (STORAGE LIVE LOAD)$

NEED NOT BE INCLUDED IF ≤ 5% W

EFFECTIVE SEISMIC WEIGHT = SELF WEIGHT (FLOOR ASSEMBLY DEAD LOAD) * FLOOR AREA + 25% STORAGE LIVE LOAD * STORAGE FLOOR AREA

TOTAL FLOOR AREA = ~4460 ft² → FLOOR DEAD = 321 K (71.8 PSF * 4460 FT^2)

PER ASCE 7-16 SEC 12.7.2 STORAGE FLOOR AREA = 624 ft² → STORAGE 25% = 19.5 K (6% ∴ INCL)

(0.25 * 125 PSF * 624 FT^2)

COLUMN WT (PER RAM): 8.1 K

'W': EFFECTIVE SEISMIC WEIGHT ∴ $\Sigma W_i = 348.6$ K (8.1 K + 19.5 K + 321 K = 348.6 K)

BASE SHEAR, $V = C_s W = 42$ K ($C_s = 0.120$)

RIGID DIAPHRAGM FORCE DIST

STIFFNESS OF VERTICAL ELEMENTS: COLD FORMED STEEL WALLS

B/C SYSTEMS SAME IN BOTH DIR.; RELATIVE STIFFNESS VALUES VARY BASED ON:

$\Delta = \Delta_{be} + \Delta_{oe} + \Delta_{se} + \Delta_{INE}$

[h: WALL HT
w: WALL WIDTH]

WITH NON CONSTANT VALUES: UNIT SHEAR = 1.0

$\Delta_{be} = \frac{8q}{w}$ $q = \frac{V}{w}$ ∴ LINEAR

SO ON... LINEARLY INVERSE CORRELATED

SEE JUSTIFICATION ON FOLLOWING PAGES FOR COLD FORMED STEEL STIFFNESS

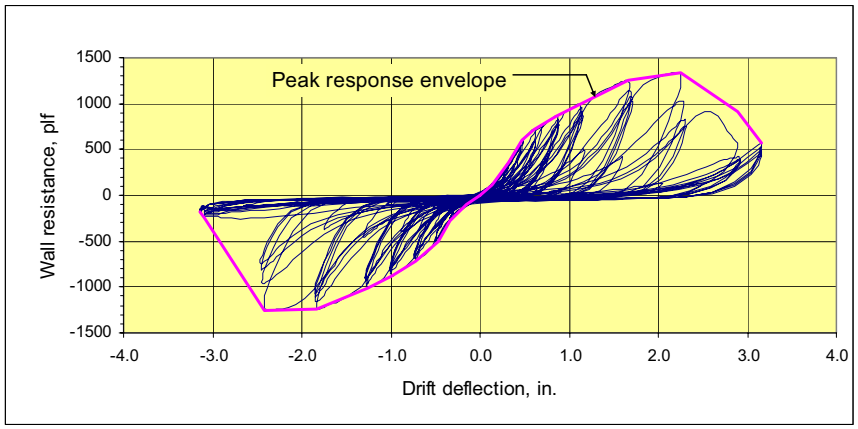


Figure 2. Example of a peak response envelope from a reversed cyclic test

DRIFT DEFLECTION FORMULATION

The formulation described below approximates the drift deflection (lateral displacement), Δ, of cold-formed steel frame shear walls sheathed with plywood, OSB or sheet steel. This formulation does not apply to gypsum-sheathed walls and is similar to the method used in wood-frame construction. The total deflection (Δ) of a uniformly fastened, blocked wood structural panel or sheet steel panel shear wall is permitted to be calculated using the following formula:

$$\Delta = \Delta_{be} + \Delta_{oe} + \Delta_{se} + \Delta_{ine} \qquad \textit{(Equation 1)}$$

where Δ = total wall deflection, Δ_{be} = deflection due to cantilever bending, Δ_{oe} = deflection due to overturning anchor deformation, Δ_{se} = deflection due to shear deformation in the plane of the sheathing and Δ_{ine} = empirical inelastic deflection component (derived from regression analysis of reversed cyclic test data). These four components of deflection are defined in the following sections.

Δ_{be} : Deflection due to cantilever bending (in.)

$$\Delta_{be} = \frac{8qh^3}{\cancel{E_s A_C} w} \qquad \textit{(Equation 2)}$$

E_s = elastic modulus of steel (29,500,000 psi) CONSTANT ∴ 1.0

A_C = gross cross-sectional area of chord stud (in^2) CONSTANT ∴ 1.0

$q = V/w$ (lb/ft)

V = total lateral load applied to the wall (lb) UNIT LOAD APPLIED ∴ 1.0

w = width of the wall--measured between chord center lines (ft)

h = wall height--out-to-out from top to bottom plate (ft)

Δ_{oe} : Deflection due to overturning anchorage deformation (in.)

$$\Delta_{oe} = \frac{12qh^2 L}{E_s A_a w_a} \qquad \textit{(Equation 3)}$$

L = "deformable" length of the anchor bolts (ft) CONSTANT ∴ 1.0

A_a = cross-sectional area of the anchor bolts (in^2) CONSTANT ∴ 1.0

w_a = centerline distance between anchor bolts (ft)

This deflection component only includes deformation of the anchor bolt itself. Other sources of anchorage deformation (example: contributions from the holdown device) are not included.

Δ_{se} : Deflection due to shear deformation in the plane of the sheathing (in.)

$$\Delta_{se} = \omega_1 \frac{q}{\rho G t_{sheathing}} \qquad \textit{(Equation 4)}$$

$$\omega_1 = \left(\frac{s}{6} \cdot \frac{0.033}{t_{stud}}\right)\left(\frac{h}{8}\right)$$

$\rho = 0.23$ for plywood, 0.13 for OSB and $0.009\left(\frac{t_{sheathing}}{0.018}\right)$ for sheet steel CONSTANT ∴ 1.0

G = shear modulus of the sheathing material (psi) CONSTANT ∴ 1.0

$t_{sheathing}$ = nominal panel thickness (in.) CONSTANT ∴ 1.0

t_{stud} = nominal stud thickness (in.) CONSTANT ∴ 1.0

s = fastener spacing at panel edges (in.) CONSTANT ∴ 1.0

Δ_{se} is essentially the product of the classic expression for elastic in-plane shear deformation ($\gamma = \tau / G$, where $\gamma = \Delta / h$ and $\tau = V / \left(w \cdot t_{sheathing}\right)$) multiplied by empirical adjustment factors derived from regression analyses of thirty-two of the reversed cyclic tests used in development of Code (IBC and NFPA) nominal shear values. The adjustment factors account for wall heights greater than 8 ft. (only eight foot walls were tested), screw spacings other that 6 inches on center at panel edges, stud thickness greater than 33 mil and the type of sheathing.

Δ_{ine} : Empirical inelastic deflection component (in.)

$$\Delta_{ine} = \omega_2 \omega_3 \omega_4 \left(\frac{q}{\beta}\right)^2 \qquad \textit{(Equation 5)}$$

$$\omega_2 = \left(\frac{s}{6}\right)^{1.25}\left(\frac{0.033}{t_{stud}}\right)$$

$$\omega_3 = \sqrt{\frac{\left(h/w\right)}{2}}$$

$\omega_4 = 1$ for wood structural panels, $\sqrt{\frac{33}{F_y}}$ for sheet steel CONSTANT ∴ 1.0

$\beta = 810$ for plywood, 660 for OSB and $500\left(\frac{t_{sheathing}}{0.018}\right)$ for sheet steel CONSTANT ∴ 1.0

Δ_{ine} is a purely empirical term that accounts for the complex nonlinear response evident in cold-formed steel frame shear walls. In wood frame construction, this term is commonly referred to as "nail slip." Δ_{ine} was developed by comparing envelope results from regression analyses of thrity-two reversed cyclic tests (see the Appendix).

The expressions given above are not sensitive to different fastener sizes (diameters). Recent tests ("Performance of Cold-Formed Steel-Framed Shear Walls: Alternative Configurations," LGSRG-06-02, submitted to NAHB Research Center, July 12, 2002) have shown that larger screws (No. 10 versus No. 8) tend to increase the stiffness of a wood panel shear wall. Given the limited scope of the recent tests (LGSRG-06-02) and the approximate nature of the proposed equations, adjustments for increased stiffness from larger fastener sizes were not included in the expressions recommended above.

The attached appendix compares the estimated drift deflections using the method described in this paper with the peak response envelope curves derived from tests. There are two peak response curves per plot (one for the positive (push) data and one for the negative (pull) data). The estimated deflections ignore the Δ_{be} and Δ_{oe} terms. The Δ_{be} term is a relatively small contributor due to the high value of the elastic modulus compared to lumber, and the Δ_{oe} contribution, measured in tests, was relatively small.

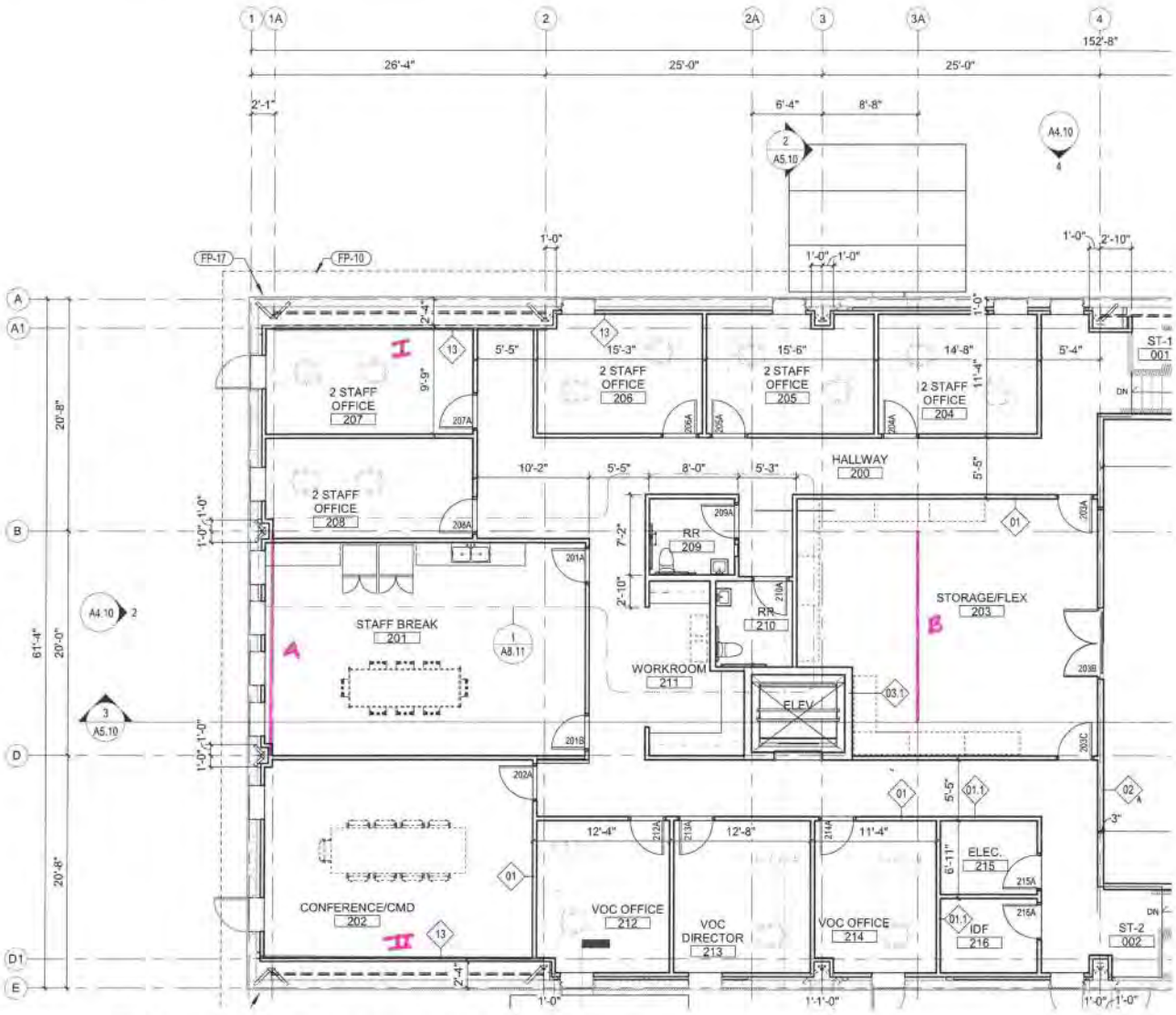
NOTES:

PCS Structural Solutions

Project: NISQUALLY VOC | Job No: 26-384

Subject: SHEAR WALL STIFFNESS DETERMINATION | Sheet 3 | Name: DMS

Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland | Date: 09/30/2026



"VERTICAL" PLAN N-S ELEMENTS

A: 20'-0" IF 20'-0" $\Delta_F = 1.0$ ⇒ $R_F = 1.0$

B: 20'-0"

↳ IF L = 26'-4" $\Delta_F = \frac{20'-0"}{26'-4"} = 0.76$

$R_F = 1.316$

"HORIZONTAL" PLAN E-W ELEMENTS

I: 26'-4"

II: 26'-4"

$R_{F,VERT} = 1.00$

$R_{F,HORIZ} = 1.316$

RELATIVE
R_F = STIFFNESS

RIGID DIAPHRAGM FORCE DISTRIBUTION

Torsional Analysis of Rigid Diaphragm

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Torsional Analysis of Mezzanine Diaphragm

General Information

Primary Lateral Force	42.0 k	Center of Shear Application :	
.....Additional Orthogonal Force	k	Distance from "X" datum point	38.167 ft
Resultant Load Used for Analysis :	42.0 k	Distance from "Y" datum point	-29.0 ft
		Ecc. as % of Maximum Dimension	5.00 %
Load Direction Angular Increment	15 deg	Maximum Dimensions :	
Eccentricity Angular Increment	30.0 deg	Along "X" Axis	ft
Center of Rigidity Location (calculated) . . .		Along "Y" Axis	ft
"X" dist. from Datum	30.0 ft	Accidental Eccentricity:	
"Y" dist. from Datum	-30.70 ft	Along "X" Axis + / -	0.0 ft
		Along "Y" Axis + / -	0.0 ft

Note: This load is the SRSS resultant of the primary and orthogonal forces. It will be applied to the force resisting system at the angle or anglular increments defined below under Load Direction

Generic Resisting Element Information

Label :	Wall "A"	X Location	0 ft	Local Flexibility:	
		Y Location	-30.6667 ft	Along local 'y'	1.0000E+000 in / k
		Angle CCW	90 deg	Along local 'x'	Neglect
Label :	Wall "B"	X Location	60 ft	Local Flexibility:	
		Y Location	-30.6667 ft	Along local 'y'	1.0000E+000 in / k
		Angle CCW	90 deg	Along local 'x'	Neglect
Label :	Wall "I"	X Location	13.1667 ft	Local Flexibility:	
		Y Location	0 ft	Along local 'y'	7.6000E-001 in / k
		Angle CCW	0 deg	Along local 'x'	Neglect
Label :	Wall "II"	X Location	13.1667 ft	Local Flexibility:	
		Y Location	-61.4 ft	Along local 'y'	7.6000E-001 in / k
		Angle CCW	0 deg	Along local 'x'	Neglect

ANALYSIS SUMMARY

Maximum shear forces applied to resisting elements. Eccentricity with respect to Center of Rigidity

		Max Shear along Member Local "y-y" Axis			Max Shear along Member Local "x-x" Axis		
Resisting Element	Load Condition	X-Ecc (ft)	Y-Ecc (ft)	Shear (k)	Load Condition	X-Ecc (ft)	Y-Ecc (ft)	Shear (k)
Wall "A"	90.00 deg	8.17	1.70	**18.596**	0.00	0.00	0.00	**0.000**
Wall "B"	90.00 deg	8.17	1.70	**23.404**	0.00	0.00	0.00	**0.000**
Wall "I"	345.00 deg	8.17	1.70	**21.773**	0.00	0.00	0.00	**0.000**
Wall "II"	15.00 deg	8.17	1.70	**20.471**	0.00	0.00	0.00	**0.000**

SEE FOLLOWING SHEAR WALL CALCS FOR APPLICATION OF THESE FORCES

Project Title:
Engineer:
Project ID:
Project Descr:

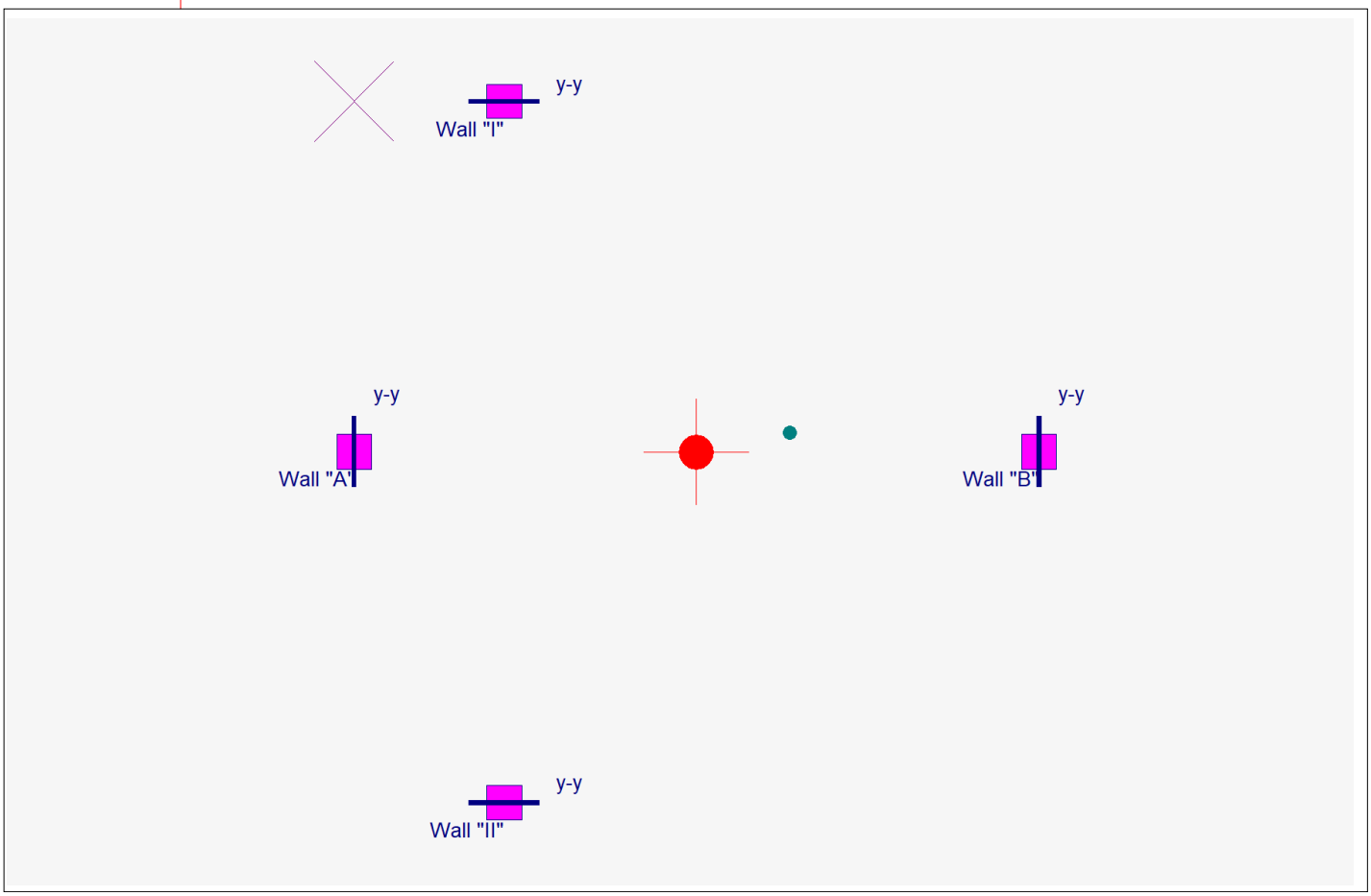
Torsional Analysis of Rigid Diaphragm

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Torsional Analysis of Mezzanine Diaphragm

Layout of Resisting Elements

Legend : Defined Wall | Defined Deflection | X Datum | Center of Rigidity | Center of Mass | Accidental eccentricity application boundary



Torsional Analysis of Rigid Diaphragm

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Torsional Analysis of Mezzanine Diaphragm

Analysis Notes

This calculation evaluates how a rigid diaphragm distributes applied lateral loads to its resisting elements based on their relative stiffness.

For Wall or Bending Member elements, flexibility along the local x and y axes is calculated from user-defined section properties and end-fixity. For Generic Resisting Elements, flexibility values are entered directly. These flexibility values are then used to determine element local stiffnesses.

Each element location is specified by X and Y coordinates to its center of gravity, along with an optional counter-clockwise rotation relative to the global axes. This positional and orientation data is used to transform local stiffnesses into the global coordinate system. The resulting global stiffnesses establish the diaphragm center of rigidity and dictate how shear is distributed among elements according to their positions and stiffnesses.

Once the global stiffnesses have been defined, loading is applied to the system. The applied loads consist of a primary shear and an optional orthogonal shear. User-defined accidental eccentricities and plan dimensions define an elliptical load path. Analysis proceeds along this path in discrete stations. At each station, the applied shear is rotated through a series of specified load angles, each representing a different direction of loading relative to the global axes. For every load angle, direct and torsional shears are calculated for all elements before advancing to the next station along the ellipse.

This process generates a detailed set of results for each element, reflecting its response to numerous load angles applied at varying eccentricities from the center of load application. Global X and Y forces and the corresponding local shears are calculated for every element, and the governing forces and shears are identified and reported.

PCS Structural Solutions

Project: _____ Job No: 26-384

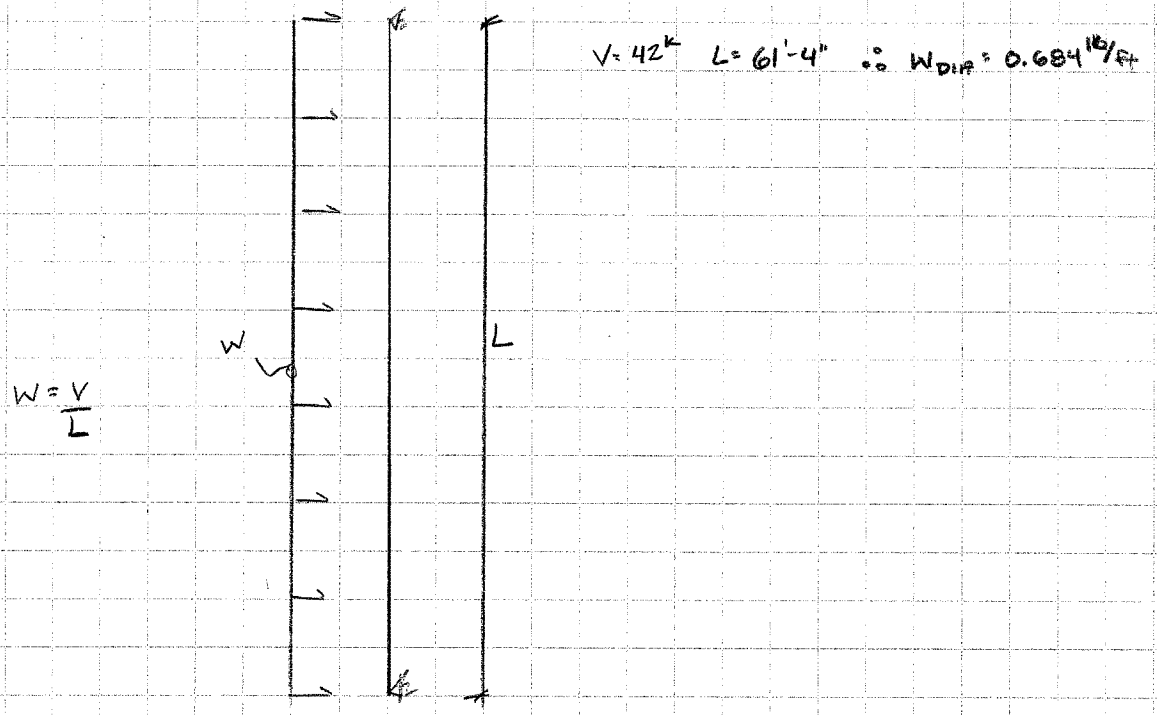
Subject: DIA SHEAR Sheet _____ Name: DMS

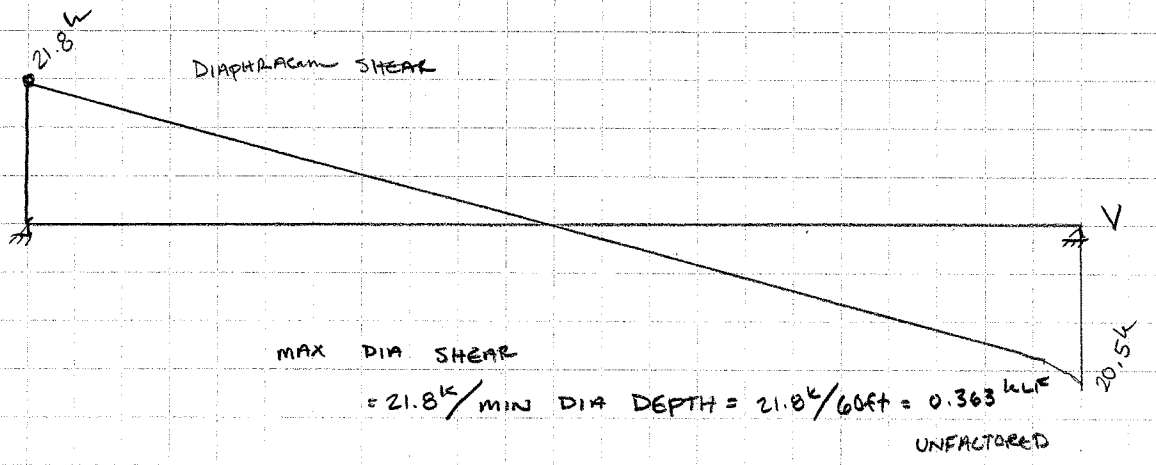
Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland Date: _____

DIAPHRAGM SHEAR CHECK

DIAPHRAGM SHEAR CAPACITY: W3 FORMLOK W/ 2½" TOPPING

N-S DIAPHRAGM (FORCE E-W)





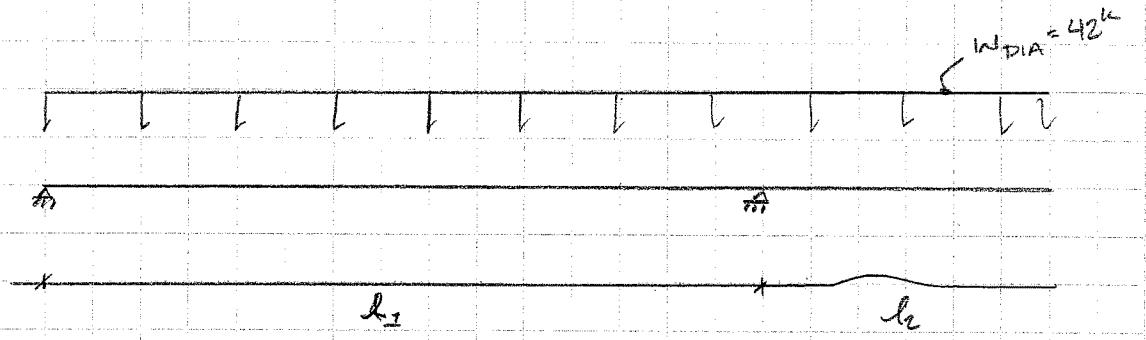
MAX DIA SHEAR

= 21.8K/MIN DIA DEPTH = 21.8K/60ft = 0.363 KLF

UNFACTORED

By INSP, DIA OK, SEE CHORDS & COLL.

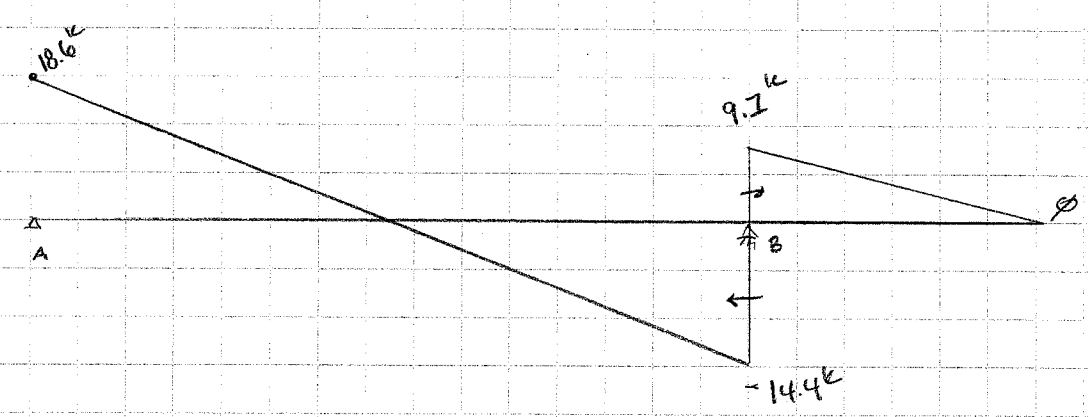
DIAPHRAGM SHEAR CHECK



$w_{DIA} = 0.55$KLF

$l_2 = 60$ft
$l_2 = 16'-4"$
} $\xi = 76.33$

$V = 42^k$



MAXIMUM DIA SHEAR = $23.8^k / 61'-4" = 0.388$ KLF

VIA INSPECTION; DIAPHRAGM OK W W3 2.5" TOPP.

20 ga PLW3-36 FormLok® Grade 50

with 5.5 in. of 150 pcf concrete (fc' = 4000 psi)

Composite Deck-Slab Diaphragm Shear Strength and Stiffness

Theoretical deck-slab unit weight, not including ponding = 52.3 psf

Theoretical concrete volume, not including ponding = 1.24 cu. yd / 100 sq. ft

Composite Deck-Slab Diaphragm Strength, Stiffness and Connections

Calculated in accordance with IAPMO ER-2018, AISI S310-20 w/S1-22

Temperature and Shrinkage Reinforcement Only	As min =	0.028	sq in./ft	
Deck-Slab Shear Strength for LRFD	$\phi \cdot S_n$ =	8,182	lb/ft	≥ 5000 lb/ft
Deck-Slab Shear Stiffness	G' =	1,278	k/in.	

Chord and Collector Requirements

Calculated in accordance with IAPMO ER-2018, AISI S310-20 w/S1-22, AISC 360-22

Required Shear Strength for LRFD, Ru (lb/ft) R_u = 5,000 lb/ft

Steel Headed Stud Anchor	Min. Support Thickness	Perpendicular to Deck	Parallel to Deck
3/4 in. dia.	0.3 in.	1 per flute	28.3 in. oc max
5/8 in. dia.	0.25 in.	1 per flute	19.2 in. oc max
1/2 in. dia.	0.2 in.	1 per flute + 1 every 3rd flute	12.2 in. oc max
3/8 in. dia.	0.15 in.	3 per flute	7 in. oc max

For stud size and detailing requirements, follow AISC 360 Sec. I8.1 and I8.2d

Minimum Connections to Supporting Members

Minimum connections to all supports may be any of the following: arc spot welds, fillet welds, PAF's, screws, welded studs or other mechanical connections.

Perpendicular Connection Pattern	1 per rib
Parallel Perimeter Connections	36 in. o.c.

Sidelap connections between steel deck panels may be VSC2, button punch, screw, 1-1/2 in. arc seam weld or 1 -1/2 in. top arc seam weld. The maximum sidelap connection spacing shall not exceed 36 in. o.c.

Minimum connections to supporting members and sidelap connections do not contribute to the diaphragm shear strength.

Minimum Required Reinforcement for Temperature and Shrinkage

Minimum Area of reinforcement steel	$A_{s\,min}$ =	0.028	$in.^2/ft$
Specified yield strength of reinforcement steel	F_{yt} =	60,000	$lb/in.^2$
or			
Bekaert Dramix 4D 65/60 BG Steel Fiber Dosage	D_{min} =	15	lb/yd^3

Version: V1.0.0 Beta

NOTICE: Design defects that could cause injury or death may result from relying on the information in this document without independent verification by a qualified professional. The information in this document is provided "AS IS". Nucor Corporation and its affiliates expressly disclaim: (i) any and all representations, warranties and conditions and (ii) all liability arising out of or related to this document and the information in it.

MAXIMUM DIAPHRAGM MOMENT DEMAND - FOR C_F

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Chord Force Determination (Force N-S)

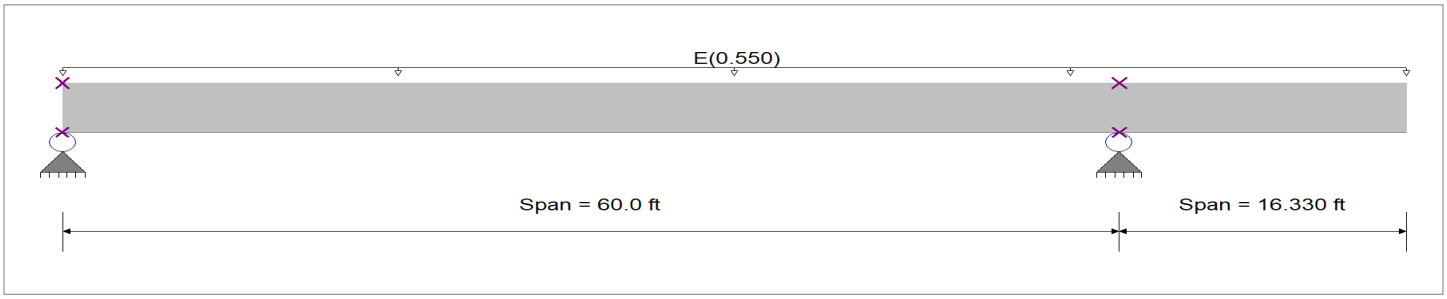
Code References

Governing Code : IBC 2024
Load Combinations Used : ASCE 7-16

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1	Span Length =	60.0 ft	Area =	10.0 in^2	Moment of Inertia =	100.0	in^4
Span #2	Span Length =	16.330 ft	Area =	10.0 in^2	Moment of Inertia =	100.0	in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...
Uniform Load on ALL spans : E = 0.550 k/ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Maximum Bending =	212.189 k-ft	Maximum Shear =	17.722 k
Load Combination	E Only	Load Combination	E Only
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	27.692 ft	Location of maximum on span	60.000 ft

Maximum Deflection	Deflection	Ratio	Span	Load Combo
Max Downward Transient Deflection	46.101 in	15	Span #1	E Only
Max Upward Transient Deflection	-30.996 in	12	Span #2	E Only
Max Downward Total Deflection	0.000 in	0	Span #2	
Max Upward Total Deflection	-21.697 in	18	Span #2	E Only * 0.70

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values (k-ft) Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Shear Values (k) Va Max	Vnx	Vnx/Omega
Overall MAXimum Envelope													
Dsgn. L = 60.00 ft	1			212.19	-73.33	212.19					17.72		
Dsgn. L = 16.33 ft	2				-73.33	73.33					8.98		
Dsgn. L = 60.00 ft	1										-0.00		
Dsgn. L = 16.33 ft	2										-0.00		
E Only													
Dsgn. L = 60.00 ft	1			212.19	-73.33	212.19					17.72		
Dsgn. L = 16.33 ft	2				-73.33	73.33					8.98		

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
E Only	1	46.1006	29.538		0.0000	0.000
	2	0.0000	29.538	E Only	-30.9960	16.330

Vertical Reactions

Support notation : Far left is #' Values in KIPS

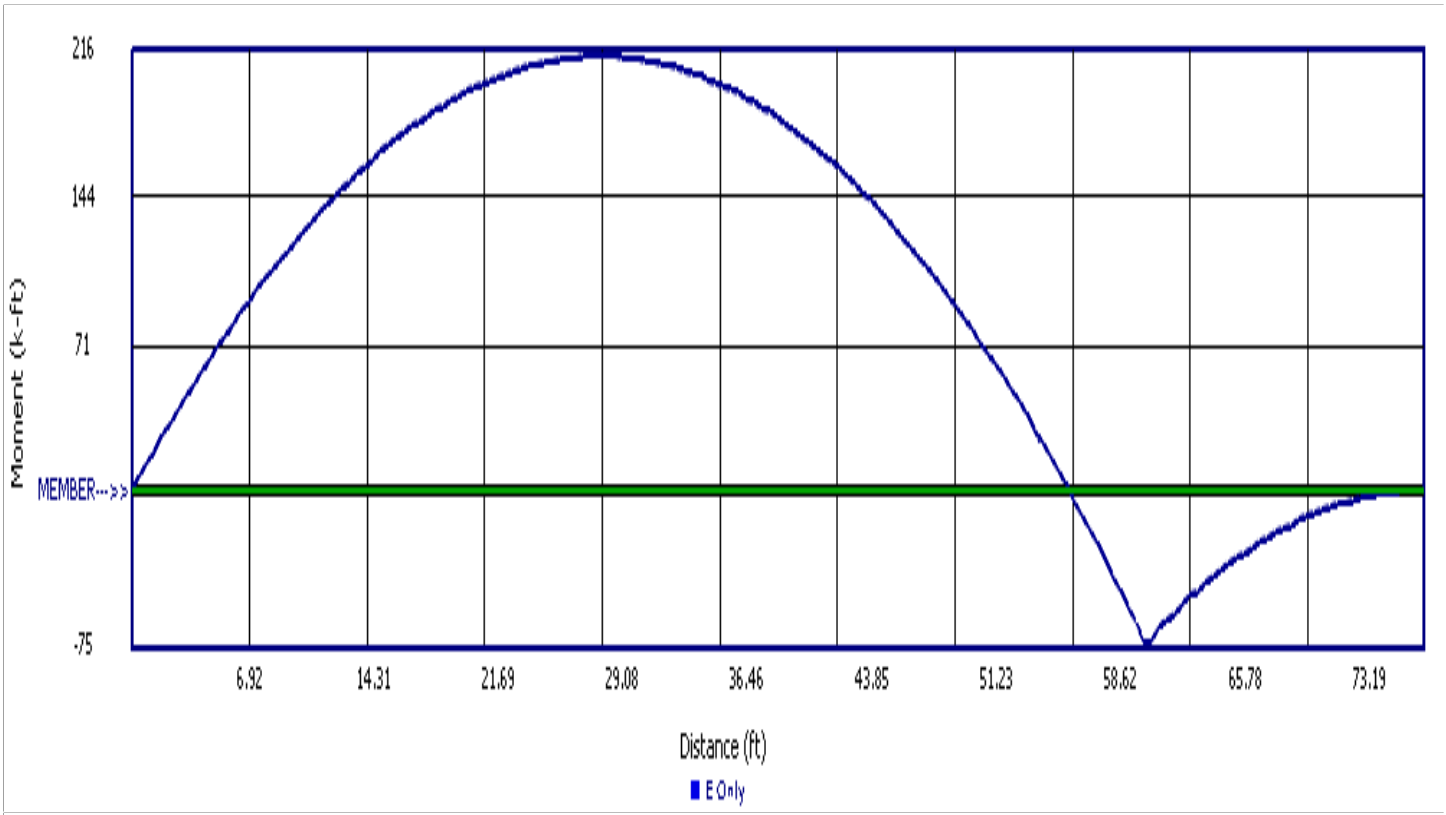
Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	15.278	26.704	
Overall MINimum			
E Only * 0.70	10.694	18.693	
E Only * 0.5250	8.021	14.019	
E Only	15.278	26.704	

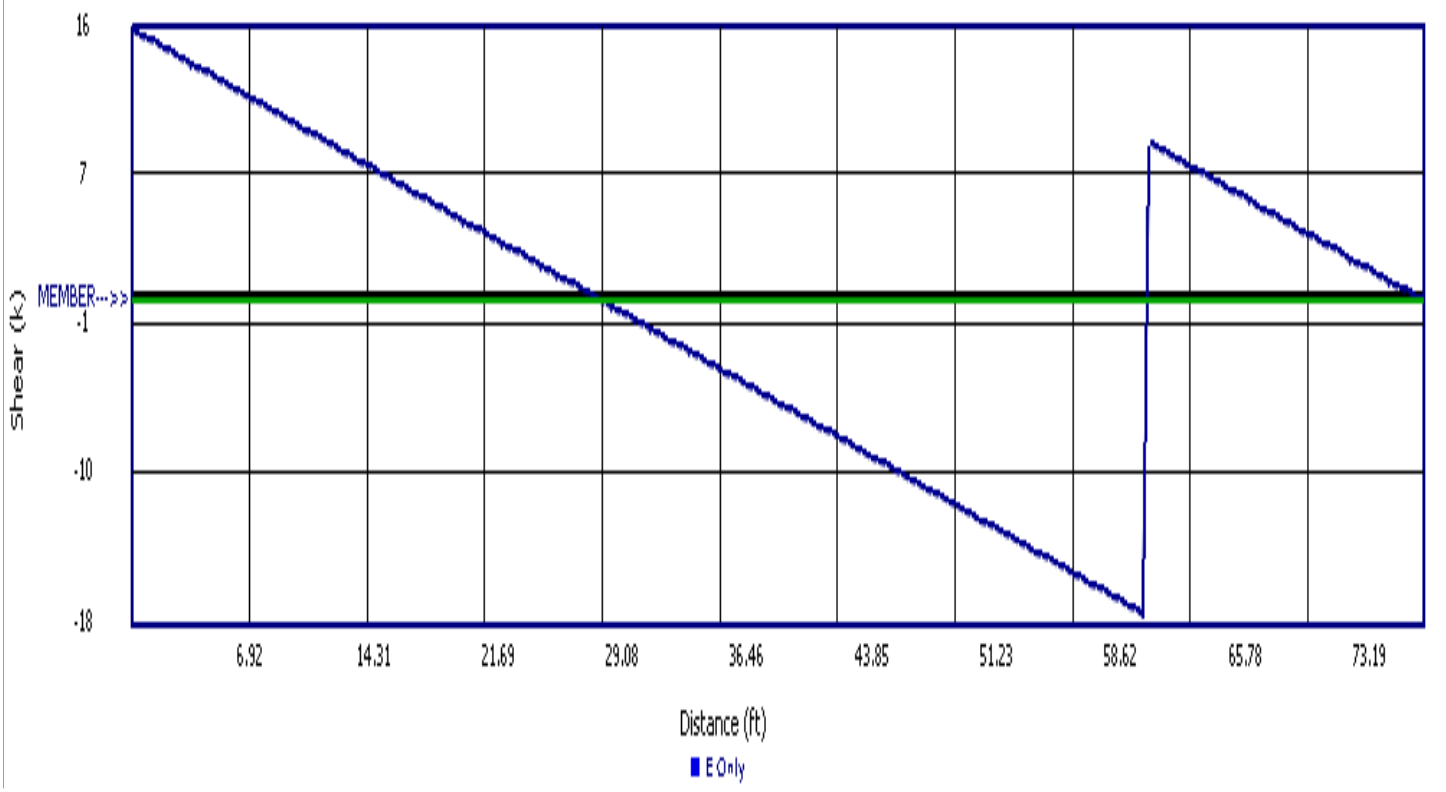
Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force N-S)



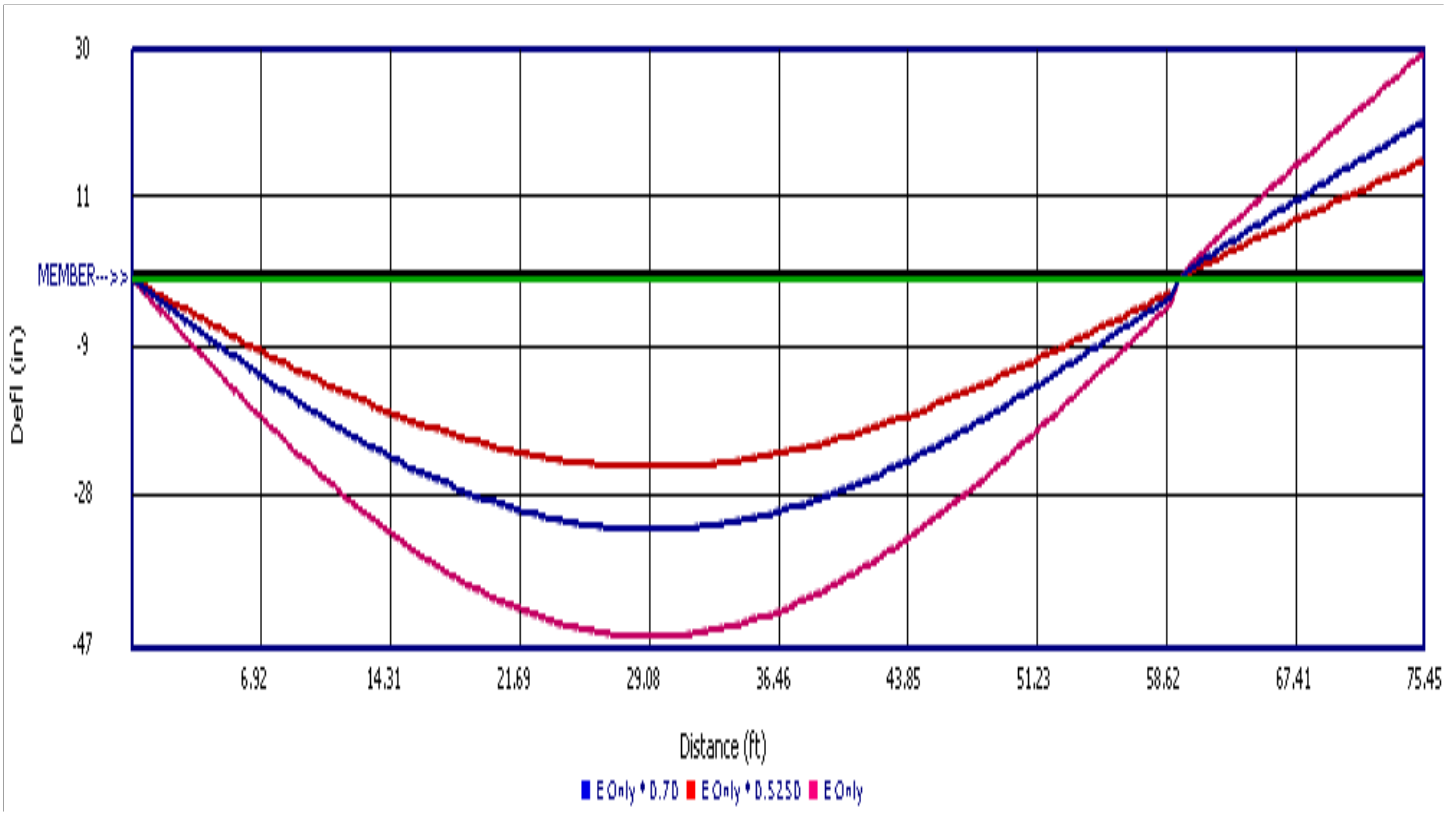


Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force N-S)



Summary of Values per Beam Span

Beam Span Moments & Shears at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Shear (k)	Moment (ft-k)
Overall MAXimum Envelope	0.00	Span 1	15.278	0.000
Overall MAXimum Envelope	6.00	Span 1	11.978	81.767
Overall MAXimum Envelope	12.00	Span 1	8.678	143.733
Overall MAXimum Envelope	18.00	Span 1	5.378	185.900
Overall MAXimum Envelope	24.00	Span 1	2.078	208.266
Overall MAXimum Envelope	30.00	Span 1	-1.222	210.833
Overall MAXimum Envelope	36.00	Span 1	-4.522	193.600
Overall MAXimum Envelope	42.00	Span 1	-7.822	156.566
Overall MAXimum Envelope	48.00	Span 1	-11.122	99.733
Overall MAXimum Envelope	54.00	Span 1	-14.422	23.099
Overall MAXimum Envelope	60.00	Span 1	-17.722	-73.334
Overall MAXimum Envelope	61.51	Span 2	8.152	-60.420
Overall MAXimum Envelope	63.14	Span 2	7.254	-47.841
Overall MAXimum Envelope	64.77	Span 2	6.356	-36.728
Overall MAXimum Envelope	66.41	Span 2	5.458	-27.081
Overall MAXimum Envelope	68.04	Span 2	4.560	-18.902
Overall MAXimum Envelope	69.67	Span 2	3.662	-12.189
Overall MAXimum Envelope	71.31	Span 2	2.764	-6.943
Overall MAXimum Envelope	72.94	Span 2	1.865	-3.163
Overall MAXimum Envelope	74.57	Span 2	0.967	-0.851
Overall MAXimum Envelope	76.20	Span 2	0.069	-0.004
Overall MAXimum Envelope	76.33	Span 2	0.000	0.000
	0.00	Span 1	0.000	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force N-S)

Beam Span Moments & Shears at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Shear (k)	Moment (ft-k)
	6.00	Span 1	0.000	0.000
	12.00	Span 1	0.000	0.000
	18.00	Span 1	0.000	0.000
	24.00	Span 1	0.000	0.000
	30.00	Span 1	0.000	0.000
	36.00	Span 1	0.000	0.000
	42.00	Span 1	0.000	0.000
	48.00	Span 1	0.000	0.000
	54.00	Span 1	0.000	0.000
	60.00	Span 1	0.000	0.000
	61.51	Span 2	0.000	0.000
	63.14	Span 2	0.000	0.000
	64.77	Span 2	0.000	0.000
	66.41	Span 2	0.000	0.000
	68.04	Span 2	0.000	0.000
	69.67	Span 2	0.000	0.000
	71.31	Span 2	0.000	0.000
	72.94	Span 2	0.000	0.000
	74.57	Span 2	0.000	0.000
	76.20	Span 2	0.000	0.000
	76.33	Span 2	0.000	0.000
E Only	0.00	Span 1	15.278	0.000
E Only	6.00	Span 1	11.978	81.767
E Only	12.00	Span 1	8.678	143.733
E Only	18.00	Span 1	5.378	185.900
E Only	24.00	Span 1	2.078	208.266
E Only	30.00	Span 1	-1.222	210.833
E Only	36.00	Span 1	-4.522	193.600
E Only	42.00	Span 1	-7.822	156.566
E Only	48.00	Span 1	-11.122	99.733
E Only	54.00	Span 1	-14.422	23.099
E Only	60.00	Span 1	-17.722	-73.334
E Only	61.51	Span 2	8.152	-60.420
E Only	63.14	Span 2	7.254	-47.841
E Only	64.77	Span 2	6.356	-36.728
E Only	66.41	Span 2	5.458	-27.081
E Only	68.04	Span 2	4.560	-18.902
E Only	69.67	Span 2	3.662	-12.189
E Only	71.31	Span 2	2.764	-6.943
E Only	72.94	Span 2	1.865	-3.163
E Only	74.57	Span 2	0.967	-0.851
E Only	76.20	Span 2	0.069	-0.004
E Only	76.33	Span 2	0.000	0.000

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
Overall MAXimum Envelope	0.00	Span 1	0.000
Overall MAXimum Envelope	6.46	Span 1	15.889

General Beam Analysis

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Chord Force Determination (Force N-S)

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
Overall MAXimum Envelope	12.92	Span 1	29.723
Overall MAXimum Envelope	19.38	Span 1	39.883
Overall MAXimum Envelope	25.85	Span 1	45.321
Overall MAXimum Envelope	32.31	Span 1	45.559
Overall MAXimum Envelope	38.77	Span 1	40.693
Overall MAXimum Envelope	45.23	Span 1	31.387
Overall MAXimum Envelope	51.69	Span 1	18.880
Overall MAXimum Envelope	58.15	Span 1	4.979
Overall MAXimum Envelope	61.13	Span 2	-2.323
Overall MAXimum Envelope	62.89	Span 2	-5.841
Overall MAXimum Envelope	64.65	Span 2	-9.268
Overall MAXimum Envelope	66.41	Span 2	-12.623
Overall MAXimum Envelope	68.17	Span 2	-15.928
Overall MAXimum Envelope	69.92	Span 2	-19.199
Overall MAXimum Envelope	71.68	Span 2	-22.448
Overall MAXimum Envelope	73.44	Span 2	-25.686
Overall MAXimum Envelope	75.20	Span 2	-28.918
Overall MAXimum Envelope	76.33	Span 2	-30.996
	0.00	Span 1	0.000
	6.46	Span 1	0.000
	12.92	Span 1	0.000
	19.38	Span 1	0.000
	25.85	Span 1	0.000
	32.31	Span 1	0.000
	38.77	Span 1	0.000
	45.23	Span 1	0.000
	51.69	Span 1	0.000
	58.15	Span 1	0.000
	61.13	Span 2	0.000
	62.89	Span 2	0.000
	64.65	Span 2	0.000
	66.41	Span 2	0.000
	68.17	Span 2	0.000
	69.92	Span 2	0.000
	71.68	Span 2	0.000
	73.44	Span 2	0.000
	75.20	Span 2	0.000
	76.33	Span 2	0.000
E Only * 0.70	0.00	Span 1	0.000
E Only * 0.70	6.46	Span 1	11.122
E Only * 0.70	12.92	Span 1	20.806
E Only * 0.70	19.38	Span 1	27.918

General Beam Analysis

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DESCRIPTION: Chord Force Determination (Force N-S)

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
E Only * 0.70	25.85	Span 1	31.724
E Only * 0.70	32.31	Span 1	31.891
E Only * 0.70	38.77	Span 1	28.485
E Only * 0.70	45.23	Span 1	21.971
E Only * 0.70	51.69	Span 1	13.216
E Only * 0.70	58.15	Span 1	3.485
E Only * 0.70	61.13	Span 2	-1.626
E Only * 0.70	62.89	Span 2	-4.089
E Only * 0.70	64.65	Span 2	-6.487
E Only * 0.70	66.41	Span 2	-8.836
E Only * 0.70	68.17	Span 2	-11.150
E Only * 0.70	69.92	Span 2	-13.439
E Only * 0.70	71.68	Span 2	-15.714
E Only * 0.70	73.44	Span 2	-17.980
E Only * 0.70	75.20	Span 2	-20.243
E Only * 0.70	76.33	Span 2	-21.697
E Only * 0.5250	0.00	Span 1	0.000
E Only * 0.5250	6.46	Span 1	8.342
E Only * 0.5250	12.92	Span 1	15.605
E Only * 0.5250	19.38	Span 1	20.939
E Only * 0.5250	25.85	Span 1	23.793
E Only * 0.5250	32.31	Span 1	23.919
E Only * 0.5250	38.77	Span 1	21.364
E Only * 0.5250	45.23	Span 1	16.478
E Only * 0.5250	51.69	Span 1	9.912
E Only * 0.5250	58.15	Span 1	2.614
E Only * 0.5250	61.13	Span 2	-1.219
E Only * 0.5250	62.89	Span 2	-3.067
E Only * 0.5250	64.65	Span 2	-4.865
E Only * 0.5250	66.41	Span 2	-6.627
E Only * 0.5250	68.17	Span 2	-8.362
E Only * 0.5250	69.92	Span 2	-10.079
E Only * 0.5250	71.68	Span 2	-11.785
E Only * 0.5250	73.44	Span 2	-13.485
E Only * 0.5250	75.20	Span 2	-15.182
E Only * 0.5250	76.33	Span 2	-16.273
E Only	0.00	Span 1	0.000
E Only	6.46	Span 1	15.889
E Only	12.92	Span 1	29.723
E Only	19.38	Span 1	39.883
E Only	25.85	Span 1	45.321
E Only	32.31	Span 1	45.559

General Beam Analysis

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Chord Force Determination (Force N-S)

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
E Only	38.77	Span 1	40.693
E Only	45.23	Span 1	31.387
E Only	51.69	Span 1	18.880
E Only	58.15	Span 1	4.979
E Only	61.13	Span 2	-2.323
E Only	62.89	Span 2	-5.841
E Only	64.65	Span 2	-9.268
E Only	66.41	Span 2	-12.623
E Only	68.17	Span 2	-15.928
E Only	69.92	Span 2	-19.199
E Only	71.68	Span 2	-22.448
E Only	73.44	Span 2	-25.686
E Only	75.20	Span 2	-28.918
E Only	76.33	Span 2	-30.996

MAXIMUM DIAPHRAGM MOMENT DEMAND

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Chord Force Determination (Force E-W)

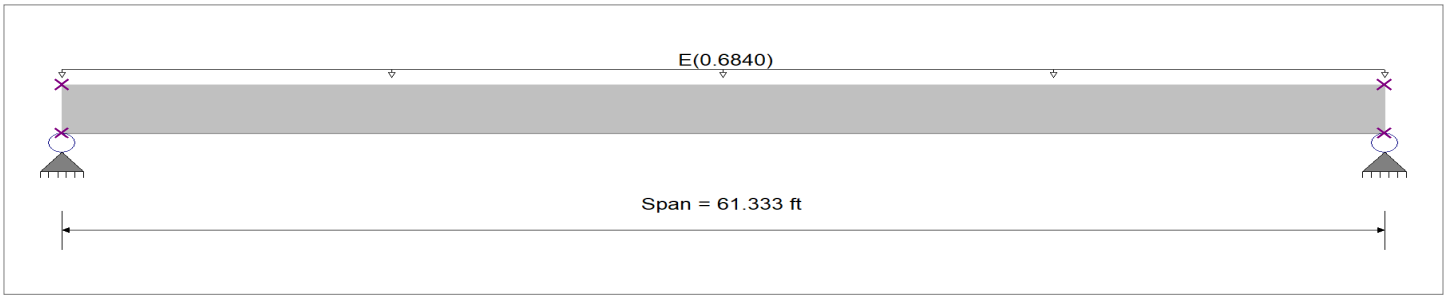
Code References

Governing Code : IBC 2024
Load Combinations Used : ASCE 7-16

General Beam Properties

Elastic Modulus 29,000.0 ksi

Span #1 Span Length = 61.333 ft Area = 10.0 in^2 Moment of Inertia = 100.0 in^4



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Loads on all spans...
Uniform Load on ALL spans : E = 0.6840 k/ft, Tributary Width = 1.0 ft

DESIGN SUMMARY

Maximum Bending =	321.629 k-ft	Maximum Shear =	20.976 k
Load Combination	E Only	Load Combination	E Only
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1
Location of maximum on span	30.667 ft	Location of maximum on span	0.000 ft

Maximum Deflection	Deflection	Ratio	Span	Load Combo
Max Downward Transient Deflection	75.697 in	9	Span #1	E Only
Max Upward Transient Deflection	0.000 in	0	Span #2	
Max Downward Total Deflection	52.988 in	13	Span #1	E Only * 0.70
Max Upward Total Deflection	0.000 in	0	Span #2	

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	Summary of Moment Values (k-ft) Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Shear Values (k) Va Max	Vnx	Vnx/Omega
Overall MAXimum Envelope													
Dsgn. L = 61.33 ft	1			321.63		321.63					20.98		
Dsgn. L = 61.33 ft	1										-0.00		
E Only													
Dsgn. L = 61.33 ft	1			321.63		321.63					20.98		

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
E Only	1	75.6969	30.973		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

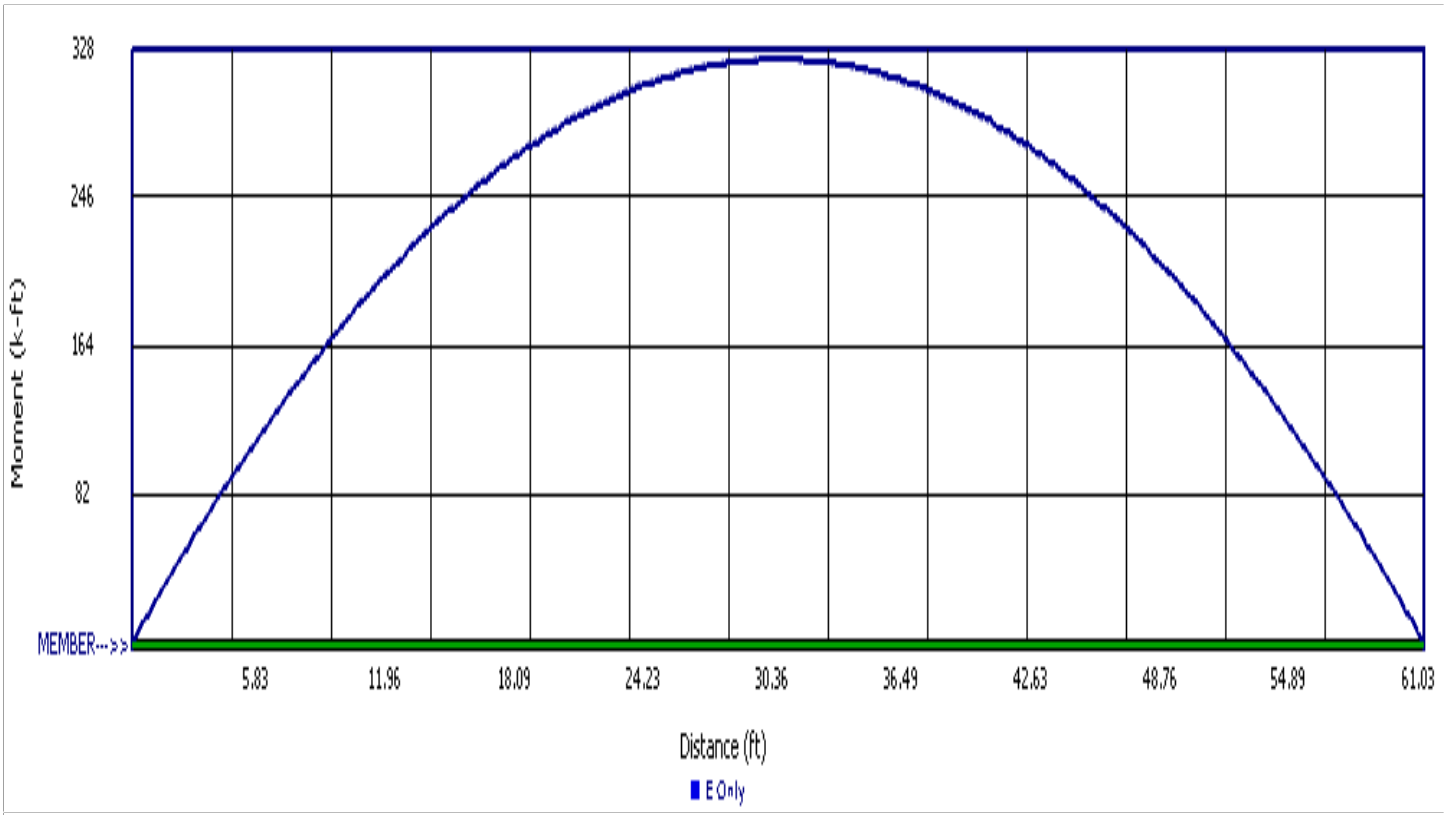
Load Combination	Support 1	Support 2
Overall MAXimum	20.976	20.976
Overall MINimum		
E Only * 0.70	14.683	14.683
E Only * 0.5250	11.012	11.012
E Only	20.976	20.976

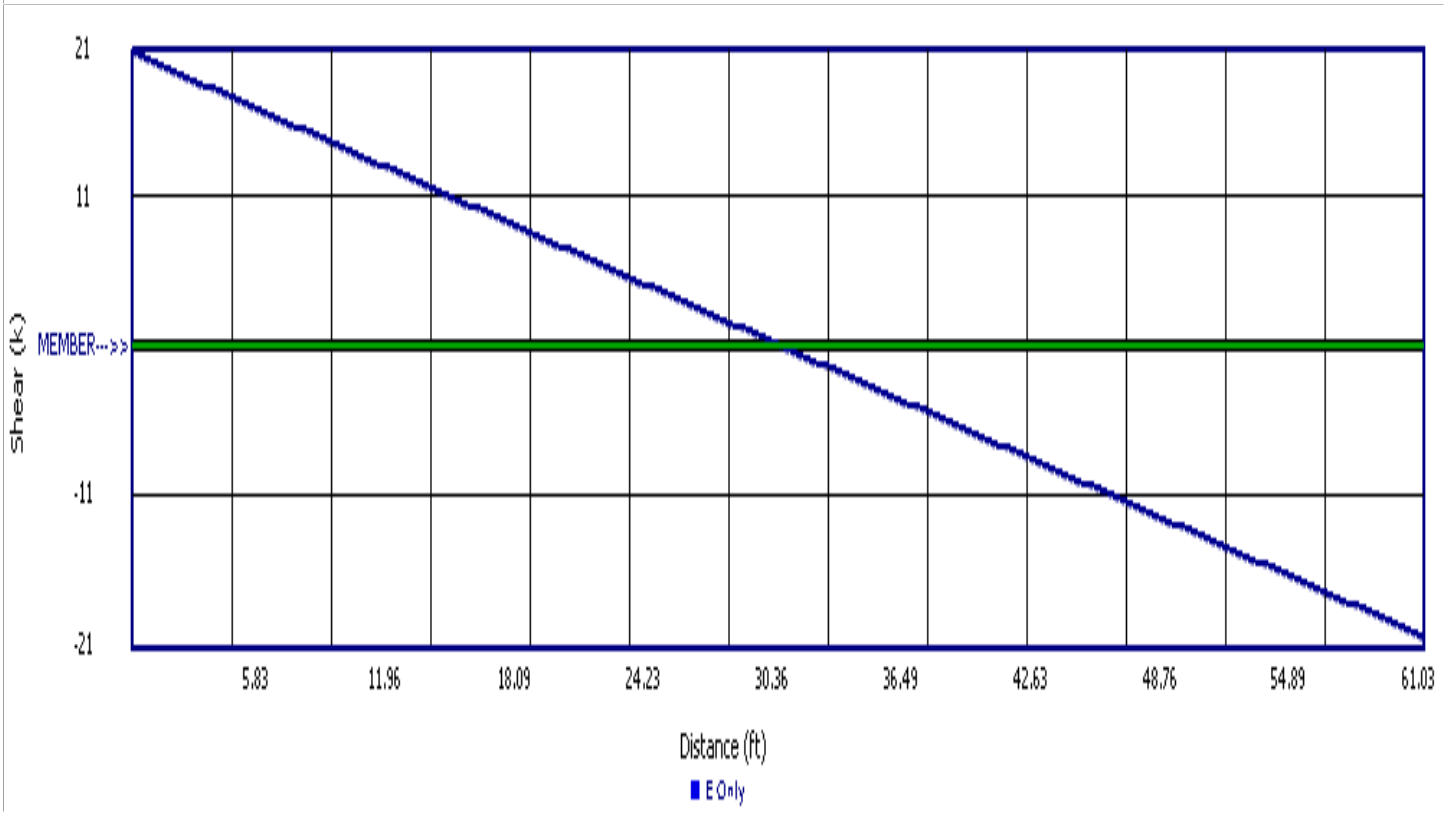
Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force E-W)



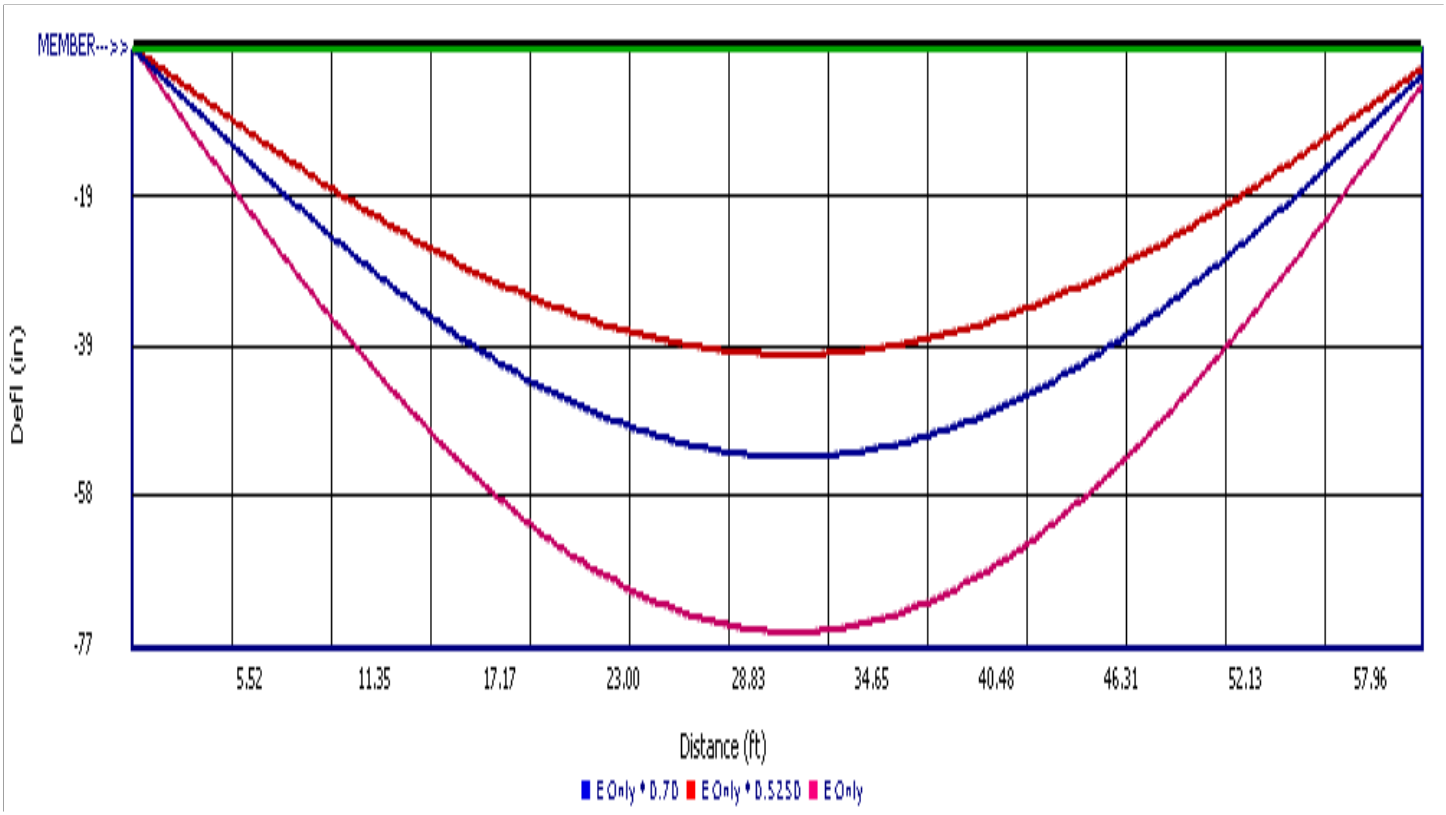


Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force E-W)



Summary of Values per Beam Span

Beam Span Moments & Shears at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Shear (k)	Moment (ft-k)
Overall MAXimum Envelope	0.00	Span 1	20.976	0.000
Overall MAXimum Envelope	6.13	Span 1	16.781	115.786
Overall MAXimum Envelope	12.27	Span 1	12.586	205.842
Overall MAXimum Envelope	18.40	Span 1	8.390	270.168
Overall MAXimum Envelope	24.53	Span 1	4.195	308.763
Overall MAXimum Envelope	30.67	Span 1	0.000	321.629
Overall MAXimum Envelope	36.80	Span 1	-4.195	308.763
Overall MAXimum Envelope	42.93	Span 1	-8.390	270.168
Overall MAXimum Envelope	49.07	Span 1	-12.586	205.842
Overall MAXimum Envelope	55.20	Span 1	-16.781	115.786
Overall MAXimum Envelope	61.33	Span 1	-20.976	0.000
	0.00	Span 1	0.000	0.000
	6.13	Span 1	0.000	0.000
	12.27	Span 1	0.000	0.000
	18.40	Span 1	0.000	0.000
	24.53	Span 1	0.000	0.000
	30.67	Span 1	0.000	0.000
	36.80	Span 1	0.000	0.000
	42.93	Span 1	0.000	0.000
	49.07	Span 1	0.000	0.000
	55.20	Span 1	0.000	0.000
	61.33	Span 1	0.000	0.000
E Only	0.00	Span 1	20.976	0.000

Project Title:
Engineer:
Project ID:
Project Descr:

General Beam Analysis

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Chord Force Determination (Force E-W)

Beam Span Moments & Shears at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Shear (k)	Moment (ft-k)
E Only	6.13	Span 1	16.781	115.786
E Only	12.27	Span 1	12.586	205.842
E Only	18.40	Span 1	8.390	270.168
E Only	24.53	Span 1	4.195	308.763
E Only	30.67	Span 1	0.000	321.629
E Only	36.80	Span 1	-4.195	308.763
E Only	42.93	Span 1	-8.390	270.168
E Only	49.07	Span 1	-12.586	205.842
E Only	55.20	Span 1	-16.781	115.786
E Only	61.33	Span 1	-20.976	0.000

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
Overall MAXimum Envelope	0.00	Span 1	0.000
Overall MAXimum Envelope	6.44	Span 1	24.742
Overall MAXimum Envelope	12.88	Span 1	46.617
Overall MAXimum Envelope	19.32	Span 1	63.323
Overall MAXimum Envelope	25.76	Span 1	73.256
Overall MAXimum Envelope	32.20	Span 1	75.517
Overall MAXimum Envelope	38.64	Span 1	69.904
Overall MAXimum Envelope	45.08	Span 1	56.918
Overall MAXimum Envelope	51.52	Span 1	37.761
Overall MAXimum Envelope	57.96	Span 1	14.335
Overall MAXimum Envelope	61.33	Span 1	1.208
	0.00	Span 1	0.000
	6.44	Span 1	0.000
	12.88	Span 1	0.000
	19.32	Span 1	0.000
	25.76	Span 1	0.000
	32.20	Span 1	0.000
	38.64	Span 1	0.000
	45.08	Span 1	0.000
	51.52	Span 1	0.000
	57.96	Span 1	0.000
	61.33	Span 1	0.000
E Only * 0.70	0.00	Span 1	0.000
E Only * 0.70	6.44	Span 1	17.319
E Only * 0.70	12.88	Span 1	32.632
E Only * 0.70	19.32	Span 1	44.326
E Only * 0.70	25.76	Span 1	51.279
E Only * 0.70	32.20	Span 1	52.862
E Only * 0.70	38.64	Span 1	48.933
E Only * 0.70	45.08	Span 1	39.842
E Only * 0.70	51.52	Span 1	26.432

General Beam Analysis

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Chord Force Determination (Force E-W)

Beam Span Deflections at Incremental Locations

Load Type/ Combination	Span Location (ft)	Span ID	Deflection (in)
E Only * 0.70	57.96	Span 1	10.035
E Only * 0.70	61.33	Span 1	0.845
E Only * 0.5250	0.00	Span 1	0.000
E Only * 0.5250	6.44	Span 1	12.989
E Only * 0.5250	12.88	Span 1	24.474
E Only * 0.5250	19.32	Span 1	33.244
E Only * 0.5250	25.76	Span 1	38.460
E Only * 0.5250	32.20	Span 1	39.646
E Only * 0.5250	38.64	Span 1	36.699
E Only * 0.5250	45.08	Span 1	29.882
E Only * 0.5250	51.52	Span 1	19.824
E Only * 0.5250	57.96	Span 1	7.526
E Only * 0.5250	61.33	Span 1	0.634
E Only	0.00	Span 1	0.000
E Only	6.44	Span 1	24.742
E Only	12.88	Span 1	46.617
E Only	19.32	Span 1	63.323
E Only	25.76	Span 1	73.256
E Only	32.20	Span 1	75.517
E Only	38.64	Span 1	69.904
E Only	45.08	Span 1	56.918
E Only	51.52	Span 1	37.761
E Only	57.96	Span 1	14.335
E Only	61.33	Span 1	1.208

PCS Structural Solutions

Project: NISQ VOC | Job No: 26-384
Subject: DIA SHEAR CHK | Sheet 1 | Name: DMS
Originating Office: ☐ Seattle ☒ Tacoma ☐ Portland | Date: 09/30/2026

DIAPHRAGM CHORD CHECK

CHORDS/COLLECTORS

A. CHORD CHECKS

TYP CHORD = (2) #5 BAR

TENSILE CAPACITY OF #5 BAR (LRFD)
= 16.74^k (2) = 33.48^k

$C_F = \frac{M}{d}$ M = DIAPHRAGM SPAN MOMENT
d = DIAPHRAGM DEPTH

M_{N-S} = 213^{k-ft} d = 61.33 C_F = 3.5^k OK!

M_{E-W} = 322^{k-ft} d = 74.33 C_F = 4.33^k OK

N-S: FORCE IN N-S
E-W: FORCE IN E-W

WORST CASE DEPTH 'd' W/ ELEVATOR

N-S: d = 18'-1" ⇝ CHORD WORKS W/ WORST CASE E-W C_F ∴ OK

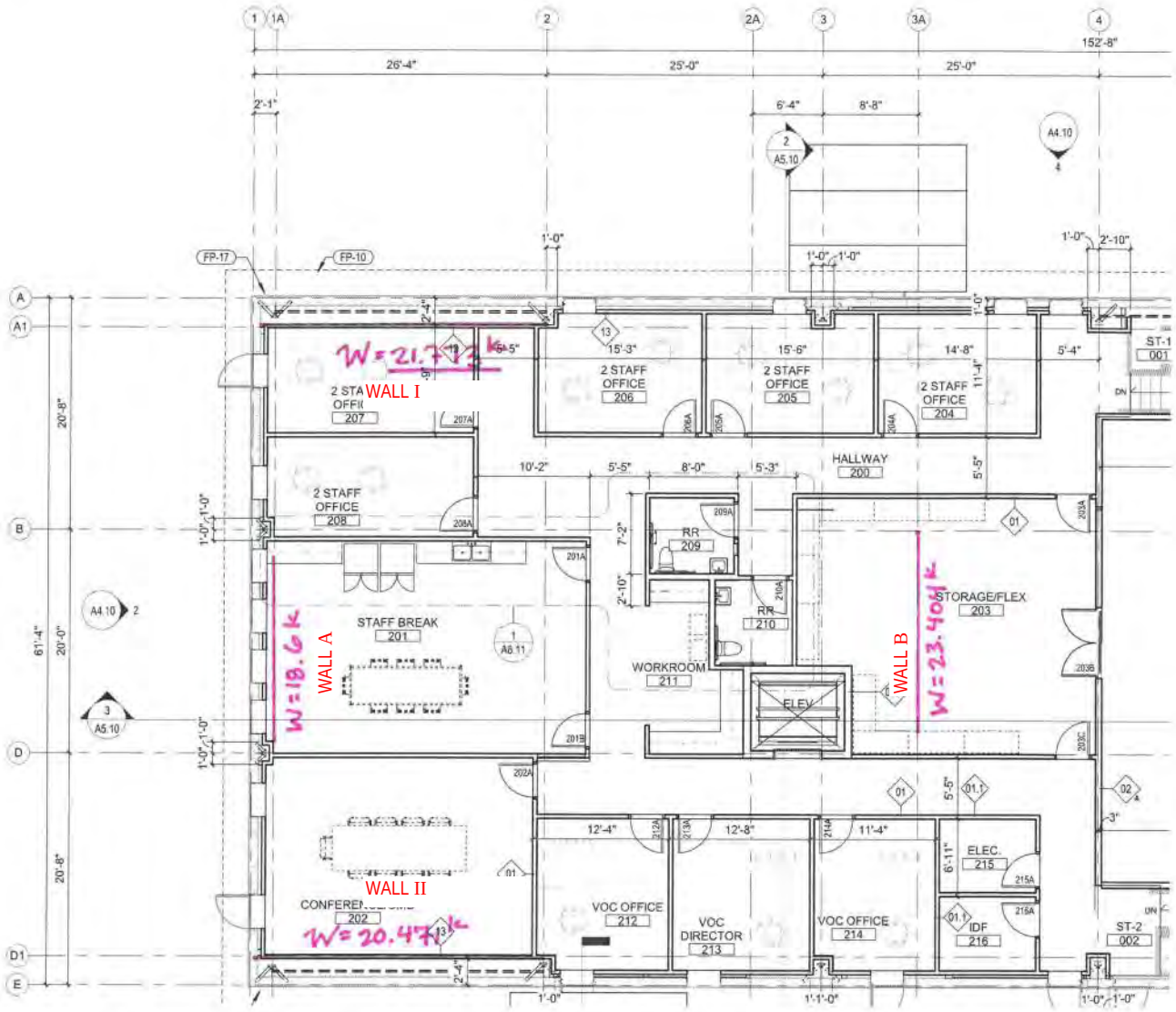
MINIMUM DIAPHRAGM DEPTH IN EITHER DIRECTION OCCURS AT ELEVATOR PIT OPENING. CHORDS STILL WORK FOR THIS MINIMUM DEPTH.

PCS Structural Solutions

Project: NISQUALLY VOC | Job No: 26-384

Subject: MEZZANINE SHEAR WALL DESIGN | Sheet 4 | Name: DMS

Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland | Date: 09/30/2026



BASED ON TORSIONAL ANALYSIS OF RIGID DIAPHRAGM

CENTER OF RIGIDITY: x = 30.00ft y = -30.7ft

CENTER OF MASS: x = 38ft y = -29'-0"
(LOAD APP)

FORCE TO EACH WALL

I: 21.773 k

II: 20.471 k

A: 18.6 k

B: 23.404 k

← UNFACTORED, SEISMIC ONLY FORCE

7/16" RATED SHT'G - MIN. 18 GA. (43 MIL) STUDS

Double or Single Sided Sht'g	Edge Attachment (in. O.C.)	Field Attachment (in. O.C.)	Seismic					Wind				
			Allowable Shear (plf)	5/8"ϕ Adhesive A.B. spacing (7" Embed Min.)		3/4"ϕ Adhesive A.B. spacing (7" Embed Min.)		Allow. Shear (plf)	5/8"ϕ Adhesive A.B. spacing (7" Embed Min.)		3/4"ϕ Adhesive A.B. spacing (7" Embed Min.)	
				Bottom Track		Bottom Track			Bottom Track		Bottom Track	
				43mil	54mil	43mil	54mil		43mil	54mil	43mil	54mil
Single	#8 @ 6	#8 @ 12	**330**	32in. O.C.	32in. O.C.	32in. O.C.	32in. O.C.	**N/A**	N/A	N/A	N/A	N/A
Single	#8 @ 4	#8 @ 12	**494**	24in. O.C.	32in. O.C.	24in. O.C.	32in. O.C.	**N/A**	N/A	N/A	N/A	N/A
Single	#8 @ 3	#8 @ 12	**618**	16in. O.C.	32in. O.C.	16in. O.C.	32in. O.C.	**N/A**	N/A	N/A	N/A	N/A
Single	#8 @ 2	#8 @ 12	**824**	8in. O.C.	24in. O.C.	8in. O.C.	24in. O.C.	**N/A**	N/A	N/A	N/A	N/A

7/16" RATED SHT'G - MIN. 20 GA. (33 MIL) STUDS (4:1 MIN.)*

Double or Single Sided Sht'g	Edge Attachment (in. O.C.)	Field Attachment (in. O.C.)	Seismic					Wind				
			Allowable Shear (plf)	5/8"ϕ Adhesive A.B. spacing (7" Embed Min.)		3/4"ϕ Adhesive A.B. spacing (7" Embed Min.)		Allow. Shear (plf)	5/8"ϕ Adhesive A.B. spacing (7" Embed Min.)		3/4"ϕ Adhesive A.B. spacing (7" Embed Min.)	
				Bottom Track		Bottom Track			Bottom Track		Bottom Track	
				43mil	54mil	43mil	54mil		43mil	54mil	43mil	54mil
Single	#8 @ 4	#8 @ 12	**N/A**	N/A	N/A	N/A	N/A	**512**	16in. O.C.	32in. O.C.	24in. O.C.	32in. O.C.
Single	#8 @ 3	#8 @ 12	**N/A**	N/A	N/A	N/A	N/A	**712**	16in. O.C.	24in. O.C.	16in. O.C.	24in. O.C.
Single	#8 @ 2	#8 @ 12	**N/A**	N/A	N/A	N/A	N/A	**912**	8in. O.C.	16in. O.C.	8in. O.C.	24in. O.C.

Notes: 1. These values are for Type I shear walls that comply with AISI S400-15, Section E1.3.1.1 & AISI S240-15, Section B5.2.1
2. Maximum aspect ratio unless otherwise noted is 2:1
3. Shear walls shall be designed and installed in accordance with AISI S240-15 Section C3.6.1
4. Typical detail specified bottom track is 43mil or stud thickness, whichever is greater
5. A.B. capacities based on IBC 2018, Section 17.2.3.5.2
6. Per PCS Typical Detail - 3x3x1/4" Plate washer or track anchorage to concrete
7. If (2) sides shtg, add both together; if unequal materials, use the greater of 2x the weaker or 1x the stronger

* Maximum Aspect Ratio 4:1

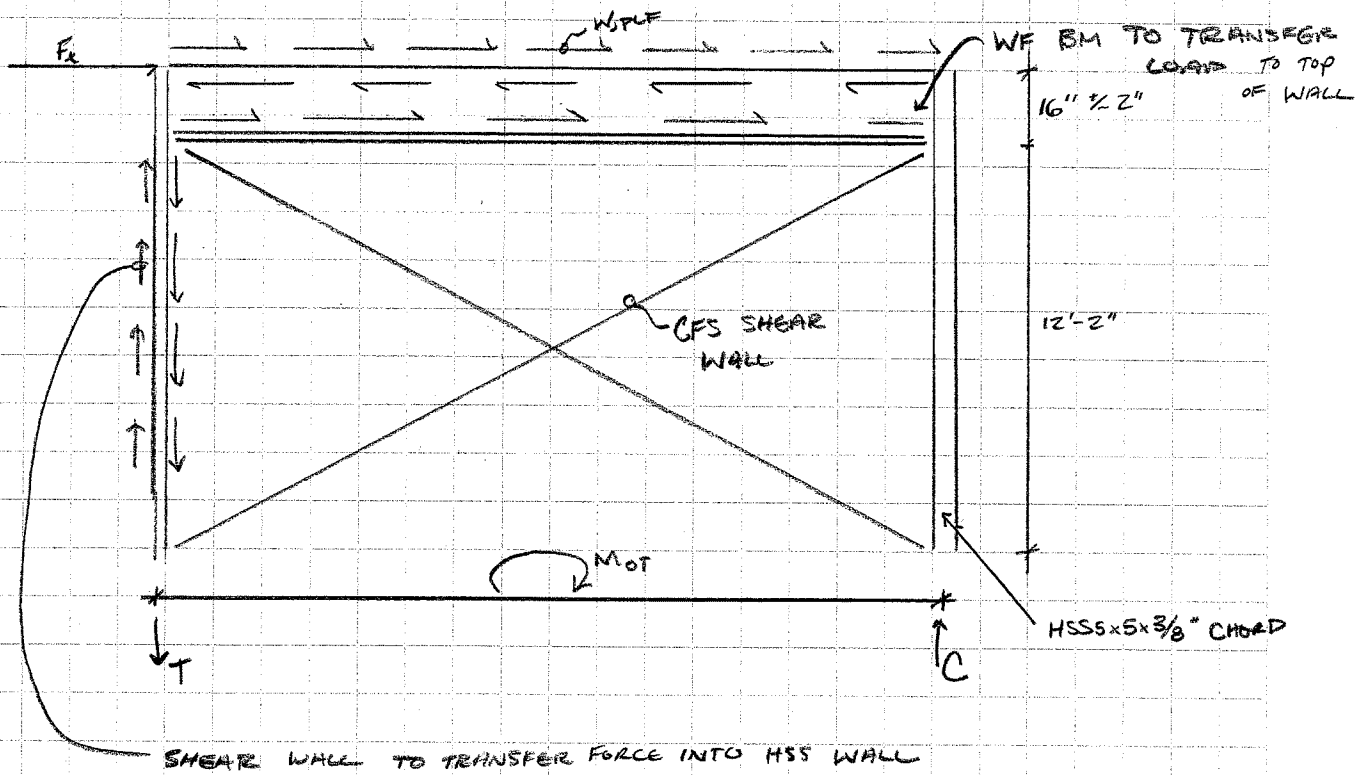
RIGID DIAPHRAGM ANIALYSIS; SHEAR WALL DESIGN:

WORST CASE: TYPE I (HORIZ)

F_x; UNFACTORED : 21.8^k

w_x, UNIFORM : 21.8^k / 26'-4" = 0.828 PLF

WALL HT = 14'-0" − 5½" FLOOR − 16" = 12'-2" (FOR OT)



SHEAR WALL TO TRANSFER FORCE INTO HSS WALL CHORD

ASSUMING 7/16" RATED SHTG

CONTROLLING LOAD CASE (SHEAR)
= 0.6DL + 0.7E (ASD)

ALLOWABLE SHEAR: SEISMIC

#8 @ 6 : 330 PLF
#8 @ 4 : 494 PLF
#8 @ 3 : 618 PLF
#8 @ 2 : 824 PLF

∴ 0.7E = (0.7)(828 PLF) : 580 PLF ∴ #8 @ 3 OC SEISMIC

EITHER OSB OR PWD

WORST CASE: Type B:

F_x, UNFACTORED = 23.404^k

W_x, UNIFORM = 23.404^k / 20'-0" = 1.2^{KLF}

(SEE PREVIOUS FOR FBD)

CONTROLLING LOAD CASE (SHEAR) = 0.6DL + 0.7EL

∴ 0.7E = 0.7(1.2KLF) = 0.84^{KLF}

∴ EITHER: #8 @ 2" OC OR #8 @ 4" DBL SIDE OC

HSS WALL

SHEAR WALL CONNECTION TO CHORDS

(2) CASES:

a. 20' SHEAR WALL

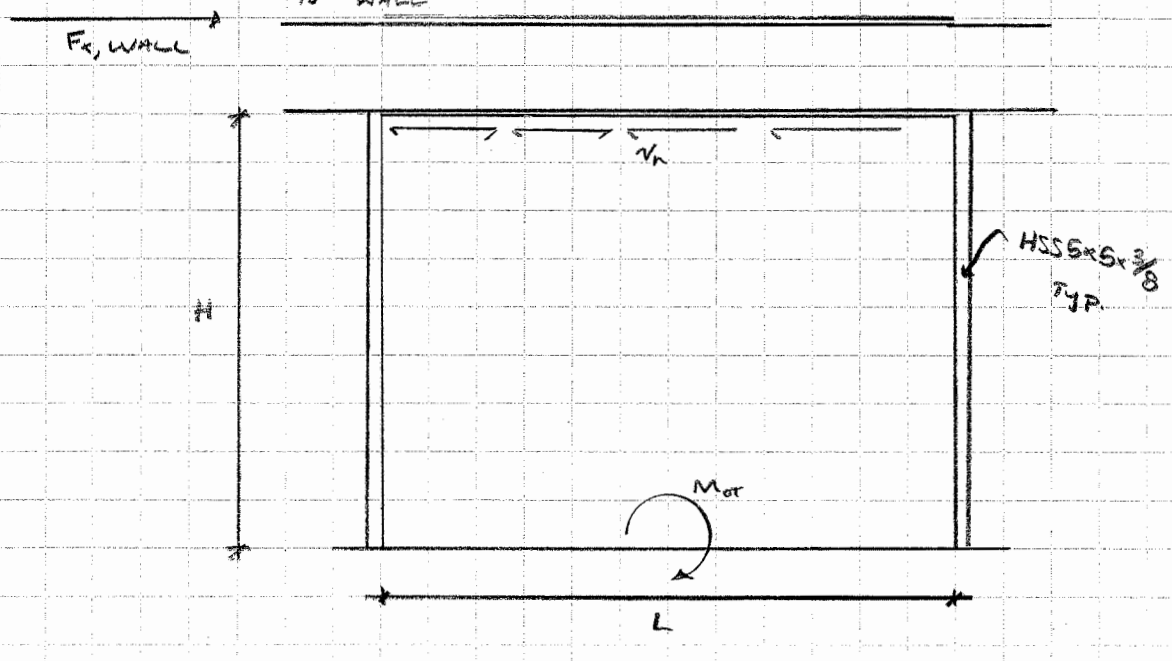
b. 26' SHEAR WALL

ASSUMPTIONS:

1. THE PRIMARY GRAVITY RESISTING SYSTEM IS THE COMPOSITE FLOOR DECK AND BEAM/COLUMN SYSTEM ABOVE -- HOWEVER, THE COLD FORMED STUDS ARE DESIGNED TO RESIST FLOOR LOADING.

2. SHEAR IS DISSIPATED THRU SHEAR PANELS; BUT OT IS TAKEN THRU CONN TO CHORD

3. SHEAR IS TRANSFERRED FROM DECK; THRU WIDE FLANGE; TO WALL



M_{OT} IS ASSUMED TO BE TAKEN FROM FINISHED FLOOR ELEVATION; CONSERVATIVE ASSUMPTION

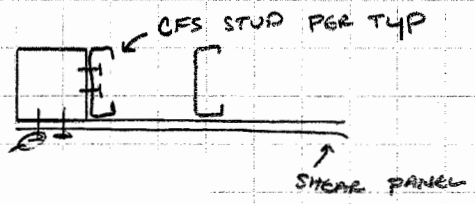
PER SHEAR WALL CALCS; DEMAND FOR:

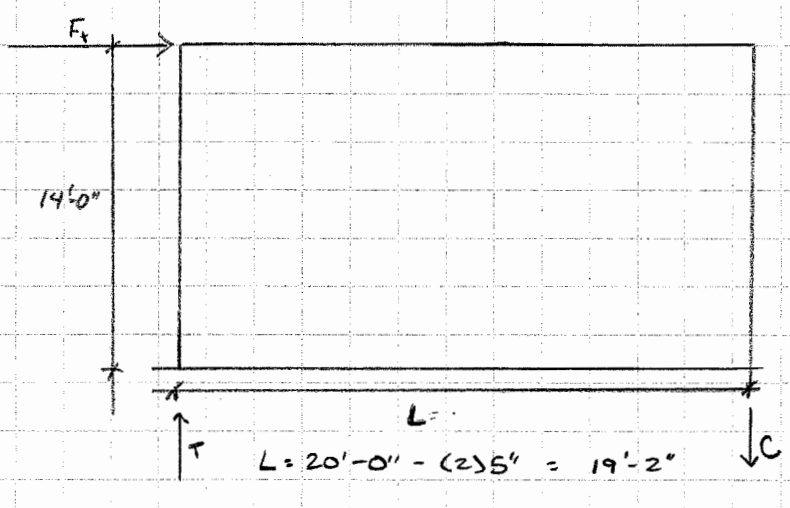
20'-0" WALL = 23.4^k } UNFACTORED
26'-0" WALL = 21.8^k }

∴ 20'-0" WALL CONTROLS ALL CONDITIONS

FFE = +14'-0" → CONSERVATIVE

CONNECTION OF SW PANEL TO HSS → MOT





L = 20'-0" - (2)5" = 19'-2"

∴ $M_{OT} = F_x \times 14'\text{-}0" = 23.4^k \times 14'\text{-}0" = 327^{k\text{-}ft}$

$T = M_{OT}/L = 17.1^k$

ASD LOAD COMB: 0.6DL + 0.7E

∴ $T_{OT,E,ASD} = 0.7 \times 17.1^k = 11.98^k$

(11.98/14'-0") ≤ SHEAR WALL CAP ∴ OK

SINGLE SIDE SHEAR PANEL:

11.98^{k} / 14'-0" = 0.860^{k}/ft

∴ FASTENERS TO RESIST ^{k}/ft [PER SSMA; F.O.S = 3.0]

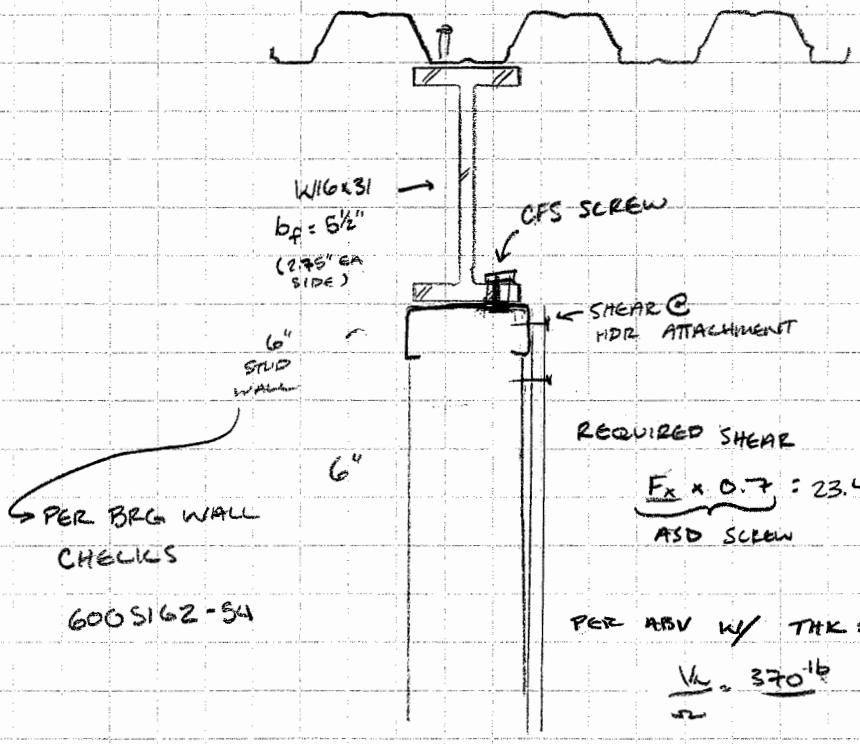
ASSUMING SCREW CONTROLS; NOT STEEL

- #8 V_n = 344^{lb} (SSMA)
- #10 V_n = 370^{lb} (SSMA)

∴ #10 @ 4" OK!

∴ CONN = (1) #10 @ 4" O.C STAGGERED OK (½ IF DBL SIDED)

CONN FROM WF TO SHEAR WALL BELOW



REQUIRED SHEAR

$\underbrace{F_x \times 0.7}_{\text{ASD SCREW}}$: 23.4^{k} × 0.7 = 16.38^{k}

PER ABV W/ THK = 54MIL

V_n = 370^{lb}

∴ REQ'D SCREWS : 44 ⇝ 48 SCREWS MIN

∴ FOR 20'-0" LENGTH

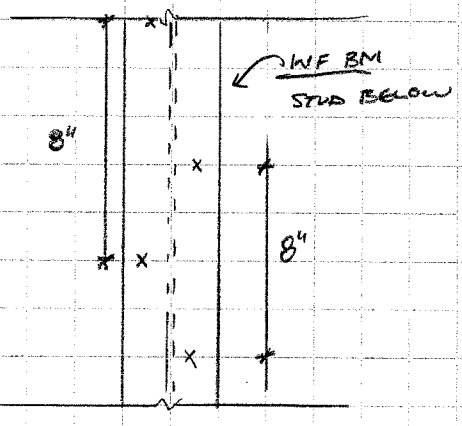
S = ~5"

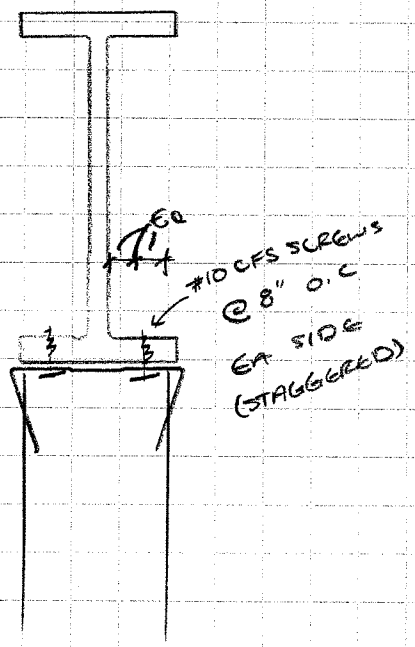
PCS Structural Solutions

Project: Nisqually VOC | Job No: 26-584
Subject: Screw Conn. to WF | Sheet | Name: DMS
Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland | Date: 09/30/2026

PER PREVIOUS: 46 SCREWS ALONG 20 ft = ~5" o.c

STAGGER SPACING OF SCREWS (EA SIDE @ 8" o.c)





HSS CHORD AXIAL CHECK AND ANCHORAGE

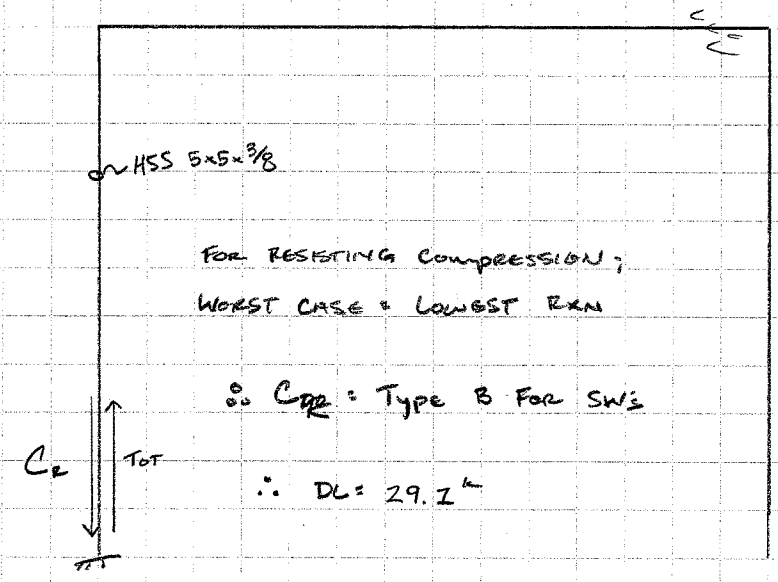
PER CONNECTION CALCULATION FOR SHEAR WALL OT:

$M_{OT} = 327^{k\text{-}ft}$ $T_{OT} = M_{OT}/L = ?$

$L = 20'\text{-}0''$ ∴ $T_{OT} = 17.1^{k}$

BY INSPECTION, PWD CONN CONTROLS

∴ ANCHORAGE ONLY REQ CHECK



FOR RESISTING COMPRESSION;

WORST CASE = LOWEST RXN

∴ C_{DL} = Type B FOR SW's

∴ DL = 29.1^{k}

NET UPLIFT = $0.6DL + 0.7E = \emptyset$

∴ NO NET OT, NOMINAL ANCHORAGE

OK! 7" AS SHOWN

PCS Structural Solutions

Project: NISQ VOC | Job No: 26-384
Subject: BOTTOM CONN | Sheet 1 | Name: DMS
Originating Office: ☐ Seattle ☐ Tacoma ☐ Portland | Date: 2026/09/26

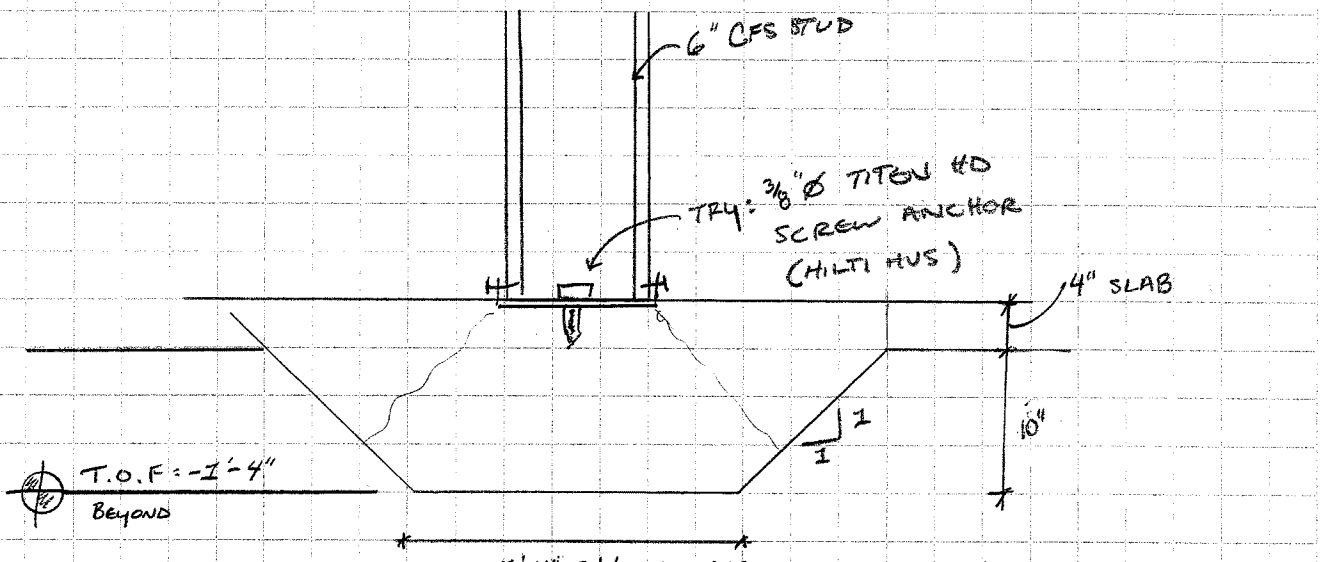
SHEAR WALL BASE CONNECTION

BOTTOM TRACK ANCHORAGE

SHEAR DEMAND = 21.773^{K}
WALL LENGTH = 20'-0"

CHECK: MIN WIDTH
MIN EMBED

∴ w_v KLF = 1.1^{KLF} (1.0; LRFD)



SHEAR CAPACITY (SCREW ANCHOR 3/8"Ø X 2½)
PER SIMP. ANCHORAGE CATALOG

V_{eq} = 2855^{lb}/ANCHOR
ϕ_{eq} = 0.60

ϕV_{eq} = 1713^{lb}/ANC ∴ "n" ANCH = 21.773^{K}/1.713^{K} = 12.8 ANCHORS
(13)

∴ 18" O.C (NOT OK)

½" ANCHOR → V_{EQ} = 4790^{lb} × 0.6 = 2874^{lb}/ANC "n" = 7.6 ANCH
(8)

30" SPACING MAXIMUM --> ON PLAN SHOWN AS 24"
24" < 30" ∴ OK!

Titen HD Shear Strength Design Data[1]

Characteristic	Symbol	Unit	Nominal Anchor Diameter, d_a (in.)										
			¼		⅜		½		⅝		¾		
Nominal Embedment Depth	h_{nom}	in.	1⅝	2½	2½	3¼	3¼	4	4	5½	4	5½	6¼
Steel Strength in Shear (ACI 318-19 17.7.1, ACI 318-14 17.5.1 or ACI 318-11 Section D.6.1)													
Shear Resistance of Steel	V_{sa}	lb.	2,020		4,460		7,455		10,000		14,950	16,840	
Strength Reduction Factor — Steel Failure[2]	ϕ_{sa}	—	0.60										
Concrete Breakout Strength in Shear (ACI 318-19 17.7.2 ACI 318-14 17.5.2 or ACI 318-11 Section D.6.2)													
Outside Diameter	d_a	in.	0.25		0.375		0.500		0.625		0.750		
Load Bearing Length of Anchor in Shear	ℓ_e	in.	1.19	1.94	1.77	2.40	2.35	2.99	2.97	4.24	2.94	4.22	4.86
Strength Reduction Factor — Concrete Breakout Failure[2]	ϕ_{cb}	—	0.70										
Concrete Pryout Strength in Shear (ACI 318-19 17.7.3, ACI 318-14 17.5.3 or ACI 318-11 Section D.6.3)													
Coefficient for Pryout Strength	k_{cp}	lb.	1.0						2.0				
Strength Reduction Factor — Concrete Pryout Failure[2]	ϕ_{cp}	—	0.70										
Steel Strength in Shear for Seismic Applications (ACI 318-19 17.10.3, ACI 318-14 17.2.3.3 or ACI 318-11 Section D.3.3.3)													
Shear Resistance for Seismic Loads	V_{eq}	lb.	1,695		2,855		4,790		8,000		9,350		
Strength Reduction Factor — Steel Failure[2]	ϕ_{eq}	—	0.60										

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17, ACI 318-14 Chapter 17 and ACI 318-11 Appendix D, except as modified below.
2. The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

Titen HD Tension and Shear Strength Design Data for the Soffit of Normal-Weight or Sand-Lightweight Concrete over Steel Deck[1,6,7]

Characteristic	Symbol	Units	Nominal Anchor Diameter, d_a (in.)									
			Lower Flute						Upper Flute			
			Figure 2		Figure 1				Figure 2		Figure 1	
			¼		⅜		½		¼		⅜	½
Nominal Embedment Depth	h_{nom}	in.	1⅝	2½	1⅞	2½	2	3½	1⅝	2½	1⅞	2
Effective Embedment Depth	h_{ef}	in.	1.19	1.94	1.23	1.77	1.29	2.56	1.19	1.94	1.23	1.29
Pullout Resistance, concrete on steel deck (cracked)[2,3,4]	$N_{p,deck,cr}$	lb.	420	535	375	870	905	2,040	655	1,195	500	1,700
Pullout Resistance, concrete on steel deck (uncracked)[2,3,4]	$N_{p,deck,uncr}$	lb.	995	1,275	825	1,905	1,295	2,910	1,555	2,850	1,095	2,430
Steel Strength in Shear, concrete on steel deck[5]	$V_{sa,\ deck}$	lb.	1,335	1,745	2,240	2,395	2,435	4,430	2,010	2,420	4,180	7,145
Steel Strength in Shear, Seismic	$V_{sa,\ deck,eq}$	lb.	870	1,135	1,434	1,533	1,565	2,846	1,305	1,575	2,676	4,591

1. The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 Chapter 17, ACI 318-14 Chapter 17 and ACI 318-11 Appendix D, except as modified below.
2. Concrete compressive strength shall be 3,000 psi minimum. The characteristic pullout resistance for greater compressive strengths shall be increased by multiplying the tabular value by $(f'_{c,specified}/3{,}000)^{0.5}$.
3. For anchors installed in the soffit of sand-lightweight or normal-weight concrete over steel deck floor and roof assemblies, as shown in Figure 1 and Figure 2, calculation of the concrete breakout strength may be omitted.
4. In accordance with ACI 318-19 Section 17.6.3.2.1, ACI 318-14 Section 17.4.3.2 or ACI 318-11 Section D.5.3.2, the nominal pullout strength in cracked concrete for anchors installed in the soffit of sand-lightweight or normal-weight concrete over steel deck floor and roof assemblies $N_{p,deck,cr}$ shall be substituted for $N_{p,cr}$. Where analysis indicates no cracking at service loads, the normal pullout strength in uncracked concrete $N_{p,deck,uncr}$ shall be substituted for $N_{p,uncr}$.
5. In accordance with ACI 318-19 Section 17.7.1.2(c), ACI 318-14 Section 17.5.1.2(c) or ACI 318-11 Section D.6.1.2(c), the shear strength for anchors installed in the soffit of sand-lightweight or normal-weight concrete over steel deck floor and roof assemblies $V_{sa,deck}$ and $V_{sa,deck,eq}$ shall be substituted for V_{sa}.
6. Minimum edge distance to edge of panel is $2h_{ef}$.
7. The minimum anchor spacing along the flute must be the greater of $3h_{ef}$, or 1.5 times the flute width.

See p. 14 for an explanation of the load table icons.

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4.0 – MISC DESIGN

CFS SHEAR WALLS DESIGNED AS IF BRG

∴ WORST CASE WALL LOADING:

DL = 71.8 PSF (SEE BASE SHEAR CALC) TL = 197 PSF

LL = 125 PSF (LIGHT STORAGE)

ASSUMED TRIBUTARY AREA: $\frac{31'-4"}{2}$ (DIST ⑤ & ④)

∴ W_{ASD} = (DL + LL)(15'-8") = 3.1 KLF

ASSUMING 16" SPACING: 3.1 KLF × $\frac{16"}{12}$ = 4.2 K ASD PER STUD

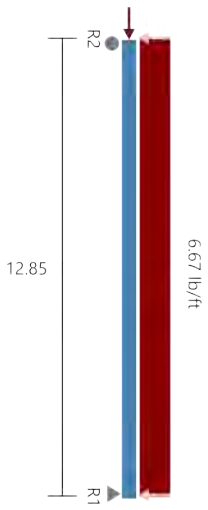
STUD PER AISI S200 AND SIMPSON CFS DESIGNER: SEE NEXT PAGE

600S162-54 (50 KSI) OK FOR WORST CASE SHEAR WALL LOADING

SIMPSON STRONGTIE COLD FORMED STUD GRAVITY DESIGN

Project Name: 2026-09-30 Cold Formed Steel Bearing Wall Design
Model: Typical Shear Wall Bearing
Code: IBC 2021(AISI S100-16 w/S2-20)

Date: 10-01-2026
Simpson Strong-Tie® CFS Designer™ 6.0.6.0



Section : 600S162-54 (50 ksi) @ 16" o.c. Single C Stud (punched)
Maxo = 2313.4 ft-lb **Va =** 2822.9 lb **I =** 2.86 in^4

Loads have not been modified for strength checks
Loads have been multiplied by 0.70 for deflection calculations

Deflection Ratio = No Limit

Bridging Connectors - Design Method =AISI S100

Span	Axial KyLy, KtLt	Flexual, Distortional	Connector	Stress Ratio
Span	48.0", 48.0"	48.0", 154.2"	LSUBH3.25 (Max)	0.45

Web Crippling

Support	Load (lb)	Bearing (in)	Pa (lb)	M (ft-lbs)	Max Int.	Stiffener?
R2	42.84	--Shear Connection w/ clip--				NO
R1	42.84	--Stud/Track Design, Ref Connectors--				NO

Gravity Load

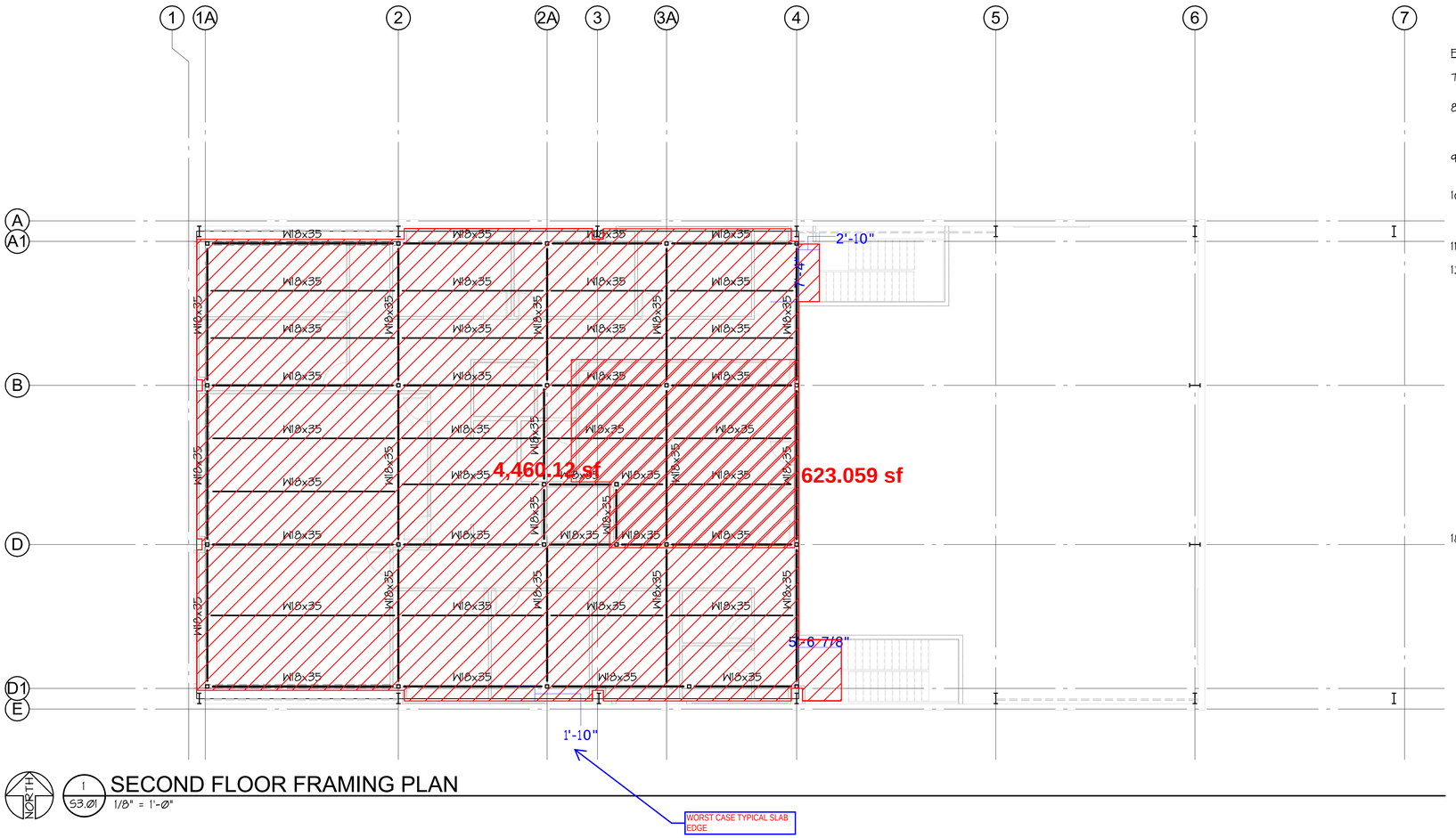
Type	Load (lb)
Uniform	0.00plf
P1y	4200.00lb @ 12.85ft

	Code Check	Required	Allowed	Interaction	Notes
Span	Max. Axial, lbs	4200.0(c)	5546.8(c)	76%	KΦ=0.00 lb-in/in Max KL/r = 84
	Max. Shear, lbs	42.8	1947.4	2%	Shear (Punched)
	Max. Moment (MaFy, Ma-dist), ft-lbs	137.7	1930.2	7%	Ma-dist (control),KΦ=0.00 lb-in/in
	Moment Stability, ft-lbs	137.7	2082.3	7%	
	Shear/Moment	0.06	1.00	6%	Shear 0.0, Moment 137.7
	Axial/Moment	0.85	1.00	85%	Axial 4200.0(c), Moment 137.7
	Deflection Span	L/4541	-	-	Δ= 0.0340″

Support	Rx(lb)	Ry(lb)	Simpson Strong-Tie Connector	Connector Interaction	Anchor Interaction
R2	42.8	0.0	SCB45.5(2) & (2) #12-24 SST X or XL to A36 Steel	5.64 %	3.84 %
R1	42.8	4200.0	600T125-33 (33) & (1) .157" SST PDPA/PDPAT-62KP to steel (3/16" to 1/2" thickness)	6.23 %	19.46 %

* Reference catalog for connector and anchor requirement notes as well as screw placement requirements

SLAB EDGES DEFINED - MIN 8" GAP BETWEEN BLDG COL AND SLAB EDGE



NORTH

1 S3.01 SECOND FLOOR FRAMING PLAN

1/8" = 1'-0"

FLOOR FRAMING NOTES

7. INDICATES STEEL COLUMN DISCONTINUING AT FLOOR LEVEL.

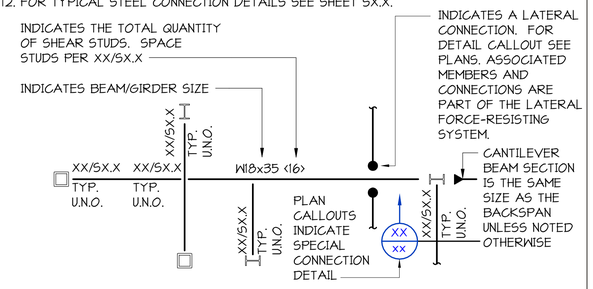
8. INDICATES PENETRATION IN FLOOR STRUCTURE. SEE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL FOR ADDITIONAL OPENINGS. FOR TYPICAL REINFORCING AROUND OPENINGS SEE XX/SX.X.

9. FOR TYPICAL COMPOSITE BEAM AND METAL DECK DETAILS SEE SHEET SX.X. FOR HANGING LOADS FROM METAL FLOOR DECK SEE XX/SX.X.

10. NON-STRUCTURAL STUD WALLS ARE SHOWN SCREENED FOR REFERENCE ONLY. FOR LOCATION SEE ARCHITECTURAL. FOR BRACING AT TOPS OF STUD WALLS SEE XX/SX.X.

11. INDICATES DIRECTION OF SPAN FOR METAL DECK.

12. FOR TYPICAL STEEL CONNECTION DETAILS SEE SHEET SX.X.



18. STEEL MEMBERS ARE EQUALLY SPACED BETWEEN DIMENSION POINTS UNLESS NOTED OTHERWISE.

FREIHEIT ARCHITECTURE
PCS Structural Solutions
Seattle | Tacoma | Portland
www.pcs-structural.com

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11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA 98513

"NOT FOR CONSTRUCTION" — STATE OF WASHINGTON — 56734 — REGISTERED PROFESSIONAL ENGINEER — DAVID A. FLOYD

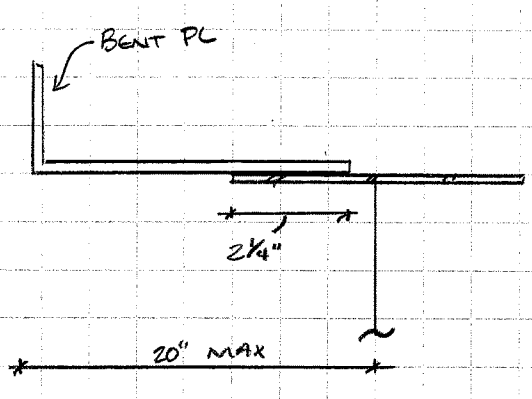
ISSUE LIST

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SECOND FLOOR FRAMING PLAN

S3.01

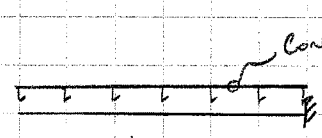
ELEVATED SLAB EDGE DETAIL



Δ_{LIMIT}: L/120 (TL)
L/90 (LL)

WORST CASE SCENARIO; BENT PL ALIGNS W/ CL OF WF

∴ MAX OH = 17.75"



DL_{CONST} = 50.2 PSF
LL_{CONST} = 25 PSF

{ SPAN ASSUMPTION = 17.75"
TRIB ASSUMPTION = 1'-0" NOMINAL

$\phi M_n = \phi F_y Z = (36^{ksi})\left(\frac{bh^2}{4}\right)(0.75)$

$b = 12"$ $h = 1/4"$ $Z = 0.1875 in^3$

$\phi M_n = 0.75(36^{ksi} \times 0.1875) = 5.07^{k\text{-}in}$

$M_{u,\,FIXED\ @FIXED} = \frac{WL^2}{2}$

$w = [1.2(DL) + 1.6(LL)](1'\text{-}0")$
$= 100.24 plf\ (8.5 pli)$

$M_u = \frac{(8.5^{pli})(17.75)^2}{2} = 1.4\ k\text{-}in$

∴ BENDING OK → CHECK Δ

ELEVATED SLAB EDGE DETAIL - CONT'D

$\Delta_{CHECK} = \frac{WL^4}{24EI}$ → W = k/in → ASD → SERVICEABILITY; l = LENGTH; in; E = ksi; I = in⁴

$I = \frac{bh^3}{12}$ $E = 29{,}000{,}000$ psi

$I = \frac{(12\text{in})(0.25)^3}{12} = 0.0156\text{in}^4$

W, L, ETC. PER PREV

L = 17.75 in

W = TLF 51 + 25 = 76 psf (0.076 k/ft)

LL = 25 psf (0.025 k/ft)

∴ Δ:

$\Delta_{MAX,\,TL} = 17.75\text{in}/120 = 0.15"$

$\Delta_{MAX,\,LL} = 17.75/90 = 0.197"$

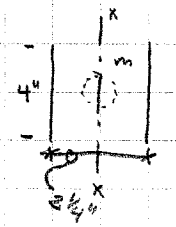
$\Delta_{TL} = \frac{(1/12)(0.076^k/_{ft})(17.75)^4}{24(29{,}000\,ksi)(0.0156\text{in}^4)} = 0.06"$ OK!

$\Delta_{LL} = \frac{1/12(0.025^k/_{ft})(17.75)^4}{24(29{,}000)(0.0156\text{in}^4)} = 0.019"$

DEFL OK

WELDS: 4"@8" o.c. ∴ 4" OF 3/16" WELD

WELD AS A LINE



$S_w = bd$

$S_w = 4 \times 2\frac{1}{4} = 9\text{in}^2$

$\phi R_N = 0.75(0.6)F_{EXX}\frac{\sqrt{2}}{2}(3/16)$ ← EFF THROAT

$\sigma = \frac{M}{Z} = 4.18^k/_{in}$

∴ LRFD $\phi R_N = 4.18^k/_{in}$

$M_U = 1.4^{k\text{-in}}$

∴ WELD OK VIA INSP.

CANOPY FRAMING DESIGN

FRAMING IS MINIMUM SIZE: ARCH TO UPSIZE AT THEIR DISCRETION AND GIVEN SECTION PROPERTIES REMAIN THE SAME.

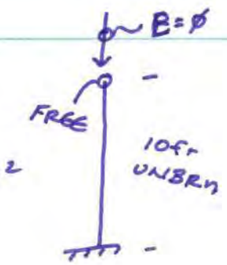
JOISTS:
FORTEWEB
W/ 3.5" BRG
DL = 12PSF
LL = 25PSF
∴ 2x8 @ 24" OK
↑ 24"

LOAD DEMAND
DEAD:
T&G + JOISTS + ROOFING + MISC
= 12 PSF

LIVE (SNOW) = 25PSF

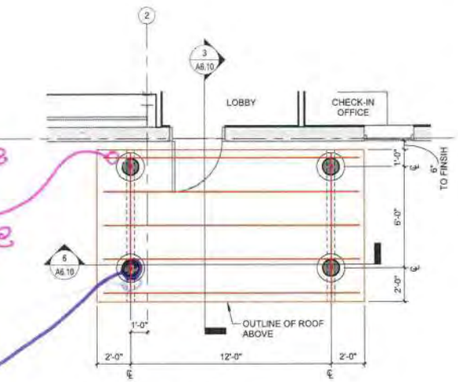
EAVE: ENERCALC
8'-0" TRIB
DL = 96PLF
LL = 200PLF
∴ DF No 2
2x10 OK

COLUMN: ENERCALC
TOTAL ROOF AREA
= 16'-0" x 9'-0" = 144 ft²
TRIB: ~1/4 ROOF AREA
A_T = 36sqft
DL = 0.432 K
LL_r = 0.9 K
DF No. 1 4x4 OK; ~~FOR LABOR~~ ARCH DET AS 12"; DO WE

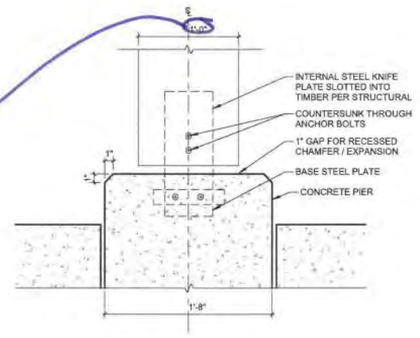


JOISTS
2x8 JOISTS @ 24 O.K
2x6 JOISTS @ 16" O.K

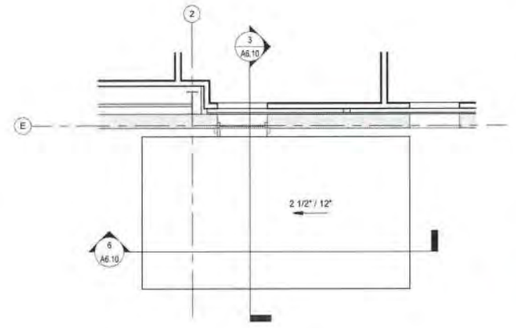
COLUMN:
4x4 COLUMN WORKS (3.5" BRG)



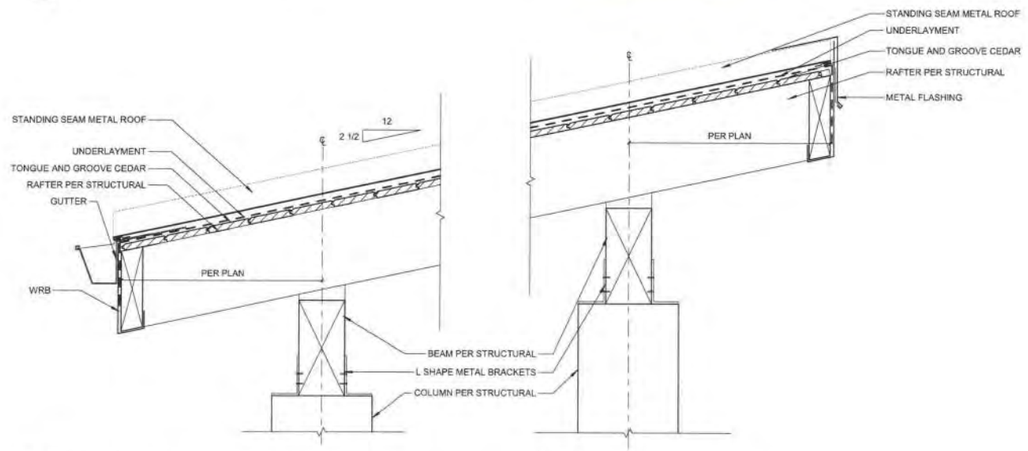
1 A6.10 ENLARGED FLOOR PLAN AT SOUTH ENTRANCE
Scale: 1/4" = 1'-0"



5 A6.10 COLUMN BASE
Scale: 1 1/2" = 1'-0"

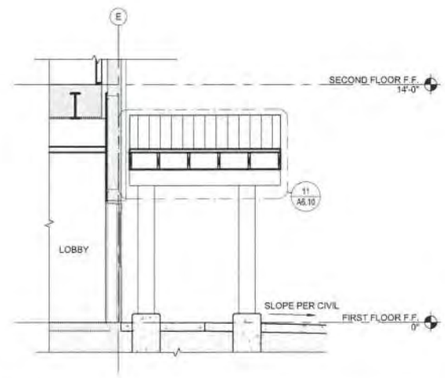


6B A6.10 ENLARGED ROOF PLAN AT SOUTH ENTRANCE
Scale: 1/4" = 1'-0"

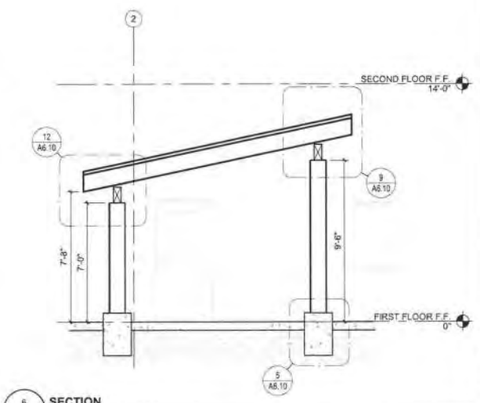


12 A6.10 ENTRANCE ROOF AT LOWER END
Scale: 1 1/2" = 1'-0"

9 A6.10 ENTRANCE ROOF AT HIGHT END
Scale: 1 1/2" = 1'-0"



3 A6.10 SECTION
Scale: 1/4" = 1'-0"



6 A6.10 SECTION
Scale: 1/4" = 1'-0"

FREIHEIT ARCHITECTURE

NISQUALLY VOCATIONAL CENTER - DESIGN DEVELOPMENT
ADDRESS TBD
11940 BILLY FRANK JR BLVD SE, OLYMPIA, WA 98513

SUMMARY (MINS)
- JOISTS = 2x8@24
- BMS = 2x10
- COLS = 4x4

ISSUE LIST

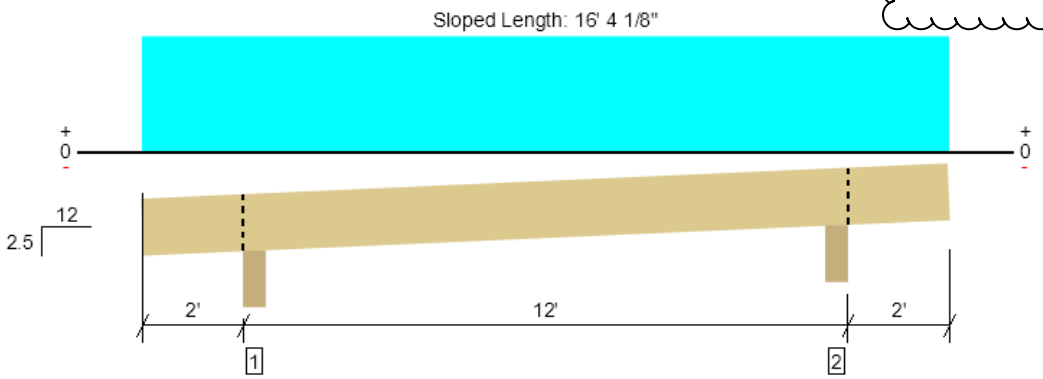
DETAILS - EXTERIOR - PHASE 2

A6.10

Canopy Roof, Roof Joist

1 piece(s) 2 x 8 DF No.2 @ 24" OC

THIS IS A MINIMUM SECTION SIZE



Drawing is Conceptual. All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal (typ.).

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	602 @ 2' 2 3/4"	5267 (5.50")	Passed (11%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	374 @ 3' 5/8"	1501	Passed (25%)	1.15	1.0 D + 1.0 S (Adj Spans)
Moment (Ft-lbs)	1118 @ 8'	1564	Passed (71%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.249 @ 8'	0.589	Passed (L/569)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.359 @ 8'	0.786	Passed (L/394)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 16' 5 5/8"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2021
Design Methodology : ASD
Member Pitch : 2.5/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Allowed moment has been multiplied by 1.20 for the volume/size factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Roof Live	Snow	Factored	
1 - Beveled Plate - DF	5.50"	5.50"	1.50"	196	405	405	602	Blocking
2 - Beveled Plate - DF	5.50"	5.50"	1.50"	196	405	405	602	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 6" o/c	
Bottom Edge (Lu)	16' 4" o/c	

•Maximum allowable bracing intervals based on applied load.
•Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Roof Live (1.25)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 16'	24"	12	25	25	Typical Roof Loading

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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Dylan Suddath PCS Structural Solutions (704) 450-3772 dsuddath@pcs-structural.com	Monoslope Canopy

Weyerhaeuser

10/1/2026 8:25:42 PM UTC
ForteWEB v4.1, Engine: V8.5.1.3, Data: V26.12.18.51
File Name: Canopy Framing

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Typical Canopy Beam - Supporting Monoslope

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : NDS 2024
Load Combination Set : ASCE 7-16

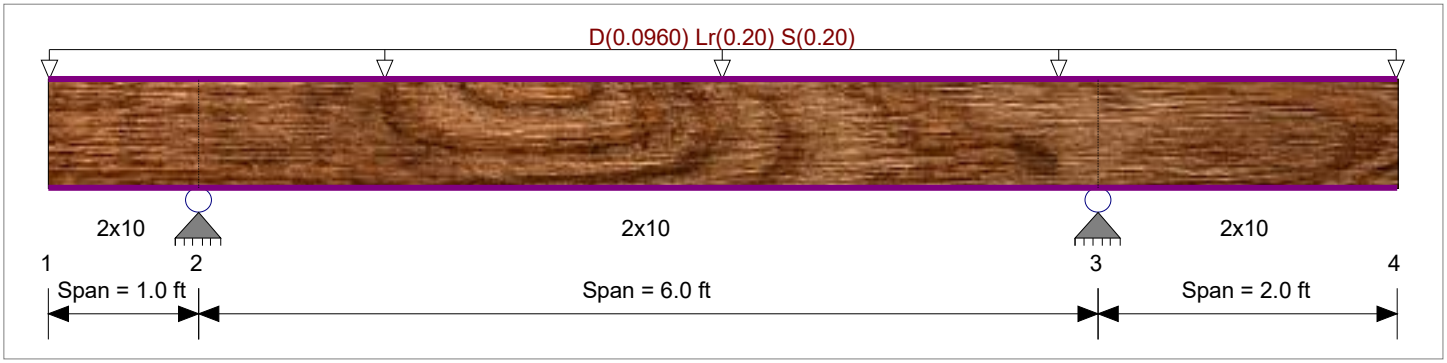
Material Properties

Analysis Method :	Allowable Stress Design
Load Combination :	ASCE 7-16
Wood Species :	Douglas Fir-Larch
Wood Grade :	No.2
Beam Bracing :	Beam is Fully Braced against lateral-torsional buckling

Fb +	900 psi
Fb -	900 psi
Fc - Prll	1350 psi
Fc - Perp	625 psi
Fv	180 psi
Ft	575 psi

E : Modulus of Elasticity

Ebend- xx	1600 ksi
Eminbend - xx	580 ksi
Density	31.21 pcf



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Loads on all spans...
Uniform Load on ALL spans : D = 0.0120, Lr = 0.0250, S = 0.0250 ksf, Tributary Width = 8.0 ft

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio	=	**0.483** : 1	Maximum Shear Stress Ratio	=	**0.389** : 1
Section used for this span		**2x10** NDS2024	Section used for this span		**2x10** NDS2024
fb: Actual	=	550.36 psi	fv: Actual	=	80.61 psi
F'b	=	1,138.50 psi	F'v	=	207.00 psi
Load Combination		+D+S	Load Combination		+D+S
Location of maximum on span	=	2.773 ft	Location of maximum on span	=	5.244 ft
Span # where maximum occurs	=	Span # 2	Span # where maximum occurs	=	Span # 2

Maximum Deflection

Max Downward Transient Deflection	0.025 in	Ratio =	2886	>=360	Span: 2 : Lr Only
Max Upward Transient Deflection	-0.013 in	Ratio =	1870	>=360	Span: 1 : Lr Only
Max Downward Total Deflection	0.037 in	Ratio =	1930	>=180	Span: 2 : +D+Lr
Max Upward Total Deflection	-0.019 in	Ratio =	1250	>=180	Span: 1 : +D+Lr

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
D Only														0.0	0.00	0.0	0.0
Length = 1.0 ft	1	0.031	0.132	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.05	27.8	891.0	0.20	21.3	162.0
Length = 6.0 ft	2	0.205	0.165	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.32	182.2	891.0	0.25	26.7	162.0
Length = 2.0 ft	3	0.125	0.082	0.90	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.20	111.1	891.0	0.12	13.3	162.0
+D+Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 1.0 ft	1	0.068	0.286	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.15	83.9	1,237.5	0.60	64.4	225.0

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Typical Canopy Beam - Supporting Monoslope

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	V	CD	CM	C_t	CLx	C_F	Cfu	C_i	C_r	Moment Values M	fb	F'b	Shear Values V	fv	F'v
Length = 6.0 ft	**2**	0.445	0.358	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.98	550.4	1,237.5	0.75	80.6	225.0
Length = 2.0 ft	**3**	0.271	0.179	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.60	335.5	1,237.5	0.37	40.2	225.0
+D+S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 1.0 ft	**1**	0.074	0.311	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.15	83.9	1,138.5	0.60	64.4	207.0
Length = 6.0 ft	**2**	0.483	0.389	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.98	550.4	1,138.5	0.75	80.6	207.0
Length = 2.0 ft	**3**	0.295	0.194	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.60	335.5	1,138.5	0.37	40.2	207.0
+D+0.750Lr					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 1.0 ft	**1**	0.056	0.239	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.12	69.8	1,237.5	0.50	53.7	225.0
Length = 6.0 ft	**2**	0.370	0.298	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.82	458.3	1,237.5	0.62	67.1	225.0
Length = 2.0 ft	**3**	0.226	0.149	1.25	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.50	279.4	1,237.5	0.31	33.5	225.0
+D+0.750S					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 1.0 ft	**1**	0.061	0.259	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.12	69.8	1,138.5	0.50	53.7	207.0
Length = 6.0 ft	**2**	0.403	0.324	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.82	458.3	1,138.5	0.62	67.1	207.0
Length = 2.0 ft	**3**	0.245	0.162	1.15	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.50	279.4	1,138.5	0.31	33.5	207.0
+0.60D					1.00	1.00	1.00	1.100	1.00	1.00	1.00			0.0	0.00	0.0	0.0
Length = 1.0 ft	**1**	0.011	0.044	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.03	16.7	1,584.0	0.12	12.8	288.0
Length = 6.0 ft	**2**	0.069	0.056	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.19	109.3	1,584.0	0.15	16.0	288.0
Length = 2.0 ft	**3**	0.042	0.028	1.60	1.00	1.00	1.00	1.100	1.00	1.00	1.00	0.12	66.7	1,584.0	0.07	8.0	288.0

Overall Maximum Deflections

Span	Load Combination	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
1		0.0000	0.000	+D+S	-0.0192	0.000
2	+D+S	0.0373	2.924		0.0000	0.000
3		0.0000	2.924	+D+S	-0.0229	2.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Max Upward from all Load Conditions		1.121	1.570	
Max Upward from Load Combinations		1.121	1.570	
Max Upward from Load Cases		0.750	1.050	
D Only		0.371	0.520	
+D+Lr		1.121	1.570	
+D+S		1.121	1.570	
+D+0.750Lr		0.934	1.307	
+D+0.750S		0.934	1.307	
+0.60D		0.223	0.312	
Lr Only		0.750	1.050	
S Only		0.750	1.050	

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Worst Case Canopy Column (High Side Monoslope)

Code References

Governing Code : IBC 2024
Referenced Design Standard(s) : NDS 2024
Load Combinations Used : ASCE 7-16

General Information

Analysis Method	Allowable Stress Design		
End Fixities	Top Free, Bottom Fixed		
Overall Column Height	10 ft		
(Used for non-slender calculations)			
Wood Species	Douglas Fir-Larch		
Wood Grade	No.1		
Fb +	1000 psi	Fv	180 psi
Fb -	1000 psi	Ft	675 psi
Fc - Prll	1500 psi	Density	31.21 pcf
Fc - Perp	625 psi		

E : Modulus of Elasticity . . .	x-x Bending	y-y Bending	Axial
Basic	1700	1700	1700 ksi
Minimum	620	620	

Column Buckling Condition:
ABOUT X-X Axis: Lux = 10 ft, Kx = 1.0
ABOUT Y-Y Axis: Luy = 10 ft, Ky = 1.0

Wood Section Name	**4x4**		
Wood Grading/Manuf.	Graded Lumber		
Wood Member Type	Sawn		
Exact Width	**3.50** in	Allow Stress Modification Factors	
Exact Depth	**3.50** in	Cf or Cv for Bending	1.50
Area	12.250 in^2	Cf or Cv for Compressio	1.150
Ix	12.505 in^4	Cf or Cv for Tension	1.50
Iy	12.505 in^4	Cm : Wet Use Factor	1.0
		Ct : Temperature Fact	1.0
		Cfu : Flat Use Factor	1.0
		Kf about Y	1.0
		Kf about X	1.0
		Use Cr : Repetitive ?	No

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 26.550 lbs * Dead Load Factor
AXIAL LOADS . . .
Axial Load at 10.0 ft, D = 0.450, Lr = 0.90, S = 0.90 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.2728 : 1**

Load Combination	+D+S
Governing NDS Forumla	Comp Only, fc/Fc'
Location of max.above base	0.0 ft
At maximum location values are .	
Applied Axial	1.377 k
Applied Mx	0.0 k-ft
Applied My	0.0 k-ft
Fc : Allowable	411.954 psi

PASS Maximum Shear Stress Ratio = **0.0 : 1**

Load Combination	+0.60D
Location of max.above base	10.0 ft
Applied Design Shear	0.0 psi
Allowable Shear	288.0 psi

Maximum SERVICE Lateral Load Reactions . .

Top along Y-Y	0.0 k	Bottom along Y-Y	0.0 k
Top along X-X	0.0 k	Bottom along X-X	0.0 k

Maximum SERVICE Load Lateral Deflections . . .

Along Y-Y 0.0 in at 0.0 ft above base
for load combination : n/a
Along X-X 0.0 in at 0.0 ft above base
for load combination : n/a

Other Factors

	Bending	Compression	Shear

Load Combination Results

Load Combination	C_D	Controlling Cp Value	Controlling Cp About	Max Axial + Bending Stress Ratios: Stress Ratio	Status	Location	Max Shear Ratios: Stress Ratio	Status	Location
D Only	0.900	0.261	X Axis	0.09606	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+Lr	1.250	0.192	X Axis	0.2715	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+S	1.150	0.208	X Axis	0.2728	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.750Lr	1.250	0.192	X Axis	0.2271	PASS	0.0 ft	0.0	PASS	10.0 ft
+D+0.750S	1.150	0.208	X Axis	0.2282	PASS	0.0 ft	0.0	PASS	10.0 ft
+0.60D	1.600	0.152	X Axis	0.05576	PASS	0.0 ft	0.0	PASS	10.0 ft

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: 26-384 nisqually voc.ec6

LIC# : KW-06014122, Build:20.25.10.02 PCS STRUCTURAL SOLUTIONS (c) ENERCALC, LLC 1982-2026

DESCRIPTION: Worst Case Canopy Column (High Side Monoslope)

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	Rx (k) @ Base	Rx (k) @ Top	Ry (k) @ Base	Ry (k) @ Top	Axial (k) @ Base	My (k-ft) @ Base	My (k-ft) @ Top	Mx (k-ft) @ Base	Mx (k-ft) @ Top
D Only					0.477				
+D+Lr					1.377				
+D+S					1.377				
+D+0.750Lr					1.152				
+D+0.750S					1.152				
+0.60D					0.286				
Lr Only					0.900				
S Only					0.900				

Extreme Reactions

Item	Extreme Value	Axial (k) @ Base	Rx (k) @ Base	Rx (k) @ Top	Ry (k) @ Base	Ry (k) @ Top	Mx (k-ft) @ Base	Mx (k-ft) @ Top	My (k-ft) @ Base	My (k-ft) @ Top
Axial, Base Max		1.377								
Axial, Base Min		0.286								
Rx, Base Max										
Rx, Base Min										
Ry, Base Max										
Ry, Base Min										
Mx, Base Max										
Mx, Base Min										
My, Base Max										
My, Base Min										

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+S	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750Lr	0.0000 in	0.000ft	0.000 in	0.000 ft
+D+0.750S	0.0000 in	0.000ft	0.000 in	0.000 ft
+0.60D	0.0000 in	0.000ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000ft	0.000 in	0.000 ft

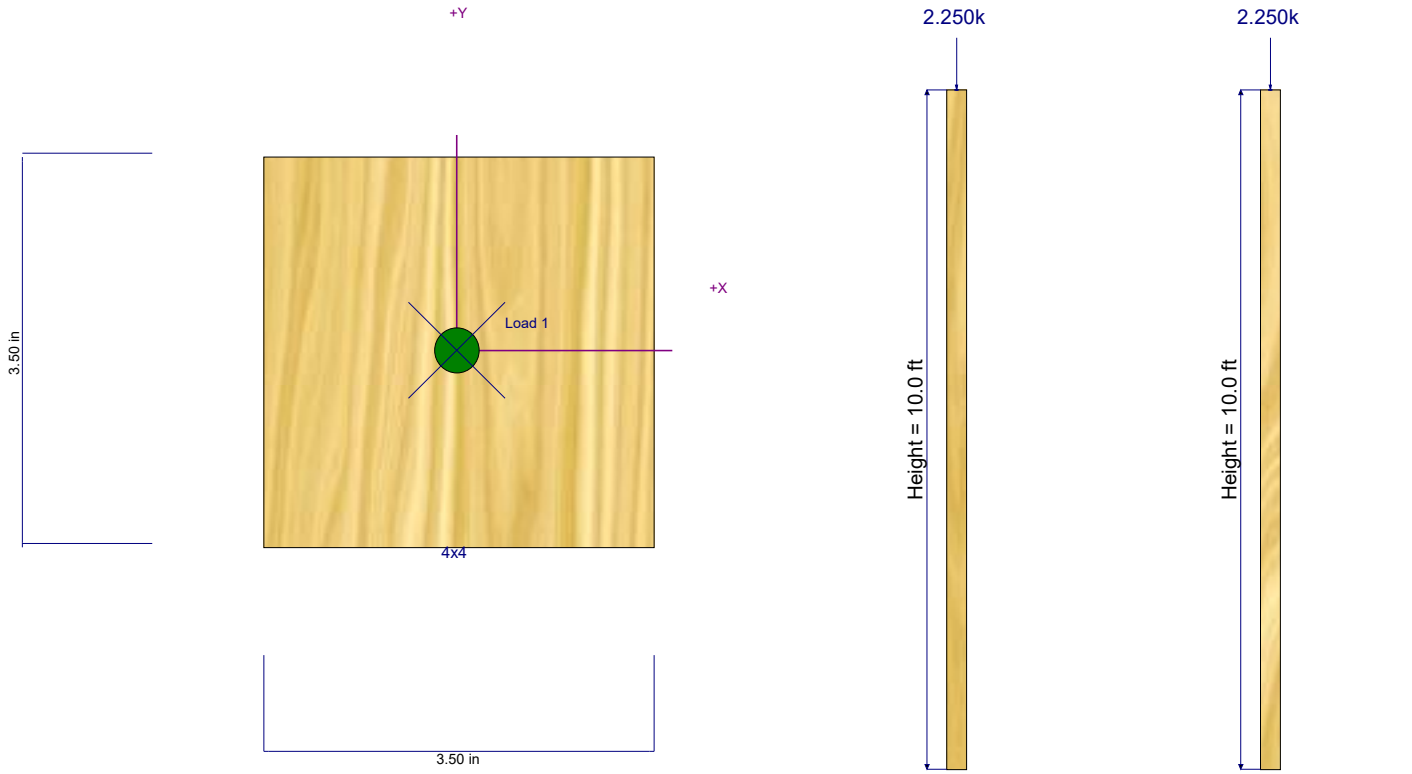
Project Title:
Engineer:
Project ID:
Project Descr:

Wood Column

Project File: 26-384 nisqually voc.ec6

DESCRIPTION: Worst Case Canopy Column (High Side Monoslope)

Sketches



a NUCOR company
1050 North Watery Lane Phone: (435) 919-3100
Brigham City, UT 84302

Structural Design Calculations

For

Advanced Building Structures
Post Office Box 1871
Clackamas, OR 97015

Project

Nisqually - Vocational & Emergency Operations Center
11940 Billy Frank Jr Blvd S
Olympia, WA 98513

Project No. U26H0545A
Design Engineer = Du, Weili (NBGW)
Stamping Engineer = Raymond Anderson

Project Data

Structural Design Calculations - Pages 1 to 145

9/30/26

RAYMOND PAUL ANDERSON
STATE OF WASHINGTON
42446
REGISTERED
PROFESSIONAL ENGINEER

Professional Seal

Name:	**Raymond Anderson**
Title:	**Professional Engineer**
Affiliation:	**Nucor Building Systems - Utah**
Date:	**2026-09-09**

The Professional Engineer whose seal appears on these Structural Design Calculations is employed by the metal building manufacturer, a Member of MBMA, and does not serve as or represent the Engineer of Record for this project and shall not be construed as such.

IAS ACCREDITED Metal Building Systems AC 472

MBMA METAL BUILDING MANUFACTURERS ASSOCIATION

Excellence from the ground up

a NUCOR company
1050 North Watery Lane Phone: (435) 919-3100
Brigham City, UT 84302

Wednesday, September 9, 2026

Advanced Building Structures
Post Office Box 1871
Clackamas, OR 97015
Attn.: Rick Brockway
Project Location: Olympia, WA 98513
Project Number: U26H0545A

Project Name: Nisqually - Vocational & Emergency Operations Center
Buildings: A->61'-4"x152'-8"x26'-0"(RCG, 2.5:12)

This Letter of Design Certification ensures that the materials furnished by the metal building supplier are designed in accordance with the information specified to the metal building supplier on the order documents and summarized by the loading information listed below. The Project Engineer of Record (not the metal building supplier) is responsible for verifying that the building code and design loads meet any and all applicable local requirements.

The Professional Engineer whose seal appears on this Letter of Certification is employed by the metal building manufacturer, a Member of MBMA, and does not serve as or represent the Engineer of Record for this project and shall not be construed as such.

DESIGN LOAD CRITERIA:

Structural Loads Applied in General Accordance with: IBC 2021
Risk Category: II - Standard Buildings

PROJECT-WIDE LOADING INFORMATION:

Ground Snow Load: 15.00 psf | Snow Exposure Factor,Ce: 1.00 | Snow Imp. Factor,Is: 1.00
Roof Live Load: 20.00 psf | Non-reducible Live Load | Rainfall Intensity: 4 in/hr
Basic Wind Speed: 97 mph | Allowable Stress Design Wind Speed: 75 mph | ***C&C Wind:23psf / -28psf
UL90 Rated: Yes | Wind Exposure: B
Seismic Criteria: Ss:1.500 S1:0.460 | *No ground snow included in seismic calculations.
Design Sds / Sd1: 1.200 / 0.564 | Analysis Procedure: Equivalent Lateral Force Procedure
Seis. Imp. Factor,Ie: 1.00 | Long. SFRS: Ord. Concentrically Braced Frame
Seis. Design Category: D | Site Class: D | Lat. SFRS: Ord. Moment Frame

BUILDING-SPECIFIC LOADING INFORMATION:

	Roof Dead	Collateral Dead		Snow Coefficient			Snow Load (psf)		Wind		Seismic		
Bldg	(psf)*	Pri (psf)	Sec (psf)	Ct	Cs		Ps (psf)	**Pm (psf)	Enclosure	GCpi	R	Cs	V (kips)
A	4.50	10.00	10.00	1.00	0.90		9.41	25.00	Part. Encl.	±0.55	3.25	0.308	62.71

**Primary Structural Not Included*
***Pm is based on the minimum roof snow load calculated per building code or the contract-specified roof snow load, whichever is greater. This value, Pm, is only applied in combination with Dead and Collateral Loads. Roof Snow in other loading conditions is determined per the specified Building Code.*
****Design wind pressures to be used for wall exterior component and cladding materials not provided by Metal Building Supplier*

Mezzanine Information:

Floor Dead Load: N/A | Floor Collateral Load: N/A | Floor Live Load: N/A

Crane Information:

No cranes on building.

Roof-Top Unit Information:

No roof-top units on building.

The design of structural members supporting roof gravity loads is controlled by the more critical effect of roof live load or roof snow applied in accordance with the governing building code.

DESIGN STANDARDS REFERENCED:

- AISC Specification for Structural Steel Buildings - Steel Construction Manual, 15th Edition, ©2017.
- AISI North-American Spec. for the Design of Cold-Formed Steel Structures, ©2016 Edition.
- IBC codes are designed in accordance with ASCE7-16 Edition.
- MBMA Metal Building Systems Manual, Latest Edition.
- AWS Latest Edition of Structural Welding Code.
- No buyout structural components provided on this project.

9/30/26



Professional Seal

MBMA METAL BUILDING MANUFACTURERS ASSOCIATION©

IAS ACCREDITED Metal Building Systems

DESIGN CALCULATIONS

SECTION 1: …… GENERAL

SECTION 2: …… LOADS

SECTION 3: …… MEZZANINES --- (IF APPLICABLE)

SECTION 4: …… CRANES --- (IF APPLICABLE)

SECTION 5: …… COMPONENTS

SECTION 6: …… SECONDARY & BRACING

SECTION 7: …… FRAMES

SECTION 1

GENERAL

GENERAL INFORMATION

The calculation information contained within this packet provides an efficient overview of the Metal Building System provided. The purpose of this information is to provide the Engineer of Record and Building Department Official with adequate documentation as required to readily verify code compliance and structural integrity of the building system.

A simplified typical metal building system is depicted below for reference of terms and function. In general, environmental loading is applied to the roof/wall panels (sheathing), distributed to purlins/girts (secondary), and supported by rigid frames (primary) and bracing.

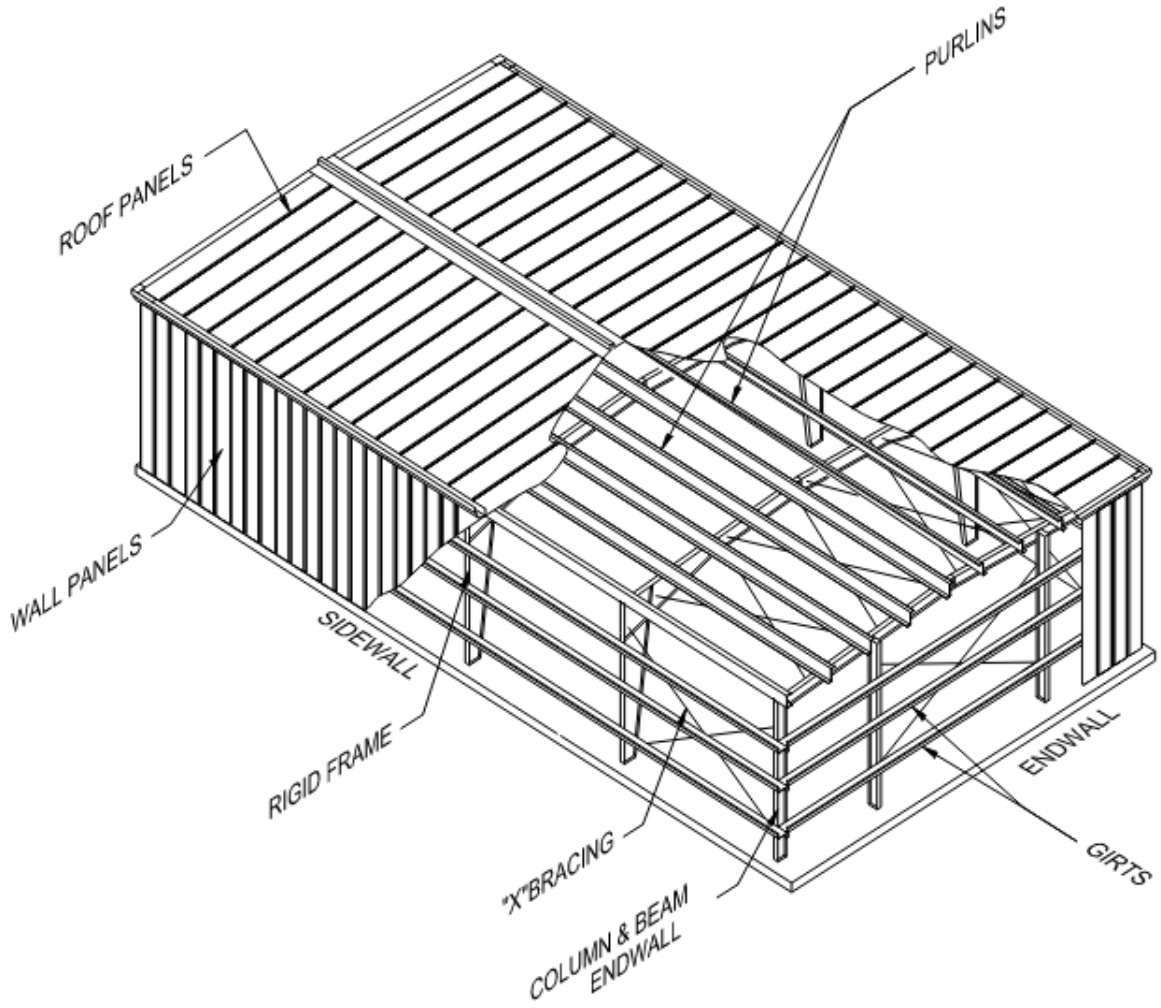


Figure 1: *General Components of a Metal Building System*

SECTION 2

LOADS

LOAD INFORMATION

The specific project load requirements including the applicable building code, occupancy, environmental, and seismic design criteria are supplied to the metal building manufacturer through a contracted builder and shall be confirmed by the Engineer of Record. The load information contained in this section represents all applicable environmental and seismic loading being applied to the Metal Building System.

The wind load report includes component & cladding loading as well as main wind force resisting system loading with edge zones displayed. For component & cladding wind force the coefficients of loading are based on individual component tributary areas. For main wind force resisting system loading a total of eight different wind cases are considered. This includes external wind force applied parallel or perpendicular to the building and windward or leeward wind directions combined with internal suction or pressure.

The seismic load report includes a summary of contributing dead loads, the individual seismic force resisting systems utilized, and the determination of base shear for each resisting system.

General loading nomenclature:

RDL – Roof dead load
COL – Collateral dead load
FDL – Floor dead load
FLL – Floor live load
SL – Snow on left roof surface
SR – Snow on right roof surface
LRD – Windward over the ridge snow drift
RRD – Leeward over the ridge snow drift
UOS – User override minimum snow (Pmin)
RLL – Roof live load on left roof surface
RLR – Roof live load on right roof surface
W1R – Windward wind force applied perpendicular to the building length with internal suction
W1L – Leeward wind force applied perpendicular to the building length with internal suction
W2R – Windward wind force applied perpendicular to the building length with internal pressure
W2L – Leeward wind force applied perpendicular to the building length with internal pressure
W5B – Windward wind force applied parallel to the building length with internal suction
W5F – Leeward wind force applied parallel to the building length with internal suction
W6B – Windward wind force applied parallel to the building length with internal pressure
W6F – Leeward wind force applied parallel to the building length with internal pressure
BWF – Longitudinal bracing wind force applied parallel to the building length to the left

BWB – Longitudinal bracing wind force applied parallel to the building length to the right
EQR – Seismic force applied perpendicular to the building length to the right
EQL – Seismic force applied perpendicular to the building length to the left
EQB – Longitudinal bracing seismic force applied parallel to the building length to the right
EQF – Longitudinal bracing seismic force applied parallel to the building length to the left
C1OL – Crane 1 vertical live load without impact when crane is positioned near left column
C1OR – Crane 1 vertical live load without impact when crane is positioned near right column
C1LL – Crane 1 lateral load applied perpendicular to the building length to the left
C1LR – Crane 1 lateral load applied perpendicular to the building length to the right
CUPL – Bracing uplift force due to crane longitudinal load parallel to the building length
CDOW – Bracing downward force due to crane longitudinal load parallel to the building length
CSUP – Bracing uplift force due to crane stop load parallel to the building length
CSDO – Bracing downward force due to crane stop load parallel to the building length

NUCOR BUILDINGS GROUP
A DIVISION OF NUCOR CORPORATION

Unbalanced Snow Loading on Gable Roofs (ASCE 7-16)

per ASCE 7-16 Section 7.6.1 and Figure 7.6-2

Job #:	U26H0545A
Job Name:	Nisqually - Vocational & Emergency Operations Center
Engineer:	Weili Du
Date:	2026-09-01
Version:	1.6.56.0

Unbalanced Snow: V&Eoc

Building Geometry

Building Type	Gable
Building Width	61.3333'
BSW Dist. To Ridge	30.6667'
FSW Dist. To Ridge	30.6667'
BSW Roof Slope	2.5
FSW Roof Slope	2.5

Loading Information

Building Code	ASCE716
Occupancy Category	II-Standard Buildings
Thermal Condition	Normal
Wind Exposure	B
Roof Exposure	Standard condition
Roof Surface Is Slippery	☑ ⓘ
Ground Snow, P_g	15.00 psf

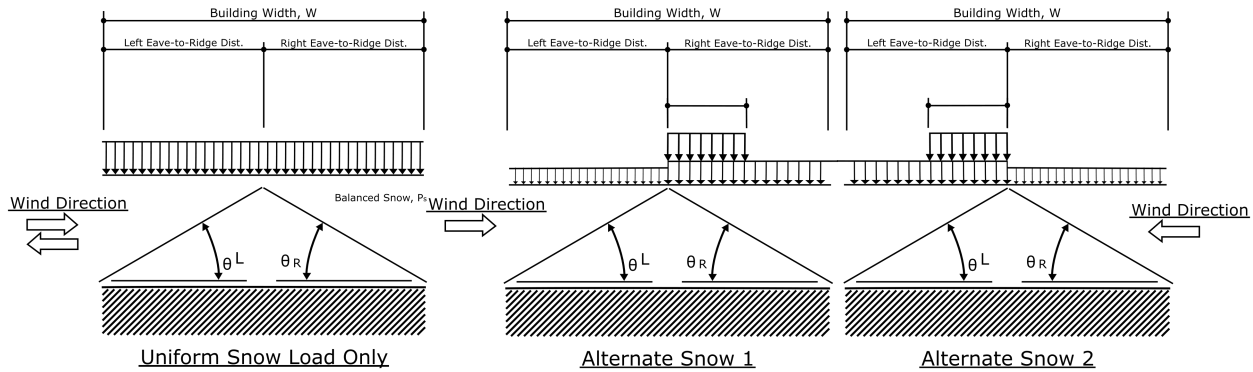
General Snow Calculations

Terrain Exposure Factor, C_e	1.00
Thermal Condition Factor, C_t	1.00
Importance Factor, I_s	1.00
Snow Density, γ	15.95 pcf

BSW Slope Values		*FSW Slope Values*	
Slope Factor, C_s	0.896	**Slope Factor, C_s**	0.896
Roof Snow, P_s	9.41 psf	**Roof Snow, P_s**	9.41 psf
Slope Angle, θ	11.77°	**Slope Angle, θ**	11.77°
"Min Uniform Snow, P_{min}	15.00 psf	**Min Uniform Snow, P_{min}**	15.00 psf

Unbalanced Snow Calculations

Wind from BSW to FSW		*Wind from FSW To BSW*	
Windward Snow Load	2.82 psf	**Windward Snow Load**	2.82 psf
Leeward Snow Load	9.41 psf	**Leeward Snow Load**	9.41 psf
Surcharge Snow Load	10.99 psf	**Surcharge Snow Load**	10.99 psf
Surcharge Length	8.82 ft	**Surcharge Length**	8.82 ft
Total Surcharge Load	20.40 psf	**Total Surcharge Load**	20.40 psf



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Wind Loading per ASCE 7-16

with AISI 2016 Specification and 2012 MBMA Manual

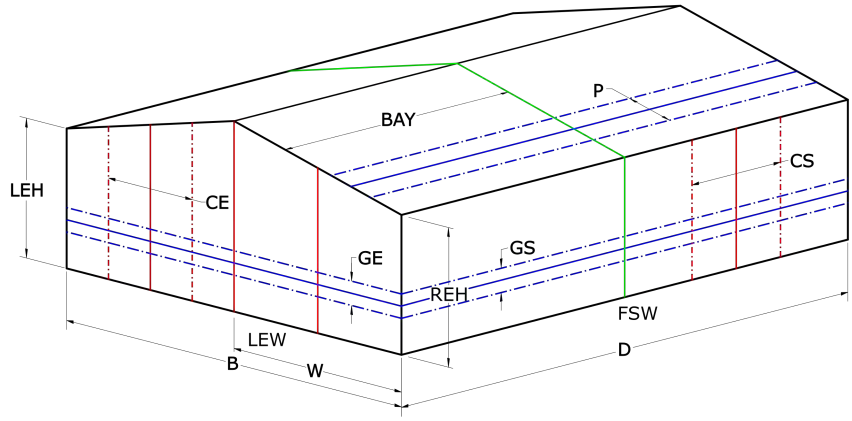
Job #:	U26H0545A
Job Name:	Nisqually - Vocational & Emergency Operations Center
Engineer:	Weili Du
Date:	2026-09-01
Version:	1.6.56.0

Wind Calculations: V&Eoc

Building Geometry

Building Name	V&Eoc	**Building Type**	Gable

Building Width [B]	61.3333	ft
Dist. To Ridge [W]	30.6667	ft
Building Length [D]	152.6667	ft
FSW Eave Hgt. [REH]	26.0000	ft
BSW Eave Hgt. [LEH]	26.0000 ft	
FSW Roof Slope	2.50	:12
BSW Roof Slope	2.50	:12
Bay Width [Bay]	26.3333	ft
Purlin Trib. Width [P]	5.0000	ft
EW Girt Trib. Height [GE]	6.2500	ft
SW Girt Trib. Height [GS]	6.2500	ft
EW Girt Length	20.6667	ft
SW Girt Length	26.3333	ft
EW Col. Trib. Width [CE]	20.3333	ft
SW Col. Trib. Width [CS]	25.8333	ft



Loading Information

Building Code	ASCE716
Wind Speed (mph)	97
Wind Exposure	B
Building Porosity	PartiallyEnclosed
Ground Elev. (ft)	0.0000

Opening Area (ft²) 0.0

Interior Partitions Exist ☐

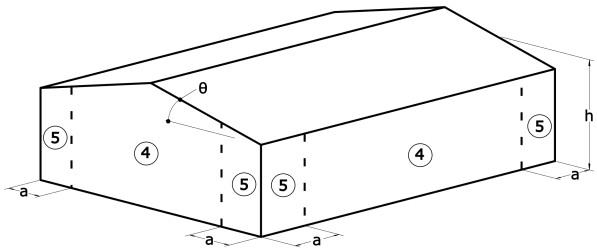
General Wind Calculations

h 29.1944 ft	**K_d** 0.85	**K_{zt}** 1.00		**R_i** 1.00	**q_h** 14.34 psf
	K_z or K_h 0.70	**K_e** 1.00	**G** 0.85	**GC_{pi}** ± 0.55	

Wind Enclosure

Components And Cladding - Walls

Edge Zone [a] = 6.13ft



Item	Eff. Wind Area (ft^2)	Pressure Zone 4, 5 (psf)	Suction Zone 4 (psf)	Suction Zone 5 (psf)
Sidewall Wind Column	671.67	17.93	-19.36	-19.36
Endwall Wind Column	528.67	17.93	-19.36	-19.36
Sidewall Girt	231.15	18.78	-20.21	-21.06
Endwall Girt	142.37	19.31	-20.75	-22.13
Wall Panel	13.02	21.94	-23.38	-27.39

Wall Panel Type	Reverse R Panel
Wall Panel	26 Ga. Gr. 80, Fy = 80 ksi, Fu = 82 ksi
Deflection Limit	L/60
Min. Girt Thickness ⓘ	0.06

Wall Sheeting Maximum Span Lengths (ft)

Condition	Pressure Zone 4,5	Suction Zone 4	Suction Zone 5
Factored Load (psf)	13.17	-14.03	-16.43
Simple Span (ft)	7.50	7.50	7.22
2 Equal Spans (ft)	7.50	7.50	7.50
3 Equal Spans (ft)	7.50	7.50	7.50
Fasteners (ft)	N/A	7.50	7.50

Note: The above span lengths are based on panel capacities found in the NBG DM. Deflection checks are based on 50-year wind. Applied wind loads were multiplied by a 0.6 factor.

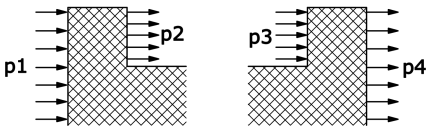
Parapet Wind Loads

Trib. area for parapet C&C 0.0' ^{2}

Loads given as Total

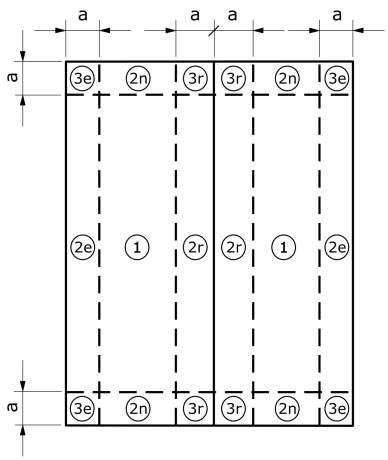
Windward = p1 + p2

Leeward = p3 + p4



Item	Top Elevation (ft)	Projection (ft)	K_h	Q_p (psf)	MWFRS Windward (psf)	MWFRS Leeward (psf)	C&C Windward (psf)	C&C Leeward (psf)
FSW Parapet	0.00	0.00	---	---	---	---	---	---
BSW Parapet	0.00	0.00	---	---	---	---	---	---
LEW Parapet	0.00	0.00	---	---	---	---	---	---
REW Parapet	0.00	0.00	---	---	---	---	---	---

Components and Cladding - Roof



Max. roof slope = 11.77° Edge Zone [a] = 6.13'

Item	Eff. Area (ft^2)	Pressure All Zones (psf)	Suction Zones 1 (psf)	2e (psf)	2n (psf)	2r (psf)	3e (psf)	3r (psf)
Purlin/Joist	231.15	16.00	-16.00	-16.00	-22.93	-22.93	-22.93	-33.71
Panel	10.00	16.00	-36.58	-36.58	-50.92	-50.92	-50.92	-59.53
Fastener	10.00	16.00	-36.58	-36.58	-50.92	-50.92	-50.92	-59.53
Values below are for the Roof Overhang ⓘ								
Purlin/Joist	231.1	---	-29.40	-29.40	-37.10	-37.10	-30.31	-40.88
Panel	10.0	---	-43.75	-43.75	-58.09	-58.09	-66.70	-75.31
Fastener	10.0	---	-43.75	-43.75	-58.09	-58.09	-66.70	-75.31

62.5 sq ft, -33.59 psf

Roof Panel Type	CFR
Roof Panel	24 Ga. Gr. 50, Fy = 50 ksi, Fu = 65 ksi
Deflection Limit	L/60

Self Weight (psf): ⓘ	1.13
Collateral Load (psf): ⓘ	10.00
Live Load (psf):	20.00
Snow Load (psf):	25.00

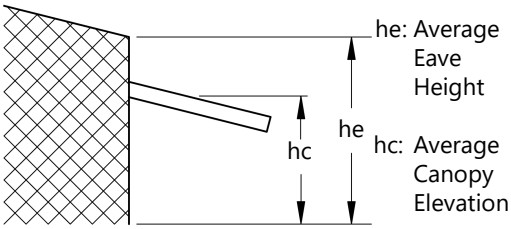
Int. Zone Seaming (1)	RollLock_StandardClip
Edge Zone Seaming (2)	RollLock_StandardClip
Corner Zone Seaming (3)	RollLock_StandardClip

Roof Sheeting Maximum Span Lengths (ft)

Condition	Pressure	1	2e	2n	2r	3e	3r
Factored Load (psf)	37.08	-21.27	-21.27	-21.27	-21.27	-21.27	-23.14
Simple Span (ft) ⓘ	5.50	---	---	---	---	---	---
2 Equal Spans (ft)	5.50	---	---	---	---	---	---
3 Equal Spans (ft)	5.50	---	---	---	---	---	---
Fasteners (ft)	N/A	5.50	5.50	5.50	5.50	5.50	5.50

Note: The above span lengths are based on panel capacities found in the NBG DM. Deflection checks are based on 50-year wind. Applied wind loads were factored and combined automatically (see Read Me #A.12).

Components and Cladding - Below Eave Canopy

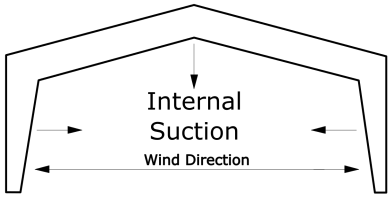


Item	Eff. Wind Area (ft^2)	Pressure Total psf	Uplift Total (psf) ⓘ For Various Canopy Elevations hc <= 0.5he	Otherwise	hc >= 0.9he
Purlin/Joist	231.15	16.00	-16.00	-16.00	-16.50
Panel	10.00	16.00	-16.00	-16.00	-20.08
Fastener	10.00	16.00	-16.00	-16.00	-20.08

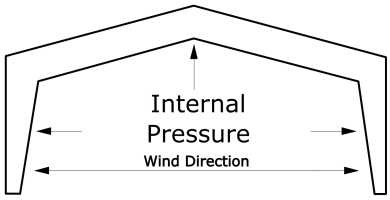
Main Wind Force Resisting System - Transverse Direction

Max. roof slope = 11.77°

a = 6.13' ⓘ

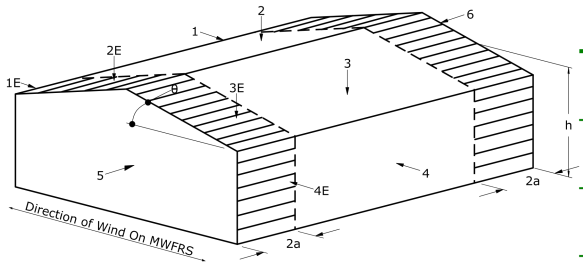


Wind W1R W1L W3R W3L



Wind W2R W2L W4R W4L

	Transverse Wind Direction			
Zone	W1R	W1L	W2R	W2L
C1	1.01	0.20	-0.09	-0.90
(psf)	14.47	2.82	-1.31	-12.95
C2	-0.14	0.13	-1.24	-0.97
(psf)	-2.01	1.87	-17.79	-13.91
C3	0.13	-0.14	-0.97	-1.24
(psf)	1.87	-2.01	-13.91	-17.79
C4	0.20	1.01	-0.90	-0.09
(psf)	2.82	14.47	-12.95	-1.31
C5	0.10	0.10	-1.00	-1.00
(psf)	1.43	1.43	-14.34	-14.34
C6	0.10	0.10	-1.00	-1.00
(psf)	1.43	1.43	-14.34	-14.34
Net* (psf)	7.21	7.21	7.21	7.21



Note: Zones 1E, 2E, 3E, and 4E occur on both ends of the building (labels not shown at far end for clarity).

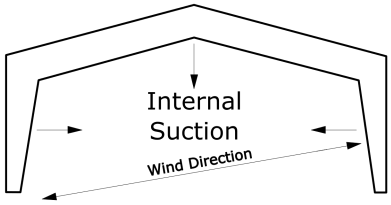
	Edge Zone Pressure Coefficients			
Zone	W1R	W1L	W2R	W2L
C1E	1.25	0.03	0.15	-1.07
(psf)	17.87	0.36	2.09	-15.42
C2E	-0.52	-0.05	-1.62	-1.15
(psf)	-7.46	-0.75	-23.24	-16.53
C3E	-0.05	-0.52	-1.15	-1.62
(psf)	-0.75	-7.46	-16.53	-23.24
C4E	0.03	1.25	-1.07	0.15
(psf)	0.36	17.87	-15.42	2.09

*Net Lat < 16 PoundsPerSquareFoot Add additional pressure to windward wall.

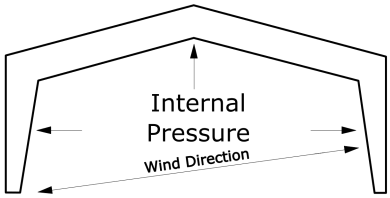
Main Wind Force Resisting System - Longitudinal Direction

Max. roof slope = 11.77°

a = 6.13' ⓘ

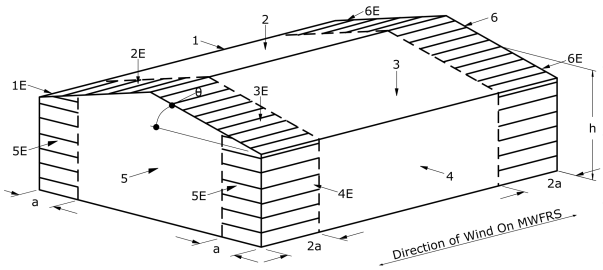


Wind W5B W5F W7B W7F



Wind W6B W6F W8B W8F

	Longitudinal Wind Direction			
Zone	W5B	W5F	W6B	W6F
C1	0.10	0.10	-1.00	-1.00
(psf)	1.43	1.43	-14.34	-14.34
C2	-0.14	0.18	-1.24	-0.92
(psf)	-2.01	2.58	-17.79	-13.20
C3	0.18	-0.14	-0.92	-1.24
(psf)	2.58	-2.01	-13.20	-17.79
C4	0.10	0.10	-1.00	-1.00
(psf)	1.43	1.43	-14.34	-14.34
C1E	0.07	0.07	-1.03	-1.03
(psf)	1.00	1.00	-14.77	-14.77
C2E	-0.52	0.02	-1.62	-1.08
(psf)	-7.46	0.29	-23.24	-15.49
C3E	0.02	-0.52	-1.08	-1.62
(psf)	0.29	-7.46	-15.49	-23.24
C4E	0.07	0.07	-1.03	-1.03
(psf)	1.00	1.00	-14.77	-14.77



	End-Wall Pressure Coefficients			
Zone	W5B	W5F	W6B	W6F
C5	0.95	0.26	-0.15	-0.84
(psf)	13.63	3.73	-2.15	-12.05
C6	0.26	0.95	-0.84	-0.15
(psf)	3.73	13.63	-12.05	-2.15
C5E	1.16	0.12	0.06	-0.98
(psf)	16.64	1.72	0.86	-14.06
C6E	0.12	1.16	-0.98	0.06
(psf)	1.72	16.64	-14.06	0.86
Net**	5.19	5.19	5.19	5.19

**Net Long < 16 psf. Add additional pressure to windward wall (psf).

Note: Zones 1E, 2E, 3E, and 4E occur on both ends of the building (labels not shown at far end for clarity).

Longitudinal Force Resisted by Bracing: 14.32 kips ⓘ

Total Longitudinal Net Pressure Applied to Building: 16.00 psf
Total Longitudinal Force Applied to Building: 28.65 kips ⓘ

NUCOR BUILDINGS GROUP
A DIVISION OF NUCOR CORPORATION

ASCE 7-16 Seismic Considerations

Equivalent Lateral Force Procedure (per Section 12.8)

Job #: U26H0545A
Job Name: Nisqually - Vocational & Emergency Operations Center
Engineer: Weili Du
Date: 2026-09-01
Version: 1.6.56.0

Seismic Calculations: V&Eoc

Building Data Input

Building Code	ASCE716	BSW Roof Slope, s:12	2.50 :12
Building Type	Gable	FSW Roof Slope, s:12	2.15 :12
Building Width	66.3333'	FSW Eave Height	26.0000'
Building Length	157.6667'	BSW Eave Height	26.0000'
BSW Distance to Ridge	30.6667'	Mean Roof Height	29.1944'

Seismic Data Input

Nature of Occupancy	II-Standard Buildings	Site Classification	D
Roof Level Diaphragm	Flexible		
Mezzanine Level Diaphragm	None	Override Fa and Fv?	☐
Short period response acceleration, S_s	1.500		
1-sec period response acceleration, S_1	0.460	Use 'Not Detailed for Seismic' SFRS	☐
		Significant mezzanine exists	☐
		Seismic Irregularities Exist	☐

Roof Loading

Lateral Frame Self-weight (SW)	3.00	psf	Roof Self-weight (Bracing, Beams, etc)	0.50	psf
Roof Dead Load (RDL)	4.00	psf	Roof Snow (Pf)	25.00	psf
Roof Collateral Load (CDL)	10.00	psf			

Left EW Loads

◉ Full Height Wall
○ Partial Height Hardwall

Self supporting shear wall	☐		
Parapet	☐		
Top Elevation	29.1944'		
Wall Weight	3.00	psf	

Right EW Loads

◉ Full Height Wall
○ Partial Height Hardwall

Self supporting shear wall	☐		
Parapet	☐		
Top Elevation	29.1944'		
Wall Weight	0.00	psf	

Front SW Loads

◉ Full Height Wall
○ Partial Height Hardwall

Self supporting shear wall	☐		
Parapet	☐		
Top Elevation	26.0000'		
Wall Weight	3.00	psf	

Back SW Loads

◉ Full Height Wall
○ Partial Height Hardwall

Self supporting shear wall	☐		
Parapet	☐		
Top Elevation	26.0000'		
Wall Weight	3.00	psf	

Partition Loads

◉ Full Height Wall
○ Partial Height Hardwall

Self supporting shear wall	☐		
Parapet	☐		
Top Elevation	29.1944'		
Wall Weight	3.00	psf	

Mezzanine Loads

Add | Delete

Crane Loads

Add | Delete

Seismic Force Resisting Systems

For Longitudinal Calculations - *Framing Parallel to Sidewalls*

FSW Force Resisting System	X - Bracing
BSW Force Resisting System	X - Bracing

For Lateral Calculations - *Framing Perpendicular to Sidewalls*

Frameline Description / Location	Seismic Force Resisting System	Tributary Width	
LEW	Rigid Frame	17.0000'	
Interior Frames, FL 2-5	Rigid Frame	25.0000'	
FL 6	Rigid Frame	25.0000'	
REW	Rigid Frame	17.0000'	

Add Frameline

Lateral Calculations - LEW

Building Data Input Echo

Building Type	Gable	
Width	66.33	feet
Length	157.67	feet
BSW Distance to Ridge	30.67	feet
BSW Roof Slope, s:12	2.50	: 12
FSW Roof Slope, s:12	2.15	: 12
FSW Eave Height	26.00	feet
BSW Eave Height	26.00	feet
Mean Roof Height	29.19	feet

Frameline Information

Description / Location: LEW

Framing System: Rigid Frame

Bay Width: 17.0000'

Bay Type: Left Endwall

Seismic Force Resisting System: *Ord. Moment Frame*

Roof Concentrated Load Information

Roof concentrated loads: 0.00 kips

Hardwall (SW) Information

Front SW Tributary Length: 17.0000'

Back SW Tributary Length: 17.0000'

Mezzanine Information

Add | Delete

Crane Information

Add | Delete

Seismic Data Input Echo

Short period response acceleration, S_s 1.500

1-sec period response acceleration, S_1 0.460

Seismic Factors

Occupancy Importance Factor	I_e	1.00	Max spectral response for short periods	S_{ms}		1.500
Site Coefficient	F_a	1.00	Max spectral response for 1-second period	S_{m1}		0.846
Site Coefficient	F_v	1.84	Response Modification Coefficient	R	ⓘ	3.5
Design spectral response for short periods	S_{ds}	1.000	System Overstrength Factor	Ω_0	ⓘ	2.5
Design spectral response for 1-second periods	S_{d1}	0.564	Deflection Modification Factor	C_d	ⓘ	3
Seismic Design Category	SDC	D	Building Period Coefficient	C_t		0.03

Approximate Fundamental Period	T_a	0.416	☐ Override
Redundancy Factor	ρ	1.300	☐ Override
Vertical Distribution Factor	k	0.000	☐ Override

Seismic Load Output

Seismic Base Shear V 6.98 kips

Seismic Response Coefficient C_s 0.286

Multistory Distribution

Portion of the Structure	Eff. Seismic Weight, (lbs) ⓘ	Elevation h_x (ft) ⓘ	Vertical Dist. Factor ⓘ	Seismic Force F_x (kips)	Base Moment M_x (ft-kips)
Roof Loads	20,099	29.19	20,099	5.74	167.66
Left EW Loads	5,810	14.66	5,810	1.66	24.33
Front SW Loads	1,326	13.00	1,326	0.38	4.93
Back SW Loads	1,326	13.00	1,326	0.38	4.93
Totals	**28,561**	--	**28,561**	**8.16**	**201.84**

Frame Uniform Loads

Alt. Roof Weight	Alt. Panel Load
21.46 psf ⓘ	**0.10 klf** ⓘ
Roof Weight	**Panel Load**
20.41 psf	**0.10 klf**
Seismic Factor	**0.286**

Frame Concentrated Loads

Load	Elevation
0.20 kips	24.67 feet
0.20 kips	24.67 feet
Base Shear	**6.98 kips**

Lateral Calculations - Interior Frames, FL 2-5

Building Data Input Echo

Building Type	Gable	
Width	66.33	feet
Length	157.67	feet
BSW Distance to Ridge	30.67	feet
BSW Roof Slope, s:12	2.50	: 12
FSW Roof Slope, s:12	2.15	: 12
FSW Eave Height	26.00	feet
BSW Eave Height	26.00	feet
Mean Roof Height	29.19	feet

Frameline Information

Description / Location: Interior Frames, FL 2-5

Framing System: Rigid Frame

Bay Width: 25.0000'

Bay Type: Interior

Seismic Force Resisting System: *Ord. Moment Frame*

Roof Concentrated Load Information

Roof concentrated loads: 0.00 kips

Hardwall (SW) Information

Front SW Tributary Length: 25.0000'

Back SW Tributary Length: 25.0000'

Mezzanine Information

Add | Delete

Crane Information

Add | Delete

Seismic Data Input Echo

Short period response acceleration, S_s 1.500

1-sec period response acceleration, S_1 0.460

Seismic Factors

Occupancy Importance Factor	I_e	1.00	Max spectral response for short periods	S_{ms}		1.500
Site Coefficient	F_a	1.00	Max spectral response for 1-second period	S_{m1}		0.846
Site Coefficient	F_v	1.84	Response Modification Coefficient	R	ⓘ	3.5
Design spectral response for short periods	S_{ds}	1.000	System Overstrength Factor	Ω_0	ⓘ	2.5
Design spectral response for 1-second periods	S_{d1}	0.564	Deflection Modification Factor	C_d	ⓘ	3
Seismic Design Category	SDC	D	Building Period Coefficient	C_t		0.03

Approximate Fundamental Period	T_a	0.416	☐ Override
Redundancy Factor	ρ	1.300	☐ Override
Vertical Distribution Factor	k	0.000	☐ Override

Seismic Load Output

Seismic Base Shear V 9.03 kips

Seismic Response Coefficient C_s 0.286

Multistory Distribution

Portion of the Structure	Eff. Seismic Weight, (lbs) ⓘ	Elevation h_x (ft) ⓘ	Vertical Dist. Factor ⓘ	Seismic Force F_x (kips)	Base Moment M_x (ft-kips)
Roof Loads	29,557	29.19	29,557	8.45	246.56
Front SW Loads	1,950	13.00	1,950	0.56	7.24
Back SW Loads	1,950	13.00	1,950	0.56	7.24
Totals	**33,457**	--	**33,457**	**9.56**	**261.04**

Frame Uniform Loads

Alt. Roof Weight	Alt. Panel Load
18.87 psf ⓘ	**0.13 klf** ⓘ
Roof Weight	**Panel Load**
17.82 psf	**0.13 klf**
Seismic Factor	**0.286**

Frame Concentrated Loads

Load	Elevation
0.29 kips	24.67 feet
0.29 kips	24.67 feet
Base Shear	**9.03 kips**

Lateral Calculations - FL 6

Building Data Input Echo

Building Type	Gable	
Width	66.33	feet
Length	157.67	feet
BSW Distance to Ridge	30.67	feet
BSW Roof Slope, s:12	2.50	: 12
FSW Roof Slope, s:12	2.15	: 12
FSW Eave Height	26.00	feet
BSW Eave Height	26.00	feet
Mean Roof Height	29.19	feet

Frameline Information

Description / Location: FL 6

Framing System: Rigid Frame

Bay Width: 25.0000'

Bay Type: Interior w/ Partition

Wall Length: 61.3333'

Seismic Force Resisting System: *Ord. Moment Frame*

Roof Concentrated Load Information

Roof concentrated loads: 0.80 kips

Hardwall (SW) Information

Front SW Tributary Length: 25.0000'

Back SW Tributary Length: 25.0000'

Mezzanine Information

Add | Delete

Crane Information

Add | Delete

Seismic Data Input Echo

Short period response acceleration, S_s 1.500

1-sec period response acceleration, S_1 0.460

Seismic Factors

Occupancy Importance Factor	I_e	1.00	Max spectral response for short periods	S_{ms}		1.500
Site Coefficient	F_a	1.00	Max spectral response for 1-second period	S_{m1}		0.846
Site Coefficient	F_v	1.84	Response Modification Coefficient	R	ⓘ	3.5
Design spectral response for short periods	S_{ds}	1.000	System Overstrength Factor	Ω_0	ⓘ	2.5
Design spectral response for 1-second periods	S_{d1}	0.564	Deflection Modification Factor	C_d	ⓘ	3
Seismic Design Category	SDC	D	Building Period Coefficient	C_t		0.03

Approximate Fundamental Period	T_a	0.416	☐ Override
Redundancy Factor	ρ	1.300	☐ Override
Vertical Distribution Factor	k	0.000	☐ Override

Seismic Load Output

Seismic Base Shear V 10.09 kips

Seismic Response Coefficient C_s 0.286

Multistory Distribution

Portion of the Structure	Eff. Seismic Weight, (lbs) ⓘ	Elevation h_x (ft) ⓘ	Vertical Dist. Factor ⓘ	Seismic Force F_x (kips)	Base Moment M_x (ft-kips)
Roof Loads	30,357	29.19	30,357	8.67	253.23
Partition Wall Loads	5,810	14.66	5,810	1.66	24.33
Front SW Loads	1,950	13.00	1,950	0.56	7.24
Back SW Loads	1,950	13.00	1,950	0.56	7.24
Totals	**40,067**	--	**40,067**	**11.45**	**292.05**

Frame Uniform Loads

Alt. Roof Weight	Alt. Panel Load
21.11 psf ⓘ	0.15 klf ⓘ
Roof Weight	**Panel Load**
20.06 psf	0.14 klf
Seismic Factor	0.286

Frame Concentrated Loads

Load	Elevation
0.29 kips	24.67 feet
0.29 kips	24.67 feet
Base Shear	**10.09 kips**

Lateral Calculations - REW

Building Data Input Echo

Building Type	Gable	
Width	66.33	feet
Length	157.67	feet
BSW Distance to Ridge	30.67	feet
BSW Roof Slope, s:12	2.50	: 12
FSW Roof Slope, s:12	2.15	: 12
FSW Eave Height	26.00	feet
BSW Eave Height	26.00	feet
Mean Roof Height	29.19	feet

Frameline Information

Description / Location: REW

Framing System: Rigid Frame

Bay Width: 17.0000'

Bay Type: Right Endwall

Seismic Force Resisting System: *Ord. Moment Frame*

Roof Concentrated Load Information

Roof concentrated loads: 1.30 kips

Hardwall (SW) Information

Front SW Tributary Length: 0.0000'

Back SW Tributary Length: 0.0000'

Mezzanine Information

Add | Delete

Crane Information

Add | Delete

Seismic Data Input Echo

Short period response acceleration, S_s 1.500

1-sec period response acceleration, S_1 0.460

Seismic Factors

Occupancy Importance Factor	I_e	1.00	Max spectral response for short periods	S_{ms}		1.500
Site Coefficient	F_a	1.00	Max spectral response for 1-second period	S_{m1}		0.846
Site Coefficient	F_v	1.84	Response Modification Coefficient	R	ⓘ	3.5
Design spectral response for short periods	S_{ds}	1.000	System Overstrength Factor	Ω_0	ⓘ	2.5
Design spectral response for 1-second periods	S_{d1}	0.564	Deflection Modification Factor	C_d	ⓘ	3
Seismic Design Category	SDC	D	Building Period Coefficient	C_t		0.03

Approximate Fundamental Period	T_a	0.416	☐ Override
Redundancy Factor	ρ	1.300	☐ Override
Vertical Distribution Factor	k	0.000	☐ Override

Seismic Load Output

Seismic Base Shear V 6.11 kips

Seismic Response Coefficient C_s 0.286

Multistory Distribution

Portion of the Structure	Eff. Seismic Weight, (lbs) ⓘ	Elevation h_x (ft) ⓘ	Vertical Dist. Factor ⓘ	Seismic Force F_x (kips)	Base Moment M_x (ft-kips)
Roof Loads	21,399	29.19	21,399	6.11	178.50
Right EW Loads	0	14.66	0	0.00	0.00
Front SW Loads	0	13.00	0	0.00	0.00
Back SW Loads	0	13.00	0	0.00	0.00
Totals	**21,399**	--	**21,399**	**6.11**	**178.50**

Frame Uniform Loads

Alt. Roof Weight	Alt. Panel Load
18.98 psf ⓘ	0.09 klf ⓘ
Roof Weight	**Panel Load**
18.98 psf	0.09 klf
Seismic Factor	0.286

Frame Concentrated Loads

Load	Elevation
0.00 kips	24.67 feet
0.00 kips	24.67 feet
Base Shear	**6.11 kips**

Longitudinal Calculations

Building Data Input Echo

Building Type	Gable	
Width	66.33	feet
Length	157.67	feet
BSW Distance to Ridge	30.67	feet
BSW Roof Slope, s:12	2.50	: 12
FSW Roof Slope, s:12	2.15	: 12
FSW Eave Height	26.00	feet
BSW Eave Height	26.00	feet
Mean Roof Height	29.19	feet

Framing Information

Front SW Framing System	X - Bracing
Back SW Framing System	X - Bracing
Seismic Force Resisting System	*Ord. Concentrically Braced Frame*

Roof Concentrated Load Information

Roof concentrated loads: 1.70 kips

Hardwall (SW) Information

Front SW Tributary Length	126.3333'
Back SW Tributary Length	126.3333'
Partition Wall Tributary Length	66.3333'
Quantity of Partition Walls	1

Mezzanine Information

Add | Delete

Crane Information

Add | Delete

Seismic Data Input Echo

Short period response acceleration, S_s	1.500
1-sec period response acceleration, S_1	0.460

Seismic Factors

Occupancy Importance Factor	I_e	1.00	Max spectral response for short periods	S_{ms}		1.500
Site Coefficient	F_a	1.00	Max spectral response for 1-second period	S_{m1}		0.846
Site Coefficient	F_v	1.84	Response Modification Coefficient	R	ⓘ	3.25
Design spectral response for short periods	S_{ds}	1.000	System Overstrength Factor	Ω_0	ⓘ	2
Design spectral response for 1-second periods	S_{d1}	0.564	Deflection Modification Factor	C_d	ⓘ	3.25
Seismic Design Category	SDC	D	Building Period Coefficient	C_t		0.02

Approximate Fundamental Period	T_a	0.251	☐ Override
Redundancy Factor	ρ	1.300	☐ Override
Vertical Distribution Factor	k	0.000	☐ Override

Seismic Load Output

Seismic Base Shear	V	62.71	kips
Seismic Response Coefficient	C_s	0.308	

Multistory Distribution

Portion of the Structure	Eff. Seismic Weight, (lbs) ⓘ	Elevation h_x (ft) ⓘ	Vertical Dist. Factor ⓘ	Seismic Force F_x (kips)	Base Moment M_x (ft-kips)
Roof Loads	188,108	29.19	188,108	57.88	1,689.84
Left EW Loads	5,810	14.66	5,810	1.79	26.20
Right EW Loads	0	14.66	0	0.00	0.00
Partition Wall Loads	5,810	14.66	5,810	1.79	26.20
Front SW Loads	9,854	13.00	9,854	3.03	39.42
Back SW Loads	9,854	13.00	9,854	3.03	39.42
Totals	**219,435**	--	**219,435**	**67.52**	**1,821.07**

Bracing Uniform Loads

Roof Snow	25.00 psf
Roof Dead	18.54 psf
Alt. Roof Total	19.38 psf ⓘ
Roof Total	**18.54 psf**
Seismic Factor	**0.308**

Bracing Concentrated Loads

Load	Elevation
1.52 kips	26.00 feet
1.52 kips	26.00 feet
Base Shear	**62.71 kips**

SECTION 3

MEZZANINES --- (IF APPLICABLE)

MEZZANINE INFORMATION

A mezzanine is an intermediate level between the floor and roof of the metal building system and is designed as an accessory to the building when the mezzanine area is less than one third of the supporting force resisting system. If the mezzanine area exceeds this area-based threshold the mezzanine is considered a separate floor for seismic design purposes.

Mezzanine loading, diaphragm design, beam design, and associated connection design is contained in this section. Building bracing members that are part of the mezzanine load path are designed for forces associated with building base shear forces. Mezzanine chords, collectors, beam connections, and bracing connections are designed for the forces associated with collector forces when higher than base shear forces. Mezzanine diaphragms and connections to support members other than chords and collectors are designed for inertial forces, inherent torsion, and accidental torsion with amplification when required. Mezzanine diaphragm connections to chords and collectors are designed for the forces associated with collector forces when higher than diaphragm forces.

When open web steel joists are used the required loading and design code criteria is supplied to a joist manufacturer to produce the mezzanine joists. When concrete is used as the wearing surface or part of the structural diaphragm the concrete mix design, temperature and shrinkage reinforcement, supplemental reinforcement, and in slab conduit placement is by the Engineer of Record. When diaphragm irregularities are present such as reentrant corners, diaphragm openings, or other inertial irregularity forces contained in the slab the Engineer of Record is responsible for specifying any additional slab reinforcement as required. When temporary shoring is required for slab placement the Engineer of Record shall determine the required shoring framing system.

SECTION 4

CRANES --- (IF APPLICABLE)

CRANE INFORMATION

A crane support is a component to the metal building system provided. The types of cranes that may be supported by the metal building include Overhead Top Running, Underhung, and Jib cranes. Typical support may include crane beams, support brackets, and sway bracing.

The direct supports including runway beams and support brackets are designed for the controlling fatigue load from the applicable building code load combinations with impact while the primary framing system is designed for the crane loading without impact or fatigue. When multiple crane systems are supported by the building MBMA guidance is used for the investigation of combined loading combinations.

Building longitudinal bracing is typically tiered at the crane elevation as a load path to accept crane loads and distribute them to the foundation. Crane runway beams are typically used to transfer crane stop and longitudinal crane loads to the metal building bracing system. When cap channels are used to aid in lateral deflection, they are stitch welded to the runway beam and the two are designed as a composite member.

SECTION 5

COMPONENTS

COMPONENT INFORMATION

This section includes the calculated load determination and member design for building components and various accessories. The panel profiles that follow the components show the panel properties as well as the maximum span lengths based on the gage, number of spans, and the maximum allowable loading that can act on the panel.

Nucor Buildings Group CFR Standing Seam Roof Panel

The CFR Standing Seam Roof System is a raised seam metal roof, designed to float to accommodate thermal expansion & contraction. It has been extensively tested to ensure the highest level of performance for weathertightness and structural integrity, and approved for wind uplift, hail and fire resistance.



Panel Credentials

- ASTM E108 Test Methods for Fire Tests of Roof Coverings – Class A
- ASTM E1592 Test Method for Wind Uplift Performance of Sheet Metal Roofing Systems
- ASTM E1646 Test Method for Water Penetration of Exterior Roof Systems
- ASTM E1680 Test Method for Rate of Air Leakage Through Exterior Roof Systems
- ASTM E2140 Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Head
- US Army Corps of Engineers - Approved per CEGS 07416 Test Specification
- FM 4471 Class 1 Approval
- UL 580 Class 90 Approval (Const. No's 552, 552A, 552B, 590)
- State of Florida Product Approval
- Miami-Dade County Approved

Panel Specifications

						TOP IN COMPRESSION		BOTTOM IN COMPRESSION	
Gage	Thickness (in.)	Yield (ksi)	Tensile (ksi)	Panel Wt. (psf)	I_x (Gross) (in^4)	S_x (eff.) (in^3)	M_a (kip-in)	S_x (eff.) (in^3)	M_a (kip-in)
24	0.0222	50	65	1.14	0.3520	0.1400	3.5005	0.0894	2.6760

Panel Capacity (psf)

	24 GAGE	
SPAN (ft.)	Gravity	Uplift
2.0	468	107
2.5	317	98
3.0	227	89
3.5	171	80
4.0	133	71
4.5	106	62
5.0	86	53
5.5	72	44

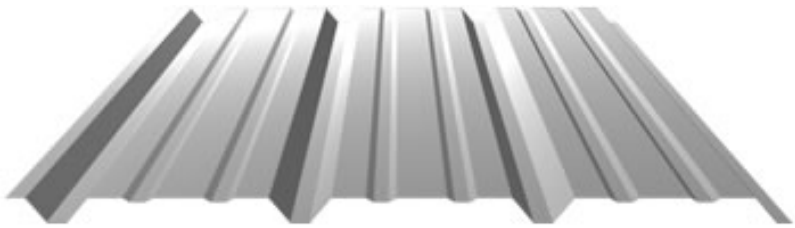
NOTES

1. Section properties were calculated in accordance with AISI S100/CSA S136, 2016 Edition.
2. Panels were checked for bending, shear, combined bending and shear, and deflection.
3. Deflection is limited to Span/60.
4. Uplift loads shown are achieved using the standard panel clip and the Vise-Lock 360 seaming profile.
5. Uplift loads shown do not include increases in wind Zones 2 and 3 as allowed by AISI S100.
6. Thermal load has not been considered.
7. Capacities are based on a 3-span condition with equal length spans.
8. "Gravity" load is applied inward on the outer surface towards supports.
9. "Uplift" load is applied outward on the inner surface away from panel supports.

Nucor Buildings Group Reverse R-Panel Metal Wall Panel System

NUCOR® BUILDINGS GROUP

The Reverse R-Panel wall is a strong, attractive wall panel ideal for multiple applications. The panels offer a rigid surface designed to compress up to 6" of insulation without causing unsightly bulges at the girt. Fasteners are semi-concealed, allowing attention to focus on the beauty of the wall.



Panel Credentials

- ASTM E283 Test Method for Determining Air Leakage Through Wall Systems
- ASTM E331 Test Method for Water Penetration of Exterior Wall Systems
- State of Florida Product Approval
- Miami-Dade County Notice of Acceptance (NOA)
- UL263 Fire Tests of Building Construction and Materials
- ASTM C1363-11 Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus

Panel Specifications

						TOP IN COMPRESSION		BOTTOM IN COMPRESSION	
Gage	Thickness (in.)	Yield (ksi)	Tensile (ksi)	Panel Wt. (psf)	I_x (Gross) (in^4)	S_x (eff.) (in^3)	M_a (kip-in)	S_x (eff.) (in^3)	M_a (kip-in)
26	0.0177	80	82	0.86	0.0477	0.0445	1.5993	0.0356	1.2800
24	0.0222	80	82	1.08	0.0600	0.0566	2.0333	0.0491	1.7667

Panel Capacity (psf)

	26 GAGE		24 GAGE	
SPAN (ft.)	Pressure[7]	Suction[4,8]	Pressure[7]	Suction[4,8]
3.0	79	72	120	75
3.5	67	62	103	64
4.0	59	54	90	56
4.5	51	48	71	50
5.0	42	43	58	45
5.5	35	40	48	41
6.0	29	36	40	38
6.5	25	31	35	35
7.0	22	27	30	32
7.5	19	23	26	30

NOTES

1. Section properties were calculated in accordance with AISI S100/CSA S136, 2016 Edition.
2. Panels were checked for bending, shear, combined bending and shear, web crippling, deflection and panel pullover.
3. Deflection is limited to Span/60.
4. Panel pullover limits are based on d'w = 0.44".
5. Thermal load has not been considered.
6. Capacities are based on a 3-span condition with equal length spans.
7. "Pressure" load is applied inward on the outer surface towards supports.
8. "Suction" load is applied outward on the inner surface away from panel supports.

NUCOR BUILDINGS GROUP

JOB NUMBER: U26H0545A JOB NAME: Jally - Vocational & Emergency Operations Center ENGINEER: WD

ENDWALL WIND COLUMN LOADING

EAVE HEIGHT =	26.00 FT.	**WIND LOAD =**	17.93 PSF
BOTTOM OF COLUMN =	0.00 FT.	**PURLIN / JOIST DEPTH =**	9.50 IN.
DISTANCE TO RIDGE =	30.67 FT.	**RIDGE HEIGHT =**	32.39 FT.
ROOF SLOPE =	2.5:12	**LOAD FACTOR =**	0.6
ENDWALL FRAMELINE=	Line 1		

Gridline	COLUMN #	COLUMN SPACING:	DISTANCE FROM LEFT:	COLUMN HEIGHT:	COLUMN LENGTH:	TRIB. AREA:	UNIFORM LOAD:	MOMENT:	SHEAR:	END REACTION:
E	1	0.00 FT.	0.00 FT.	24.71 FT.	24.71 FT.	10.33 FT.	0.19 KLF	8.48 K-FT	1.37 K	2.29 K
D	2	20.67 FT.	20.67 FT.	29.01 FT.	29.01 FT.	20.33 FT.	0.36 KLF	23.02 K-FT	3.17 K	5.29 K
B	3	20.00 FT.	40.67 FT.	29.01 FT.	29.01 FT.	20.33 FT.	0.36 KLF	23.02 K-FT	3.17 K	5.29 K
A	4	20.67 FT.	61.33 FT.	24.71 FT.	24.71 FT.	10.33 FT.	0.19 KLF	8.48 K-FT	1.37 K	2.29 K

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Beam-Column Analysis

AISC Steel Construction Manual, 16th Edition

Job #: U26H0545A
Job Name: Nisqually - Vocational & Emergency Operations Center
Engineer: Weili Du
Date: 2026-09-04
Version: 1.6.56.0

Wind Column Analysis

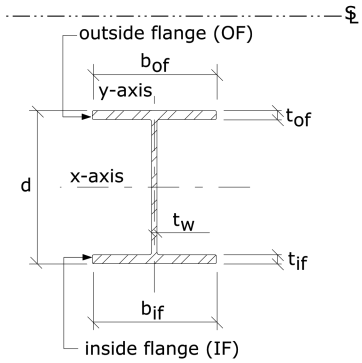
Edition: 16th Edition | Shape: Built-Up / Wide Flange | ☐ Applied loads include 2nd order effects

General Information

Label	WC 1
Member Length (L_{bx}, ft)	29.10
Unbraced Length - Minor (L_{by}, ft)	7.50
Consideration of *Tension Field Action* for shear ⓘ	☐
Clear Distance between Transverse Stiffeners (a, in) ⓘ	0.00
Lateral-torsional buckling factor (C_{bx}) ⓘ	1.000
Lateral-torsional buckling factor (C_{by}) ⓘ	1.000
K_x Factor	1.00
K_y Factor	1.00
K_z Factor ⓘ	1.00
C_{mx}	1.000
C_{my}	1.000

FL 1 analysis of wind columns.

Section Geometry



Section Type	Wide Flange
Profile	W8X24
Total Depth (d)	7.930"
Web thickness (t_w)	0.245"
Outside Flange Width (b_{of})	6.500"
Outside Flange Thickness (t_{of})	0.400"
Inside Flange Width (b_{if})	6.500"
Inside Flange Thickness (t_{if})	0.400"

Material Information

F_y (ksi)	50
Material Strength (F_y, ksi)	50.0
Elastic Modulus (E, ksi)	29000
Shear Modulus (G, ksi)	11200
Flange Yield Strength (F_{yf}, ksi)	-----
Web Yield Strength (F_{yw}, ksi)	-----
Ultimate Strength (F_u, ksi)	65.0

Slenderness Ratio

K_xL_x/r_x	102.105
K_yL_y/r_y	55.901

Factored Applied Loads

Factor of Safety (S_F)	1.000
Copy Load From	Copy
Axial (P_a, kips)	3.00
Shear Major Axis (V_x, kips)	3.50
Moment Major Axis (M_x, k-ft)	23.50
Shear Minor Axis (V_y, kips)	0.00
Moment Minor Axis (M_y, k-ft)	0.00

Design Results

Design Results	**OK**
ASD Combined Strength Ratio (CSR)	0.486
ASD Shear Strength Ratio (x-axis) (V_{rx}/V_{cx})	0.113
ASD Shear Strength Ratio (y-axis) (V_{ry}/V_{cy})	0.000

Deflection Results

Deflection Results (Major-axis)	**OK**
Deflection Limits (about x-axis)	L / 180
Maximum Deflection (about x-axis) (Δ_{max}, in)	1.940
Member Deflection (about x-axis) ($\Delta_{x\text{-}axis}$, in)	1.494
Deflection Results (Minor-axis)	**OK**
Deflection Limits (about y-axis)	L / 180
Maximum Deflection (about y-axis) (Δ_{max}, in)	1.940
Member Deflection (about y-axis) ($\Delta_{y\text{-}axis}$, in)	0.000

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Pinned Base Plate Connection Analysis (AISC 2016)

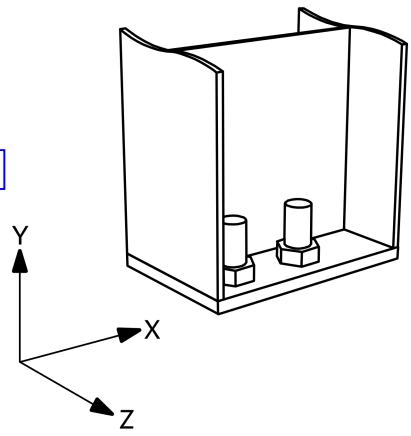
per AISC Steel Construction Manual 15th Edition

Job #:	U26H0545A
Job Name:	Nisqually - Vocational & Emergency Operations Center
Engineer:	Weili Du
Date:	2026-09-04
Version:	1.6.56.0

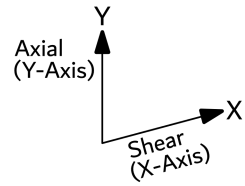
Wind Column BP

General Information And Column Geometry

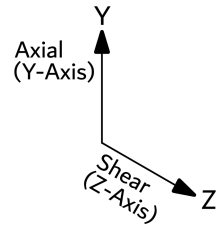
Specification	AISC2016
Allowable Stress Ratio	1.00
Has Grout?	☐
F'c	3.00 ksi
Column Type	WF
Wide Flange	W8X18
Bolt Pattern	Left
Girt Offset	8.000"



FRAME REACTIONS

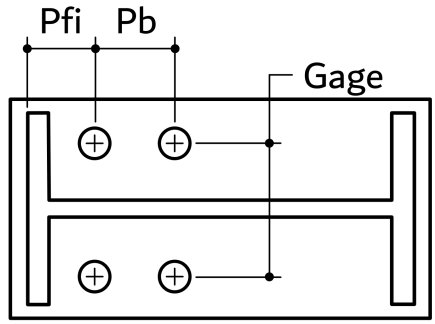


BRACE REACTIONS



Connection Geometry

Anchor Rod Diameter	0.75
Grade	Grade36
Quantity	4
Gage	4.000" ☐
Pb	3.000" ☐
Pfi	3.000" ☐
Baseplate Width	8.00" ☐
Baseplate Thickness	0.375"
Baseplate Fy	55
Baseplate Fu	70
Baseplate Length	8.14" ☐
Left Flange Weld	FWS3
Web Weld	FWR3
Right Flange Weld	FWS3



Warnings

Warnings

Analzying Base Plate at COL01 - Non-Standard Bolt Pattern Utilized, Pfi and Pb

Applied Loads

Combo ID	1	2	3	4
ASR	1.00	1.00	1.00	1.00
Is Active	Yes	No	No	No
Axial Direction	Compression	Tension		
Column Axial	3.00 kips	3.00 kips	0.00 kips	0.00 kips
Column Shear	3.50 kips	3.00 kips	0.00 kips	0.00 kips
Bracing Axial	0.00 kips	0.00 kips	0.00 kips	0.00 kips
Bracing Shear	0.00 kips	0.00 kips	0.00 kips	0.00 kips

Connection Results

Combo	1	2	3	4
Anchor Rod Shear	0.15	---	---	---
Anchor Rod Tension	0.00	---	---	---
Anchor Rod Tension-Shear	0.00	---	---	---
Anchor Rod Shear-Tension	0.15	---	---	---
Base Plate CSR	0.27	---	---	---
Concrete Bearing	0.03	---	---	---
Left Flange Weld CSR	0.00	---	---	---
Right Flange Weld CSR	0.00	---	---	---
Web Weld CSR	0.10	---	---	---

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Fascia/Canopy Loads

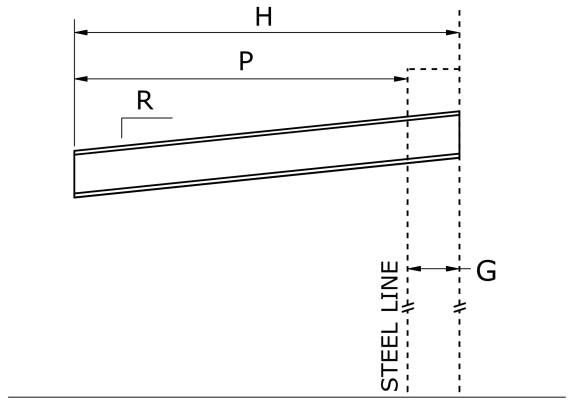
With load combinations per ASCE 7-16

Job #:	U26H0545A
Job Name:	Nisqually - Vocational & Emergency Operations Center
Engineer:	Weili Du
Date:	2026-09-09
Version:	1.6.56.0

Eave Extension Reactions

Geometry

Layout Type	Canopy	
Horizontal Projection [P]	2.5000'	
Girt Offset [G]	8.0000"	
Total Horizontal [H]	3.17 ft	
Roof Slope [R]	2.50	:12
Tributary Width	25.0000'	



Loads

Building Code	ASCE716	
Horizontal Beam Weight	30.00	plf
Dead Load	5.50	psf
Collateral	10.00	psf
Live Load	20.00	psf
Wind on Horizontal Member	33.59	psf
Roof Snow Load	25.00	psf
Drift Snow Max	0.00	psf
Drift Snow Min	0.00	psf
Drift Width	0.0000'	
Seismic Force	0.00	kips

Load Combinations

Combination Name
DL + COL
DL + COL + RLL
DL + COL + SL
DL + COL + 0.60WL
0.60DL + 0.60WL
DL + COL + 0.75SL + 0.45WL
DL + COL + 0.75RLL + 0.45WL

Results

Support Reactions By Case

	Fx (k)	Fy (k)	Mz (k-ft)
DL	0.00	0.43	0.82
COL	0.00	0.64	1.22
RLL	0.00	1.28	2.45
SL	0.00	1.60	3.06
WL	-0.44	-2.10	-4.20

Support Reactions By Combo

	Fx (k)	Fy (k)	Mz (k-ft)
DL + COL	0.00	1.07	2.04
DL + COL + RLL	0.00	2.34	4.49
DL + COL + SL	0.00	2.66	5.10
DL + COL + 0.60WL	-0.26	-0.19	-0.48
0.60DL + 0.60WL	-0.26	-1.00	-2.03
DL + COL + 0.75SL + 0.45WL	-0.20	1.32	2.45
DL + COL + 0.75RLL + 0.45WL	-0.20	1.08	1.99

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Beam-Column Analysis

AISC Steel Construction Manual, 16th Edition

Job #: U26H0545A
Job Name: Nisqually - Vocational & Emergency Operations Center
Engineer: Weili Du
Date: 2026-09-09
Version: 1.6.56.0

Eave Extension Beam

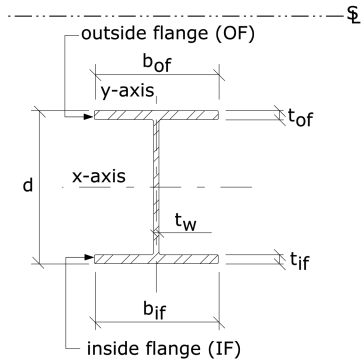
Edition: 16th Edition | Shape: Built-Up / Wide Flange | ☐ Applied loads include 2nd order effects

General Information

Label	Eave Extension Be
Member Length (L_{bx}, ft)	3.83
Unbraced Length - Minor (L_{by}, ft)	3.83
Consideration of *Tension Field Action* for shear ⓘ	☐
Clear Distance between Transverse Stiffeners (a, in) ⓘ	0.00
Lateral-torsional buckling factor (C_{bx}) ⓘ	1.000
Lateral-torsional buckling factor (C_{by}) ⓘ	1.000
K_x Factor	1.00
K_y Factor	1.00
K_z Factor ⓘ	1.00
C_{mx}	1.000
C_{my}	1.000

2.5'(eave extension) + 0.667'(girt offset) + 0.667'(half of length on knee)

Section Geometry



Section Type	Built-Up
Profile	Custom BU
Total Depth (d)	9.500"
Web thickness (t_w)	0.188"
Outside Flange Width (b_{of})	5.000"
Outside Flange Thickness (t_{of})	0.250"
Inside Flange Width (b_{if})	5.000"
Inside Flange Thickness (t_{if})	0.250"

Material Information

F_y (ksi)	55
Material Strength (F_y, ksi)	55.0
Elastic Modulus (E, ksi)	29000
Shear Modulus (G, ksi)	11200
Flange Yield Strength (F_{yf}, ksi)	55.0
Web Yield Strength (F_{yw}, ksi)	55.0
Ultimate Strength (F_u, ksi)	70.0

Slenderness Ratio

K_xL_x/r_x	11.685
K_yL_y/r_y	41.191

Factored Applied Loads

Factor of Safety (S_F)	1.000
Copy Load From	Copy
Axial (P_a, kips)	-0.25
Shear Major Axis (V_x, kips)	2.75
Moment Major Axis (M_x, k-ft)	5.25
Shear Minor Axis (V_y, kips)	0.00
Moment Minor Axis (M_y, k-ft)	0.00

Design Results

Design Results	**OK**
ASD Combined Strength Ratio (CSR)	0.133
ASD Shear Strength Ratio (x-axis) (V_{rx}/V_{cx})	0.082
ASD Shear Strength Ratio (y-axis) (V_{ry}/V_{cy})	0.000

Deflection Results

Deflection Results (Major-axis)	**OK**
Deflection Limits (about x-axis)	L / 180
Maximum Deflection (about x-axis) (Δ_{max}, in)	0.256
Member Deflection (about x-axis) ($\Delta_{x\text{-}axis}$, in)	0.007
Deflection Results (Minor-axis)	**OK**
Deflection Limits (about y-axis)	L / 180
Maximum Deflection (about y-axis) (Δ_{max}, in)	0.256
Member Deflection (about y-axis) ($\Delta_{y\text{-}axis}$, in)	0.000

NUCOR BUILDINGS GROUP
A DIVISION OF NUCOR CORPORATION

Project No. : U26H0545A
Description : Vocational & Emergency Operat
Engineer : WD
Date : 2026-09-11

End-Plate Moment Connections (AISC 16th Edition)

per AISC Moment End-Plate Connections (Design Guide 16) & AISC Steel Construction Manual (16th Edition)

Version: 2024.05.16 (Date: 05/16/24) By NBGGS

General Information:

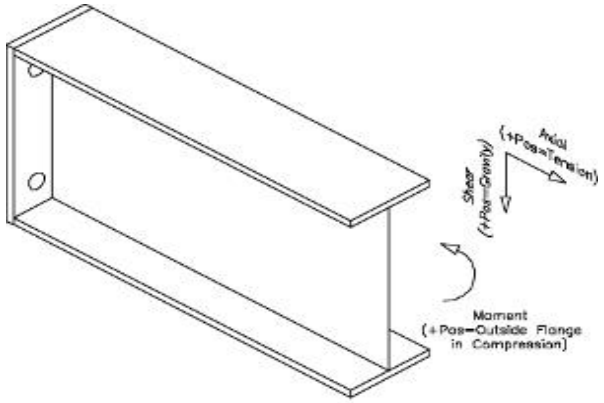
Design Method, (ASD / LRFD):	ASD
Allowable Stress Ratio, ASR:	1.00

Applied Loads:

Required Axial Strength, P_r:	3.000	kips.
Required Shear Strength, V_r:	0.000	kips.
Required Moment Strength, M_r:	5.500	ft-kips.
Required Column Axial Strength, Prc:	0.000	kips.

Bolt Information:

Bolt Material:	A325	
Bolt Diameter, d_b:	⅝"ø	**Pretensioned?**
Bolt Dimensions:		☐ Check Box if Yes
Bolt Gage, g:	3	in.
Bolt Dimension, P_{fi}:	1.3125	in.
Bolt Dimension, Pf:	--	in.
Bolt Spacing, Pb:	--	in.

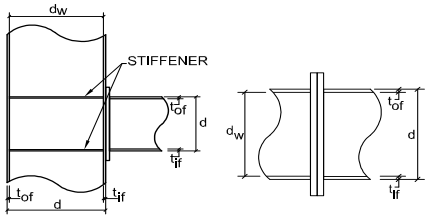


Two-Bolt Unstiffened (Flush)

Section Geometry:

Beam Slope: 2.50:12

	Left		Right	
Section Designation:	BU Section		BU Section	
Web Depth, d_w: (WF = Total Depth, d)	9.0	in.	16.0	in.
Web Thickness, t_w:	0.1875	in.	0.375	in.
Flange Width, b_f:	5.0	in.	12.0	in.
Outside Flange Thickness, t_{of}:	0.25	in.	0.5	in.
Inside Flange Thickness, t_{if}:	0.25	in.	0.5	in.



Column Stiffener Information:

Stiffener Designation:	F25.38	
Stiffener to Web Weld:	FWS3	

◉ Beam-To-Col. ○ Beam-To-Beam

End-Plate Information:

	Left		Right	
Plate Width, b_p:	5.0	in.	12.0	in.
Plate Thickness, t_p:	0.25	in.	0.375	in.
Plate Yield Strength, F_{py}:	55.0	ksi.	55.0	ksi.
t_p required for "Thick Plate" behavior:	0.2139	in.	0.1793	in.
Weld Information:				
Plate Flange Weld:	FWD3		FWD3	
Plate Web Weld:	FWS3		WP13	
End-Plate Stiffener Information:				
Stiffener Designation:	None		None	
Stiffener Weld:	None		None	
Stiffener Length:	--	in.	--	in.

Design Results — OK

Plate Yield Ratio (Left End-Plate):	**0.661**
Plate Yield Ratio (Right End-Plate):	**0.209**
Bolt Tension & Shear Ratio:	**0.212**
Beam Weld Ratio (Left End-Plate):	**0.097**
Beam Weld Ratio (Right End-Plate):	**0.053**
Stiffener Ratio (Left End-Plate):	**--**
Stiffener Ratio (Right End-Plate):	**--**
Column Stiffener Ratio:	**0.750**
Column Web Panel Zone Shear:	**0.153**

Warnings

End-Plate Moment Connections (AISC 16th Edition)

per AISC Moment End-Plate Connections (Design Guide 16) & AISC Steel Construction Manual (16th Edition)

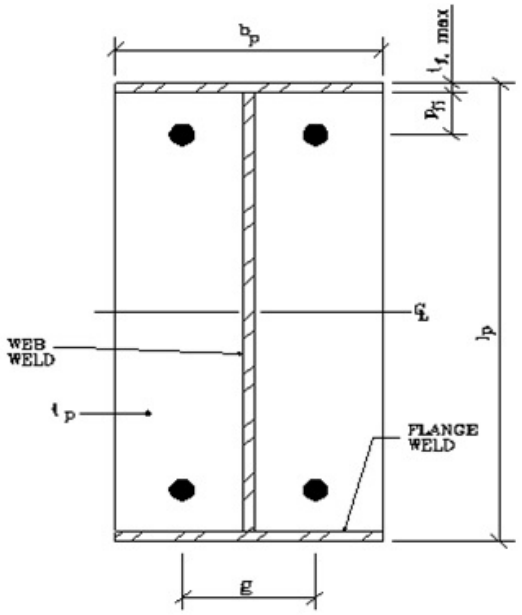
Version: 2024.05.16 (Date: 05/16/24) By NBGGS

NISQUALLY - VOCATIONAL & EMERGENCY OPERATIONS CENTER

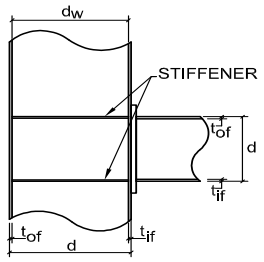
GENERAL DIMENSIONS:

Standard Bolt Dimensions:

Number of Bolts, n:	4	
Connection Type:	2BFU	
Bolt Diameter, d_b:	⅝"ø, A325	
Bolt Gage, g:	3	in.
Bolt Dimension, P_f:	--	in.
Bolt Dimension, P_{fi}:	1.313	in.
Bolt Dimension, P_{fo}:	--	in.
Bolt Dimension, P_b:	--	in.
Minimum Edge Distance, d_e:	0.500	in.
Maximum Flange Thickness, $t_{f,\,max}$:	0.5107	in.



TWO-BOLT FLUSH UNSTIFFENED



Left and Right Connection Plate Dimensions:

Left Inside Flange Width:	5	in.	Right End-Plate Width, bp:	12	in.
Left Inside Flange Thickness:	0.25	in.	Right End-Plate Thickness, tp:	0.375	in.
Column Stiffener to Flange Weld:	FWD3		Right End-Plate Flange Weld:	FWD3	
Column Web to Flange Weld:	FWS3		Right End-Plate Web Weld:	WP13	
End-Plate Length, l_p:	11.1777	in.	End-Plate Length, l_p:	18.5213	in.
Column Stiffener Designation:	F25.38				
Column Stiffener to Web Weld:	FWS3				

NUCOR BUILDINGS GROUP
A DIVISION OF NUCOR CORPORATION

Beam-Column Analysis

AISC Steel Construction Manual, 15th Edition

Job #: U26H0545A
Job Name: Nisqually - Vocational & Emergency Operations Center
Engineer: Weili Du
Date: 2026-09-14
Version: 1.6.56.0

Modular Column Wind Analysis

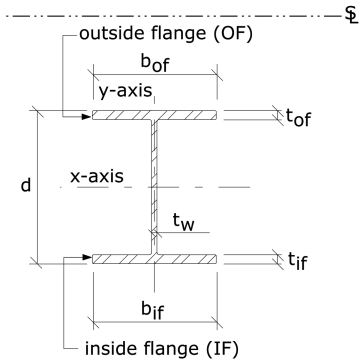
Edition: 15th Edition | Shape: Built-Up / Wide Flange | ☐ Applied loads include 2nd order effects

General Information

Label	Modular Column
Member Length (L_{bx}, ft)	29.10
Unbraced Length - Minor (L_{by}, ft)	7.50
Consideration of *Tension Field Action* for shear ⓘ	☐
Clear Distance between Transverse Stiffeners (a, in) ⓘ	0.00
Lateral-torsional buckling factor (C_{bx}) ⓘ	1.000
Lateral-torsional buckling factor (C_{by}) ⓘ	1.000
K_x Factor	1.00
K_y Factor	1.00
K_z Factor ⓘ	1.00
C_{mx}	1.000
C_{my}	1.000

FL6 Analysis for wind loading of Modular Columns, See FL6 COL2 & COL3

Section Geometry



Section Type	Wide Flange
Profile	W12X26
Total Depth (d)	12.200"
Web thickness (t_w)	0.230"
Outside Flange Width (b_{of})	6.490"
Outside Flange Thickness (t_{of})	0.380"
Inside Flange Width (b_{if})	6.490"
Inside Flange Thickness (t_{if})	0.380"

Material Information

F_y (ksi)	50
Material Strength (F_y, ksi)	50.0
Elastic Modulus (E, ksi)	29000
Shear Modulus (G, ksi)	11200
Flange Yield Strength (F_{yf}, ksi)	-----
Web Yield Strength (F_{yw}, ksi)	-----
Ultimate Strength (F_u, ksi)	65.0

Slenderness Ratio

K_xL_x/r_x	67.544
K_yL_y/r_y	59.603

Factored Applied Loads

Factor of Safety (S_F)	1.000
Copy Load From	Copy
Axial (P_a, kips)	23.00
Shear Major Axis (V_x, kips)	3.50
Moment Major Axis (M_x, k-ft)	23.50
Shear Minor Axis (V_y, kips)	0.00
Moment Minor Axis (M_y, k-ft)	0.00

Maximum axial load from frames stress summary

Wind Loading from Wind Column Spreadsheet

Design Results

Design Results	**OK**
ASD Combined Strength Ratio (CSR)	0.389
ASD Shear Strength Ratio (x-axis) (V_{rx}/V_{cx})	0.070
ASD Shear Strength Ratio (y-axis) (V_{ry}/V_{cy})	0.000

Deflection Results

Deflection Results (Major-axis)	**OK**
Deflection Limits (about x-axis)	L / 180
Maximum Deflection (about x-axis) (Δ_{max}, in)	1.940
Member Deflection (about x-axis) ($\Delta_{x\text{-}axis}$, in)	0.605
Deflection Results (Minor-axis)	**OK**
Deflection Limits (about y-axis)	L / 180
Maximum Deflection (about y-axis) (Δ_{max}, in)	1.940
Member Deflection (about y-axis) ($\Delta_{y\text{-}axis}$, in)	0.000

SECTION 6

SECONDARY & BRACING

SECONDARY AND BRACING INFORMATION

The following report is a summary of the purlin/girt design, associated framed opening members, and roof/wall diagonal bracing.

The purlin/girt summary gives the member size, laps if required, locations, load widths, calculated stress ratios, and deflections. The members are typically designed per the AISI as continuous flexural members for wind pressure and wind suction for their respected wind zone as well as axial load if used as part of the bracing system. The analysis output is the controlling load combination unity check for shear and moment at supports, laps, and mid-spans.

The metal building system bracing consist of tension only bracing with all panel diaphragm contributions neglected. The tension only bracing system is designed as a truss diaphragm for the most severe load combination according to the pertinent building code.

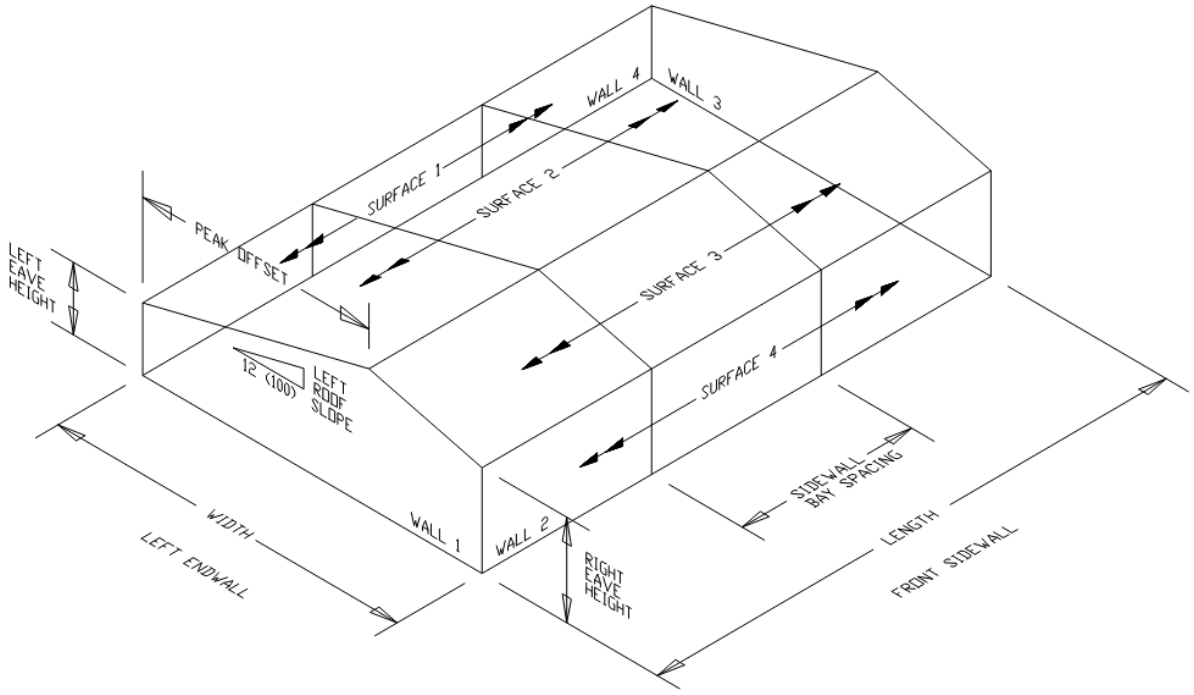


Figure 3: *Wall Designations and General Building Information*

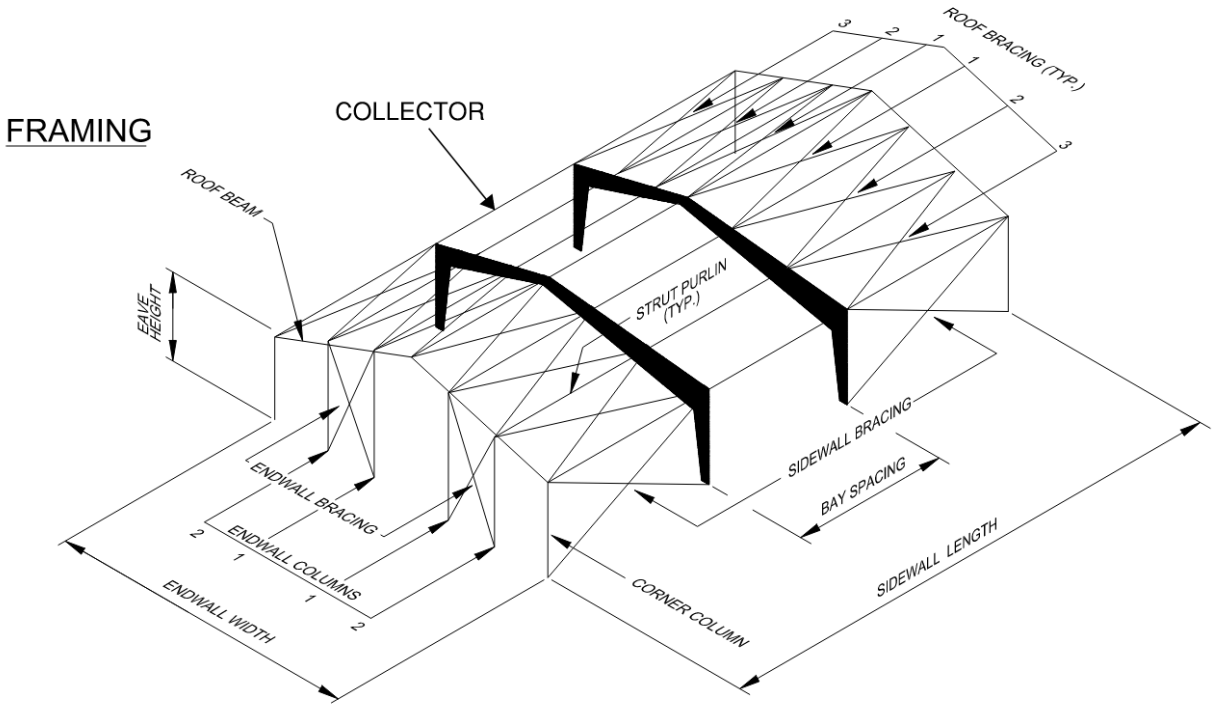
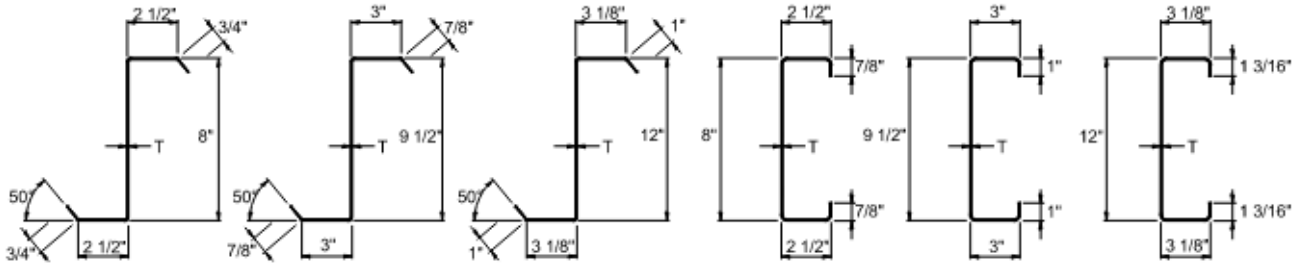


Figure 4: *General Bracing System*

Nucor Buildings Group's Standard Purlins and Girts are light gage 8" x 2 1/2" "Z" and "C", 9 1/2" x 3" "Z" and "C" and 12" x 3 1/8" "Z" and "C" sections (with stiffened flanges) cold formed from 55,000 psi yield steel. The fully braced section properties and capacities computed in accordance with the North American Cold-Formed Steel Specifications, 2012 Edition, are as follows:



DIMENSIONS, PROPERTIES AND CAPACITIES

SECTION	THICKNESS T (in.)	WEIGHT (lbs./ft.)	AREA ($in.^2$)	I_x ($in.^4$) (Full)	S_x ($in.^3$) (Effective)	r_x (in.)	I_y ($in.^4$) (Full)	S_y ($in.^3$) (Effective)	r_y (in.)	MAX. ALLOW* SHEAR (KIPS)	MAX. ALLOW* MOMENT (KIP-FT.)
8Z16	0.060	2.87	0.84	8.09	1.74	3.10	1.22	0.32	1.20	2.60	4.77
8Z15	0.067	3.20	0.94	8.99	1.97	3.09	1.36	0.38	1.20	3.63	5.39
8Z14	0.075	3.59	1.05	10.02	2.27	3.09	1.51	0.45	1.20	5.11	6.22
8Z13	0.089	4.26	1.25	11.80	2.81	3.08	1.77	0.58	1.19	8.57	7.70
8Z12	0.099	4.73	1.39	13.05	3.15	3.08	1.95	0.66	1.19	10.82	8.66
9.5Z15	0.067	3.82	1.12	15.28	2.61	3.69	2.33	0.51	1.44	3.02	7.16
9.5Z14	0.075	4.27	1.26	17.04	3.08	3.68	2.59	0.56	1.44	4.24	8.46
9.5Z13	0.089	5.07	1.49	20.09	3.75	3.68	3.04	0.73	1.43	7.11	10.30
9.5Z12	0.099	5.64	1.66	22.24	4.32	3.67	3.36	0.84	1.43	9.81	11.86
12Z13	0.089	5.98	1.76	36.36	5.34	4.55	3.66	0.86	1.45	5.54	14.64
12Z12	0.099	6.65	1.96	40.29	6.21	4.55	4.04	1.01	1.44	7.64	17.04
12Z11	0.120	8.06	2.37	48.42	7.81	4.54	4.83	1.30	1.43	13.66	21.44
8C16	0.060	2.87	0.84	7.94	1.80	3.07	0.71	0.36	0.92	2.60	4.94
8C15	0.067	3.20	0.94	8.82	2.05	3.07	0.79	0.40	0.92	3.63	5.62
8C14	0.075	3.59	1.05	9.81	2.37	3.06	0.87	0.45	0.91	5.11	6.51
8C13	0.089	4.26	1.25	11.53	2.88	3.05	1.01	0.54	0.91	8.57	7.90
8C12	0.099	4.73	1.39	12.73	3.18	3.05	1.11	0.60	0.90	10.82	8.74
9.5C15	0.067	3.82	1.12	15.02	2.76	3.66	1.36	0.57	1.10	3.02	7.58
9.5C14	0.075	4.27	1.26	16.74	3.17	3.65	1.51	0.64	1.10	4.24	8.71
9.5C13	0.089	5.07	1.49	19.69	3.91	3.65	1.76	0.76	1.09	7.11	10.73
9.5C12	0.099	5.64	1.66	21.78	4.46	3.64	1.94	0.85	1.09	9.81	12.24
12C13	0.089	5.98	1.76	36.00	5.80	4.52	2.26	0.90	1.13	5.54	15.91
12C12	0.099	6.65	1.96	39.85	6.64	4.52	2.48	1.00	1.13	7.64	18.23
12C11	0.120	8.06	2.37	47.78	7.96	4.51	2.94	1.22	1.12	13.66	21.86

* Stress Increase = 1.00

Moments and shears used in selecting "Z " and "C" sections and connections for the Purlin and Girts were found by the stiffness method of analy sis. T o meet varying load requirements, the "Z " and "C" members shall be of simple span or lapped 2'-0", 3'-0", 4'-0", 5'-0" or 6'-0" over the interior frames to form a continuous beam. The purlin sections were then designed for the maximum pos itive moments and for the moment and shear combination at the beginning and termination of the laps. T he double "Z" and "C" sections were also checked for the maximum negative moments over the interior frames.

Software: NBG Light Gage Analysis [version: 2024.12.06.1 date: 12/06/2024]
Analysis Config: NBS [version: 2024.11.14.001]

Input File: C:\Users\Weili.Du\Desktop\Local Folder\Jobs\1. U26H0545A\Secondary\Purlins\P11 -Typical Purlin

Project Name: P11 - Typical Purlin

AISI Spec Year: 2016
Building Code: IBC 2018/2021
Inventory: NBSUT-RP

Purlin spacing: 5.00 o.c.

SPAN PARAMETERS

Span	Length (ft)	Section	Design Group	Design	Brace Type	Left Support	Right Support	Left Lap (in)	Right Lap (in)
1	3.83	95Z089	1	No	RV-1	1	2	Cant.	0.00
2	25.00	95Z089	1	No	RV-1	2	3	0.00	47.25
3	25.00	95Z067	2	No	RV-1	3	4	47.25	35.25
4	25.00	95Z067	3	No	RV-1	4	5	35.25	35.25
5	25.00	95Z067	4	No	RV-1	5	6	35.25	35.25
6	25.00	95Z067	5	No	RV-1	6	7	35.25	47.25
7	25.00	95Z089	6	No	RV-1	7	8	47.25	0.00
8	3.83	95Z089	6	No	RV-1	8	9	0.00	Cant.

MAXIMUM COMPUTED DISPLACEMENTS, FORCES & LOAD RATIOS

Span Properties			Maximum Computed Displacements & Forces						Maximum Computed Load Ratios				
No	Length	Section	Displacement	Axial	Shear	Moment(+)	Moment(-)	Ten.(T)	Comp.(P)	Shear(V)	Mom.(M)	T&M	P&M	V&M
1	3.83	95Z089	0.596	0.00	0.72	0.66	-1.38	0.00	0.00	0.10	0.15	0.15	0.15	0.17
		x	0.00	0.00	46.00	46.00	46.00	0.00	0.00	46.00	46.00	46.00	46.00	46.00
		comb	9	0	9	4	9	0	0	9	9	9	9	9
2	25.00	95Z089	-1.131	0.00	2.85	7.80	-13.71	0.00	0.00	0.30	0.90	0.90	0.90	0.84
		x	133.33	0.00	300.00	122.22	300.00	0.00	0.00	252.75	111.11	111.11	111.11	300.00
		comb	9	0	9	9	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
3	25.00	95Z067	-0.262	0.00	2.51	4.11	-13.71	0.00	0.00	0.59	0.88	0.88	0.88	0.95
		x	166.67	0.00	0.00	0.00	0.00	0.00	0.00	47.25	47.25	47.25	47.25	47.25
		comb	9	0	9	4	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
4	25.00	95Z067	-0.587	0.00	2.42	4.24	-11.25	0.00	0.00	0.62	0.82	0.82	0.82	0.93
		x	144.44	0.00	300.00	144.44	300.00	0.00	0.00	264.75	264.75	264.75	264.75	264.75
		comb	9	0	9	9	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
5	25.00	95Z067	-0.587	0.00	2.42	4.24	-11.25	0.00	0.00	0.62	0.82	0.82	0.82	0.93
		x	155.56	0.00	0.00	155.56	0.00	0.00	0.00	35.25	35.25	35.25	35.25	35.25
		comb	9	0	9	9	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
6	25.00	95Z067	-0.262	0.00	2.51	4.11	-13.71	0.00	0.00	0.59	0.88	0.88	0.88	0.95
		x	133.33	0.00	300.00	300.00	300.00	0.00	0.00	252.75	252.75	252.75	252.75	252.75
		comb	9	0	9	4	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
7	25.00	95Z089	-1.131	0.00	2.85	7.80	-13.71	0.00	0.00	0.30	0.91	0.91	0.91	0.84
		x	166.67	0.00	0.00	177.78	0.00	0.00	0.00	47.25	177.78	177.78	177.78	0.00
		comb	9	0	9	9	9	0	0	9	9	9	9	9
	* 2 Discrete brace locations (ft. from left support)						8.33 16.67							
8	3.83	95Z089	0.596	0.00	0.72	0.66	-1.38	0.00	0.00	0.10	0.15	0.15	0.15	0.17
		x	46.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		comb	9	0	9	4	9	0	0	9	9	9	9	9

	Displacement	Axial	Shear	Moment(+)	Moment(-)	Ten.(T)	Comp.(P)	Shear(V)	Mom.(M)	T&M	P&M	V&M
Max of All Spans	-1.131	0.00	2.85	7.80	-13.71	0.00	0.00	0.62	0.90	0.90	0.90	0.95
Distance from Left	133.33	0.00	300.00	122.22	300.00	0.00	0.00	264.75	111.11	111.11	111.11	47.25
Span	2	0	2	2	2	0	0	4	2	2	2	3
Load Combination	9	0	9	9	9	0	0	9	9	9	9	9

SUPPORT CONNECTIONS

Support No.	2	3	4	5	6	7	8
Connection Code	WC	WC	WC	WC	WC	WC	WC

* Roofing is CFR

VERTICAL REACTIONS [kips]

Comb	Support No								
	1	2	3	4	5	6	7	8	9
1	0.00	-1.31	-2.73	-2.28	-2.46	-2.28	-2.73	-1.31	0.00
2	0.00	-2.25	-4.68	-3.91	-4.21	-3.91	-4.68	-2.25	0.00
3	0.00	-1.56	-3.23	-2.70	-2.91	-2.70	-3.23	-1.56	0.00
4	0.00	0.99	1.61	1.36	1.46	1.36	1.61	0.99	0.00
5	0.00	0.64	1.03	0.87	0.93	0.87	1.03	0.64	0.00
6	0.00	0.21	-0.00	0.01	0.01	0.01	-0.00	0.21	0.00
7	0.00	-0.54	-1.45	-1.20	-1.30	-1.20	-1.45	-0.54	0.00
8	0.00	-1.06	-2.53	-2.11	-2.28	-2.11	-2.53	-1.06	0.00
9	0.00	-2.58	-5.36	-4.49	-4.83	-4.49	-5.36	-2.58	0.00
10	0.00	-1.90	-3.94	-3.29	-3.55	-3.29	-3.94	-1.90	0.00
11	0.00	-2.42	-5.02	-4.20	-4.52	-4.20	-5.02	-2.42	0.00
12	0.00	-1.34	-2.58	-2.17	-2.33	-2.17	-2.59	-1.25	0.00
13	0.00	-1.25	-2.59	-2.17	-2.33	-2.17	-2.58	-1.34	0.00
14	0.00	-1.46	-3.24	-2.70	-2.91	-2.70	-3.23	-1.56	0.00
15	0.00	-1.56	-3.23	-2.70	-2.91	-2.70	-3.24	-1.46	0.00
16	0.00	-1.58	-2.95	-2.10	-2.35	-2.16	-2.59	-1.25	0.00
17	0.00	-1.45	-3.28	-2.42	-2.30	-2.18	-2.59	-1.25	0.00
18	0.00	-1.22	-2.85	-2.82	-2.60	-2.13	-2.60	-1.25	0.00
19	0.00	-1.26	-2.55	-2.44	-2.98	-2.44	-2.55	-1.26	0.00
20	0.00	-1.25	-2.60	-2.13	-2.60	-2.82	-2.85	-1.22	0.00
21	0.00	-1.25	-2.59	-2.18	-2.30	-2.42	-3.28	-1.45	0.00
22	0.00	-1.25	-2.59	-2.16	-2.35	-2.10	-2.95	-1.58	0.00

* Negative reaction for gravity loads

R-VALUES

Gravity Load : 0.001
Uplift Load : 0.001

* R-Value is fraction of fully braced moment strength

GENERAL LOADS

Load Case	Uniform Load (psf)	Load Case Name
1	4.0	Dead Load
2	10.0	Collateral Load
3	9.4	Snow Load
4	20.0	Live Load
5	-22.9	Wind Load
6	-33.7	Edge Zone Wind Load
7	25.0	Alternate Snow Load
8	16.0	Wind Pressure Load
9	9.4	Pattern SL, Bay 1
10	9.4	Pattern SL, Bay 2
11	9.4	Pattern SL, Bay 3
12	9.4	Pattern SL, Bay 4
13	9.4	Pattern SL, Bay 5
14	9.4	Pattern SL, Bay 6
15	9.4	Pattern SL, Bay 7
16	9.4	Pattern SL, Bay 8
17	0.0	Left Snow Drift
18	0.0	Right Snow Drift

LINEAR LOADS

Load Case	Span	Load Type	Start Load	Start X	End Load	End X
			(lb/ft)	(ft)	(lb/ft)	(ft)
1	1	Shear	19.60	0.00	19.60	3.83
1	2	Shear	19.60	0.00	19.60	25.00
1	3	Shear	19.60	0.00	19.60	25.00
1	4	Shear	19.60	0.00	19.60	25.00
1	5	Shear	19.60	0.00	19.60	25.00
1	6	Shear	19.60	0.00	19.60	25.00
1	7	Shear	19.60	0.00	19.60	25.00
1	8	Shear	19.60	0.00	19.60	3.83
2	1	Shear	48.90	0.00	48.90	3.83
2	2	Shear	48.90	0.00	48.90	25.00
2	3	Shear	48.90	0.00	48.90	25.00
2	4	Shear	48.90	0.00	48.90	25.00
2	5	Shear	48.90	0.00	48.90	25.00
2	6	Shear	48.90	0.00	48.90	25.00
2	7	Shear	48.90	0.00	48.90	25.00
2	8	Shear	48.90	0.00	48.90	3.83
3	1	Shear	45.00	0.00	45.00	3.83
3	2	Shear	45.00	0.00	45.00	25.00
3	3	Shear	45.00	0.00	45.00	25.00
3	4	Shear	45.00	0.00	45.00	25.00
3	5	Shear	45.00	0.00	45.00	25.00
3	6	Shear	45.00	0.00	45.00	25.00
3	7	Shear	45.00	0.00	45.00	25.00
3	8	Shear	45.00	0.00	45.00	3.83
4	1	Shear	95.80	0.00	95.80	3.83
4	2	Shear	95.80	0.00	95.80	25.00
4	3	Shear	95.80	0.00	95.80	25.00
4	4	Shear	95.80	0.00	95.80	25.00
4	5	Shear	95.80	0.00	95.80	25.00
4	6	Shear	95.80	0.00	95.80	25.00
4	7	Shear	95.80	0.00	95.80	25.00

4	8	Shear	95.80	0.00	95.80	3.83
5	1	Shear	-168.60	0.00	-168.60	3.83
5	2	Shear	-168.60	0.00	-168.60	2.30
5	2	Shear	-114.70	2.30	-114.70	25.00
5	3	Shear	-114.70	0.00	-114.70	25.00
5	4	Shear	-114.70	0.00	-114.70	25.00
5	5	Shear	-114.70	0.00	-114.70	25.00
5	6	Shear	-114.70	0.00	-114.70	25.00
5	7	Shear	-114.70	0.00	-114.70	22.70
5	7	Shear	-168.60	22.70	-168.60	25.00
5	8	Shear	-168.60	0.00	-168.60	3.83
7	1	Shear	119.80	0.00	119.80	3.83
7	2	Shear	119.80	0.00	119.80	25.00
7	3	Shear	119.80	0.00	119.80	25.00
7	4	Shear	119.80	0.00	119.80	25.00
7	5	Shear	119.80	0.00	119.80	25.00
7	6	Shear	119.80	0.00	119.80	25.00
7	7	Shear	119.80	0.00	119.80	25.00
7	8	Shear	119.80	0.00	119.80	3.83
8	1	Shear	80.00	0.00	80.00	3.83
8	2	Shear	80.00	0.00	80.00	25.00
8	3	Shear	80.00	0.00	80.00	25.00
8	4	Shear	80.00	0.00	80.00	25.00
8	5	Shear	80.00	0.00	80.00	25.00
8	6	Shear	80.00	0.00	80.00	25.00
8	7	Shear	80.00	0.00	80.00	25.00
8	8	Shear	80.00	0.00	80.00	3.83
9	1	Shear	45.00	0.00	45.00	3.83
10	2	Shear	45.00	0.00	45.00	25.00
11	3	Shear	45.00	0.00	45.00	25.00
12	4	Shear	45.00	0.00	45.00	25.00
13	5	Shear	45.00	0.00	45.00	25.00
14	6	Shear	45.00	0.00	45.00	25.00
15	7	Shear	45.00	0.00	45.00	25.00
16	8	Shear	45.00	0.00	45.00	3.83

LOAD COMBINATIONS

Comb #	Active (Y/N)	Load Combination Name	Allowable Factor	Load Case No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Y	Live Load Only	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Y	DL + COL + LL	1.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Y	DL + COL + SL	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Y	0.6 DL + 0.6 WL	1.00	0.60	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Y	0.6 DL + 0.42 WL	1.00	0.60	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Y	DL + COL + 0.6 WL	1.00	1.00	1.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Y	DL + COL + 0.75 SL + 0.45 WL	1.00	1.00	1.00	0.75	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Y	DL + COL + 0.75 LL + 0.45 WL	1.00	1.00	1.00	0.00	0.75	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Y	DL + COL + ASL	1.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Y	DL + COL + 0.75 SL + 0.45 WP	1.00	1.00	1.00	0.75	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Y	DL + COL + 0.75 LL + 0.45 WP	1.00	1.00	1.00	0.00	0.75	0.00	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Y	DL + COL + SL(Pattern Set 1, Bay 1)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50
13	Y	DL + COL + SL(Pattern Set 1, Bay 8)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00
14	Y	DL + COL + SL(Pattern Set 2, Bay 1)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	Y	DL + COL + SL(Pattern Set 2, Bay 8)	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50
16	Y	DL + COL + SL(Pattern Set 3, Bays 1 & 2	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.50	0.50	0.50	0.50	0.50	0.50
17	Y	DL + COL + SL(Pattern Set 3, Bays 2 & 3	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.00	1.00	0.50	0.50	0.50	0.50	0.50
18	Y	DL + COL + SL(Pattern Set 3, Bays 3 & 4	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00	1.00	0.50	0.50	0.50	0.50
19	Y	DL + COL + SL(Pattern Set 3, Bays 4 & 5	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	1.00	1.00	0.50	0.50	0.50
20	Y	DL + COL + SL(Pattern Set 3, Bays 5 & 6	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.50	1.00	1.00	0.50	0.50
21	Y	DL + COL + SL(Pattern Set 3, Bays 6 & 7	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	1.00	1.00	0.50
22	Y	DL + COL + SL(Pattern Set 3, Bays 7 & 8	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.50	0.50	0.50	0.50	1.00	1.00

Comb #	Active (Y/N)	Load Combination Name	Allowable Factor	Load Case No. 0
1	Y	Live Load Only	1.00	0.00
2	Y	DL + COL + LL	1.00	0.00
3	Y	DL + COL + SL	1.00	0.00
4	Y	0.6 DL + 0.6 WL	1.00	0.00
5	Y	0.6 DL + 0.42 WL	1.00	0.00
6	Y	DL + COL + 0.6 WL	1.00	0.00
7	Y	DL + COL + 0.75 SL + 0.45 WL	1.00	0.00
8	Y	DL + COL + 0.75 LL + 0.45 WL	1.00	0.00
9	Y	DL + COL + ASL	1.00	0.00
10	Y	DL + COL + 0.75 SL + 0.45 WP	1.00	0.00
11	Y	DL + COL + 0.75 LL + 0.45 WP	1.00	0.00
12	Y	DL + COL + SL(Pattern Set 1, Bay 1)	1.00	0.00
13	Y	DL + COL + SL(Pattern Set 1, Bay 8)	1.00	0.00
14	Y	DL + COL + SL(Pattern Set 2, Bay 1)	1.00	0.00
15	Y	DL + COL + SL(Pattern Set 2, Bay 8)	1.00	0.00
16	Y	DL + COL + SL(Pattern Set 3, Bays 1 & 2	1.00	0.00
17	Y	DL + COL + SL(Pattern Set 3, Bays 2 & 3	1.00	0.00
18	Y	DL + COL + SL(Pattern Set 3, Bays 3 & 4	1.00	0.00
19	Y	DL + COL + SL(Pattern Set 3, Bays 4 & 5	1.00	0.00
20	Y	DL + COL + SL(Pattern Set 3, Bays 5 & 6	1.00	0.00
21	Y	DL + COL + SL(Pattern Set 3, Bays 6 & 7	1.00	0.00
22	Y	DL + COL + SL(Pattern Set 3, Bays 7 & 8	1.00	0.00

DEFLECTION LIMITATIONS

The deflection limit with DEAD LOAD = L / 120.0
The maximum deflection with DEAD LOAD = 2.50"
The deflection limit without DEAD LOAD = L / 150.0
The maximum deflection without DEAD LOAD = 2.00"

* Deflection limitations were applied to combinations 1-3,5,9

GENERAL NOTES

* '* Ends of laps are considered as brace points.'
* '* Inflection points are considered brace points except for spans with discrete bracing.'
* All calculations are in accordance with the 2016 North American Specification.

SYSTEM WEIGHT & COST

Total system weight = 811.71 lbs
Total system cost = 1259.72 dollars

PURLIN PRODUCTION LIST

Purlin	Section	Length
1	95Z089	32.77
2	95Z067	31.88
3	95Z067	30.88
4	95Z067	30.88
5	95Z067	31.88
6	95Z089	32.77

MATERIAL SUMMARY

Section	Weight	Cost	Fy
95Z067	479.41	756.94	55.0
95Z089	332.30	502.18	55.0

NUCOR BUILDINGS GROUP
A DIVISION OF NUCOR CORPORATION

Nucor Roll Force Design - DM Section 9.3
Version: 2025.12.10 (Date: 12/10/25) By NBG-GS

Job No.	U26H0545A
Job Name:	Vocational & Emergency Operat
Engineer:	WD
Description:	RollForce for Purlins

Typical Service Loading	
Dead (psf):	4.0
Col (psf):	10.0
Live/Snow (psf):	25.2

Roof Layout Data	
Onslope Roof Distance(ft):	33.879
Eave to Ridge Distance (ft):	33.167
Roof Slope (X:12):	2.5
No. of Bays:	6
Max Number of Purlins:	8
LEW Frame Offset(ft):	3.833
REW Frame Offset(ft):	3.833
Ridge to 1st purlin distance(ft):	1.333

Misc. Settings

Roof Panel Type: CFR "Roll Lock" Seam 24 Ga.

Clip Type/ThermalBlocks: Tall Clip

☐ LRFD ☐ Brace Located Above Highest Purlin
☐ Canada ☑ Bracing In Every Purlin Space

Maximum Unity Checks		
Anchor/Clip Strength:	0.49	OK
Anchor/Clip Stiffness:	0.66	OK
Diaphragm Stiffness:	0.07	OK
Purlin Bracing Strength:	0.34	OK

Frame Line or Bay	Bay Width (ft.)	Bracing Configuration	Purlin Groups From Ridge	Clip Type	Design Checks
1	28.83	1/3 points	1,2,3,4	AC	OK
2	25.00	1/3 points	6,7,8,9	AC	OK
3	25.00	1/3 points	6,7,8,9	AC	OK
4	25.00	1/3 points	6,7,8,9	AC	OK
5	25.00	1/3 points	6,7,8,9	AC	OK
6	28.83	1/3 points	1,2,3,4	AC	OK
7				AC	OK
8					
9					

Purlin Group	Purlin	Purlin Orientation	Purlin Span Type	Nested Purlin Thickness (in.)	Additional Live/Snow Load (psf)	Number of Purlins	Distance to the next purlin group(ft.)	Eave Strut Connection Type
1	95Z089	UpSlope	MultiSpan			5	5.000	
2	95Z089	UpSlope	MultiSpan			1	4.992	
3	95E060	UpSlope	SimpleSpan			1	2.500	(4) bolt
4	95C060	UpSlope	SimpleSpan			1	0.000	
5								
6	95Z067	UpSlope	MultiSpan			5	5.000	
7	95Z067	UpSlope	MultiSpan			1	4.992	
8	95E060	UpSlope	SimpleSpan			1	2.500	(4) bolt
9	95C060	UpSlope	SimpleSpan			1	0.000	

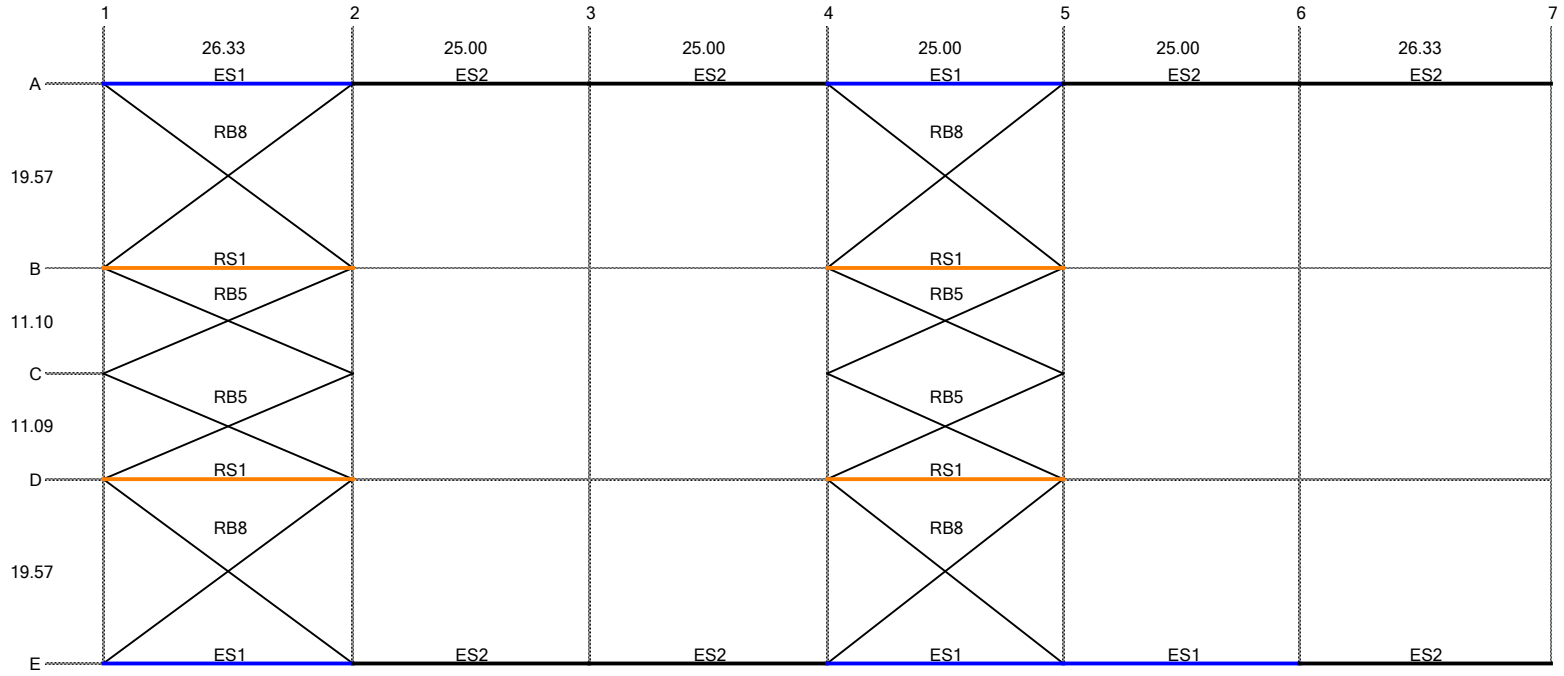
Detailed Roll-Force/Purlin Bracing Output

Frame Line	Total Required Anchorage Load (lb.)	Anchor Strength			Anchor Stiffness		
		Maximum Force (lb.)	Maximum Unity Check	Req'd Load if failing(lb.)	Maximum Displacement (in.)	Maximum Unity Check	Req'd Load if failing(lb.)
1	-2282	-688	0.32	0	0.05	0.19	0
2	-3827	-1063	0.49	0	0.12	0.51	0
3	-3421	-866	0.40	0	0.16	0.66	0
4	-3421	-866	0.40	0	0.16	0.66	0
5	-3421	-866	0.40	0	0.16	0.66	0
6	-3827	-1063	0.49	0	0.12	0.51	0
7	-2282	-688	0.32	0	0.05	0.19	0
8	0	0	0.00	0	0.00	0.00	0

Rake Ext/Bay	Diaphragm Stiffness			Purlin Bracing Strength	
	Mid-Span Deflection (in.)	Maximum Unity Check	Req'd Distributed Load if failing(PLF)	Maximum Unity Check	Req'd Brace Load if failing(lb.)
LEW Rake Extension	0.00	0.00	0.00	0.00	0
1	0.14	0.07	0.00	0.34	0
2	0.07	0.04	0.00	0.26	0
3	0.07	0.04	0.00	0.26	0
4	0.07	0.04	0.00	0.26	0
5	0.07	0.04	0.00	0.26	0
6	0.14	0.07	0.00	0.34	0
REW Rake Extension	0.00	0.00	0.00	0.00	0

B01
U26H0545A
Roof Plan

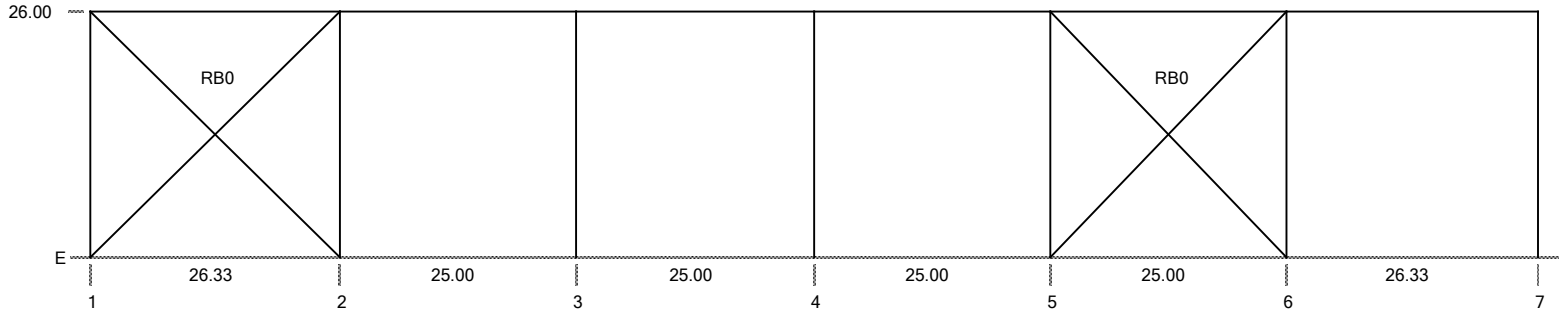
Weili.Du
2026-09-04



RB8 - 1 ROD
RS1 - 95Z099 - PurlinStrut
ES2 - 95E060B2 - EaveStrut w/ std. (2)-bolt connx.

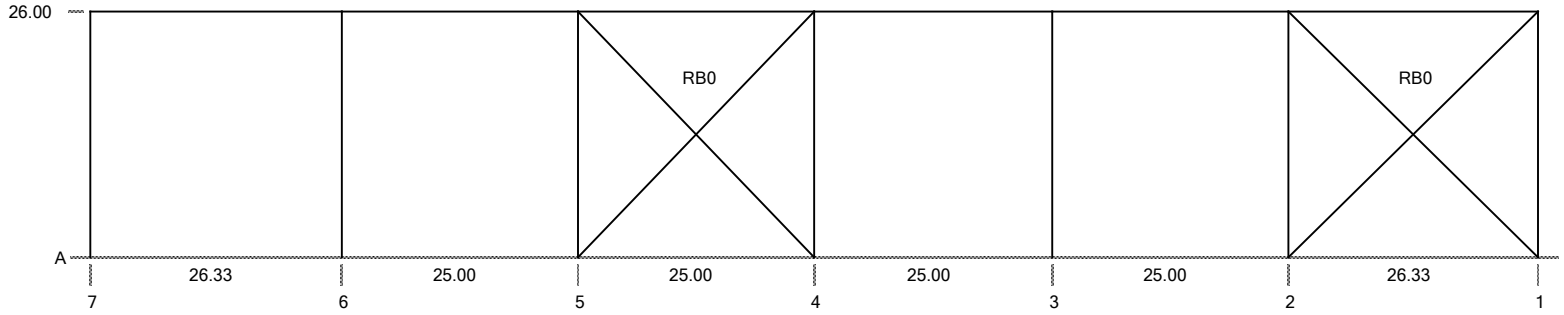
RB5 - 5/8 ROD
ES1 - 08S099 - BoxStrut w/ std. NBS connx.

Front Sidewall



RB0 - 1-1/4" ROD

Back Sidewall



RB0 - 1-1/4" ROD

INPUT REPORT

NUCOR BUILDINGS GROUP — BRACING PROGRAM
Job Name: Nisqually - Vocational & Emergency Operations Center — Job Number : U26H0545A
Designer: Weili.Du — Date : 2026-09-04
File : B11.bracing — App Version: 1.12.15.0

STRUCTURAL GEOMETRY

Building Width	61.33 Ft.	Building Length	152.67 Ft.
BSW Eave Ht	26.00 Ft.	Left Roof Slope	2.50/12
FSW Eave Ht	26.00 Ft.	Right Roof Slope	2.50/12
Girt Offset	8.00 In.	Purlin Offset	9.50 In.
Ridge Location	30.67 Ft.		

Main Frame Spans: 61.3333'
Bay Spacing : 26.3333', 4@25.0000', 26.3333'

Endwall Spacing -> Left : 19.5717', 22.1900', 19.5717'
Right: 19.5717', 22.1900', 19.5717'
Girt Spacings -> BSW : 7.5000', 3@4.5833', 2.3751'
FSW : 7.5000', 3@4.5833', 2.3751'
Purlin Spacing -> RP1 : 1.3333', 5@5.0000', 4.5751'
RP2 : 1.3333', 5@5.0000', 4.5751'
Roof Connection Type: Welded

LOADING CONDITIONS

Building Code & Year : IBC 2021
Steel Specification : 2022 AISC (ASD)
Risk Category : II-Standard Buildings

GRAVITY LOADING (DEAD, LIVE AND SNOW)

Roof Dead Load = 4.50 PSF	Roof Col. Load = 10.00 PSF	Roof Live Load = 20.00 PSF
Ground Snow = 15.00 PSF	Roof Snow Load = 9.41 PSF	Is Slippery = True
Roof Exp.(Ce) = 1.0	Thermal Con.(Ct) = 1.00	Slope Factor(Cs) = 1.00

SEISMIC

Site Class: D
Longitudinal Framing System: Braced Bays
All lateral SFRS are OMF or OCBF = True

Seismic Data:

Ss = 1.500	S1 = 0.460	Seismic Dead Wt	= 22.00 PSF
Sds = 1.000	Sd1 = 0.564	Total Seismic Wt	= 22.00 PSF
rho = 1.30	omega = 2.00	R = 3.25	
		Roof Diaphragm	= Flexible
Roof Seismic Factor = 0.308	Design Category = D	Irregular Building	= False

WIND

Wind Speed : 97 MPH — Wind Exposure: B — Wind Enclosure: Part.Enclosed
MRH Pressure: 14.34 PSF

WIND PRESSURE COEFFICIENTS

	C5	C6	C5E	C6E
W5B	0.950	0.260	1.160	0.120
W5F	0.260	0.950	0.120	1.160

Net Pressure On Building *
W5B (PSF) 16.00
W5F (PSF) -16.00

Wind Pressures

	Interior Zone W5B (PSF)	Interior Zone W5F (PSF)	Exterior Zone W5B (PSF)	Exterior Zone W5F (PSF)	To Elev. (Ft.)
Windward	13.63	13.63	16.64	16.64	32.39
Leeward	3.73	3.73	1.72	1.72	---

Parapet Wind Pressure

	Left Endwall		Right Endwall	
Windward	0.00	(PSF)	0.00	(PSF)
Leeward	0.00	(PSF)	0.00	(PSF)

*Note: Net Pressure on Building Does Not Include Parapet Wind Loads

USER-APPLIED LOADS

Load Case (ID)	Roof/ Wall (ID)	Load Dir. (X,Z)	Load Magnitude (Kips)	Frame Line (ID)	Roof Grid (ID)	Wall Elevation (Ft.)	Description

LOAD COMBINATIONS

ID	ASR	Name
1)	1.00	SW+RDL+COL+0.60W5B

```
2)    1.00    SW+RDL+COL+0.60W5F
3)    1.00    0.60SW+0.60RDL+0.60W5B
4)    1.00    0.60SW+0.60RDL+0.60W5F
5)    1.00    SW+RDL+COL+0.75SL+0.45W5B
6)    1.00    SW+RDL+COL+0.75SL+0.45W5F
7)    1.00    SW+RDL+COL+0.75RLL+0.45W5B
8)    1.00    SW+RDL+COL+0.75RLL+0.45W5F
9)    1.00    1.14SW+1.14RDL+1.14COL+0.91EQB
10)   1.00    1.14SW+1.14RDL+1.14COL+0.91EQF
11)   1.00    1.11SW+1.11RDL+1.11COL+0.68EQB
12)   1.00    1.11SW+1.11RDL+1.11COL+0.68EQF
13)   1.00    0.46SW+0.46RDL+0.91EQB
14)   1.00    0.46SW+0.46RDL+0.91EQF
15)   1.00    SW+RDL+COL+RLL+0.69NLB
16)   1.00    SW+RDL+COL+RLL-0.69NLB
17)   1.00    SW+RDL+COL+SL+0.48NLB
18)   1.00    SW+RDL+COL+SL-0.48NLB
```

REACTIONS -- LOAD CASE W5B

Frame Line	Grid Line	Horizontal + = right	Vertical + = up	Moment + = counterclockwise
1	A	-3.58	-3.53	0.00
1	E	-3.58	-3.53	0.00
2	A	0.00	3.53	0.00
2	E	0.00	3.53	0.00
3	A	0.00	0.00	0.00
3	E	0.00	0.00	0.00
4	A	-3.48	-3.62	0.00
4	E	0.00	0.00	0.00
5	A	0.00	3.62	0.00
5	E	-3.48	-3.62	0.00
6	A	0.00	0.00	0.00
6	E	0.00	3.62	0.00
7	A	0.00	0.00	0.00
7	E	0.00	0.00	0.00
Summation		-14.11	-0.02	

REACTIONS -- LOAD CASE W5F

Frame Line	Grid Line	Horizontal + = right	Vertical + = up	Moment + = counterclockwise
1	A	0.00	3.53	0.00
1	E	0.00	3.53	0.00
2	A	3.57	-3.53	0.00
2	E	3.57	-3.53	0.00
3	A	0.00	0.00	0.00
3	E	0.00	0.00	0.00
4	A	0.00	3.62	0.00
4	E	0.00	0.00	0.00
5	A	3.48	-3.62	0.00
5	E	0.00	3.62	0.00
6	A	0.00	0.00	0.00
6	E	3.48	-3.62	0.00
7	A	0.00	0.00	0.00
7	E	0.00	0.00	0.00
Summation		14.11	-0.01	

REACTIONS -- LOAD CASE EQB

Frame Line	Grid Line	Horizontal + = right	Vertical + = up	Moment + = counterclockwise
1	A	-16.07	-15.87	0.00
1	E	-16.07	-15.87	0.00

REACTIONS -- LOAD CASE EQB

Frame Line	Grid Line	Horizontal + = right	Vertical + = up	Moment + = counterclockwise
2	A	0.00	15.87	0.00
2	E	0.00	15.87	0.00
3	A	0.00	0.00	0.00
3	E	0.00	0.00	0.00
4	A	-15.64	-16.27	0.00
4	E	0.00	0.00	0.00
5	A	0.00	16.27	0.00
5	E	-15.64	-16.26	0.00
6	A	0.00	0.00	0.00
6	E	0.00	16.26	0.00
7	A	0.00	0.00	0.00
7	E	0.00	0.00	0.00
Summation		-63.42	0.00	

REACTIONS -- LOAD CASE EQF

Frame Line	Grid Line	Horizontal + = right	Vertical + = up	Moment + = counterclockwise
1	A	0.00	15.86	0.00
1	E	0.00	15.86	0.00
2	A	16.07	-15.86	0.00
2	E	16.07	-15.86	0.00
3	A	0.00	0.00	0.00
3	E	0.00	0.00	0.00
4	A	0.00	16.27	0.00
4	E	0.00	0.00	0.00
5	A	15.64	-16.27	0.00
5	E	0.00	16.27	0.00
6	A	0.00	0.00	0.00
6	E	15.64	-16.27	0.00
7	A	0.00	0.00	0.00
7	E	0.00	0.00	0.00
Summation		63.42	-0.02	

^^^ BRACING DESIGN SUMMARY REPORT -- BY CONTROLLING LOAD COMBINATION ^^^

NUCOR BUILDINGS GROUP — BRACING PROGRAM
Job Name: Nisqually - Vocational & Emergency Operations Center — Job Number : U26H0545A
Designer: Weili.Du — Date : 2026-09-04
File : B11.bracing — App Version: 1.12.15.0

BRACES

Memb. ID	Frame Lines	Grid/ Top Elev.	Orient.	Mat. code	Member desc.	Load comb.	Axial (k)	Axial Allowed	Min tw	Omega Applied
B1	1-2	A-B	\	RB8	1_ROD	9	12.39	19.14	0.321	TW ONLY
B2	1-2	A-B	/	RB8	1_ROD	10	12.39	19.14	0.321	TW ONLY
B3	1-2	C-D	\	RB5	5/8_ROD	10	2.69	7.35	0.058	TW ONLY
B4	1-2	C-D	/	RB5	5/8_ROD	9	2.69	7.35	0.058	TW ONLY
B5	1-2	D-E	\	RB8	1_ROD	10	12.39	19.14	0.321	TW ONLY
B6	1-2	D-E	/	RB8	1_ROD	9	12.39	19.14	0.321	TW ONLY
B7	1-2	B-C	\	RB5	5/8_ROD	9	2.69	7.35	0.058	TW ONLY
B8	1-2	B-C	/	RB5	5/8_ROD	10	2.69	7.35	0.058	TW ONLY
B9	4-5	A-B	/	RB8	1_ROD	10	12.56	19.14	0.336	TW ONLY
B10	4-5	A-B	\	RB8	1_ROD	9	12.57	19.14	0.336	TW ONLY
B11	4-5	B-C	/	RB5	5/8_ROD	10	2.79	7.35	0.060	TW ONLY
B12	4-5	B-C	\	RB5	5/8_ROD	9	2.79	7.35	0.060	TW ONLY
B13	4-5	C-D	/	RB5	5/8_ROD	9	2.79	7.35	0.060	TW ONLY
B14	4-5	C-D	\	RB5	5/8_ROD	10	2.79	7.35	0.060	TW ONLY
B15	4-5	D-E	/	RB8	1_ROD	9	12.57	19.14	0.336	TW ONLY
B16	4-5	D-E	\	RB8	1_ROD	10	12.57	19.14	0.336	TW ONLY
B17	1-2	A 26.00	\	RB0	1-1/4_ROD	10	31.90	35.89	0.536	Y
B18	1-2	A 26.00	/	RB0	1-1/4_ROD	9	31.91	35.89	0.536	Y
B19	4-5	A 26.00	/	RB0	1-1/4_ROD	9	31.88	35.89	0.548	Y
B20	4-5	A 26.00	\	RB0	1-1/4_ROD	10	31.89	35.89	0.549	Y
B21	1-2	E 26.00	\	RB0	1-1/4_ROD	10	31.90	35.89	0.536	Y
B22	1-2	E 26.00	/	RB0	1-1/4_ROD	9	31.92	35.89	0.536	Y
B23	5-6	E 26.00	\	RB0	1-1/4_ROD	10	31.89	35.89	0.549	Y
B24	5-6	E 26.00	/	RB0	1-1/4_ROD	9	31.88	35.89	0.548	Y

The minimum web thickness (Min tw) provided for Single/DoubleX-Bracing clevis connections are based on the Standard Brace Clevis plate.

STRUTS

Memb. ID	Frame Lines	Grid/ Elev.		Mat. code	Member desc.	Load comb.	Axial (k)	Axial Allowed	Omega Applied
S1L	1-2	B	-0.00	95Z099	PurlinStrut	10	-8.66	9.14	N
S2L	1-2	C	-1.31	PUR		10	-2.06		N
S2R	1-2	C	1.31	PUR		10	-2.06		N
S3R	1-2	D	0.00	95Z099	PurlinStrut	10	-8.66	9.14	N
S4L	2-3	B	-0.00	PUR		10	-3.69		N
S5L	2-3	C	-1.31	PUR		10	-1.21		N
S5R	2-3	C	1.31	PUR		10	-1.21		N
S6R	2-3	D	0.00	PUR		9	3.69		N
S7L	3-4	B	-0.00	PUR		2	-2.32		N
S8L	3-4	C	-1.31	PUR		10	-0.38		N
S8R	3-4	C	1.31	PUR		10	-0.38		N
S9R	3-4	D	0.00	PUR		2	-2.32		N
S10L	4-5	B	-0.00	95Z099	PurlinStrut	10	-8.74	9.14	N
S11L	4-5	C	-1.31	PUR		10	-2.10		N
S11R	4-5	C	1.31	PUR		10	-2.10		N
S12R	4-5	D	0.00	95Z099	PurlinStrut	10	-8.74	9.14	N
S13L	5-6	B	-0.00	PUR		9	3.77		N
S14L	5-6	C	-1.31	PUR		10	-1.27		N
S14R	5-6	C	1.31	PUR		10	-1.27		N
S15R	5-6	D	0.00	PUR		9	3.77		N
S16L	6-7	B	-0.00	PUR		2	-3.64		N
S17L	6-7	C	-1.31	PUR		10	-0.42		N
S17R	6-7	C	1.31	PUR		10	-0.42		N
S18R	6-7	D	0.00	PUR		2	-3.64		N
S19	1-2	A	26.00	08S099	BoxStrut	10	-21.47	25.69	Y
S19	1-2	A	26.00	95E060B2	EaveStrut				Y
S20	2-3	A	26.00	95E060B2	EaveStrut	9	3.77	4.50	Y
S21	3-4	A	26.00	95E060B2	EaveStrut	9	1.42	4.50	Y
S22	4-5	A	26.00	08S099	BoxStrut	10	-21.19	27.58	Y
S22	4-5	A	26.00	95E060B2	EaveStrut				Y
S23	5-6	A	26.00	95E060B2	EaveStrut	10	-3.63	4.50	Y
S24	6-7	A	26.00	95E060B2	EaveStrut	2	-1.81	3.75	Y
S25	1-2	E	26.00	08S099	BoxStrut	10	-21.47	25.69	Y
S25	1-2	E	26.00	95E060B2	EaveStrut				Y
S26	2-3	E	26.00	95E060B2	EaveStrut	9	3.78	4.50	Y
S27	3-4	E	26.00	95E060B2	EaveStrut	13	1.43	4.50	Y
S28	4-5	E	26.00	08S099	BoxStrut	9	-16.12	27.58	Y
S28	4-5	E	26.00	95E060B2	EaveStrut				Y
S29	5-6	E	26.00	08S099	BoxStrut	9	-18.46	27.58	Y
S29	5-6	E	26.00	95E060B2	EaveStrut				Y
S30	6-7	E	26.00	95E060B2	EaveStrut	2	-1.81	3.75	Y

EAVE MEMBERS - UNFACTORED WIND/SEISMIC FORCES

Frame	Grid	Max. Unfactored	Max. Unfactored

Lines		Wind (k)	Seismic (k)
1-2	A	5.22	23.59
1-2	E	5.22	23.59
2-3	A	1.69	4.14
2-3	E	1.69	4.14
3-4	A	1.69	1.55
3-4	E	1.69	1.55
4-5	A	5.21	23.29
4-5	E	3.81	17.72
5-6	A	3.01	3.99
5-6	E	3.81	20.29
6-7	A	3.01	1.34
6-7	E	3.01	1.34

COST & WEIGHT SUMMARY
IN DOLLARS & LBS

	Cables	Rods	Angles	Ev/Bx/Pi Struts	Purlin Struts	Portals	Total
COST	0	2556	0	2401	602	0	5559
WEIGHT	0	1932	0	2557	579	0	5069

SECOND ORDER ANALYSIS

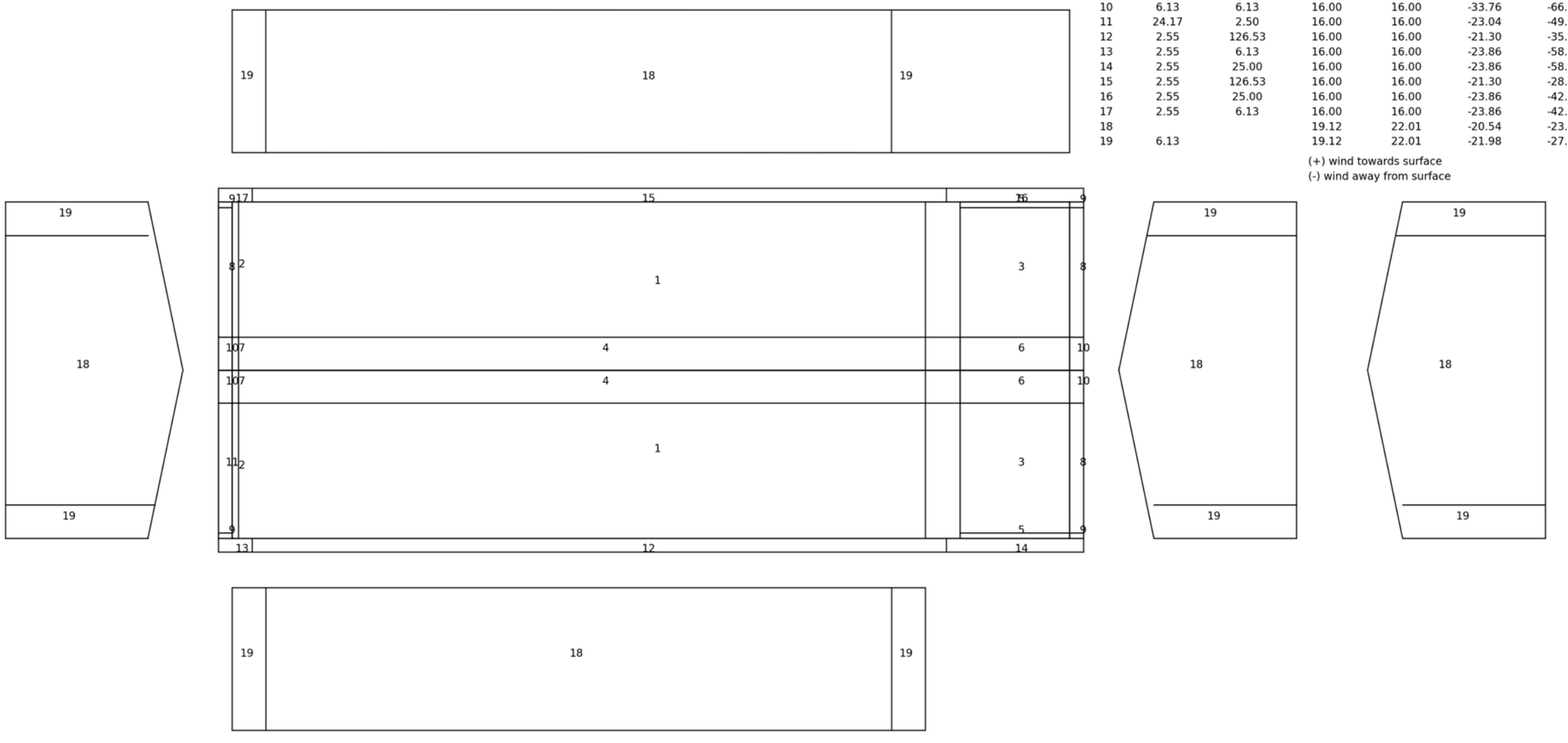
Automatically Select 2nd Order Method

Load Combination	Sum Yi	Sum H	Delta	B2
1 SW+RDL+COL+0.60W5B	-135.8	8.47	0.091	1.01
2 SW+RDL+COL+0.60W5F	-135.8	-8.47	0.091	1.01
3 0.60SW+0.60RDL+0.60W5B	-25.3	8.47	0.091	1.00
4 0.60SW+0.60RDL+0.60W5F	-25.3	-8.47	0.091	1.00
5 SW+RDL+COL+0.75SL+0.45W5B	-201.8	6.35	0.068	1.01
6 SW+RDL+COL+0.75SL+0.45W5F	-201.8	-6.35	0.068	1.01
7 SW+RDL+COL+0.75RLL+0.45W5B	-276.2	6.35	0.068	1.02
8 SW+RDL+COL+0.75RLL+0.45W5F	-276.2	-6.35	0.068	1.02
9 1.14SW+1.14RDL+1.14COL+0.91EQB	-154.8	44.41	0.512	1.01
10 1.14SW+1.14RDL+1.14COL+0.91EQF	-154.8	-44.41	0.512	1.01
11 1.11SW+1.11RDL+1.11COL+0.68EQB	-150.0	33.31	0.384	1.01
12 1.11SW+1.11RDL+1.11COL+0.68EQF	-150.0	-33.31	0.384	1.01
13 0.46SW+0.46RDL+0.91EQB	-19.3	44.41	0.512	1.00
14 0.46SW+0.46RDL+0.91EQF	-19.3	-44.41	0.512	1.00
15 SW+RDL+COL+RLL+0.69NLB	-323.0	0.65	0.007	1.02
16 SW+RDL+COL+RLL-0.69NLB	-323.0	-0.65	0.007	1.02
17 SW+RDL+COL+SL+0.48NLB	-223.9	0.45	0.005	1.01
18 SW+RDL+COL+SL-0.48NLB	-223.9	-0.45	0.005	1.01

Components & Cladding

Zone	Width (ft)	Length (ft)	Pressure(psf) Member	Pressure(psf) Panel	Suction(psf) Member	Suction(psf) Panel
1			16.00	16.00	-16.00	-36.21
2		1.13	16.00	16.00	-23.04	-50.69
3		20.00	16.00	16.00	-16.00	-50.69
4	6.13		16.00	16.00	-23.04	-50.69
5	1.03	20.00	16.00	16.00	-24.16	-58.30
6	6.13	20.00	16.00	16.00	-23.04	-59.02
7	6.13	1.13	16.00	16.00	-23.04	-59.02
8	24.17	6.13	16.00	16.00	-23.04	-49.61
9	1.03	6.13	16.00	16.00	-23.04	-58.30
10	6.13	6.13	16.00	16.00	-33.76	-66.63
11	24.17	2.50	16.00	16.00	-23.04	-49.61
12	2.55	126.53	16.00	16.00	-21.30	-35.50
13	2.55	6.13	16.00	16.00	-23.86	-58.22
14	2.55	25.00	16.00	16.00	-23.86	-58.22
15	2.55	126.53	16.00	16.00	-21.30	-28.40
16	2.55	25.00	16.00	16.00	-23.86	-42.60
17	2.55	6.13	16.00	16.00	-23.86	-42.60
18			19.12	22.01	-20.54	-23.43
19	6.13		19.12	22.01	-21.98	-27.65

(+) wind towards surface
(-) wind away from surface



U26H0545A | Panel Zone: Wind 1 | 9/16/26

Nucor Building Systems
P.O. Box 907 1050 North Watery Lane
Brigham City, UT 84302

STRUCTURAL DESIGN CALCULATIONS
FOR
Advanced Building Structures
Post Office Box 1871
Clackamas, OR 97015

Nisqually - Vocational & Emergency Opera
11940 Billy Frank Jr Blvd S
Olympia, WA 98513
U26H0545A

BUILDING LAYOUT

Width	(ft)=	61.3
Length	(ft)=	152.7
Eave Height	(ft)=	26.0/ 26.0
Roof Slope	(rise/12)=	2.50/ 2.50

BUILDING LOADS

Roof Dead Load	(psf)=	4.5
Wall Dead Load		
Left Endwall	(psf)=	3.0
Right Endwall	(psf)=	3.0
Front Sidewall	(psf)=	3.0
Back Sidewall	(psf)=	3.0
Live Load	(psf)=	20.0
Collateral Load	(psf)=	10.0
Snow Load	(psf)=	9.4
Minimum Snow	(psf)=	25.0
Wind Speed	(mph)=	97.0
Wind Code	=	IBC 21
Exposure	=	B
Closure	=	Partially Enclosed
Internal Wind Coeff	=	-0.55, +0.55
Risk Category	=	II - Normal
Importance - Wind	=	1.00
Importance - Seismic	=	1.00
Seismic Design Category	=	D
Seismic Coeff (Sms)	=	1.50

Designer : WD
Detailer : WD

9/16/26

*(3)DESIGN CODE:

Design Code	Steel_Code Cold	Steel_Code Hot	Country	Build Code	Build Year	Code Label	Seismic Zone
'WS'	'NAUS16 '	'AISC16'	'----'	'IBC '	'21'	'IBC 21 '	'D '

*(4)DESIGN CONSTANTS:

Stress_Ratio Purlin	Stress_Ratio Panel	Stress_Ratio Wind_Frame	Strength_Factor Wind	Seismic Frame	Seismic Brace
1.0300	1.03	1.03	1.000	1.000	1.200

*(5)STEEL YIELDS:

Web	Flg	C_Sec	W_Sec	R_Sec	P_Sec	T_Sec	U_Sec	EP	BP
55.0	55.0	55.0	55.0	50.0	42.0	46.0	50.0	55.0	55.0

*(6)DEFLECTION LIMITS:

Purlin Live	Purlin Wind	Purlin Total	Extension Live	Extension Wind	Extension Total	Gable_Ext Live	Gable_Ext Wind	Gable_Ext Total	Facia Girt	Panel Live	Panel Wind	Facia Panel	Wind_Frame Wind	Wind_Frame Seis
150.0	150.0	0.0	150.0	150.0	120.0	75.0	75.0	60.0	90.0	60.0	60.0	90.0	60.0	40.0

*(46)ROOF BASIC LOADS:

Group Id	Dead Load	Coll Load	Live Load	Snow Load	Rain Load	Basic Wind	Deflection Load_Ratio Snow	Deflection Load_Ratio Wind	Deflection Load_Ratio Seis	Bent Seis	Friction Wind	Friction Coef	Wall Edge Zone	Seismic Ld_Rat Factor
'-'	4.50	10.00	20.00	9.41	0.00	14.34	1.00	0.48	1.00	1.00	14.33	0.0000	6.133	1.0000

*(47)WIND PRESSURE/SUCTION:

Group Id	Wind Press	Wind Suct	Wind Suct_Roof	
'-'	16.00	-16.00		.. Purlins
'-'	16.00	-36.21		.. Interior Roof Panels
'-'	20.16	5.52	5.00	.. Long Bracing, Wall Interior Zone
'-'	24.62	2.55	2.31	.. Long Bracing, Wall Edge Zone
'-'	21.50	-14.33	11.47	.. Long Bracing, Facia/Parapet

*(48)EXTENSION BASIC LOADS:

Group Id	Ext Id	Dead	Coll	Live	Snow	Drift	Slide	Rain
'-'	1	4.00	10.00	20.00	25.00	0.00	0.00	0.00
'-'	2	4.00	10.00	20.00	25.00	0.00	0.00	0.00

*(49)EXTENSION WIND PRESSURE/SUCTION:

Group Id	Ext Id	Purlin_Wind Attach_Beam Press	Purlin_Wind Attach_Beam Suct	Purlin_Wind Facia_Beam Press	Purlin_Wind Facia_Beam Suct	Purlin_Wind Soffit_Beam Press	Purlin_Wind Soffit_Beam Suct	Panel_Wind Attach_Beam Press	Panel_Wind Attach_Beam Suct	Panel_Wind Facia_Beam Press	Panel_Wind Facia_Beam Suct	Panel_Wind Soffit_Beam Press	Panel_Wind Soffit_Beam Suct
'-'	1	16.00	-21.30	0.00	0.00	21.30	-16.00	16.00	-35.50	0.00	0.00	35.50	-16.00
'-'	2	16.00	-21.30	0.00	0.00	21.30	-16.00	16.00	-28.40	0.00	0.00	28.40	-16.00

*(50)ROOF EDGE & CORNER ZONES:

Group Id	Wind Surf Id	No Zone	Zone Id	Width	Length	Purlin Press	Purlin Suct	Panel Press	Panel Suct	Screw Suct	
'-'	1	2	13	1	0.0000	0.0000	1.00	1.00	1.00	1.00	1.00 .. Interior
				3	0.0000	1.1333	1.00	1.44	1.00	1.40	1.39 .. Edge_Left
				5	0.0000	20.0001	1.00	1.00	1.00	1.40	1.37 .. Edge_Right
				6	6.1333	0.0000	1.00	1.44	1.00	1.40	1.39 .. Edge_Bottom
				8	1.0259	20.0001	1.00	1.51	1.00	1.61	1.61 .. Corner_Top_Right
				9	6.1333	20.0001	1.00	1.44	1.00	1.63	1.84 .. Corner_Bottom_Right
				10	6.1333	1.1333	1.00	1.44	1.00	1.63	1.63 .. Corner_Bottom_Left
				16	21.6122	6.1333	1.00	1.44	1.00	1.37	1.37 .. Gable_Ext_Left
				17	1.0259	6.1333	1.00	1.44	1.00	1.61	1.61 .. Gable_Ext_Top_Left
				18	6.1333	6.1333	1.00	2.11	1.00	1.84	1.84 .. Gable_Ext_Bottom_Left
				19	21.6122	6.1333	1.00	1.44	1.00	1.37	1.37 .. Gable_Ext_Right
				20	1.0259	6.1333	1.00	1.44	1.00	1.61	1.61 .. Gable_Ext_Top_Right
				21	6.1333	6.1333	1.00	2.11	1.00	1.84	1.84 .. Gable_Ext_Bottom_Right
'-'	1	3	13	1	0.0000	0.0000	1.00	1.00	1.00	1.00	1.00 .. Interior
				3	0.0000	1.1333	1.00	1.44	1.00	1.40	1.39 .. Edge_Left
				4	6.1333	0.0000	1.00	1.44	1.00	1.40	1.39 .. Edge_Top
				5	0.0000	20.0001	1.00	1.00	1.00	1.40	1.37 .. Edge_Right
				7	6.1333	1.1333	1.00	1.44	1.00	1.63	1.63 .. Corner_Top_Left
				8	6.1333	20.0001	1.00	1.44	1.00	1.63	1.84 .. Corner_Top_Right
				9	1.0259	20.0001	1.00	1.51	1.00	1.61	1.61 .. Corner_Bottom_Right
				16	21.6121	2.5000	1.00	1.44	1.00	1.37	1.37 .. Gable_Ext_Left
				17	6.1333	6.1333	1.00	2.11	1.00	1.84	1.84 .. Gable_Ext_Top_Left
				18	1.0259	6.1333	1.00	1.44	1.00	1.61	1.61 .. Gable_Ext_Bottom_Left

```
                    19  21.6121   6.1333   1.00   1.44    1.00   1.37   1.37 .. Gable_Ext_Right
                    20   6.1333   6.1333   1.00   2.11    1.00   1.84   1.84 .. Gable_Ext_Top_Right
                    21   1.0259   6.1333   1.00   1.44    1.00   1.61   1.61 .. Gable_Ext_Bottom_Right
  '-'    2    2    3    1   0.0000   0.0000   1.00   1.00    1.00   1.00   1.00 .. Interior
                    16  31.3251   0.0000   0.00   0.00    0.00   0.00   0.00 .. Gable_Ext_Left
                    19  31.3251   0.0000   0.00   0.00    0.00   0.00   0.00 .. Gable_Ext_Right
  '-'    2    3    3    1   0.0000   0.0000   1.00   1.00    1.00   1.00   1.00 .. Interior
                    16  31.3250   0.0000   0.00   0.00    0.00   0.00   0.00 .. Gable_Ext_Left
                    19  31.3250   0.0000   0.00   0.00    0.00   0.00   0.00 .. Gable_Ext_Right

*(52)EXTENSION EDGE ZONES:
*    Group Ext        No.  Zone          ---Purlin--  ---Panel---  Screw
*No.   Id   Id  Orn  Zone   Id   Length  Press  Suct  Press  Suct   Suct
  2   '-'    1  'H'    3     1   0.0000   1.00  1.00   1.00  1.00   1.00
                          2   6.1333   1.00  1.12   1.00  1.64   1.64
                          3  25.0001   1.00  1.12   1.00  1.64   1.64
      '-'    2  'H'    3     1   0.0000   1.00  1.00   1.00  1.00   1.00
                          2  25.0001   1.00  1.12   1.00  1.50   1.50
                          3   6.1333   1.00  1.12   1.00  1.50   1.50

*(53)PURLIN LOAD COMBINATIONS - STRENGTH:
*Surf     Load Group                        -Add_Snow-        ---Wind1---  ---Wind2---   Long_Wind  Aux_Load
* Id  No.  Id    Id Dead  Coll  Live  Snow Drift Slide  Rain  Press  Suct  Press  Suct   EW1   EW2  Id  Coef
   2   26   1   '-' 1.00  1.00  0.00  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            2   '-' 1.00  1.00  1.00  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            3   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            4   '-' 1.00  1.00  0.00  0.01  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   1  1.00
            5   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            6   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            7   '-' 1.00  0.00  0.00  0.00  0.00  0.00  0.00   0.60  0.00   0.00  0.00  0.00  0.00   0  0.00
            8   '-' 1.00  0.00  0.00  0.00  0.00  0.00  0.00   0.00  0.60   0.00  0.00  0.00  0.00   0  0.00
            9   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.45  0.00   0.00  0.00  0.00  0.00   0  0.00
           10   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.00  0.45   0.00  0.00  0.00  0.00   0  0.00
           11   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.45  0.00   0.00  0.00  0.00  0.00   0  0.00
           12   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.00  0.45   0.00  0.00  0.00  0.00   0  0.00
           13   '-' 0.60  0.00  0.00  0.00  0.00  0.00  0.00   0.60  0.00   0.00  0.00  0.00  0.00   0  0.00
           14   '-' 0.60  0.00  0.00  0.00  0.00  0.00  0.00   0.00  0.60   0.00  0.00  0.00  0.00   0  0.00
           15   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   4  1.00
           16   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   5  1.00
           17   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   6  1.00
           18   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   7  1.00
           19   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   8  1.00
           20   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   9  1.00
           21   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00  10  1.00
           22   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   2  1.00
           23   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   3  1.00
           24   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   2 -1.00
           25   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   3 -1.00
           26   '-' 1.00  1.00  0.00  0.01  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00  11  1.00
   3   26   1   '-' 1.00  1.00  0.00  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            2   '-' 1.00  1.00  1.00  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            3   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            4   '-' 1.00  1.00  0.00  0.01  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   1  1.00
            5   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            6   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   0  0.00
            7   '-' 1.00  0.00  0.00  0.00  0.00  0.00  0.00   0.60  0.00   0.00  0.00  0.00  0.00   0  0.00
            8   '-' 1.00  0.00  0.00  0.00  0.00  0.00  0.00   0.00  0.60   0.00  0.00  0.00  0.00   0  0.00
            9   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.45  0.00   0.00  0.00  0.00  0.00   0  0.00
           10   '-' 1.00  1.00  0.75  0.00  0.00  0.00  0.00   0.00  0.45   0.00  0.00  0.00  0.00   0  0.00
           11   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.45  0.00   0.00  0.00  0.00  0.00   0  0.00
           12   '-' 1.00  1.00  0.00  0.75  0.00  0.00  0.00   0.00  0.45   0.00  0.00  0.00  0.00   0  0.00
           13   '-' 0.60  0.00  0.00  0.00  0.00  0.00  0.00   0.60  0.00   0.00  0.00  0.00  0.00   0  0.00
           14   '-' 0.60  0.00  0.00  0.00  0.00  0.00  0.00   0.00  0.60   0.00  0.00  0.00  0.00   0  0.00
           15   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   4  1.00
           16   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   5  1.00
           17   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   6  1.00
           18   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   7  1.00
           19   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   8  1.00
           20   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   9  1.00
           21   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00  10  1.00
```

```
          22   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   2  1.00
          23   '-' 1.00  1.00  0.00  0.50  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   3  1.00
          24   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   2 -1.00
          25   '-' 1.00  1.00  0.00  1.00  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00   3 -1.00
          26   '-' 1.00  1.00  0.00  0.01  0.00  0.00  0.00   0.00  0.00   0.00  0.00  0.00  0.00  12  1.00

*(61)AUXILIARY LOADS:
*                        No._Add   Add_Load
* No.  Id    Name          Combs    Id    Coef
   12   1   'MIN_SNOW  '     2       1    1.00
                                     2    1.00
        2   'PAT_SL_1  '     1       3    0.50
        3   'PAT_SL_2  '     1      10    0.50
        4   'PAT_SL_3  '     2       3    0.50
                                     4    0.50
        5   'PAT_SL_4  '     2       4    0.50
                                     5    0.50
        6   'PAT_SL_5  '     2       5    0.50
                                     6    0.50
        7   'PAT_SL_6  '     2       6    0.50
                                     7    0.50
        8   'PAT_SL_7  '     2       7    0.50
                                     8    0.50
        9   'PAT_SL_8  '     2       8    0.50
                                     9    0.50
       10   'PAT_SL_9  '     2       9    0.50
                                    10    0.50
       11   'UNB_SL    '     2      11    1.00
                                    12    1.23
       12   'UNB_SL    '     2      13    1.00
                                    14    1.23

*(62)ADDITIONAL LOADS:
*    Add  Group Surf Basic    Load Load      F               D             ----Surface----
* No. Id    Id   Id  Load     Type  Orn     W1     W2        D1       D2     Start      End
   14  1   '-'    2 'U_SNOW'  'D '  'T'   -25.0   -25.0   0.0000  31.3251   0.0000 157.6667
       2   '-'    3 'U_SNOW'  'D '  'T'   -25.0   -25.0   0.0000  31.3250   0.0000 157.6667
       3   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4   0.0000   2.5000   0.0000   0.0000
       4   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4   2.5000  28.8333   0.0000   0.0000
       5   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4  28.8333  53.8333   0.0000   0.0000
       6   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4  53.8333  78.8333   0.0000   0.0000
       7   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4  78.8333 103.8333   0.0000   0.0000
       8   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4 103.8333 128.8333   0.0000   0.0000
       9   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4 128.8333 155.1666   0.0000   0.0000
      10   '-'    0 'U_SNOW'  'D '  'L'    -9.4    -9.4 155.1666 157.6666   0.0000   0.0000
      11   '-'    2 'U_SNOW'  'D '  'T'    -9.4    -9.4   0.0000  31.3251   0.0000 157.6667
      12   '-'    2 'U_SNOW'  'D '  'T'    -9.4    -9.4  21.8429  31.3251   0.0000 157.6666
      13   '-'    3 'U_SNOW'  'D '  'T'    -9.4    -9.4   0.0000  31.3250   0.0000 157.6667
      14   '-'    3 'U_SNOW'  'D '  'T'    -9.4    -9.4   0.0000   9.4823   0.0000 157.6667
```

U26H0545A Purlin Layout(Surface 2) 9/16/26 2:26pm

PURLIN SYSTEM COMBINATIONS:

System Id	Purlin Depth	Purlin Row	Purlin Weight	Added_Purlin Row	Added_Purlin Weight	Total Weight	Show Report	Max_UC Purlin	Max_UC Panel	Max_UC Table
1	9.5	6	4870.7	0	0.0	4870.7	Y	0.97	0.30	
2	9.5	6	4870.7	6	877.6	5748.3		0.97	0.30	

SURFACE LAYOUT:

Surface Id	Length	No. Row	Peak Space
2	31.325	6	1.333

PURLIN LOCATION:

Purlin Id	Surf Offset	Space	Load Width	Dead Load	Show Report	Max_Load Id	Max_Load UC	Max_Load Report	Notes
1	4.992	4.992	4.996	1.03	Y	4	0.97	Mom+Shr	
2	9.992	5.000	5.000	1.03	Y	4	0.97	Mom+Shr	
3	14.992	5.000	5.000	1.03	Y	4	0.97	Mom+Shr	
4	19.992	5.000	5.000	1.03	Y	4	0.97	Mom+Shr	
5	24.992	5.000	5.000	1.03	Y	4	0.97	Mom+Shr	
6	29.992	5.000	3.833	1.34	Y	4	0.74	Mom+Shr	
	31.325	1.333							

			Average=	1.07 (psf)					

LAYOUT:

Bay Id	Part	Design Length	Lap(ft) Left	Lap(ft) Right	No. Strap	Unit Weight	Total Weight
LExt	95Z089	3.83			0	19.4	116.7
1	95Z089	25.00		3.94	2	146.8	880.8
2	95Z067	25.00	3.94	2.94	2	121.7	730.4
3	95Z067	25.00	2.94	2.94	2	117.9	707.5
4	95Z067	25.00	2.94	2.94	2	117.9	707.5
5	95Z067	25.00	2.94	3.94	2	121.7	730.4
6	95Z089	25.00	3.94		2	146.8	880.8
RExt	95Z089	3.83			0	19.4	116.7
						---	---
				Total(lb)=		811.8	4870.7

LOAD COMBINATIONS:

Strength Combinations

1 - Dead+Collateral
2 - Dead+Collateral+Live
3 - Dead+Collateral+Snow
4# - Dead+Collateral+MIN_SNOW
5 - Dead+Collateral+0.75Live
6 - Dead+Collateral+0.75Snow
7 - Dead+0.6Wind_Pressure1
8 - Dead+0.6Wind_Suction1
9 - Dead+Collateral+0.75Live+0.45Wind_Pressure1
10 - Dead+Collateral+0.75Live+0.45Wind_Suction1
11 - Dead+Collateral+0.75Snow+0.45Wind_Pressure1
12 - Dead+Collateral+0.75Snow+0.45Wind_Suction1
13 - 0.6Dead+0.6Wind_Pressure1
14 - 0.6Dead+0.6Wind_Suction1
15 - Dead+Collateral+Snow/2+PAT_SL_3

```
  16   - Dead+Collateral+Snow/2+PAT_SL_4
  17   - Dead+Collateral+Snow/2+PAT_SL_5
  18   - Dead+Collateral+Snow/2+PAT_SL_6
  19   - Dead+Collateral+Snow/2+PAT_SL_7
  20   - Dead+Collateral+Snow/2+PAT_SL_8
  21   - Dead+Collateral+Snow/2+PAT_SL_9
  22   - Dead+Collateral+Snow/2+PAT_SL_1
  23   - Dead+Collateral+Snow/2+PAT_SL_2
  24   - Dead+Collateral+Snow-PAT_SL_1
  25   - Dead+Collateral+Snow-PAT_SL_2
  26   - Dead+Collateral+UNB_SL
 Deflection Combinations
  27   - Live
  28   - Snow
  29   - MIN_SNOW
  30   - Dead+Collateral+Live
  31   - Dead+Collateral+Snow
  32   - Dead+Collateral+MIN_SNOW
  33   - Dead+0.48Wind_Pressure1
  34   - Dead+0.48Wind_Suction1
  35   - UNB_SL
    # Controlling Load Combination


================================================================================
 U26H0545A           Purlin Layout(Surface  3)                  9/16/26  2:26pm
================================================================================

 PURLIN SYSTEM COMBINATIONS:
 ---------------------------
   System  -------Purlin------  Added_Purlin    Total   Show   ------Max_UC------
     Id    Depth  Row   Weight  Row   Weight   Weight  Report  Purlin Panel Table
   ------  -----  ---  -------  ---  -------  -------  ------  ------ ----- -----
      1      9.5    6   4870.7    0      0.0   4870.7     Y      0.97  0.30
      2      9.5    6   4870.7    6    877.6   5748.3            0.97  0.30


 SURFACE LAYOUT:
 ---------------
   Surface           No.   Peak
      Id     Length  Row  Space
   -------  -------  ---  -----
       3     31.325    6  1.333

 PURLIN LOCATION:
 ----------------
   Purlin    Surf          Load   Dead   Show   ------Max_Load------
     Id    Offset  Space  Width   Load  Report   Id    UC  Report     Notes
   ------  ------  -----  -----  -----  ------  ---  ----  ---------  ------
      1     1.333  1.333  3.833   1.34     Y      4  0.74  Mom+Shr
      2     6.333  5.000  5.000   1.03     Y      4  0.97  Mom+Shr
      3    11.333  5.000  5.000   1.03     Y      4  0.97  Mom+Shr
      4    16.333  5.000  5.000   1.03     Y      4  0.97  Mom+Shr
      5    21.333  5.000  5.000   1.03     Y      4  0.97  Mom+Shr
      6    26.333  5.000  4.996   1.03     Y      4  0.97  Mom+Shr
           31.325  4.992
                                 -----
                        Average=  1.07 (psf  )

 LAYOUT:
 -------
    Bay             Design  ---Lap(ft)--   No.      Unit    Total
     Id  Part       Length   Left  Right  Strap   Weight   Weight
   ----  --------   ------  -----  -----  -----   ------   ------
   LExt  95Z089       3.83                  0      19.4    116.7
      1  95Z089      25.00          3.94     2     146.8    880.8
      2  95Z067      25.00   3.94   2.94     2     121.7    730.4
      3  95Z067      25.00   2.94   2.94     2     117.9    707.5
      4  95Z067      25.00   2.94   2.94     2     117.9    707.5
      5  95Z067      25.00   2.94   3.94     2     121.7    730.4
```

6	95Z089	25.00	3.94		2	146.8	880.8
RExt	95Z089	3.83			0	19.4	116.7
						---	---
				Total(lb)=		811.8	4870.7

LOAD COMBINATIONS:

Strength Combinations

1 - Dead+Collateral
2 - Dead+Collateral+Live
3 - Dead+Collateral+Snow
4# - Dead+Collateral+MIN_SNOW
5 - Dead+Collateral+0.75Live
6 - Dead+Collateral+0.75Snow
7 - Dead+0.6Wind_Pressure1
8 - Dead+0.6Wind_Suction1
9 - Dead+Collateral+0.75Live+0.45Wind_Pressure1
10 - Dead+Collateral+0.75Live+0.45Wind_Suction1
11 - Dead+Collateral+0.75Snow+0.45Wind_Pressure1
12 - Dead+Collateral+0.75Snow+0.45Wind_Suction1
13 - 0.6Dead+0.6Wind_Pressure1
14 - 0.6Dead+0.6Wind_Suction1
15 - Dead+Collateral+Snow/2+PAT_SL_3
16 - Dead+Collateral+Snow/2+PAT_SL_4
17 - Dead+Collateral+Snow/2+PAT_SL_5
18 - Dead+Collateral+Snow/2+PAT_SL_6
19 - Dead+Collateral+Snow/2+PAT_SL_7
20 - Dead+Collateral+Snow/2+PAT_SL_8
21 - Dead+Collateral+Snow/2+PAT_SL_9
22 - Dead+Collateral+Snow/2+PAT_SL_1
23 - Dead+Collateral+Snow/2+PAT_SL_2
24 - Dead+Collateral+Snow-PAT_SL_1
25 - Dead+Collateral+Snow-PAT_SL_2
26 - Dead+Collateral+UNB_SL

Deflection Combinations

27 - Live
28 - Snow
29 - MIN_SNOW
30 - Dead+Collateral+Live
31 - Dead+Collateral+Snow
32 - Dead+Collateral+MIN_SNOW
33 - Dead+0.48Wind_Pressure1
34 - Dead+0.48Wind_Suction1
35 - UNB_SL

Controlling Load Combination

```
*( 6)DEFLECTION LIMITS:
* ---Girt---  --Panel---
* Wall Facia  Wall Facia
   90.   90.   60.   90.
```

U26H0545A Wall 2 - Bypass Girt Layout 9/16/26 2:26pm

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Bay_Offset End	Design Length	---Extend-- Left	Extend-- Right	Weight	----Max_Load--- Id	Max_Load--- UC	Max_Load--- Report	Rot
7.50	1	1	08Z067	1.33	26.33	25.00	0.00	1.19	84.0	WS	0.95	Moment	D
		2	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.99	Moment	D
		3	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.68	Moment	D
		4	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	1.00	Moment	D
		5	08Z067	0.00	25.00	25.00	1.19	0.00	84.0	WS	0.97	Moment	D
12.25	2	1	08Z060	1.33	26.33	25.00	0.00	1.19	75.2	WS	0.83	Moment	D
		2	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.78	Moment	D
		3	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.52	Moment	D
		4	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.78	Moment	D
		5	08Z060	0.00	25.00	25.00	1.19	0.00	75.2	WS	0.84	Moment	D
17.00	3	1	08C089	1.33	26.33	25.00	0.00	0.00	106.5	WS	0.86	Moment	D
	4	2	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	0.86	Moment	D
	5	3	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	1.03	Moment	D
	6	4	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	1.03	Moment	D
	7	5	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
21.00	8	1	08C089	1.33	26.33	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	9	2	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.73	Moment	D
	10	3	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	11	4	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	12	5	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.88	Moment	D

WP - 0.6Wind_Pressure
WS - 0.6Wind_Suction

GIRT INSIDE FLANGE BRACE:

No._Brace/Bay 1	2	3	4	5	6
0	0	0	0	0	0

U26H0545A Wall 2 - Door Jamb & Header Design 9/16/26 2:26pm

LAYOUT:

Open Id	Bay Id	Locate	Part	Load Length	Load Width	Load Weight	Reduction Factor Out	Reduction Factor In
15	2	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00
16	2	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
		JambR	J08C060	7.50	1.50	21.5	0.00	0.00
		Sill	J08C060	3.00	1.50	8.6	0.00	0.61
17	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
18	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
19	3	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00
20	3	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00

21	3	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
22	3	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
23	4	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00
24	5	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00

STRENGTH/DEFLECTION:

Open		Load	--Shear(k)-		--Moment(ft,f-k)-			Mom+	Max	Deflect(in)	
Id	Member	Id	Calc	Limit	Loc	Calc	Limit	Shear	UC	Calc	Limit
15	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
16	JambL	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	Sill	WP	0.03	2.6	1.50	-0.02	4.9	0.00	0.01	0.00	0.40
		WS	-0.03	2.6	1.50	0.02	4.1	0.00	0.01	0.00	0.40
17	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
18	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
19	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
20	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
21	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
22	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
23	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
24	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00

WP - 0.6Wind_Pressure
WS - 0.6Wind_Suction

UNBRACED LENGTHS:

Open			---Minor---		Mom1/Mom2		----Cb---	
Id	Member	Major	Out	In	Out	In	Out	In
15	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
16	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
17	JambL	7.50	1.00	4.00	1.00	1.00	1.14	1.14

	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
18	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
19	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
20	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
21	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
22	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	4.00	1.00	1.00	1.14	1.14
23	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
24	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14

JAMB/GIRT LAYOUT:

Open Id	Member	Bot Girt (ft)	Top Girt (ft)	Interior_Girt_Locations(ft)
15	JambL	Base	7.50	
	JambR	Base	7.50	
16	JambL	Base	7.50	
	JambR	Base	7.50	
17	JambL	17.00	21.00	
	JambR	17.00	21.00	
18	JambL	17.00	21.00	
	JambR	17.00	21.00	
19	JambL	Base	7.50	
	JambR	Base	7.50	
20	JambL	Base	7.50	
	JambR	Base	7.50	
21	JambL	17.00	21.00	
	JambR	17.00	21.00	
22	JambL	17.00	21.00	
	JambR	17.00	21.00	
23	JambL	Base	7.50	
	JambR	Base	7.50	
24	JambL	Base	7.50	
	JambR	Base	7.50	

JAMB/GIRT LOADING:

Open Id	Member	Load Id	Support Reaction(k) Bot	Top	Jamb Load (k/ft)	Load_At_Girt_Locations(k)
15	JambL	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
	JambR	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
16	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
17	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
18	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
19	JambL	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
	JambR	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	

20	JambL	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021
	JambR	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021
21	JambL	WP	0.03	0.03	-0.017
		WS	-0.04	-0.04	0.018
	JambR	WP	0.03	0.03	-0.017
		WS	-0.04	-0.04	0.018
22	JambL	WP	0.03	0.03	-0.017
		WS	-0.04	-0.04	0.018
	JambR	WP	0.03	0.03	-0.017
		WS	-0.04	-0.04	0.018
23	JambL	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021
	JambR	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021
24	JambL	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021
	JambR	WP	0.07	0.07	-0.019
		WS	-0.08	-0.08	0.021

JAMB/GIRT LAYOUT:

JAMB MOMENTS:

Open Id	Member	Load Id	-Max(ft,f-k)- Locate	Moment	Moment_At_Girt_Locations(f-k)
15	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
16	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
17	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
18	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
19	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
20	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
21	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
22	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
23	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
24	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	

```
*( 6)DEFLECTION LIMITS:
* ---Girt---  --Panel---
* Wall Facia  Wall Facia
   90.   90.   60.   90.
```

```
================================================================================
 U26H0545A           Wall 4 - Bypass Girt Layout                9/16/26  2:26pm
================================================================================
```

GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Bay_Offset End	Design Length	Extend-- Left	Extend-- Right	Weight	Max_Load--- Id	Max_Load--- UC	Max_Load--- Report	Rot
7.50	1	2	08Z060	0.00	13.00	12.67	0.00	0.00	36.4	WS	0.42	Moment	D
	2	2	08Z060	23.00	25.00	1.67	0.00	0.00	4.8	WS	0.73	Mom+Shr	D
		3	08Z060	0.00	25.00	25.00	0.00	1.19	75.2	WP	0.86	Moment	D
		4	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WS	0.83	Mom+Shr	D
		5	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	1.00	Moment	D
		6	08Z067	0.00	25.00	25.00	1.19	0.00	84.0	WS	0.95	Moment	D
12.25	3	2	08Z089	0.00	25.00	25.00	0.00	1.19	111.5	WS	0.98	Moment	D
		3	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.96	Moment	D
		4	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.53	Moment	D
		5	08Z060	0.00	25.00	25.00	1.19	1.19	78.6	WP	0.78	Moment	D
		6	08Z060	0.00	25.00	25.00	1.19	0.00	75.2	WS	0.83	Moment	D
17.00	4	2	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	5	3	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	1.03	Moment	D
	6	4	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	1.03	Moment	D
	7	5	08C075	0.00	25.00	25.00	0.00	0.00	89.7	WS	1.03	Moment	D
	8	6	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.86	Moment	D
21.00	9	2	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.88	Moment	D
	10	3	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	11	4	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	12	5	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D
	13	6	08C089	0.00	25.00	25.00	0.00	0.00	106.5	WS	0.87	Moment	D

WP - 0.6Wind_Pressure
WS - 0.6Wind_Suction

GIRT INSIDE FLANGE BRACE:

No._Brace/Bay 1	2	3	4	5	6
0	0	0	0	0	0

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================================================================================
 U26H0545A           Wall 4 - Door Jamb & Header Design         9/16/26  2:26pm
================================================================================
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LAYOUT:

Open Id	Bay Id	Locate	Part	Load Length	Load Width	Load Weight	Reduction Factor Out	Reduction Factor In
28	2	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00
29	2	JambL	J08C075	12.25	5.00	44.0	0.00	0.00
		JambR	J08C075	12.25	5.00	44.0	0.00	0.00
		Header	J08C060	10.00	1.13	28.7	0.00	0.61
30	4	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
		JambR	J08C060	7.50	1.50	21.5	0.00	0.00
		Sill	J08C060	3.00	1.50	8.6	0.00	0.61
31	4	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
		JambR	J08C060	7.50	1.50	21.5	0.00	0.00
		Sill	J08C060	3.00	1.50	8.6	0.00	0.61
32	4	JambL	J08C060	7.50	1.67	21.5	0.00	0.00

	JambR	J08C060	7.50	1.67	21.5	0.00	0.00
33	4 JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
34	4 JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
35	5 JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
36	5 JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00

STRENGTH/DEFLECTION:

Open		Load	--Shear(k)-		--Moment(ft,f-k)-			Mom+	Max	Deflect(in)	
Id	Member	Id	Calc	Limit	Loc	Calc	Limit	Shear	UC	Calc	Limit
28	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
29	JambL	WP	-0.63	5.1	7.50	-2.36	6.6	0.35	0.35	-0.16	1.63
		WS	0.69	5.1	7.50	2.56	5.8	0.38	0.44	0.17	1.63
	JambR	WP	-0.55	5.1	7.50	2.52	5.9	0.39	0.42	0.13	1.63
		WS	0.59	5.1	7.50	-2.72	6.6	0.42	0.42	-0.14	1.63
	Header	WP	0.06	2.6	5.00	-0.16	4.9	0.00	0.03	-0.01	1.33
		WS	-0.07	2.6	5.00	0.17	3.0	0.00	0.06	0.01	1.33
30	JambL	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	Sill	WP	0.03	2.6	1.50	-0.02	4.9	0.00	0.01	0.00	0.40
		WS	-0.03	2.6	1.50	0.02	4.1	0.00	0.01	0.00	0.40
31	JambL	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.6	3.75	-0.12	4.9	0.00	0.02	0.00	1.00
		WS	-0.07	2.6	3.75	0.13	4.1	0.00	0.03	0.00	1.00
	Sill	WP	0.03	2.6	1.50	-0.02	4.9	0.00	0.01	0.00	0.40
		WS	-0.03	2.6	1.50	0.02	4.1	0.00	0.01	0.00	0.40
32	JambL	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
	JambR	WP	0.07	2.6	3.75	-0.13	4.9	0.00	0.03	0.00	1.00
		WS	-0.08	2.6	3.75	0.14	4.1	0.00	0.03	0.01	1.00
33	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
34	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
35	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
36	JambL	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.6	2.00	-0.03	4.9	0.00	0.01	0.00	0.53
		WS	-0.04	2.6	2.00	0.04	4.1	0.00	0.01	0.00	0.53

WP - 0.6Wind_Pressure
WS - 0.6Wind_Suction

UNBRACED LENGTHS:

Open			---Minor---		Mom1/Mom2		----Cb---	
Id	Member	Major	Out	In	Out	In	Out	In
28	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
29	JambL	12.25	1.00	7.50	0.00	0.00	1.40	1.40
	JambR	12.25	1.00	7.50	0.00	0.00	2.03	2.04
	Header	10.00	1.00	10.00	1.00	1.00	1.14	1.14

30	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
31	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
32	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
33	JambL	7.50	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
34	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
35	JambL	7.50	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
36	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	4.00	1.00	1.00	1.14	1.14

JAMB/GIRT LAYOUT:

Open Id	Member	Bot Girt (ft)	Top Girt (ft)	Interior_Girt_Locations(ft)
28	JambL	Base	7.50	
	JambR	Base	7.50	
29	JambL	Base	12.25	7.500
	JambR	Base	12.25	7.500
30	JambL	Base	7.50	
	JambR	Base	7.50	
31	JambL	Base	7.50	
	JambR	Base	7.50	
32	JambL	Base	7.50	
	JambR	Base	7.50	
33	JambL	17.00	21.00	
	JambR	17.00	21.00	
34	JambL	17.00	21.00	
	JambR	17.00	21.00	
35	JambL	17.00	21.00	
	JambR	17.00	21.00	
36	JambL	17.00	21.00	
	JambR	17.00	21.00	

JAMB/GIRT LOADING:

Open Id	Member	Load Id	Support Reaction(k) Bot	Top	Jamb Load (k/ft)	Load_At_Girt_Locations(k)
28	JambL	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
	JambR	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
29	JambL	WP	0.53	0.63	-0.057	-0.46
		WS	-0.57	-0.69	0.062	0.50
	JambR	WP	-0.12	-0.39	-0.057	1.22
		WS	0.13	0.43	0.062	-1.31
30	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
31	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
32	JambL	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
	JambR	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
33	JambL	WP	0.03	0.03	-0.017	

```
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
  34  JambL   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
  35  JambL   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
  36  JambL   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
```

JAMB/GIRT LAYOUT:

JAMB MOMENTS:

Open Id	Member	Load Id	-Max(ft,f-k)- Locate	Moment	Moment_At_Girt_Locations(f-k)
28	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
29	JambL	WP	7.50	-2.36	-2.36
		WS	7.50	2.56	2.56
	JambR	WP	7.50	2.52	2.52
		WS	7.50	-2.72	-2.72
30	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
31	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
32	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
33	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
34	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
35	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
36	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	

```
*( 6)DEFLECTION LIMITS:
* -----Rafter-----          ---Girt---  --Panel---
* Live  Wind Total  Column  Wall Facia  Wall Facia  Brace
  180.  180.    0.   120.    90.   90.   60.   90.    60.
```

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================================================================================
 U26H0545A           Wall 1 - Bypass Girt Layout                9/25/26  4:29pm
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GIRT LAYOUT:

Locate	Des Id	Bay Id	Part	Bay_Offset Start	Bay_Offset End	Design Length	Extend-- Left	Extend-- Right	Weight	Max_Load--- Id	Max_Load--- UC	Max_Load--- Report	Rot
7.50	1	1	08Z060	0.00	20.67	20.67	0.00	1.19	62.8	WS	0.71	Moment	D
		2	08Z060	0.00	20.00	20.00	1.19	1.19	64.3	WP	0.60	Moment	D
		3	08Z060	0.00	20.67	20.67	1.19	0.00	62.8	WS	0.71	Moment	D
12.25	2	1	08Z060	0.00	20.67	20.67	0.00	1.19	62.8	WS	0.60	Moment	D
		2	08Z060	0.00	20.00	20.00	1.19	1.19	64.3	WP	0.47	Moment	D
		3	08Z060	0.00	20.67	20.67	1.19	0.00	62.8	WS	0.60	Moment	D
17.00	3	1	08C060	0.00	20.67	20.67	0.00	0.00	59.4	WS	0.69	Moment	D
	4	2	08C060	0.00	20.00	20.00	0.00	0.00	57.4	WS	0.59	Moment	D
	5	3	08C060	0.00	20.67	20.67	0.00	0.00	59.4	WS	0.69	Moment	D
21.00	6	1	08C060	0.00	20.67	20.67	0.00	0.00	59.4	WS	0.63	Moment	U
	7	2	08C060	0.00	20.00	20.00	0.00	0.00	57.4	WS	0.54	Moment	U
	8	3	08C060	0.00	20.67	20.67	0.00	0.00	59.4	WS	0.63	Moment	U
25.00	9	1	08Z067	0.00	20.67	20.67	0.00	0.00	66.3	WS	0.93	Moment	D
	10	2	08Z075	0.00	20.00	20.00	0.00	0.00	71.8	WS	0.92	Moment	D
	11	3	08Z067	0.00	20.67	20.67	0.00	0.00	66.3	WS	0.93	Moment	D

WP - 0.6Wind_Pressure
WS - 0.6Wind Suction

GIRT INSIDE FLANGE BRACE:

No._Brace/Bay 1	2	3
0	0	0

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================================================================================
 U26H0545A           Wall 1 - Door Jamb & Header Design         9/25/26  4:29pm
================================================================================
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LAYOUT:

Open Id	Bay Id	Locate	Part	Length	Load Width	Load Weight	Reduction Factor Out	Reduction Factor In
1	1	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
		JambR	J08C060	7.50	1.67	21.5	0.00	0.00
2	1	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
		JambR	J08C060	7.50	1.50	21.5	0.00	0.00
		Sill	J08C060	3.00	1.50	8.6	0.00	0.61
3	1	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
		JambR	J08C060	7.50	1.50	21.5	0.00	0.00
		Sill	J08C060	3.00	1.50	8.6	0.00	0.61
4	1	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
5	1	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
6	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
7	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
		JambR	J08C060	4.00	1.50	11.5	0.00	0.00
8	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00

	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
9	2	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
10	3	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
	JambR	J08C060	7.50	1.50	21.5	0.00	0.00
	Sill	J08C060	3.00	1.50	8.6	0.00	0.61
11	3	JambL	J08C060	7.50	1.50	21.5	0.00	0.00
	JambR	J08C060	7.50	1.50	21.5	0.00	0.00
	Sill	J08C060	3.00	1.50	8.6	0.00	0.61
12	3	JambL	J08C060	7.50	1.67	21.5	0.00	0.00
	JambR	J08C060	7.50	1.67	21.5	0.00	0.00
13	3	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00
14	3	JambL	J08C060	4.00	1.50	11.5	0.00	0.00
	JambR	J08C060	4.00	1.50	11.5	0.00	0.00

STRENGTH/DEFLECTION:

Open		Load	--Shear(k)-		--Moment(ft,f-k)-			Mom+	Max	Deflect(in)	
Id	Member	Id	Calc	Limit	Loc	Calc	Limit	Shear	UC	Calc	Limit
1	JambL	WP	0.07	2.61	3.75	-0.13	4.97	0.00	0.03	0.00	1.00
		WS	-0.08	2.61	3.75	0.14	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.07	2.61	3.75	-0.13	4.97	0.00	0.03	0.00	1.00
		WS	-0.08	2.61	3.75	0.14	4.14	0.00	0.03	0.00	1.00
2	JambL	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	Sill	WP	-0.03	2.61	1.50	-0.02	4.97	0.00	0.01	0.00	0.40
		WS	0.03	2.61	1.50	0.02	4.14	0.00	0.01	0.00	0.40
3	JambL	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	Sill	WP	-0.03	2.61	1.50	-0.02	4.97	0.00	0.01	0.00	0.40
		WS	0.03	2.61	1.50	0.02	4.14	0.00	0.01	0.00	0.40
4	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
5	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
6	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
7	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
8	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
9	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
10	JambL	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	Sill	WP	-0.03	2.61	1.50	-0.02	4.97	0.00	0.01	0.00	0.40
		WS	0.03	2.61	1.50	0.02	4.14	0.00	0.01	0.00	0.40
11	JambL	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00
		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.06	2.61	3.75	-0.12	4.97	0.00	0.02	0.00	1.00

		WS	-0.07	2.61	3.75	0.13	4.14	0.00	0.03	0.00	1.00
	Sill	WP	-0.03	2.61	1.50	-0.02	4.97	0.00	0.01	0.00	0.40
		WS	0.03	2.61	1.50	0.02	4.14	0.00	0.01	0.00	0.40
12	JambL	WP	0.07	2.61	3.75	-0.13	4.97	0.00	0.03	0.00	1.00
		WS	-0.08	2.61	3.75	0.14	4.14	0.00	0.03	0.00	1.00
	JambR	WP	0.07	2.61	3.75	-0.13	4.97	0.00	0.03	0.00	1.00
		WS	-0.08	2.61	3.75	0.14	4.14	0.00	0.03	0.00	1.00
13	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
14	JambL	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53
	JambR	WP	0.03	2.61	2.00	-0.03	4.97	0.00	0.01	0.00	0.53
		WS	-0.04	2.61	2.00	0.04	4.14	0.00	0.01	0.00	0.53

WP - 0.6Wind_Pressure
WS - 0.6Wind Suction

UNBRACED LENGTHS:

Open Id	Member	Major	Minor Out	Minor In	Mom1/Mom2 Out	Mom1/Mom2 In	Cb Out	Cb In
1	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
2	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
3	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
4	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
5	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
6	JambL	7.50	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
7	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
8	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
9	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	4.00	1.00	1.00	1.14	1.14
10	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
11	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	Sill	3.00	1.00	3.00	1.00	1.00	1.14	1.14
12	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
13	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14
14	JambL	4.00	1.00	4.00	1.00	1.00	1.14	1.14
	JambR	4.00	1.00	4.00	1.00	1.00	1.14	1.14

JAMB/GIRT LAYOUT:

Open Id	Member	Bot Girt (ft)	Top Girt (ft)	Interior_Girt_Locations(ft)
1	JambL	Base	7.50	
	JambR	Base	7.50	
2	JambL	Base	7.50	
	JambR	Base	7.50	
3	JambL	Base	7.50	
	JambR	Base	7.50	

4	JambL	17.00	21.00
	JambR	17.00	21.00
5	JambL	17.00	21.00
	JambR	17.00	21.00
6	JambL	17.00	21.00
	JambR	17.00	21.00
7	JambL	17.00	21.00
	JambR	17.00	21.00
8	JambL	17.00	21.00
	JambR	17.00	21.00
9	JambL	17.00	21.00
	JambR	17.00	21.00
10	JambL	Base	7.50
	JambR	Base	7.50
11	JambL	Base	7.50
	JambR	Base	7.50
12	JambL	Base	7.50
	JambR	Base	7.50
13	JambL	17.00	21.00
	JambR	17.00	21.00
14	JambL	17.00	21.00
	JambR	17.00	21.00

JAMB/GIRT LOADING:

Open Id	Member	Load Id	Support Reaction(k) Bot	Top	Jamb Load (k/ft)	Loads_At_Girt_Locations(k)
1	JambL	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
	JambR	WP	0.07	0.07	-0.019	
		WS	-0.08	-0.08	0.021	
2	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
3	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
4	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
5	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
6	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
7	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
8	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
9	JambL	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
	JambR	WP	0.03	0.03	-0.017	
		WS	-0.04	-0.04	0.018	
10	JambL	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
	JambR	WP	0.06	0.06	-0.017	
		WS	-0.07	-0.07	0.018	
11	JambL	WP	0.06	0.06	-0.017	

```
              WS     -0.07 -0.07   0.018
      JambR   WP      0.06  0.06  -0.017
              WS     -0.07 -0.07   0.018
  12  JambL   WP      0.07  0.07  -0.019
              WS     -0.08 -0.08   0.021
      JambR   WP      0.07  0.07  -0.019
              WS     -0.08 -0.08   0.021
  13  JambL   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
  14  JambL   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
      JambR   WP      0.03  0.03  -0.017
              WS     -0.04 -0.04   0.018
```

JAMB MOMENTS:

Open Id	Member	Load Id	-Max(ft,f-k)- Locate	Moment	Moment_At_Girt_Locations(f-k)
1	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
2	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
3	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
4	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
5	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
6	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
7	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
8	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
9	JambL	WP	2.00	-0.03	
		WS	2.00	0.04	
	JambR	WP	2.00	-0.03	
		WS	2.00	0.04	
10	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
11	JambL	WP	3.75	-0.12	
		WS	3.75	0.13	
	JambR	WP	3.75	-0.12	
		WS	3.75	0.13	
12	JambL	WP	3.75	-0.13	
		WS	3.75	0.14	
	JambR	WP	3.75	-0.13	
		WS	3.75	0.14	
13	JambL	WP	2.00	-0.03	

```
            WS     2.00    0.04
     JambR  WP     2.00   -0.03
            WS     2.00    0.04
14   JambL  WP     2.00   -0.03
            WS     2.00    0.04
     JambR  WP     2.00   -0.03
            WS     2.00    0.04
```

```
*( 6)DEFLECTION LIMITS:
* -----Rafter-----          ---Girt---  --Panel---
* Live  Wind Total  Column  Wall Facia  Wall Facia  Brace
  180.  180.    0.   120.    90.   90.   60.   90.    60.

================================================================================
 U26H0545A           Wall 3 - Bypass Girt Layout                9/16/26  2:26pm
================================================================================

 GIRT LAYOUT:
 ------------
         Des Bay             Bay_Offset Design ---Extend--         ----Max_Load---
  Locate  Id  Id Part       Start   End Length  Left Right Weight  Id   UC Report  Rot
  ------ --- --- --------   ----- ----- ------ ----- ----- ------  -- ---- ------- ---
    7.50   1   1 08Z060      0.00  5.33   5.00  0.00  0.00   14.4  WS 0.08 Shear    D
           2   1 08Z060     15.33 20.67   5.00  0.00  1.19   17.8  WP 0.37 Moment   D
               2 08Z060      0.00 20.00  20.00  1.19  1.19   64.3  WP 0.66 Moment   D
               3 08Z060      0.00 20.67  20.67  1.19  0.00   62.8  WS 0.73 Moment   D
  ------ --- --- --------   ----- ----- ------ ----- ----- ------  -- ---- ------- ---
   12.25   3   1 08Z060      0.00 20.67  20.67  0.00  1.19   62.8  WS 1.01 Moment   D
               2 08Z060      0.00 20.00  20.00  1.19  1.19   64.3  WP 0.83 Moment   D
               3 08Z060      0.00 20.67  20.67  1.19  0.00   62.8  WS 0.64 Moment   D
  ------ --- --- --------   ----- ----- ------ ----- ----- ------  -- ---- ------- ---
   17.00   4   1 08Z060      0.00 20.67  20.67  0.00  1.19   62.8  WS 0.55 Moment   D
               2 08Z060      0.00 20.00  20.00  1.19  1.19   64.3  WP 0.43 Moment   D
               3 08Z060      0.00 20.67  20.67  1.19  0.00   62.8  WS 0.55 Moment   D
  ------ --- --- --------   ----- ----- ------ ----- ----- ------  -- ---- ------- ---
   21.00   5   1 08Z060      0.00 20.67  20.67  0.00  1.19   62.8  WS 0.50 Moment   D
               2 08Z060      0.00 20.00  20.00  1.19  1.19   64.3  WP 0.39 Moment   D
               3 08Z060      0.00 20.67  20.67  1.19  0.00   62.8  WS 0.50 Moment   D
  ------ --- --- --------   ----- ----- ------ ----- ----- ------  -- ---- ------- ---
   25.00   6   1 08Z060      0.00 20.67  20.67  0.00  1.19   62.8  WS 0.55 Moment   D
               2 08Z060      0.00 20.00  20.00  1.19  1.19   64.3  WS 0.49 Mom+Shr  D
               3 08Z060      0.00 20.67  20.67  1.19  0.00   62.8  WS 0.55 Moment   D

                                       WP - 0.6Wind_Pressure
                                       WS - 0.6Wind Suction


 GIRT INSIDE FLANGE BRACE:
 -------------------------
  No._Brace/Bay
    1   2   3
  --- --- ---
    0   0   0

================================================================================
 U26H0545A           Wall 3 - Door Jamb & Header Design         9/16/26  2:26pm
================================================================================

 LAYOUT:
 -------
                                                          Reduction
  Open  Bay                              Load              Factor
   Id    Id  Locate  Part      Length  Width  Weight   Out   In
  ----  ---  ------  --------  ------  -----  ------  ---- ----
   25     1  JambL   J08C060    12.25   5.00    35.2  0.00 0.00
             JambR   J08C060    12.25   5.00    35.2  0.00 0.00
             Header  J08C060    10.00   1.13    28.7  0.00 0.61
   26     2  JambL   J08C060     7.50   3.17    21.5  0.00 0.00
             JambR   J08C060     7.50   3.17    21.5  0.00 0.00
   27     2  JambL   J08C060     7.50   3.17    21.5  0.00 0.00
             JambR   J08C060     7.50   3.17    21.5  0.00 0.00

 STRENGTH/DEFLECTION:
 --------------------
  Open         Load  --Shear(k )-  --Moment(ft,f-k )-   Mom+   Max  Deflect(in)
   Id  Member   Id     Calc Limit    Loc   Calc Limit  Shear    UC   Calc Limit
  ---- ------  ----  ------ -----  -----  ------ -----  -----  ----  -----  -----
   25  JambL    WP    -0.47  2.61   7.39  -1.57  4.97   0.00  0.32  -0.07  1.63
               WS     0.50  2.61   7.39   1.68  4.31   0.00  0.39   0.07  1.63
       JambR    WP    -0.47  2.61   7.39  -1.57  4.97   0.00  0.32  -0.07  1.63
               WS     0.50  2.61   7.39   1.68  4.31   0.00  0.39   0.07  1.63
```

	Header	WP	-0.06	2.61	5.00	-0.16	4.97	0.03	0.03	0.01	1.33
		WS	0.07	2.61	5.00	0.17	3.06	0.03	0.06	0.01	1.33
26	JambL	WP	0.14	2.61	3.75	-0.26	4.97	0.00	0.05	0.00	1.00
		WS	-0.15	2.61	3.75	0.27	4.14	0.00	0.07	0.00	1.00
	JambR	WP	0.14	2.61	3.75	-0.26	4.97	0.00	0.05	0.00	1.00
		WS	-0.15	2.61	3.75	0.27	4.14	0.00	0.07	0.00	1.00
27	JambL	WP	0.14	2.61	3.75	-0.26	4.97	0.00	0.05	0.00	1.00
		WS	-0.15	2.61	3.75	0.27	4.14	0.00	0.07	0.00	1.00
	JambR	WP	0.14	2.61	3.75	-0.26	4.97	0.00	0.05	0.00	1.00
		WS	-0.15	2.61	3.75	0.27	4.14	0.00	0.07	0.00	1.00

WP - 0.6Wind_Pressure
WS - 0.6Wind Suction

UNBRACED LENGTHS:

Open Id	Member	Major	---Minor--- Out	In	Mom1/Mom2 Out	In	----Cb--- Out	In
25	JambL	12.25	1.00	7.50	0.00	0.00	1.29	1.29
	JambR	12.25	1.00	7.50	0.00	0.00	1.29	1.29
	Header	10.00	1.00	10.00	1.00	1.00	1.14	1.14
26	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14
27	JambL	7.50	1.00	7.50	1.00	1.00	1.14	1.14
	JambR	7.50	1.00	7.50	1.00	1.00	1.14	1.14

JAMB/GIRT LAYOUT:

Open Id	Member	Bot Girt (ft)	Top Girt (ft)	Interior_Girt_Locations(ft)
25	JambL	Base	12.25	7.50
	JambR	Base	12.25	7.50
26	JambL	Base	7.50	
	JambR	Base	7.50	
27	JambL	Base	7.50	
	JambR	Base	7.50	

JAMB/GIRT LOADING:

Open Id	Member	Load Id	Support Reaction(k) Bot	Top	Jamb Load (k/ft)	Loads_At_Girt_Locations(k)
25	JambL	WP	0.42	0.47	-0.057	-0.19
		WS	-0.46	-0.50	0.062	0.20
	JambR	WP	0.42	0.47	-0.057	-0.19
		WS	-0.46	-0.50	0.062	0.20
26	JambL	WP	0.14	0.14	-0.036	
		WS	-0.15	-0.15	0.039	
	JambR	WP	0.14	0.14	-0.036	
		WS	-0.15	-0.15	0.039	
27	JambL	WP	0.14	0.14	-0.036	
		WS	-0.15	-0.15	0.039	
	JambR	WP	0.14	0.14	-0.036	
		WS	-0.15	-0.15	0.039	

JAMB MOMENTS:

Open Id	Member	Load Id	-Max(ft,f-k)- Locate	Moment	Moment_At_Girt_Locations(f-k)
25	JambL	WP	7.39	-1.57	-1.57
		WS	7.39	1.68	1.68
	JambR	WP	7.39	-1.57	-1.57
		WS	7.39	1.68	1.68
26	JambL	WP	3.75	-0.26	
		WS	3.75	0.27	

```
     JambR   WP     3.75   -0.26
             WS     3.75    0.27
27   JambL   WP     3.75   -0.26
             WS     3.75    0.27
     JambR   WP     3.75   -0.26
             WS     3.75    0.27
```

SECTION 7

FRAMES

FRAME INFORMATION

The primary force resisting system in a metal building may be composed of moment frames or braced frames. Typically, these frames are designed with pin base assumptions unless otherwise specified by the EOR or required by design. Additional metal building assumptions in frame design include member unbraced lengths being taken between points of purlin/girt flange bracing, roof and wall panel diaphragm capacity being neglected, and moment connections being designed for the maximum moment and corresponding shear that can be transferred to the connection by the system for seismic applications.

Frame inputs shown include the design code, occupancy, associated environmental loading, seismic loading, any component loading (e.g., crane, mezzanine, eave ext., etc.), and applicable load combinations. Frame outputs shown include the controlling load combination, associated controlling loads, and unity checks for members and connections, as well as the serviceability, elastic, and story drift deflections. Frame analysis is done through proprietary software to analyze in plane web tapered elements.

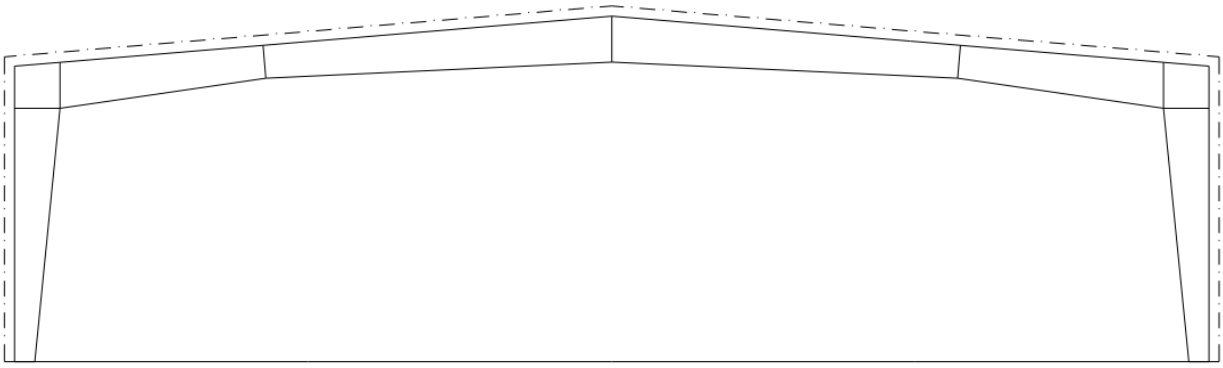
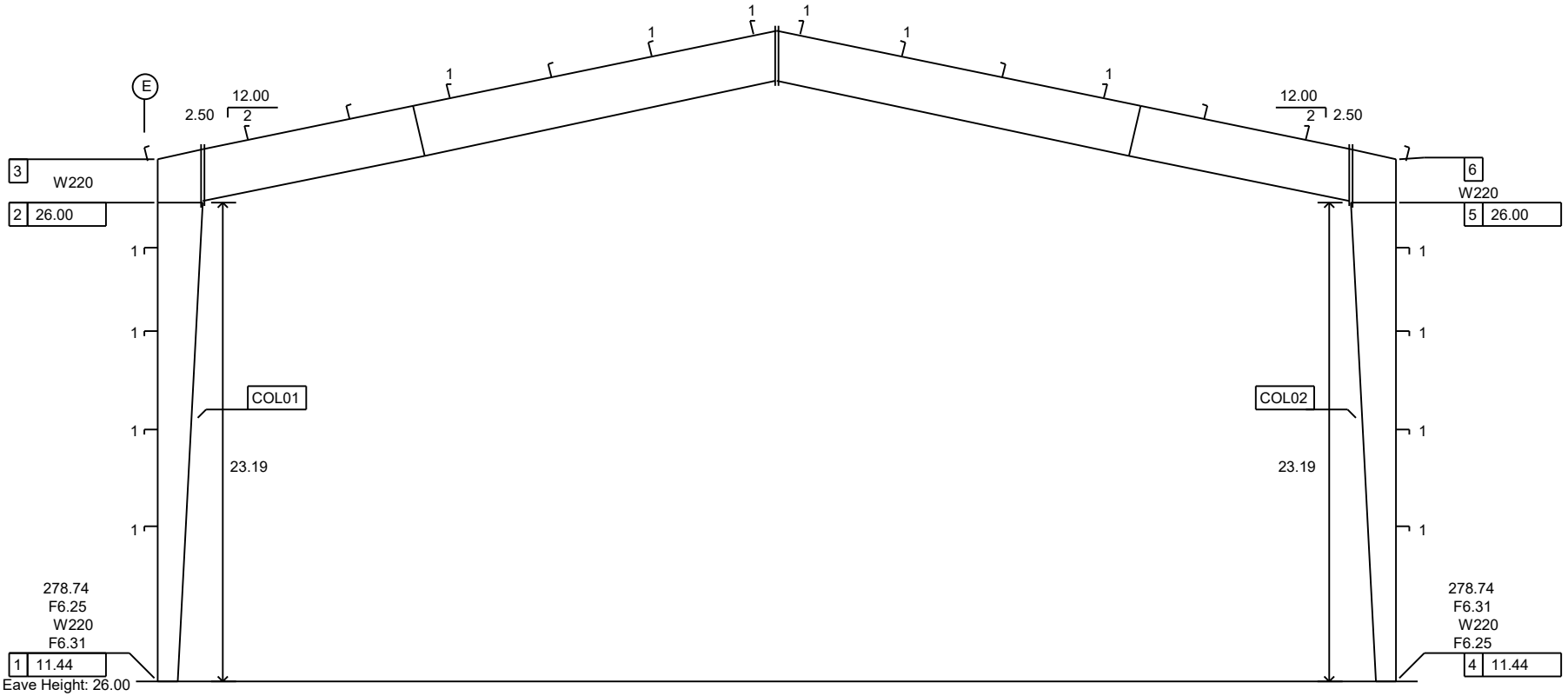


Figure 2: *Basic Cross-Section of a Clear Span Rigid Frame*

	7	8	9	10	11
Web Depth	30.00	30.00 CT	30.00	30.00 CT	30.00
Length on Slope	125.17	216.00	216.00	125.17	
Left/Top Flange	F6.25	F6.25	F6.25	F6.25	
Web	W150	W150	W150	W150	
Right/Bottom Flange	F6.25	F6.25	F6.25	F6.25	
Horizontal Tail Dim.			30.6667		
Purlin Offset: 9.5		RAF01		RAF02	
Projected Area: 230					

Note - Stiffener spacing is given on Flat (inches).



Left Eave Height: 26.00
Left Girt Offset: 8.0
Right Eave Height: 26.00
Right Girt Offset: 8.0
Total Width: 61.33 Frame Wt: 3211 Max Wind dx: H/311 Max dx: H/101 Max dy: L/321

Location Code	1 P	2	3	4 P	5	6	7 M	8	9 M	10	11 M
Left Plate	NA	3x0.250	6x0.375	NA	3x0.250	6x0.375	6x0.500	-	6x0.500	-	6x0.500
Left Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Right Plate	8x0.625	-	-	8x0.625	-	-	6x0.500	-	6x0.500	-	6x0.500
Right Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Bolt Quantity-Diameter	4-1.000	-	-	4-1.000	-	-	12-0.625-S	-	8-0.625-S	-	12-0.625-S
Pfi/Pf	4.000/NA	-	-	4.000/NA	-	-	1.250/3.000	-	1.500/3.250	-	1.250/3.000
Top Welds (L/R)	FWS4	-	W1-FWS3	FWS3	-	W1-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Bottom Welds (L/R)	FWS3	-	W3-FWS3	FWS4	-	W3-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Web Welds (L/R)	FWR3	-	W4-FWS3	FWR3	-	W4-FWS3	WP13/WP13	-	WP13/WP13	-	WP13/WP13
Connection Code	BHFCNA	-	-	BHFCNA	-	-	KVEUEU	-	SVEUEU	-	KVEUEU
Pb/Gage	4.000/4.000	-	-	4.000/4.000	-	-	1.875/3.500	-	NA/3.500	-	1.875/3.500

Job #: U26H0545A File: F11 - LEW.frame Title: Line(s) 1 Designer: BG\Weili.Du Date: 2026-09-22 - 13:50 Frame Ver: 2.7.34 Page: ___

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 1
Creation Date   : 2026-09-04
Final Design Date: 2026-09-22
Designer   : BG\Weili.Du
File   : F11 - LEW.nfr
App Version   : 2.7.34.0

F R A M E D E S C R I P T I O N

Frame type : RCG
Frame width : 61.33 Ft.
Bay width   : 17.00 Ft.

	LEFT	RIGHT		
Dim to ridge	30.67 Ft.	30.67 Ft.		
Roof slope	2.50/12	-2.50/12		
Eave height	26.00 Ft.	26.00 Ft.		
Girt offset	8.00 In.	8.00 In.	Typ. Girt spacing	4.58 Ft.
Purlin offset	9.50 In.	9.50 In.	Typ. Purlin spacing	5.00 Ft.

Col. spacing : 61.3333

Supports / Spring Constants

COL01 - Bottom V H
COL02 - Bottom V H

Column Bracing:

WP1	Girt Brace	Y	Y	Y	Y
	Flange Brace	1	1	1	1
	Location (ft)	7.5	12.3	17.0	21.0
WP2	Girt Brace	Y	Y	Y	Y
	Flange Brace	1	1	1	1
	Location (ft)	7.5	12.3	17.0	21.0

Other Braces:

Column   :
Left Brace   :
Right Brace :
Location (ft):

L O A D I N G C O N D I T I O N S

Building Code & Year   : IBC2021
Risk Category   : II-Standard Buildings
AISC Specification   : 2016 ASD

L O A D S (Psf)

Roof Dead load :   4.50
Roof Coll load : 10.00
Roof Live load : 20.00
Roof Snow load :   9.41
Floor dead load :   0.00
Floor live load :   0.00
Ground Snow load: 15.00   Ce = 1.00
Ss = 1.500   S1 = 0.460   Seismic Design Category = D   Site Class = D
 R = 3.50   Cd = 3.00   Sds = 1.000   Sd1 = 0.564   rho = 1.30   omega = 2.500

Is Building Irregular = False

Roof Seismic Factor   : 0.286 PSF
Floor Seismic Factor   : 0.286 PSF

Wind speed   : 97.00 Mph Exp. : B
Wind pressure   : 14.34 Psf

Building is Partially Enclosed

Wind pressure coefficients   Is End Bay? True

	C1	C2E	C2	C3	C3E	C4
W1R	1.246	0.000	-0.520	-0.052	0.000	0.025
W1L	0.025	0.000	-0.052	-0.520	0.000	1.246
W2R	0.146	0.000	-1.620	-1.152	0.000	-1.075
W2L	-1.075	0.000	-1.152	-1.620	0.000	0.146
W5B	0.070	0.000	-0.520	0.020	0.000	0.070
W5F	0.070	0.000	0.020	-0.520	0.000	0.070
W6B	-1.030	0.000	-1.620	-1.080	0.000	-1.030
W6F	-1.030	0.000	-1.080	-1.620	0.000	-1.030

Tributary Widths

Panel	Trib. Width (ft)
WP1	17.00
WP2	17.00
RP1	17.00
RP2	17.00

P R O G R A M - A P P L I E D L O A D S

Panel Loads

Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.076	-0.076	0.000	30.667
RDL	RP2	-0.076	-0.076	30.667	61.333
COL	RP1	-0.170	-0.170	0.000	30.667
COL	RP2	-0.170	-0.170	30.667	61.333
SL	RP1	-0.160	-0.160	0.000	30.667
SR	RP2	-0.160	-0.160	30.667	61.333
UOS	RP1	-0.425	-0.425	0.000	30.667
UOS	RP2	-0.425	-0.425	30.667	61.333
RLL	RP1	-0.340	-0.340	0.000	30.667
RLR	RP2	-0.340	-0.340	30.667	61.333
W1R	RP1	-0.127	-0.127	0.000	30.667
W1R	RP2	-0.013	-0.013	30.667	61.333
W1R	WP1	0.304	0.304	3.750	26.000
W1R	WP2	-0.006	-0.006	3.750	26.000
W1L	RP1	-0.013	-0.013	0.000	30.667
W1L	RP2	-0.127	-0.127	30.667	61.333
W1L	WP1	0.006	0.006	3.750	26.000
W1L	WP2	-0.304	-0.304	3.750	26.000
W2R	RP1	-0.395	-0.395	0.000	30.667
W2R	RP2	-0.281	-0.281	30.667	61.333
W2R	WP1	0.036	0.036	3.750	26.000
W2R	WP2	0.262	0.262	3.750	26.000
W2L	RP1	-0.281	-0.281	0.000	30.667
W2L	RP2	-0.395	-0.395	30.667	61.333
W2L	WP1	-0.262	-0.262	3.750	26.000
W2L	WP2	-0.036	-0.036	3.750	26.000
W5B	RP1	-0.127	-0.127	0.000	30.667
W5B	RP2	0.005	0.005	30.667	61.333
W5B	WP1	0.017	0.017	3.750	26.000
W5B	WP2	-0.017	-0.017	3.750	26.000
W5F	RP1	0.005	0.005	0.000	30.667
W5F	RP2	-0.127	-0.127	30.667	61.333
W5F	WP1	0.017	0.017	3.750	26.000
W5F	WP2	-0.017	-0.017	3.750	26.000
W6B	RP1	-0.395	-0.395	0.000	30.667
W6B	RP2	-0.263	-0.263	30.667	61.333
W6B	WP1	-0.251	-0.251	3.750	26.000
W6B	WP2	0.251	0.251	3.750	26.000
W6F	RP1	-0.263	-0.263	0.000	30.667
W6F	RP2	-0.395	-0.395	30.667	61.333
W6F	WP1	-0.251	-0.251	3.750	26.000
W6F	WP2	0.251	0.251	3.750	26.000
EQR	RP1	0.117	0.117	0.000	30.667
EQR	RP2	0.117	0.117	30.667	61.333
EQL	RP1	-0.117	-0.117	0.000	30.667
EQL	RP2	-0.117	-0.117	30.667	61.333
LRD	RP1	-0.160	-0.160	0.000	30.667
LRD	RP1	-0.187	-0.187	21.847	30.667
LRD	RP2	-0.048	-0.048	30.667	61.333
RRD	RP1	-0.048	-0.048	0.000	30.667
RRD	RP2	-0.160	-0.160	30.667	61.333
RRD	RP2	-0.187	-0.187	30.667	39.486

Concentrated Loads

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	0.466	0.000	0.000	26.000
W1R	COL02	0.466	0.000	0.000	26.000
W1L	COL01	-0.466	0.000	0.000	26.000
W1L	COL02	-0.466	0.000	0.000	26.000
W2R	COL01	0.466	0.000	0.000	26.000
W2R	COL02	0.466	0.000	0.000	26.000
W2L	COL01	-0.466	0.000	0.000	26.000
W2L	COL02	-0.466	0.000	0.000	26.000

Endwall Bracing Loads

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.

U S E R - A P P L I E D L O A D S

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.
The locations listed below for each longitudinal bracing load apply only to the column axial load
(tension on base of column and compression when at top of column).

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.	Special Load #	Description
RDL	COL01	0.000	-0.500	0.000	1.383	25.000	C-1	FSW Eave
RDL	COL02	0.000	-0.500	0.000	-1.383	25.000	C-13	BSW Eave
COL	COL01	0.000	-0.750	0.000	2.075	25.000	C-2	FSW Eave
COL	COL02	0.000	-0.750	0.000	-2.075	25.000	C-14	BSW Eave
SL	COL01	0.000	-0.750	0.000	2.075	25.000	C-4	FSW Eave
SR	COL02	0.000	-0.750	0.000	-2.075	25.000	C-16	BSW Eave
UOS	COL01	0.000	-1.750	0.000	4.842	25.000	C-25	FSW Eave
UOS	COL02	0.000	-1.750	0.000	-4.842	25.000	C-26	BSW Eave
RLL	COL01	0.000	-1.500	0.000	4.150	25.000	C-3	FSW Eave
RLL	COL02	0.000	-1.500	0.000	-4.150	25.000	C-15	BSW Eave
W1R	COL01	0.000	1.250	0.000	-3.458	25.000	C-7	FSW Eave
W1R	COL02	0.000	1.250	0.000	3.458	25.000	C-19	BSW Eave
W1L	COL01	0.000	1.250	0.000	-3.458	25.000	C-5	FSW Eave
W1L	COL02	0.000	1.250	0.000	3.458	25.000	C-17	BSW Eave
W2R	COL01	0.000	1.250	0.000	-3.458	25.000	C-8	FSW Eave
W2R	COL02	0.000	1.250	0.000	3.458	25.000	C-20	BSW Eave

W2L	COL01	0.000	1.250	0.000	-3.458	25.000	C-6	FSW Eave
W2L	COL02	0.000	1.250	0.000	3.458	25.000	C-18	BSW Eave
W5B	COL01	0.000	1.250	0.000	-3.458	25.000	C-9	FSW Eave
W5B	COL02	0.000	1.250	0.000	3.458	25.000	C-21	BSW Eave
W5F	COL01	0.000	1.250	0.000	-3.458	25.000	C-11	FSW Eave
W5F	COL02	0.000	1.250	0.000	3.458	25.000	C-23	BSW Eave
W6B	COL01	0.000	1.250	0.000	-3.458	25.000	C-10	FSW Eave
W6B	COL02	0.000	1.250	0.000	3.458	25.000	C-22	BSW Eave
W6F	COL01	0.000	1.250	0.000	-3.458	25.000	C-12	FSW Eave
W6F	COL02	0.000	1.250	0.000	3.458	25.000	C-24	BSW Eave
BWU	COL01	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-1	COL01
BWU	COL02	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-2	COL02
BWC	COL01	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-1	COL01
BWC	COL02	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-2	COL02
EQB	COL01	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-1	COL01
EQB	COL02	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-2	COL02
EQF	COL01	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-1	COL01
EQF	COL02	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-2	COL02

L O A D C O M B I N A T I O N S

	ASR	Cases
1)	1.00	SW+RDL+COL+NLL
2)	1.00	SW+RDL+COL+NLR
3)	1.00	SW+RDL+COL+SL+SR+NLL
4)	1.00	SW+RDL+COL+SL+SR+NLR
5)	1.00	SW+RDL+COL+RLL+RLR+NLL
6)	1.00	SW+RDL+COL+RLL+RLR+NLR
7)	1.00	SW+RDL+COL+0.60W1L
8)	1.00	SW+RDL+COL+0.60W2L
9)	1.00	SW+RDL+COL+0.60W1R
10)	1.00	SW+RDL+COL+0.60W2R
11)	1.00	0.60SW+0.60RDL+0.60W1L
12)	1.00	0.60SW+0.60RDL+0.60W2L
13)	1.00	0.60SW+0.60RDL+0.60W1R
14)	1.00	0.60SW+0.60RDL+0.60W2R
15)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
16)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
17)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
18)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
19)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
20)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
21)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
22)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
23)	1.00	SW+RDL+COL+0.60W5B+0.60BWC
24)	1.00	SW+RDL+COL+0.60W6B+0.60BWC
25)	1.00	SW+RDL+COL+0.60W5F+0.60BWC
26)	1.00	SW+RDL+COL+0.60W6F+0.60BWC
27)	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
28)	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
29)	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
30)	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
31)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B+0.45BWC
32)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B+0.45BWC
33)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F+0.45BWC
34)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F+0.45BWC
35)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
36)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
37)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
38)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
39)	1.00	SW+RDL+COL+UOS+NLL
40)	1.00	SW+RDL+COL+UOS+NLR
41)	1.00	SW+RDL+COL+LRD+NLL
42)	1.00	SW+RDL+COL+LRD+NLR
43)	1.00	SW+RDL+COL+RRD+NLL
44)	1.00	SW+RDL+COL+RRD+NLR
45)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
46)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
47)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLL
48)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLR
49)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
50)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQL
51)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQR
52)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLL
53)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLR
54)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLL
55)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLR
56)	1.00	0.46SW+0.46RDL+0.91EQL
57)	1.00	0.46SW+0.46RDL+0.91EQR
58)	1.00	0.46SW+0.46RDL+0.91EQB+NLL
59)	1.00	0.46SW+0.46RDL+0.91EQB+NLR
60)	1.00	0.46SW+0.46RDL+0.91EQF

*** DESIGN SUMMARY REPORT ***

Built Up Rafter - RAF01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow T/L	Flow (k/in) B/R
1	F6.25	F6.25	W150	45	1	-7.9	0.08	-132.2	0.72	0.93	0.97	39	1	18.30	0.71	0.41	0.41
2	F6.25	F6.25	W150	40	9	-6.0	0.06	130.2	0.92	0.71	0.95	39	5	11.55	0.44	0.26	0.26

Chkpt	1	4	5	10
Depth	30.50	30.50		30.50
Section	| 1 |		2 |	

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.2500	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow T/L	Flow (k/in) B/R
1	F6.25	F6.25	W150	39	12	-6.0	0.06	130.2	0.92	0.71	0.95	40	16	-11.57	0.45	0.26	0.26
2	F6.25	F6.25	W150	46	20	-7.9	0.08	-132.3	0.72	0.93	0.97	40	20	-18.32	0.71	0.41	0.41

Chkpt	11	16	17	20
Depth	30.50	30.50		30.50
Section	| 1 |		2 |	

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.2500	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.2500	55.00

Built Up Column - COL01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow T/L	Flow (k/in) B/R
1	F6.25	F6.31	W220	45	30	-14.5	0.10	-132.1	0.69	0.68	0.73	45	21	-5.43	0.11	0.36	0.39

Chkpt	21	30
Depth	12.00	26.56
Section	| 1 |	

	width	thick	Fy
T/L Flg	6.0	0.2500	55.00
Web		0.2200	55.00
B/R Flg	6.0	0.3125	55.00

Built Up Column - COL02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow T/L	Flow (k/in) B/R
1	F6.31	F6.25	W220	46	40	-14.5	0.10	132.2	0.68	0.69	0.73	46	31	5.44	0.11	0.39	0.36

Chkpt	31	40
Depth	12.00	26.56
Section	| 1 |	

	width	thick	Fy
T/L Flg	6.0	0.3125	55.00
Web		0.2200	55.00
B/R Flg	6.0	0.2500	55.00

Frame Weight (lbs) = 2632
Deflections (in):

10 yr Wind dx =	-0.89 = H/ 311	WIND CASE 2 TO LEFT	
Seismic dx =	2.81 = H/ 99	SEISMIC TO RIGHT	
Story Drift =	8.43 = 0.030H	SEISMIC TO RIGHT	
Stability Coefficient =	0.02	1.14SW+1.14RDL+1.14COL+0.91EQB	
Stability Ratio =	0.13	1.14SW+1.14RDL+1.14COL+0.91EQB	
Fundamental Period =	1.3766	Single Story Period	
Maximum dx =	2.75 = H/ 101	1.14SW+1.14RDL+1.14COL+0.91EQR	
Maximum dy =	-2.15 = L/ 321 @ MOD 1,	SW+RDL+COL+UOS	
Max. Live dy =	-1.30 = L/ 531 @ MOD 1,	LIVE ON LEFT AND RIGHT	
Rigidity =	2.55 kip/in		

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 1
Creation Date   : 2026-09-04
Final Design Date: 2026-09-22
Designer   : BG\Weili.Du
File   : F11 - LEW.nfr
App Version   : 2.7.34.0

C O N N E C T I O N S U M M A R Y

Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
2.50:12	W220	0.73	FWS3		FWS3	0.67	0.00	0.67	FWS3	0.67	0.44		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.3750	55.0			26.56	Stiffener				
Web		0.2200	55.0	25.23	26.00						
Bot Plate	3.0	0.2500	50.0			26.00					

Knee Connection - COL02

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
-2.50:12	W220	0.73	FWS3		FWS3	0.67	0.00	0.67	FWS3	0.67	0.44		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.3750	55.0			26.56	Stiffener				
Web		0.2200	55.0	25.23	26.00						
Bot Plate	3.0	0.2500	50.0			26.00					

Splice Load Combinations:

No.	ASR	Cases
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51	1.20	Special Seismic
52	1.20	Special Seismic
53	1.20	Special Seismic
54	1.20	Special Seismic
55	1.20	Special Seismic
56	1.20	Special Seismic
57	1.20	Special Seismic
58	1.20	Special Seismic
59	1.20	Special Seismic
60	1.20	Special Seismic
61	1.20	Special Seismic

62	1.20	Special Seismic
63	1.20	Special Seismic
64	1.20	Special Seismic
65	1.20	Special Seismic
66	1.20	Special Seismic
67	1.20	Special Seismic
68	1.20	Special Seismic
69	1.20	Special Seismic
70	1.20	Special Seismic
71	1.20	Special Seismic
72	1.20	Special Seismic
73	1.20	Special Seismic
74	1.20	Special Seismic
75	1.20	Special Seismic
76	1.20	Special Seismic
77	1.20	Special Seismic
78	1.20	Special Seismic
79	1.20	Special Seismic
80	1.20	Special Seismic
81	1.20	Special Seismic
82	1.20	Special Seismic
83	1.20	Special Seismic
84	1.20	Special Seismic
85	1.20	Special Seismic
86	1.20	Special Seismic

BOLTED END-PLATES (BEP) SUMMARY — Bolt Pre Tension Method : TurnOfNut

PLATE SIZE: (in)

Splice ID	Left Type	Right Type	Members Joined	Loc	Web Depth	Left Plate Width	Left Plate Thick	Left Plate Length	Left Plate Fy(ksi)	Right Plate Width	Right Plate Thick	Right Plate Length	Right Plate Fy(ksi)
1	6E	6E	COL01 To RAF01	Top	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00
1	6E	6E	COL01 To RAF01	Bot	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00
2	4E	4E	RAF01 To RAF02	Top	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00
2	4E	4E	RAF01 To RAF02	Bot	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00
3	6E	6E	RAF02 To COL02	Top	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00
3	6E	6E	RAF02 To COL02	Bot	30.00	6.00	0.50	36.39	55.00	6.00	0.50	36.39	55.00

PLATE DESIGN

Splice ID	Left Type	Right Type	Tension Location	Max Moment Load Comb	Max Moment Axial (kip)	Max Moment Shear (kip)	Max Moment Moment (ft-kip)	Max Shear Load Comb	Max Shear Axial (kip)	Max Shear Shear (kip)	Max Shear Moment (ft-kip)	Left Plate Ratio	Right Plate Ratio
1	6E	6E	Top	-51	-8.46	14.80	-197.66	44	-0.18	6.31	9.65	0.84	0.86
1	6E	6E	Bot	-65	4.68	-2.27	125.92	36	-5.62	19.86	-115.74	0.61	0.61
2	4E	4E	Top	9	3.33	0.54	-17.05	40	-2.50	-3.22	57.33	0.14	0.14
2	4E	4E	Bot	36	-5.62	0.04	128.69	27	4.38	-0.81	-9.84	0.78	0.78
3	6E	6E	Top	-60	-8.44	-14.80	-197.73	43	-0.18	-6.31	9.80	0.86	0.84
3	6E	6E	Bot	-56	4.66	2.27	125.96	36	-5.63	-19.89	-115.73	0.61	0.61

BOLT RUPTURE DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	3.00	1.88	1.13	-51	-8.46	-197.66	0.75	0.76
1	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.50	3.00	1.88	1.13	-65	4.68	125.92	0.53	0.53
2	4E	4E	Top	A325	Yes	0.63	3.50	--	1.50	1.60	3.25	--	1.13	9	3.33	-17.05	0.15	0.15
2	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.50	1.39	3.25	--	1.13	36	-5.62	128.69	0.86	0.86
3	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.39	3.00	1.88	1.13	-60	-8.44	-197.73	0.76	0.75
3	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.60	3.00	1.88	1.13	-56	4.66	125.96	0.53	0.53

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	3.00	1.88	1.13	44	6.31	0.13	0.13
1	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.50	3.00	1.88	1.13	36	19.86	0.40	0.40
2	4E	4E	Top	A325	Yes	0.63	3.50	--	1.50	1.60	3.25	--	1.13	40	-3.22	0.10	0.10
2	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.50	1.39	3.25	--	1.13	27	-0.81	0.02	0.02
3	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.39	3.00	1.88	1.13	43	-6.31	0.13	0.13
3	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.60	3.00	1.88	1.13	36	-19.89	0.40	0.40

WELD DESIGN

Splice ID	Loc	Left Welds Flg	Left Welds Web	Left Welds Stf	Left Checks Load Comb	Left Checks Tensile Rupture	Left Checks Load Comb	Left Checks Shear Rupture	Right Welds Flg	Right Welds Web	Right Welds Stf	Right Checks Load Comb	Right Checks Tensile Rupture	Right Checks Load Comb	Right Checks Shear Rupture
1	Top	FWD3	WP13		-51	0.72	44	0.11	FWD3	WP13		-51	0.81	44	0.13
1	Bot	FWD3	WP13		-65	0.53	36	0.34	FWD3	WP13		-65	0.58	36	0.41
2	Top	FWD3	WP13		9	0.12	40	0.07	FWD3	WP13		9	0.12	40	0.07
2	Bot	FWD3	WP13		36	0.70	27	0.02	FWD3	WP13		36	0.70	27	0.02
3	Top	FWD3	WP13		-60	0.81	43	0.13	FWD3	WP13		-60	0.72	43	0.11
3	Bot	FWD3	WP13		-56	0.58	36	0.41	FWD3	WP13		-56	0.53	36	0.34

BASEPLATE AND ANCHOR ROD DESIGN RESULTS

BASEPLATE AND ANCHOR ROD INFORMATION: (in)

Col ID	Col Type	Col Pattern	Col Depth	Base Plate Width	Base Plate Thickness	Base Plate Length	Base Plate Fy(ksi)	Anchor Rods Qty	Anchor Rods Dia.	Anchor Rods Grade	Anchor Rods Pfi	Anchor Rods Pb	Anchor Rods Gage
01	WF/BU	Left	12.000	8	0.625	12.0000	55	4	1	Grade36	4	4	4
02	WF/BU	Right	12.000	8	0.625	12.0000	55	4	1	Grade36	4	4	4

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	Base Plate Yielding (Tension) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
01	-72	-39.81	-5.09	26.25	0.31	-86	23.25	0.89	-26.25	0.78
02	-75	-39.81	5.10	26.25	0.31	-83	23.25	-0.89	-26.25	0.78

ANCHOR ROD SHEAR AND TENSION DESIGN CHECKS

Col ID	Anchor Rod Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Anchor Rod Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Tension-Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Shear-Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio
01	-86	23.25	0.89	-26.25	0.28	-72	-39.81	-5.09	26.25	0.68	-86	23.25	0.89	-26.25	0.46	-86	23.25	0.89	-26.25	0.77
02	-83	23.25	-0.89	-26.25	0.28	-75	-39.81	5.10	26.25	0.68	-83	23.25	-0.89	-26.25	0.46	-83	23.25	-0.89	-26.25	0.77

BASEPLATE LEFT FLANGE WELD DESIGN CHECKS

Col ID	Left Flange Weld (Pipe Weld) Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Web Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Right Flange Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio
01	FWS4	-86	23.25	0.89	-26.25	0.93	FWR3	-86	23.25	0.89	-26.25	0.19	FWS3	-86	23.25	0.89	-26.25	0.72
02	FWS3	-83	23.25	-0.89	-26.25	0.72	FWR3	-83	23.25	-0.89	-26.25	0.19	FWS4	-83	23.25	-0.89	-26.25	0.93

LOAD COMBINATIONS:

No	ASR	Combination
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

LOAD COMBINATIONS:

No	ASR	Combination
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL
52*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL
53*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL
54*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQB
55*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQB
56*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQB
57*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQF
58*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQF
59*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQF
60*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR
61*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR
62*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR
63*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQB
64*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQB
65*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQB

*Indicates a Special Seismic Load Combination - Longitudinal Omega= 2.500

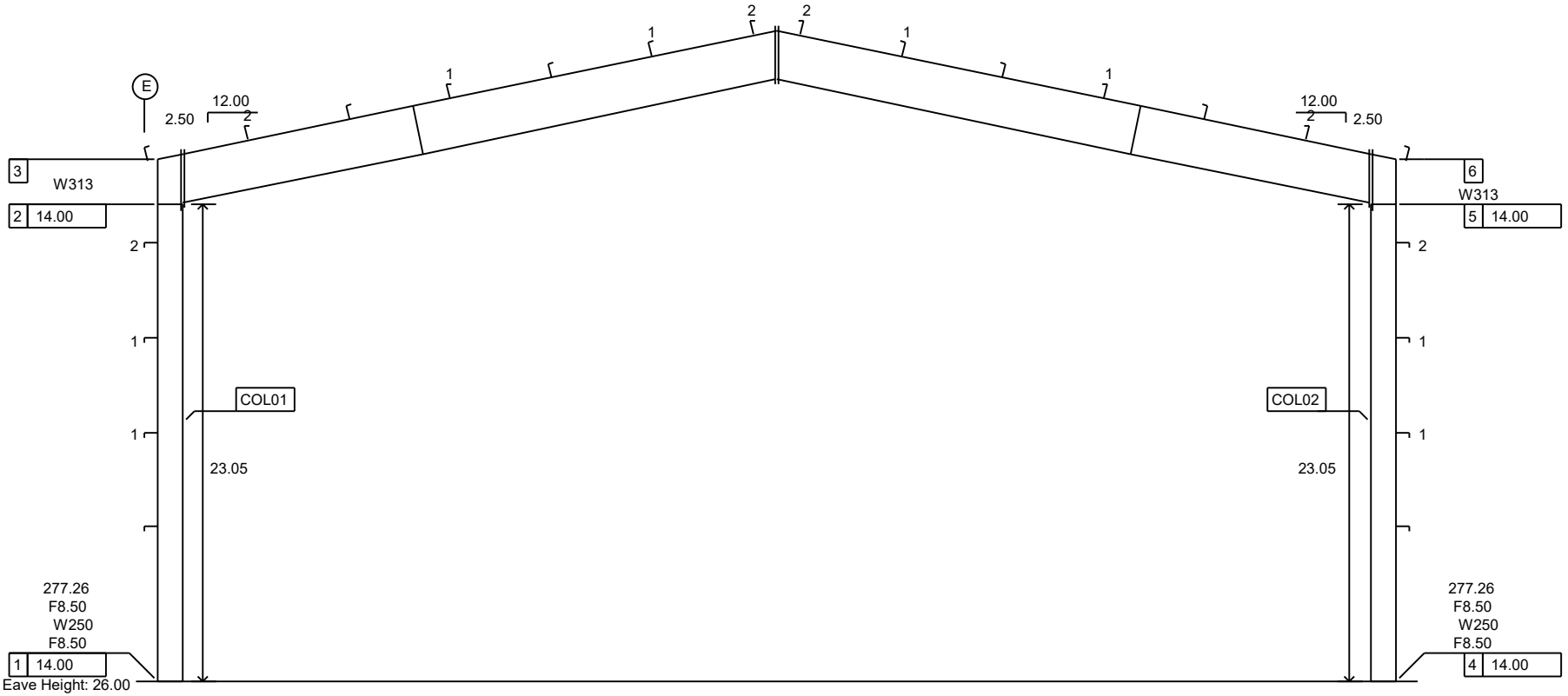
LOAD COMBINATIONS:

No	ASR	Combination
66*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQF
67*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQF
68*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQF
69*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQB
70*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQB
71*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQB
72*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQB
73*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQB
74*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQB
75*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQB
76*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQB
77*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQB
78*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQF
79*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQF
80*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQF
81*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQF
82*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQF
83*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQF
84*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQF
85*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQF
86*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQF

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

	7	8		9		10		11
Web Depth	29.00	29.00	CT	29.00		29.00	CT	29.00
Length on Slope	137.43	216.00		216.00		137.43		
Left/Top Flange	F6.38	F6.50		F6.50		F6.38		
Web	W164	W150		W150		W164		
Right/Bottom Flange	F6.31	F6.38		F6.38		F6.31		
Horizontal Tail Dim.				30.6667				
Purlin Offset: 9.5		RAF01			RAF02			
Projected Area: 210								

Note - Stiffener spacing is given on Flat (inches).



Left Eave Height: 26.00
Left Girt Offset: 8.0
Right Eave Height: 26.00
Right Girt Offset: 8.0

Total Width: 61.33 Frame Wt: 4337 Max Wind dx: H/153 Max dx: H/68 Max dy: L/220

Location Code	1 P	2	3	4 P	5	6	7 M	8	9 M	10	11 M
Left Plate	NA	4x0.375	8x0.313	NA	4x0.375	8x0.313	8x0.500	-	6x0.625	-	6x0.625
Left Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Right Plate	8x0.625	-	-	8x0.625	-	-	6x0.625	-	6x0.625	-	8x0.500
Right Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Bolt Quantity-Diameter	4-1.000	-	-	4-1.000	-	-	16-0.625-S	-	16-0.625-S	-	16-0.625-S
Pfi/Pf	4.000/NA	-	-	4.000/NA	-	-	1.250/3.000	-	1.500/3.500	-	1.250/3.000
Top Welds (L/R)	FWS3	-	W1-FWS3	FWS3	-	W1-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Bottom Welds (L/R)	FWS3	-	W3-FWR4	FWS3	-	W3-FWR4	FWD3/FWD3	-	FWD4/FWD4	-	FWD3/FWD3
Web Welds (L/R)	FWR3	-	W4-FWS3	FWR3	-	W4-FWS3	WP13/WP13	-	WP13/WP13	-	WP13/WP13
Connection Code	BHFCNA	-	-	BHFCNA	-	-	KVEUEU	-	SVEUEU	-	KVEUEU
Pb/Gage	4.000/4.000	-	-	4.000/4.000	-	-	1.875/3.500	-	1.875/3.500	-	1.875/3.500

Job #: U26H0545A File: F12 - FL 2-4.frame Title: Line(s) 2-4 Designer: BG\Weili.Du Date: 2026-09-14 - 14:47 Frame Ver: 2.7.34 Page: ___

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 2-4
Creation Date   : 2026-09-04
Final Design Date: 2026-09-14
Designer   : BG\Weili.Du
File   : F12 - FL 2-4.nfr
App Version   : 2.7.34

F R A M E D E S C R I P T I O N

Frame type : RCG
Frame width : 61.33 Ft.
Bay width   : 25.00 Ft.

	LEFT	RIGHT		
Dim to ridge	30.67 Ft.	30.67 Ft.		
Roof slope	2.50/12	-2.50/12		
Eave height	26.00 Ft.	26.00 Ft.		
Girt offset	8.00 In.	8.00 In.	Typ. Girt spacing	4.58 Ft.
Purlin offset	9.50 In.	9.50 In.	Typ. Purlin spacing	5.00 Ft.

Col. spacing : 61.3333

Supports / Spring Constants

COL01 - Bottom V H
COL02 - Bottom V H

Column Bracing:

WP1	Girt Brace	Y	Y	Y	Y
	Flange Brace	0	1	1	2
	Location (ft)	7.5	12.1	16.7	21.2
WP2	Girt Brace	Y	Y	Y	Y
	Flange Brace	0	1	1	2
	Location (ft)	7.5	12.1	16.7	21.2

Other Braces:

Column   :
Left Brace   :
Right Brace :
Location (ft):

L O A D I N G C O N D I T I O N S

Building Code & Year   : IBC2021
Risk Category   : II-Standard Buildings
AISC Specification   : 2016 ASD

L O A D S (Psf)

Roof Dead load :   4.50
Roof Coll load : 10.00
Roof Live load : 20.00
Roof Snow load : 10.50
Floor dead load :   0.00
Floor live load :   0.00
Ground Snow load: 15.00   Ce = 1.00
Ss = 1.500   S1 = 0.460   Seismic Design Category = D   Site Class = D
 R = 3.50   Cd = 3.00   Sds = 1.000   Sd1 = 0.564   rho = 1.30   omega = 2.500

Is Building Irregular = False

Roof Seismic Factor   : 0.286 PSF
Floor Seismic Factor   : 0.286 PSF

Wind speed   : 97.00 Mph Exp. : B
Wind pressure   : 14.34 Psf

Building is Partially Enclosed

Wind pressure coefficients   Is End Bay? False

	C1	C2E	C2	C3	C3E	C4
W1R	1.009	0.000	-0.140	0.130	0.000	0.197
W1L	0.197	0.000	0.130	-0.140	0.000	1.009
W2R	-0.091	0.000	-1.240	-0.970	0.000	-0.903
W2L	-0.903	0.000	-0.970	-1.240	0.000	-0.091
W5B	0.100	0.000	-0.140	0.180	0.000	0.100
W5F	0.100	0.000	0.180	-0.140	0.000	0.100
W6B	-1.000	0.000	-1.240	-0.920	0.000	-1.000
W6F	-1.000	0.000	-0.920	-1.240	0.000	-1.000

Tributary Widths

Panel	Trib. Width (ft)
WP1	25.00
WP2	25.00
RP1	25.00
RP2	25.00

P R O G R A M - A P P L I E D L O A D S

Panel Loads

Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.112	-0.112	0.000	30.667
RDL	RP2	-0.112	-0.112	30.667	61.333
COL	RP1	-0.250	-0.250	0.000	30.667
COL	RP2	-0.250	-0.250	30.667	61.333
SL	RP1	-0.262	-0.262	0.000	30.667
SR	RP2	-0.262	-0.262	30.667	61.333
UOS	RP1	-0.625	-0.625	0.000	30.667
UOS	RP2	-0.625	-0.625	30.667	61.333
RLL	RP1	-0.500	-0.500	0.000	30.667
RLR	RP2	-0.500	-0.500	30.667	61.333
W1R	RP1	-0.050	-0.050	0.000	30.667
W1R	RP2	0.047	0.047	30.667	61.333
W1R	WP1	0.362	0.362	3.750	26.000
W1R	WP2	-0.071	-0.071	3.750	26.000
W1L	RP1	0.047	0.047	0.000	30.667
W1L	RP2	-0.050	-0.050	30.667	61.333
W1L	WP1	0.071	0.071	3.750	26.000
W1L	WP2	-0.362	-0.362	3.750	26.000
W2R	RP1	-0.445	-0.445	0.000	30.667
W2R	RP2	-0.348	-0.348	30.667	61.333
W2R	WP1	-0.033	-0.033	3.750	26.000
W2R	WP2	0.324	0.324	3.750	26.000
W2L	RP1	-0.348	-0.348	0.000	30.667
W2L	RP2	-0.445	-0.445	30.667	61.333
W2L	WP1	-0.324	-0.324	3.750	26.000
W2L	WP2	0.033	0.033	3.750	26.000
W5B	RP1	-0.050	-0.050	0.000	30.667
W5B	RP2	0.065	0.065	30.667	61.333
W5B	WP1	0.036	0.036	3.750	26.000
W5B	WP2	-0.036	-0.036	3.750	26.000
W5F	RP1	0.065	0.065	0.000	30.667
W5F	RP2	-0.050	-0.050	30.667	61.333
W5F	WP1	0.036	0.036	3.750	26.000
W5F	WP2	-0.036	-0.036	3.750	26.000
W6B	RP1	-0.445	-0.445	0.000	30.667
W6B	RP2	-0.330	-0.330	30.667	61.333
W6B	WP1	-0.359	-0.359	3.750	26.000
W6B	WP2	0.359	0.359	3.750	26.000
W6F	RP1	-0.330	-0.330	0.000	30.667
W6F	RP2	-0.445	-0.445	30.667	61.333
W6F	WP1	-0.359	-0.359	3.750	26.000
W6F	WP2	0.359	0.359	3.750	26.000
EQR	RP1	0.150	0.150	0.000	30.667
EQR	RP2	0.150	0.150	30.667	61.333
EQL	RP1	-0.150	-0.150	0.000	30.667
EQL	RP2	-0.150	-0.150	30.667	61.333
LRD	RP1	-0.262	-0.262	0.000	30.667
LRD	RP1	-0.275	-0.275	21.847	30.667
LRD	RP2	-0.079	-0.079	30.667	61.333
RRD	RP1	-0.079	-0.079	0.000	30.667
RRD	RP2	-0.262	-0.262	30.667	61.333
RRD	RP2	-0.275	-0.275	30.667	39.486

Concentrated Loads

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	2.364	0.000	0.000	26.000
W1R	COL02	2.364	0.000	0.000	26.000
W1L	COL01	-2.364	0.000	0.000	26.000
W1L	COL02	-2.364	0.000	0.000	26.000
W2R	COL01	2.364	0.000	0.000	26.000
W2R	COL02	2.364	0.000	0.000	26.000
W2L	COL01	-2.364	0.000	0.000	26.000
W2L	COL02	-2.364	0.000	0.000	26.000

Endwall Bracing Loads

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.

U S E R - A P P L I E D L O A D S

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.
The locations listed below for each longitudinal bracing load apply only to the column axial load
(tension on base of column and compression when at top of column).

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.	Special Load #	Description
RDL	COL01	0.000	-0.500	0.000	1.092	25.000	C-1	FSW Eave
RDL	COL02	0.000	-0.500	0.000	-1.092	25.000	C-13	BSW Eave
COL	COL01	0.000	-0.750	0.000	1.638	25.000	C-2	FSW Eave
COL	COL02	0.000	-0.750	0.000	-1.638	25.000	C-14	BSW Eave
SL	COL01	0.000	-0.750	0.000	1.638	25.000	C-4	FSW Eave
SR	COL02	0.000	-0.750	0.000	-1.638	25.000	C-16	BSW Eave
UOS	COL01	0.000	-1.750	0.000	3.821	25.000	C-25	FSW Eave
UOS	COL02	0.000	-1.750	0.000	-1.779	25.000	C-26	BSW Eave
RLL	COL01	0.000	-1.500	0.000	3.275	25.000	C-3	FSW Eave
RLL	COL02	0.000	-1.500	0.000	-3.275	25.000	C-15	BSW Eave
W1R	COL01	0.000	1.250	0.000	-2.729	25.000	C-7	FSW Eave
W1R	COL02	0.000	1.250	0.000	2.729	25.000	C-19	BSW Eave
W1L	COL01	0.000	1.250	0.000	-2.729	25.000	C-5	FSW Eave
W1L	COL02	0.000	1.250	0.000	2.729	25.000	C-17	BSW Eave
W2R	COL01	0.000	1.250	0.000	-2.729	25.000	C-8	FSW Eave
W2R	COL02	0.000	1.250	0.000	2.729	25.000	C-20	BSW Eave

W2L	COL01	0.000	1.250	0.000	-2.729	25.000	C-6	FSW Eave
W2L	COL02	0.000	1.250	0.000	2.729	25.000	C-18	BSW Eave
W5B	COL01	0.000	1.250	0.000	-2.729	25.000	C-9	FSW Eave
W5B	COL02	0.000	1.250	0.000	2.729	25.000	C-21	BSW Eave
W5F	COL01	0.000	1.250	0.000	-2.729	25.000	C-11	FSW Eave
W5F	COL02	0.000	1.250	0.000	2.729	25.000	C-23	BSW Eave
W6B	COL01	0.000	1.250	0.000	-2.729	25.000	C-10	FSW Eave
W6B	COL02	0.000	1.250	0.000	2.729	25.000	C-22	BSW Eave
W6F	COL01	0.000	1.250	0.000	-2.729	25.000	C-12	FSW Eave
W6F	COL02	0.000	1.250	0.000	2.729	25.000	C-24	BSW Eave
BWU	COL01	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-1	COL01
BWU	COL02	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-2	COL02
BWC	COL01	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-1	COL01
BWC	COL02	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-2	COL02
EQB	COL01	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-1	COL01
EQB	COL02	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-2	COL02
EQF	COL01	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-1	COL01
EQF	COL02	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-2	COL02

L O A D C O M B I N A T I O N S

	ASR	Cases
1)	1.00	SW+RDL+COL+NLL
2)	1.00	SW+RDL+COL+NLR
3)	1.00	SW+RDL+COL+SL+SR+NLL
4)	1.00	SW+RDL+COL+SL+SR+NLR
5)	1.00	SW+RDL+COL+RLL+RLR+NLL
6)	1.00	SW+RDL+COL+RLL+RLR+NLR
7)	1.00	SW+RDL+COL+0.60W1L
8)	1.00	SW+RDL+COL+0.60W2L
9)	1.00	SW+RDL+COL+0.60W1R
10)	1.00	SW+RDL+COL+0.60W2R
11)	1.00	0.60SW+0.60RDL+0.60W1L
12)	1.00	0.60SW+0.60RDL+0.60W2L
13)	1.00	0.60SW+0.60RDL+0.60W1R
14)	1.00	0.60SW+0.60RDL+0.60W2R
15)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
16)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
17)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
18)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
19)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
20)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
21)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
22)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
23)	1.00	SW+RDL+COL+0.60W5B+0.60BWC
24)	1.00	SW+RDL+COL+0.60W6B+0.60BWC
25)	1.00	SW+RDL+COL+0.60W5F+0.60BWC
26)	1.00	SW+RDL+COL+0.60W6F+0.60BWC
27)	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
28)	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
29)	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
30)	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
31)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B+0.45BWC
32)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B+0.45BWC
33)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F+0.45BWC
34)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F+0.45BWC
35)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
36)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
37)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
38)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
39)	1.00	SW+RDL+COL+UOS+NLL
40)	1.00	SW+RDL+COL+UOS+NLR
41)	1.00	SW+RDL+COL+LRD+NLL
42)	1.00	SW+RDL+COL+LRD+NLR
43)	1.00	SW+RDL+COL+RRD+NLL
44)	1.00	SW+RDL+COL+RRD+NLR
45)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
46)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
47)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLL
48)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLR
49)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLL
50)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLR
51)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQL
52)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQR
53)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLL
54)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLR
55)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLL
56)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLR
57)	1.00	0.46SW+0.46RDL+0.91EQL
58)	1.00	0.46SW+0.46RDL+0.91EQR
59)	1.00	0.46SW+0.46RDL+0.91EQB+NLL
60)	1.00	0.46SW+0.46RDL+0.91EQB+NLR
61)	1.00	0.46SW+0.46RDL+0.91EQF

*** DESIGN SUMMARY REPORT ***

Built Up Rafter - RAF01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.38	F6.31	W164	45	1	-10.1	0.07	-181.9	0.77	0.94	0.98	39	1	27.17	0.87	0.71	0.64
2	F6.50	F6.38	W150	40	9	-6.3	0.03	244.2	0.90	1.00	0.97	39	5	17.30	0.67	0.49	0.43

Chkpt	1	4	5	10
Depth	29.69	29.78		29.88
Section	| 1 |	| 2 |		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.3750	55.00	6.0	0.5000	55.00
Web		0.1644	55.00		0.1500	55.00
B/R Flg	6.0	0.3125	55.00	6.0	0.3750	55.00

Built Up Rafter - RAF02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.50	F6.38	W150	39	12	-6.3	0.03	244.4	0.90	1.00	0.97	40	16	-17.28	0.67	0.49	0.43
2	F6.38	F6.31	W164	46	20	-10.1	0.07	-182.2	0.78	0.94	0.98	40	20	-27.15	0.87	0.70	0.64

Chkpt	11	16	17	20
Depth	29.88	29.78		29.69
Section	| 1 |	| 2 |		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.5000	55.00	6.0	0.3750	55.00
Web		0.1500	55.00		0.1644	55.00
B/R Flg	6.0	0.3750	55.00	6.0	0.3125	55.00

Built Up Column - COL01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F8.50	F8.50	W250	45	30	-19.9	0.08	-178.7	0.93	0.93	0.97	19	29b	-7.10	0.10	0.43	0.43

Chkpt	21	30
Depth	15.00	15.00
Section	| 1 |	

	width	thick	Fy
T/L Flg	8.0	0.5000	55.00
Web		0.2500	55.00
B/R Flg	8.0	0.5000	55.00

Built Up Column - COL02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F8.50	F8.50	W250	46	40	-19.8	0.08	178.9	0.93	0.93	0.97	46	37	7.09	0.10	0.43	0.43

Chkpt	31	40
Depth	15.00	15.00
Section	| 1 |	

	width	thick	Fy
T/L Flg	8.0	0.5000	55.00
Web		0.2500	55.00
B/R Flg	8.0	0.5000	55.00

Frame Weight (lbs) = 3667
Deflections (in):

10 yr Wind dx =	1.79 = H/ 153	WIND CASE 2 TO RIGHT	
Seismic dx =	4.13 = H/ 67	SEISMIC TO RIGHT	
Story Drift =	12.39 = 0.045H	SEISMIC TO RIGHT	
Stability Coefficient =	0.03	1.14SW+1.14RDL+1.14COL+0.91EQB	
Stability Ratio =	0.18	1.14SW+1.14RDL+1.14COL+0.91EQB	
Fundamental Period =	1.5926	Single Story Period	
Maximum dx =	-4.05 = H/ 68	1.14SW+1.14RDL+1.14COL+0.91EQL	
Maximum dy =	-3.20 = L/ 220 @ MOD 1,	SW+RDL+COL+UOS	
Max. Live dy =	-1.95 = L/ 361 @ MOD 1,	LIVE ON LEFT AND RIGHT	
Rigidity =	2.25 kip/in		

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 2-4
Creation Date   : 2026-09-04
Final Design Date: 2026-09-14
Designer   : BG\Weili.Du
File   : F12 - FL 2-4.nfr
App Version   : 2.7.34

C O N N E C T I O N S U M M A R Y

Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
2.50:12	W313	0.88	FWS3		FWR4	0.90	0.00	1.00	FWS3	0.44	1.00		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	8.0	0.3125	55.0			14.30	Stiffener				
Web		0.3125	55.0	26.71	14.00						
Bot Plate	4.0	0.3750	50.0			14.00					

Knee Connection - COL02

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
-2.50:12	W313	0.88	FWS3		FWR4	0.90	0.00	1.00	FWS3	0.44	1.00		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	8.0	0.3125	55.0			14.30	Stiffener				
Web		0.3125	55.0	26.71	14.00						
Bot Plate	4.0	0.3750	50.0			14.00					

Splice Load Combinations:

No.	ASR	Cases
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51	1.20	Special Seismic
52	1.20	Special Seismic
53	1.20	Special Seismic
54	1.20	Special Seismic
55	1.20	Special Seismic
56	1.20	Special Seismic
57	1.20	Special Seismic
58	1.20	Special Seismic
59	1.20	Special Seismic
60	1.20	Special Seismic
61	1.20	Special Seismic

62	1.20	Special Seismic
63	1.20	Special Seismic
64	1.20	Special Seismic
65	1.20	Special Seismic
66	1.20	Special Seismic
67	1.20	Special Seismic
68	1.20	Special Seismic
69	1.20	Special Seismic
70	1.20	Special Seismic
71	1.20	Special Seismic
72	1.20	Special Seismic
73	1.20	Special Seismic
74	1.20	Special Seismic
75	1.20	Special Seismic
76	1.20	Special Seismic
77	1.20	Special Seismic
78	1.20	Special Seismic
79	1.20	Special Seismic
80	1.20	Special Seismic
81	1.20	Special Seismic
82	1.20	Special Seismic
83	1.20	Special Seismic
84	1.20	Special Seismic
85	1.20	Special Seismic
86	1.20	Special Seismic

BOLTED END-PLATES (BEP) SUMMARY — Bolt Pre Tension Method : TurnOfNut

PLATE SIZE: (in)

Splice ID	Left Type	Right Type	Members Joined	Loc	Web Depth	Left Plate Width	Left Plate Thick	Left Plate Length	Left Plate Fy(ksi)	Right Plate Width	Right Plate Thick	Right Plate Length	Right Plate Fy(ksi)
1	8E	8E	COL01 To RAF01	Top	29.00	8.00	0.50	35.37	55.00	6.00	0.63	35.37	55.00
1	8E	8E	COL01 To RAF01	Bot	29.00	8.00	0.50	35.37	55.00	6.00	0.63	35.37	55.00
2	8E	8E	RAF01 To RAF02	Top	29.00	6.00	0.63	35.87	55.00	6.00	0.63	35.87	55.00
2	8E	8E	RAF01 To RAF02	Bot	29.00	6.00	0.63	35.87	55.00	6.00	0.63	35.87	55.00
3	8E	8E	RAF02 To COL02	Top	29.00	6.00	0.63	35.37	55.00	8.00	0.50	35.37	55.00
3	8E	8E	RAF02 To COL02	Bot	29.00	6.00	0.63	35.37	55.00	8.00	0.50	35.37	55.00

PLATE DESIGN

Splice ID	Left Type	Right Type	Tension Location	Max Moment Load Comb	Max Moment Axial (kip)	Max Moment Shear (kip)	Max Moment Moment (ft-kip)	Max Shear Load Comb	Max Shear Axial (kip)	Max Shear Shear (kip)	Max Shear Moment (ft-kip)	Left Plate Ratio	Right Plate Ratio
1	8E	8E	Top	-57	-10.49	20.60	-263.48	44	0.18	9.38	18.87	0.90	0.68
1	8E	8E	Bot	-65	6.38	-2.39	168.48	36	-6.42	29.11	-154.63	0.63	0.48
2	8E	8E	Top	11	3.96	-1.61	-20.92	40	-2.78	-4.39	107.18	0.09	0.09
2	8E	8E	Bot	36	-6.42	0.09	242.54	11	3.96	-1.61	-20.92	0.82	0.82
3	8E	8E	Top	-66	-10.52	-20.60	-263.46	43	0.18	-9.39	18.78	0.68	0.90
3	8E	8E	Bot	-56	6.41	2.39	168.49	36	-6.43	-29.09	-152.50	0.48	0.63

BOLT RUPTURE DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.53	3.00	1.88	1.13	-57	-10.49	-263.48	0.81	0.82
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.38	3.00	1.88	1.13	-65	6.38	168.48	0.57	0.57
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.50	1.62	3.50	1.88	1.13	11	3.96	-20.92	0.10	0.10
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.50	1.49	3.50	1.88	1.13	36	-6.42	242.54	0.92	0.92
3	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.24	3.00	1.88	1.13	-66	-10.52	-263.46	0.82	0.81
3	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.56	3.00	1.88	1.13	-56	6.41	168.49	0.57	0.57

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.53	3.00	1.88	1.13	44	9.38	0.14	0.14
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.38	3.00	1.88	1.13	36	29.11	0.44	0.44
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.50	1.62	3.50	1.88	1.13	40	-4.39	0.07	0.07
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.50	1.49	3.50	1.88	1.13	11	-1.61	0.02	0.02
3	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.24	3.00	1.88	1.13	43	-9.39	0.14	0.14
3	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.56	3.00	1.88	1.13	36	-29.09	0.44	0.44

WELD DESIGN

Splice ID	Loc	Left Welds Flg	Left Welds Web	Left Welds Stf	Left Checks Load Comb	Left Checks Tensile Rupture	Left Checks Load Comb	Left Checks Shear Rupture	Right Welds Flg	Right Welds Web	Right Welds Stf	Right Checks Load Comb	Right Checks Tensile Rupture	Right Checks Load Comb	Right Checks Shear Rupture
1	Top	FWD3	WP13		-57	0.69	44	0.15	FWD3	WP13		-57	0.99	44	0.18
1	Bot	FWD3	WP13		-65	0.49	36	0.47	FWD3	WP13		-65	0.71	36	0.57
2	Top	FWD3	WP13		11	0.13	40	0.09	FWD3	WP13		11	0.13	40	0.09
2	Bot	FWD4	WP13		36	0.95	11	0.03	FWD4	WP13		36	0.95	11	0.03
3	Top	FWD3	WP13		-66	0.99	43	0.18	FWD3	WP13		-66	0.69	43	0.15
3	Bot	FWD3	WP13		-56	0.71	36	0.57	FWD3	WP13		-56	0.49	36	0.47

BASEPLATE AND ANCHOR ROD DESIGN RESULTS

BASEPLATE AND ANCHOR ROD INFORMATION: (in)

Col ID	Col Type	Col Pattern	Col Depth	Base Plate Width	Base Plate Thickness	Base Plate Length	Base Plate Fy(ksi)	Anchor Rods Qty	Anchor Rods Dia.	Anchor Rods Grade	Anchor Rods Pfi	Anchor Rods Pb	Anchor Rods Gage
01	WF/BU	Left	15.000	8	0.625	15.0000	55	4	1	Grade36	4	4	4
02	WF/BU	Right	15.000	8	0.625	15.0000	55	4	1	Grade36	4	4	4

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	Base Plate Yielding (Tension) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
01	-72	-45.04	-5.39	26.25	0.28	-86	21.83	1.28	-26.25	0.75
02	-75	-45.03	5.39	26.25	0.28	-83	21.83	-1.28	-26.25	0.75

ANCHOR ROD SHEAR AND TENSION DESIGN CHECKS

Col ID	Anchor Rod Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Anchor Rod Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Tension-Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Shear-Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio
01	-86	21.83	1.28	-26.25	0.27	-81	7.46	-5.39	-26.25	0.68	-86	21.83	1.28	-26.25	0.43	-86	21.83	1.28	-26.25	0.76
02	-83	21.83	-1.28	-26.25	0.27	-84	7.47	5.39	-26.25	0.68	-83	21.83	-1.28	-26.25	0.43	-83	21.83	-1.28	-26.25	0.76

BASEPLATE LEFT FLANGE WELD DESIGN CHECKS

Col ID	Left Flange Weld (Pipe Weld) Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Web Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Right Flange Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio
01	FWS3	-86	21.83	1.28	-26.25	0.92	FWR3	-51	-24.05	-11.13	0.00	0.24	FWS3	-86	21.83	1.28	-26.25	0.53
02	FWS3	-83	21.83	-1.28	-26.25	0.53	FWR3	-60	-24.04	11.13	0.00	0.24	FWS3	-83	21.83	-1.28	-26.25	0.92

LOAD COMBINATIONS:

No	ASR	Combination
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

LOAD COMBINATIONS:

No	ASR	Combination
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL
52*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL
53*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL
54*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQB
55*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQB
56*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQB
57*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQF
58*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQF
59*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQF
60*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR
61*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR
62*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR
63*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQB
64*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQB
65*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQB

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

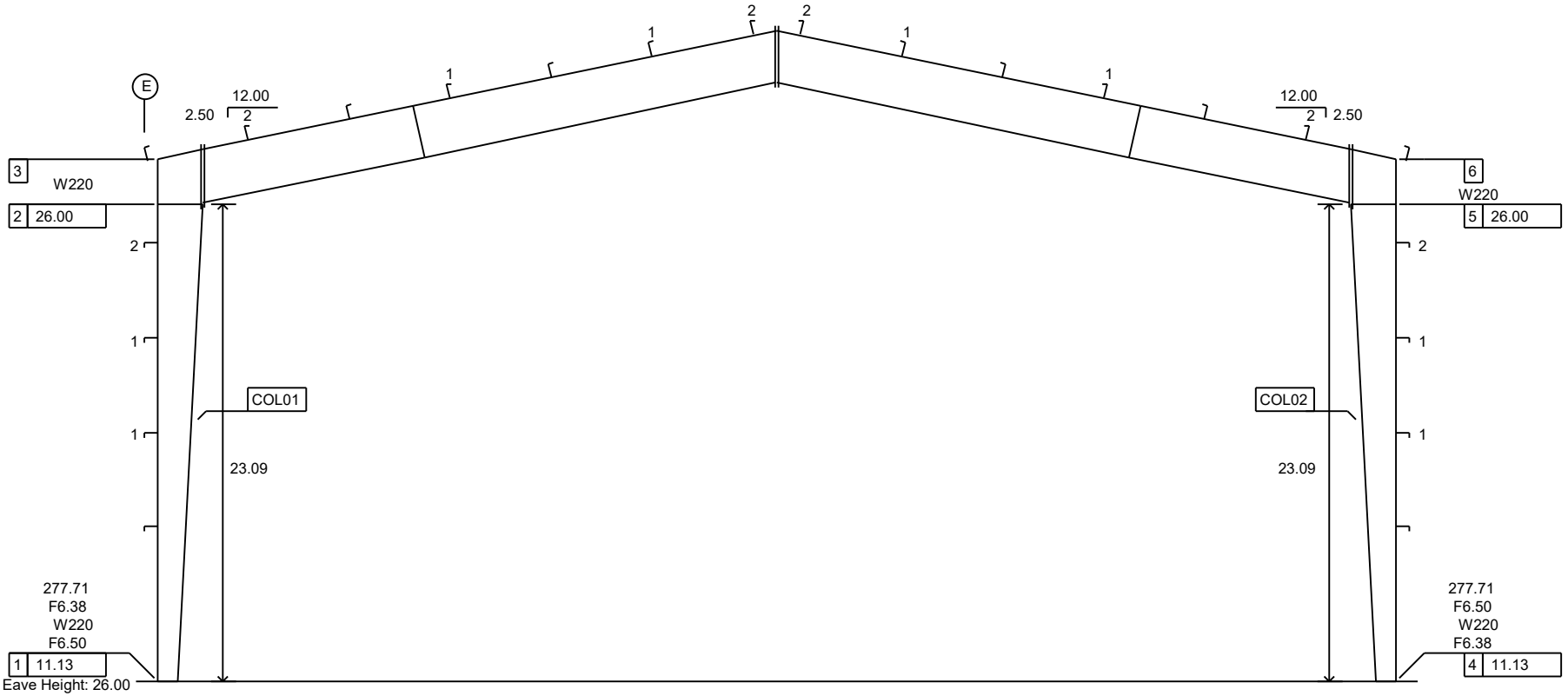
LOAD COMBINATIONS:

No	ASR	Combination
66*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQF
67*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQF
68*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQF
69*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQB
70*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQB
71*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQB
72*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQB
73*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQB
74*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQB
75*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQB
76*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQB
77*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQB
78*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQF
79*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQF
80*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQF
81*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQF
82*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQF
83*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQF
84*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQF
85*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQF
86*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQF

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

	7	8	9	10	11
Web Depth	31.00	31.00 CT	31.00	31.00 CT	31.00
Length on Slope	125.17	216.00	216.00	125.17	
Left/Top Flange	F6.31	F6.31	F6.31	F6.31	
Web	W164	W150	W150	W164	
Right/Bottom Flange	F6.31	F6.25	F6.25	F6.31	
Horizontal Tail Dim.			30.6667		
Purlin Offset: 9.5		RAF01		RAF02	
Projected Area: 236					

Note - Stiffener spacing is given on Flat (inches).



Left Eave Height: 26.00
Left Girt Offset: 8.0
Right Eave Height: 26.00
Right Girt Offset: 8.0
Total Width: 61.33 Frame Wt: 3700 Max Wind dx: H/233 Max dx: H/102 Max dy: L/280

Location Code	1 P	2	3	4 P	5	6	7 M	8	9 M	10	11 M
Left Plate	NA	3x0.250	6x0.313	NA	3x0.250	6x0.313	6x0.500	-	6x0.500	-	6x0.500
Left Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Right Plate	8x0.625	-	-	8x0.625	-	-	6x0.500	-	6x0.500	-	6x0.500
Right Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Bolt Quantity-Diameter	4-1.000	-	-	4-1.000	-	-	16-0.625-S	-	16-0.625-S	-	16-0.625-S
Pfi/Pf	4.000/NA	-	-	4.000/NA	-	-	1.250/2.875	-	1.500/3.375	-	1.250/2.875
Top Welds (L/R)	FWS4	-	W1-FWS3	FWS3	-	W1-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Bottom Welds (L/R)	FWS3	-	W3-FWS3	FWS4	-	W3-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Web Welds (L/R)	FWR3	-	W4-FWS3	FWR3	-	W4-FWS3	WP13/WP13	-	WP13/WP13	-	WP13/WP13
Connection Code	BHFCNA	-	-	BHFCNA	-	-	KVEUEU	-	SVEUEU	-	KVEUEU
Pb/Gage	4.000/4.000	-	-	4.000/4.000	-	-	1.875/3.500	-	1.875/3.500	-	1.875/3.500

Job #: U26H0545A File: F13 - FL5.frame Title: Line(s) 5 Designer: BG\Weili.Du Date: 2026-09-16 - 11:27 Frame Ver: 2.7.34 Page: ___

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 5
Creation Date   : 2026-09-04
Final Design Date: 2026-09-16
Designer   : BG\Weili.Du
File   : F13 - FL5.nfr
App Version   : 2.7.34.0

F R A M E D E S C R I P T I O N

Frame type : RCG
Frame width : 61.33 Ft.
Bay width   : 25.00 Ft.

	LEFT	RIGHT		
Dim to ridge	30.67 Ft.	30.67 Ft.		
Roof slope	2.50/12	-2.50/12		
Eave height	26.00 Ft.	26.00 Ft.		
Girt offset	8.00 In.	8.00 In.	Typ. Girt spacing	4.58 Ft.
Purlin offset	9.50 In.	9.50 In.	Typ. Purlin spacing	5.00 Ft.

Col. spacing : 61.3333

Supports / Spring Constants

COL01 - Bottom V H
COL02 - Bottom V H

Column Bracing:

WP1 Girt Brace	Y	Y	Y	Y
Flange Brace	0	1	1	2
Location (ft)	7.5	12.1	16.7	21.2
WP2 Girt Brace	Y	Y	Y	Y
Flange Brace	0	1	1	2
Location (ft)	7.5	12.1	16.7	21.2

Other Braces:

Column   :
Left Brace   :
Right Brace :
Location (ft):

L O A D I N G C O N D I T I O N S

Building Code & Year   : IBC2021
Risk Category   : II-Standard Buildings
AISC Specification   : 2016 ASD

L O A D S (Psf)

Roof Dead load :   4.50
Roof Coll load : 10.00
Roof Live load : 20.00
Roof Snow load : 10.50
Floor dead load :   0.00
Floor live load :   0.00
Ground Snow load: 15.00   Ce = 1.00
Ss = 1.500   S1 = 0.460   Seismic Design Category = D   Site Class = D
 R = 3.50   Cd = 3.00   Sds = 1.000   Sd1 = 0.564   rho = 1.30   omega = 2.500

Is Building Irregular = False

Roof Seismic Factor   : 0.286 PSF
Floor Seismic Factor   : 0.286 PSF

Wind speed   : 97.00 Mph Exp. : B
Wind pressure   : 14.34 Psf

Building is Partially Enclosed

Wind pressure coefficients   Is End Bay? False

	C1	C2E	C2	C3	C3E	C4
W1R	1.009	0.000	-0.140	0.130	0.000	0.197
W1L	0.197	0.000	0.130	-0.140	0.000	1.009
W2R	-0.091	0.000	-1.240	-0.970	0.000	-0.903
W2L	-0.903	0.000	-0.970	-1.240	0.000	-0.091
W5B	0.100	0.000	-0.140	0.180	0.000	0.100
W5F	0.100	0.000	0.180	-0.140	0.000	0.100
W6B	-1.000	0.000	-1.240	-0.920	0.000	-1.000
W6F	-1.000	0.000	-0.920	-1.240	0.000	-1.000

Tributary Widths

Panel	Trib. Width (ft)
WP1	25.00
WP2	25.00
RP1	25.00
RP2	25.00

P R O G R A M - A P P L I E D L O A D S

Panel Loads

Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.112	-0.112	0.000	30.667
RDL	RP2	-0.112	-0.112	30.667	61.333
COL	RP1	-0.250	-0.250	0.000	30.667
COL	RP2	-0.250	-0.250	30.667	61.333
SL	RP1	-0.235	-0.235	0.000	30.667
SR	RP2	-0.235	-0.235	30.667	61.333
UOS	RP1	-0.625	-0.625	0.000	30.667
UOS	RP2	-0.625	-0.625	30.667	61.333
RLL	RP1	-0.500	-0.500	0.000	30.667
RLR	RP2	-0.500	-0.500	30.667	61.333
W1R	RP1	-0.050	-0.050	0.000	30.667
W1R	RP2	0.047	0.047	30.667	61.333
W1R	WP1	0.362	0.362	3.750	26.000
W1R	WP2	-0.071	-0.071	3.750	26.000
W1L	RP1	0.047	0.047	0.000	30.667
W1L	RP2	-0.050	-0.050	30.667	61.333
W1L	WP1	0.071	0.071	3.750	26.000
W1L	WP2	-0.362	-0.362	3.750	26.000
W2R	RP1	-0.445	-0.445	0.000	30.667
W2R	RP2	-0.348	-0.348	30.667	61.333
W2R	WP1	-0.033	-0.033	3.750	26.000
W2R	WP2	0.324	0.324	3.750	26.000
W2L	RP1	-0.348	-0.348	0.000	30.667
W2L	RP2	-0.445	-0.445	30.667	61.333
W2L	WP1	-0.324	-0.324	3.750	26.000
W2L	WP2	0.033	0.033	3.750	26.000
W5B	RP1	-0.050	-0.050	0.000	30.667
W5B	RP2	0.065	0.065	30.667	61.333
W5B	WP1	0.036	0.036	3.750	26.000
W5B	WP2	-0.036	-0.036	3.750	26.000
W5F	RP1	0.065	0.065	0.000	30.667
W5F	RP2	-0.050	-0.050	30.667	61.333
W5F	WP1	0.036	0.036	3.750	26.000
W5F	WP2	-0.036	-0.036	3.750	26.000
W6B	RP1	-0.445	-0.445	0.000	30.667
W6B	RP2	-0.330	-0.330	30.667	61.333
W6B	WP1	-0.359	-0.359	3.750	26.000
W6B	WP2	0.359	0.359	3.750	26.000
W6F	RP1	-0.330	-0.330	0.000	30.667
W6F	RP2	-0.445	-0.445	30.667	61.333
W6F	WP1	-0.359	-0.359	3.750	26.000
W6F	WP2	0.359	0.359	3.750	26.000
EQR	RP1	0.150	0.150	0.000	30.667
EQR	RP2	0.150	0.150	30.667	61.333
EQL	RP1	-0.150	-0.150	0.000	30.667
EQL	RP2	-0.150	-0.150	30.667	61.333
LRD	RP1	-0.262	-0.262	0.000	30.667
LRD	RP1	-0.275	-0.275	21.847	30.667
LRD	RP2	-0.079	-0.079	30.667	61.333
RRD	RP1	-0.079	-0.079	0.000	30.667
RRD	RP2	-0.262	-0.262	30.667	61.333
RRD	RP2	-0.275	-0.275	30.667	39.486

Concentrated Loads

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	2.364	0.000	0.000	26.000
W1R	COL02	2.364	0.000	0.000	26.000
W1L	COL01	-2.364	0.000	0.000	26.000
W1L	COL02	-2.364	0.000	0.000	26.000
W2R	COL01	2.364	0.000	0.000	26.000
W2R	COL02	2.364	0.000	0.000	26.000
W2L	COL01	-2.364	0.000	0.000	26.000
W2L	COL02	-2.364	0.000	0.000	26.000

Endwall Bracing Loads

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.

U S E R - A P P L I E D L O A D S

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.
The locations listed below for each longitudinal bracing load apply only to the column axial load
(tension on base of column and compression when at top of column).

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.	Special Load #	Description
RDL	COL01	0.000	-0.500	0.000	1.383	25.000	C-1	FSW Eave
RDL	COL02	0.000	-0.500	0.000	-1.383	25.000	C-13	BSW Eave
COL	COL01	0.000	-0.750	0.000	2.075	25.000	C-2	FSW Eave
COL	COL02	0.000	-0.750	0.000	-2.075	25.000	C-14	BSW Eave
SL	COL01	0.000	-0.750	0.000	2.075	25.000	C-4	FSW Eave
SR	COL02	0.000	-0.750	0.000	-2.075	25.000	C-16	BSW Eave
UOS	COL01	0.000	-1.750	0.000	4.842	25.000	C-25	FSW Eave
UOS	COL02	0.000	-1.750	0.000	-4.842	25.000	C-26	BSW Eave
RLL	COL01	0.000	-1.500	0.000	4.150	25.000	C-3	FSW Eave
RLL	COL02	0.000	-1.500	0.000	-4.150	25.000	C-15	BSW Eave
W1R	COL01	0.000	1.250	0.000	-3.458	25.000	C-7	FSW Eave
W1R	COL02	0.000	1.250	0.000	3.458	25.000	C-19	BSW Eave
W1L	COL01	0.000	1.250	0.000	-3.458	25.000	C-5	FSW Eave
W1L	COL02	0.000	1.250	0.000	3.458	25.000	C-17	BSW Eave
W2R	COL01	0.000	1.250	0.000	-3.458	25.000	C-8	FSW Eave
W2R	COL02	0.000	1.250	0.000	3.458	25.000	C-20	BSW Eave

W2L	COL01	0.000	1.250	0.000	-3.458	25.000	C-6	FSW Eave
W2L	COL02	0.000	1.250	0.000	3.458	25.000	C-18	BSW Eave
W5B	COL01	0.000	1.250	0.000	-3.458	25.000	C-9	FSW Eave
W5B	COL02	0.000	1.250	0.000	3.458	25.000	C-21	BSW Eave
W5F	COL01	0.000	1.250	0.000	-3.458	25.000	C-11	FSW Eave
W5F	COL02	0.000	1.250	0.000	3.458	25.000	C-23	BSW Eave
W6B	COL01	0.000	1.250	0.000	-3.458	25.000	C-10	FSW Eave
W6B	COL02	0.000	1.250	0.000	3.458	25.000	C-22	BSW Eave
W6F	COL01	0.000	1.250	0.000	-3.458	25.000	C-12	FSW Eave
W6F	COL02	0.000	1.250	0.000	3.458	25.000	C-24	BSW Eave
BWU	COL01	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-1	COL01
BWU	COL02	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-2	COL02
BWC	COL01	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-1	COL01
BWC	COL02	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-2	COL02
EQB	COL01	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-1	COL01
EQB	COL02	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-2	COL02
EQF	COL01	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-1	COL01
EQF	COL02	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-2	COL02

L O A D C O M B I N A T I O N S

	ASR	Cases
1)	1.00	SW+RDL+COL+NLL
2)	1.00	SW+RDL+COL+NLR
3)	1.00	SW+RDL+COL+SL+SR+NLL
4)	1.00	SW+RDL+COL+SL+SR+NLR
5)	1.00	SW+RDL+COL+RLL+RLR+NLL
6)	1.00	SW+RDL+COL+RLL+RLR+NLR
7)	1.00	SW+RDL+COL+0.60W1L
8)	1.00	SW+RDL+COL+0.60W2L
9)	1.00	SW+RDL+COL+0.60W1R
10)	1.00	SW+RDL+COL+0.60W2R
11)	1.00	0.60SW+0.60RDL+0.60W1L
12)	1.00	0.60SW+0.60RDL+0.60W2L
13)	1.00	0.60SW+0.60RDL+0.60W1R
14)	1.00	0.60SW+0.60RDL+0.60W2R
15)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
16)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
17)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
18)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
19)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
20)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
21)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
22)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
23)	1.00	SW+RDL+COL+0.60W5B+0.60BWC
24)	1.00	SW+RDL+COL+0.60W6B+0.60BWC
25)	1.00	SW+RDL+COL+0.60W5F+0.60BWC
26)	1.00	SW+RDL+COL+0.60W6F+0.60BWC
27)	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
28)	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
29)	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
30)	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
31)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B+0.45BWC
32)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B+0.45BWC
33)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F+0.45BWC
34)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F+0.45BWC
35)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
36)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
37)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
38)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
39)	1.00	SW+RDL+COL+UOS+NLL
40)	1.00	SW+RDL+COL+UOS+NLR
41)	1.00	SW+RDL+COL+LRD+NLL
42)	1.00	SW+RDL+COL+LRD+NLR
43)	1.00	SW+RDL+COL+RRD+NLL
44)	1.00	SW+RDL+COL+RRD+NLR
45)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
46)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
47)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLL
48)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLR
49)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLL
50)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLR
51)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQL
52)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQR
53)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLL
54)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLR
55)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLL
56)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLR
57)	1.00	0.46SW+0.46RDL+0.91EQL
58)	1.00	0.46SW+0.46RDL+0.91EQR
59)	1.00	0.46SW+0.46RDL+0.91EQB+NLL
60)	1.00	0.46SW+0.46RDL+0.91EQB+NLR
61)	1.00	0.46SW+0.46RDL+0.91EQF

*** DESIGN SUMMARY REPORT ***

Built Up Rafter - RAF01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.31	F6.31	W164	45	2	-10.0	0.14	-151.4	0.66	0.90	0.97	39	1	26.52	0.85	0.59	0.59
2	F6.31	F6.25	W150	40	9	-9.2	0.08	178.4	0.94	0.90	0.98	39	5	16.69	0.64	0.39	0.34

Chkpt	1	4	5	10
Depth	31.62	31.59		31.56
Section	1	2		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.3125	55.00	6.0	0.3125	55.00
Web		0.1644	55.00		0.1500	55.00
B/R Flg	6.0	0.3125	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.31	F6.25	W150	39	12	-9.2	0.08	178.4	0.94	0.90	0.98	40	16	-16.75	0.65	0.39	0.34
2	F6.31	F6.31	W164	46	19	-10.0	0.14	-151.3	0.66	0.90	0.97	40	20	-26.57	0.85	0.59	0.59

Chkpt	11	16	17	20
Depth	31.56	31.59		31.62
Section	1	2		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.3125	55.00	6.0	0.3125	55.00
Web		0.1500	55.00		0.1644	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.3125	55.00

Built Up Column - COL01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.38	F6.50	W220	39	25	-35.1	0.35	-99.2	0.52	0.56	0.85	39	21	-7.74	0.16	0.56	0.61

Chkpt	21	30
Depth	12.00	26.88
Section	1	

	width	thick	Fy
T/L Flg	6.0	0.3750	55.00
Web		0.2200	55.00
B/R Flg	6.0	0.5000	55.00

Built Up Column - COL02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Shear Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.50	F6.38	W220	40	35	-35.1	0.35	99.3	0.56	0.52	0.85	40	31	7.75	0.16	0.61	0.56

Chkpt	31	40
Depth	12.00	26.88
Section	1	

	width	thick	Fy
T/L Flg	6.0	0.5000	55.00
Web		0.2200	55.00
B/R Flg	6.0	0.3750	55.00

Frame Weight (lbs) = 3077
Deflections (in):

10 yr Wind dx =	1.19 = H/ 233	WIND CASE 2 TO RIGHT	
Seismic dx =	2.73 = H/ 101	SEISMIC TO RIGHT	
Story Drift =	8.18 = 0.030H	SEISMIC TO RIGHT	
Stability Coefficient =	0.02	1.14SW+1.14RDL+1.14COL+0.91EQB	
Stability Ratio =	0.12	1.14SW+1.14RDL+1.14COL+0.91EQB	
Fundamental Period =	1.2837	Single Story Period	
Maximum dx =	-2.71 = H/ 102	1.14SW+1.14RDL+1.14COL+0.91EQL	
Maximum dy =	-2.47 = L/ 280 @ MOD 1,	SW+RDL+COL+UOS	
Max. Live dy =	-1.51 = L/ 459 @ MOD 1,	LIVE ON LEFT AND RIGHT	
Rigidity =	3.37 kip/in		

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 5
Creation Date   : 2026-09-04
Final Design Date: 2026-09-16
Designer   : BG\Weili.Du
File   : F13 - FL5.nfr
App Version   : 2.7.34.0

C O N N E C T I O N S U M M A R Y

Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
2.50:12	W220	0.99	FWS3		FWS3	1.00	0.00	0.89	FWS3	0.79	0.58		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.3125	55.0			26.56	Stiffener				
Web		0.2200	55.0	26.25	26.00						
Bot Plate	3.0	0.2500	50.0			26.00					

Knee Connection - COL02

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
-2.50:12	W220	0.99	FWS3		FWS3	1.00	0.00	0.89	FWS3	0.79	0.58		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.3125	55.0			26.56	Stiffener				
Web		0.2200	55.0	26.25	26.00						
Bot Plate	3.0	0.2500	50.0			26.00					

Splice Load Combinations:

No.	ASR	Cases
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51	1.20	Special Seismic
52	1.20	Special Seismic
53	1.20	Special Seismic
54	1.20	Special Seismic
55	1.20	Special Seismic
56	1.20	Special Seismic
57	1.20	Special Seismic
58	1.20	Special Seismic
59	1.20	Special Seismic
60	1.20	Special Seismic
61	1.20	Special Seismic

62	1.20	Special Seismic
63	1.20	Special Seismic
64	1.20	Special Seismic
65	1.20	Special Seismic
66	1.20	Special Seismic
67	1.20	Special Seismic
68	1.20	Special Seismic
69	1.20	Special Seismic
70	1.20	Special Seismic
71	1.20	Special Seismic
72	1.20	Special Seismic
73	1.20	Special Seismic
74	1.20	Special Seismic
75	1.20	Special Seismic
76	1.20	Special Seismic
77	1.20	Special Seismic
78	1.20	Special Seismic
79	1.20	Special Seismic
80	1.20	Special Seismic
81	1.20	Special Seismic
82	1.20	Special Seismic
83	1.20	Special Seismic
84	1.20	Special Seismic
85	1.20	Special Seismic
86	1.20	Special Seismic

BOLTED END-PLATES (BEP) SUMMARY — Bolt Pre Tension Method : TurnOfNut

PLATE SIZE: (in)

Splice ID	Left Type	Right Type	Members Joined	Loc	Web Depth	Left Plate Width	Left Plate Thick	Left Plate Length	Left Plate Fy(ksi)	Right Plate Width	Right Plate Thick	Right Plate Length	Right Plate Fy(ksi)
1	8E	8E	COL01 To RAF01	Top	31.00	6.00	0.50	37.17	55.00	6.00	0.50	37.17	55.00
1	8E	8E	COL01 To RAF01	Bot	31.00	6.00	0.50	37.17	55.00	6.00	0.50	37.17	55.00
2	8E	8E	RAF01 To RAF02	Top	31.00	6.00	0.50	37.67	55.00	6.00	0.50	37.67	55.00
2	8E	8E	RAF01 To RAF02	Bot	31.00	6.00	0.50	37.67	55.00	6.00	0.50	37.67	55.00
3	8E	8E	RAF02 To COL02	Top	31.00	6.00	0.50	37.17	55.00	6.00	0.50	37.17	55.00
3	8E	8E	RAF02 To COL02	Bot	31.00	6.00	0.50	37.17	55.00	6.00	0.50	37.17	55.00

PLATE DESIGN

Splice ID	Left Type	Right Type	Tension Location	Max Moment Load Comb	Max Moment Axial (kip)	Max Moment Shear (kip)	Max Moment Moment (ft-kip)	Max Shear Load Comb	Max Shear Axial (kip)	Max Shear Shear (kip)	Max Shear Moment (ft-kip)	Left Plate Ratio	Right Plate Ratio
1	8E	8E	Top	-51	-11.43	20.44	-266.57	44	-0.80	9.43	1.59	0.99	0.98
1	8E	8E	Bot	-65	5.79	-2.43	158.62	36	-8.66	28.93	-176.66	0.66	0.65
2	8E	8E	Top	11	4.23	-1.63	-14.29	40	-3.82	-4.16	76.98	0.10	0.10
2	8E	8E	Bot	36	-8.66	0.04	175.97	9	4.25	1.63	-14.21	0.84	0.84
3	8E	8E	Top	-60	-11.49	-20.44	-266.35	43	-0.77	-9.42	1.89	0.98	0.99
3	8E	8E	Bot	-56	5.84	2.43	158.51	36	-8.66	-28.99	-176.88	0.65	0.66

BOLT RUPTURE DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	-51	-11.43	-266.57	0.96	0.97
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.38	2.88	1.88	1.13	-65	5.79	158.62	0.50	0.50
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.50	1.66	3.38	1.88	1.13	11	4.23	-14.29	0.07	0.07
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.50	1.52	3.38	1.88	1.13	36	-8.66	175.97	0.60	0.60
3	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.20	2.88	1.88	1.13	-60	-11.49	-266.35	0.97	0.96
3	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	-56	5.84	158.51	0.50	0.50

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	44	9.43	0.14	0.14
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.38	2.88	1.88	1.13	36	28.93	0.44	0.44
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.50	1.66	3.38	1.88	1.13	40	-4.16	0.06	0.06
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.50	1.52	3.38	1.88	1.13	9	1.63	0.02	0.02
3	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.20	2.88	1.88	1.13	43	-9.42	0.14	0.14
3	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	36	-28.99	0.44	0.44

WELD DESIGN

Splice ID	Loc	Left Welds Flg	Left Welds Web	Left Welds Stf	Left Checks Load Comb	Left Checks Tensile Rupture	Left Checks Load Comb	Left Checks Shear Rupture	Right Welds Flg	Right Welds Web	Right Welds Stf	Right Checks Load Comb	Right Checks Tensile Rupture	Right Checks Load Comb	Right Checks Shear Rupture
1	Top	FWD3	WP13		-51	0.83	44	0.15	FWD3	WP13		-51	0.93	44	0.17
1	Bot	FWD3	WP13		-65	0.57	36	0.45	FWD3	WP13		-65	0.62	36	0.53
2	Top	FWD3	WP13		11	0.09	40	0.08	FWD3	WP13		11	0.09	40	0.08
2	Bot	FWD3	WP13		36	0.75	9	0.03	FWD3	WP13		36	0.75	9	0.03
3	Top	FWD3	WP13		-60	0.93	43	0.17	FWD3	WP13		-60	0.83	43	0.15
3	Bot	FWD3	WP13		-56	0.62	36	0.53	FWD3	WP13		-56	0.57	36	0.45

BASEPLATE AND ANCHOR ROD DESIGN RESULTS

BASEPLATE AND ANCHOR ROD INFORMATION: (in)

Col ID	Col Type	Col Pattern	Col Depth	Base Plate Width	Base Plate Thickness	Base Plate Length	Base Plate Fy(ksi)	Anchor Rods Qty	Anchor Rods Dia.	Anchor Rods Grade	Anchor Rods Pfi	Anchor Rods Pb	Anchor Rods Gage
01	WF/BU	Left	12.000	8	0.625	12.0000	55	4	1	Grade36	4	4	4
02	WF/BU	Right	12.000	8	0.625	12.0000	55	4	1	Grade36	4	4	4

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	Base Plate Yielding (Tension) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
01	-72	-44.74	-7.01	26.25	0.35	-86	21.99	0.93	-26.25	0.76
02	-75	-44.74	7.00	26.25	0.35	-83	21.99	-0.92	-26.25	0.76

ANCHOR ROD SHEAR AND TENSION DESIGN CHECKS

Col ID	Anchor Rod Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Anchor Rod Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Tension-Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Shear-Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio
01	-86	21.99	0.93	-26.25	0.27	-72	-44.74	-7.01	26.25	0.69	-86	21.99	0.93	-26.25	0.43	-86	21.99	0.93	-26.25	0.76
02	-83	21.99	-0.92	-26.25	0.27	-75	-44.74	7.00	26.25	0.69	-83	21.99	-0.92	-26.25	0.43	-83	21.99	-0.92	-26.25	0.76

BASEPLATE LEFT FLANGE WELD DESIGN CHECKS

Col ID	Left Flange Weld (Pipe Weld) Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Web Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Right Flange Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio
01	FWS4	-86	21.99	0.93	-26.25	0.93	FWR3	-54	-31.68	-12.34	7.88	0.20	FWS3	-86	21.99	0.93	-26.25	0.71
02	FWS3	-83	21.99	-0.92	-26.25	0.71	FWR3	-63	-31.68	12.33	7.88	0.20	FWS4	-83	21.99	-0.92	-26.25	0.93

LOAD COMBINATIONS:

No	ASR	Combination
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

LOAD COMBINATIONS:

No	ASR	Combination
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL
52*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL
53*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL
54*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQB
55*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQB
56*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQB
57*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQF
58*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQF
59*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQF
60*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR
61*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR
62*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR
63*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQB
64*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQB
65*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQB

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

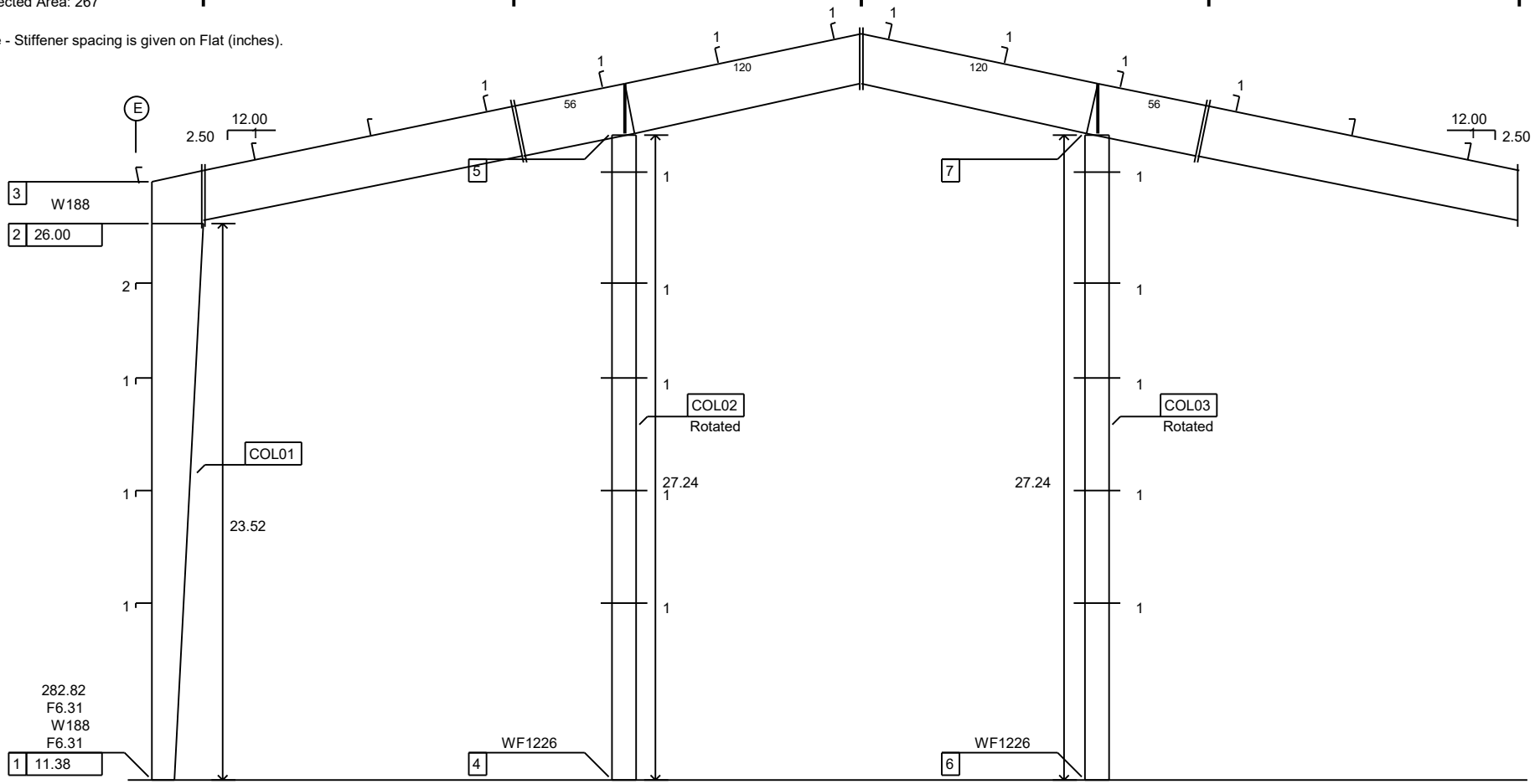
LOAD COMBINATIONS:

No	ASR	Combination
66*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQF
67*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQF
68*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQF
69*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQB
70*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQB
71*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQB
72*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQB
73*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQB
74*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQB
75*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQB
76*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQB
77*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQB
78*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQF
79*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQF
80*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQF
81*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQF
82*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQF
83*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQF
84*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQF
85*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQF
86*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQF

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

	8	9	10	11	12	13	14
Web Depth	26.00	26.00	26.00 CT	26.00	26.00 CT	26.00	26.00
Length on Slope	161.17	57.42	122.58	122.58	57.42		161.17
Left/Top Flange	F6.25	F6.25	F6.25	F6.25	F6.25		F6.25
Web	W150	W150	W150	W150	W150		W150
Right/Bottom Flange	F6.31	F6.25	F6.25	F6.25	F6.25		F6.31
Horizontal Tail Dim.		15.9820		30.6667	45.3514		
Purlin Offset: 9.5	RAF01		RAF02		RAF03		RAF04
Projected Area: 267							

Note - Stiffener spacing is given on Flat (inches).



Left Eave Height: 26.00
Left Girt Offset: 8.0
Total Width: 61.33

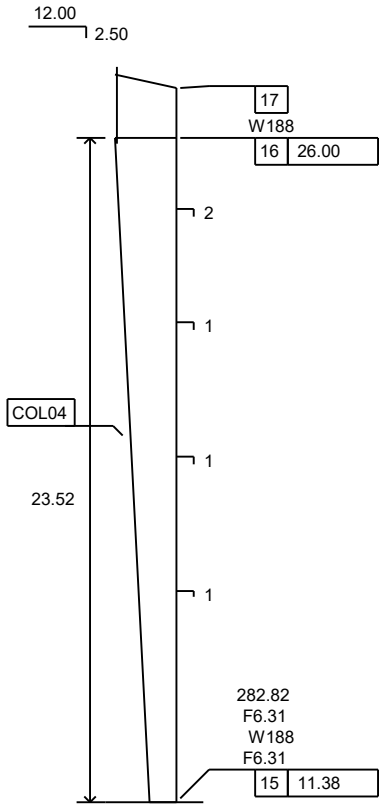
20.67 | 20.00 | 17.83

Frame Wt: 4695 Max Wind dx: H/259 Max dx: H/91 Max dy: L/263

Location Code	1 P	2	3	4 P	5 P	6 P	7 P	8 M	9 M	10	11 M	12	13 M	14 M
Left Plate	NA	3x0.375	6x0.250	NA	-	NA	-	6x0.500	6x0.375	-	6x0.375	-	6x0.375	6x0.500
Left Stiffener / Weld	-	-	-	-	-	-	-	NA	NA	-	NA	-	NA	NA
Right Plate	8x0.750	-	-	8x0.625	-	8x0.625	-	6x0.500	6x0.375	-	6x0.375	-	6x0.375	6x0.500
Right Stiffener / Weld	-	-	-	-	-	-	-	NA	NA	-	NA	-	NA	NA
Bolt Quantity-Diameter	4-1.000	-	-	4-0.750	4-0.625-S	4-0.750	4-0.625-S	16-0.625-S	8-0.625-S	-	8-0.625-S	-	8-0.625-S	16-0.625-S
Pfi/Pf	4.000/NA	-	-	NA	-	NA	-	1.250/2.875	1.188/2.750	-	1.438/3.125	-	1.188/2.750	1.250/2.875
Top Welds (L/R)	FWS4	-	W1-FWS3	FWS3	-	FWS3	-	FWD3/FWD3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3	FWD3/FWD3
Bottom Welds (L/R)	FWS3	-	W3-FWS3	FWS3	-	FWS3	-	FWD3/FWD3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3	FWD3/FWD3
Web Welds (L/R)	FWR3	-	W4-FWS3	FWR3	-	FWR3	-	WP13/WP13	WP13/WP13	-	WP13/WP13	-	WP13/WP13	WP13/WP13
Connection Code	BHFCNA	-	-	BHFCNA	CHFCNA	BHFCNA	CHFCNA	KVEUEU	SPEUEU	-	SVEUEU	-	SPEUEU	KVEUEU
Pb/Gage	4.000/4.000	-	-	4.000/4.000	-	4.000/4.000	-	1.875/3.500	NA/3.500	-	NA/3.500	-	NA/3.500	1.875/3.500

Job #: U26H0545A File: F14 - FL 6.frame Title: Line(s) 6 Designer: BG\Weili.Du Date: 2026-09-16 - 13:05 Frame Ver: 2.7.34 Page: ___

Web Depth	14	26.00
Length on Slope		
Left/Top Flange		
Web		
Right/Bottom Flange		
Horizontal Tail Dim.		
Purlin Offset: 9.5		



Right Eave Height: 26.00 2.83
Right Girt Offset: 8.0

Total Width: 61.33 Frame Wt: 4695 Max Wind dx: H/259 Max dx: H/91 Max dy: L/263

Location Code	14 M	15 P	16	17
Left Plate	6x0.500	NA	3x0.375	6x0.250
Left Stiffener / Weld	NA	-	-	-
Right Plate	6x0.500	8x0.500	-	-
Right Stiffener / Weld	NA	-	-	-
Bolt Quantity-Diameter	16-0.625-S	4-0.750	-	-
Pfi/Pf	1.250/2.875	4.000/NA	-	-
Top Welds (L/R)	FWD3/FWD3	FWS3	-	W1-FWS3
Bottom Welds (L/R)	FWD3/FWD3	FWS3	-	W3-FWS3
Web Welds (L/R)	WP13/WP13	FWR3	-	W4-FWS3
Connection Code	KVEUEU	BHFCNA	-	-
Pb/Gage	1.875/3.500	4.000/4.000	-	-

Job #: U26H0545A File: F14 - FL 6.frame Title: Line(s) 6 Designer: BG\Weili.Du Date: 2026-09-16 - 13:05 Frame Ver: 2.7.34 Page: ___

NUCOR BUILDINGS GROUP

Job # : U26H0545A
Job Name : Nisqually - Vocational & Emergency Operations Center
Frame : Line(s) 6
Creation Date : 2026-09-04
Final Design Date: 2026-09-16
Designer : BG\Weili.Du
File : F14 - FL 6.nfr
App Version : 2.7.34

F R A M E D E S C R I P T I O N

Frame type : RMG
Frame width : 61.33 Ft.
Bay width : 25.00 Ft.

	LEFT	RIGHT		
Dim to ridge	30.67 Ft.	30.67 Ft.		
Roof slope	2.50/12	-2.50/12		
Eave height	26.00 Ft.	26.00 Ft.		
Girt offset	8.00 In.	8.00 In.	Typ. Girt spacing	4.58 Ft.
Purlin offset	9.50 In.	9.50 In.	Typ. Purlin spacing	5.00 Ft.

Col. spacing : 20.6667,20.0000,20.6667

Supports / Spring Constants

COL01 - Bottom V H
COL02 - Bottom V H
COL03 - Bottom V H
COL04 - Bottom V H

Column Bracing:

WP1 Girt Brace	Y	Y	Y	Y	
Flange Brace	1	1	1	2	
Location (ft)	7.5	12.3	17.0	21.0	
WP2 Girt Brace	Y	Y	Y	Y	
Flange Brace	1	1	1	2	
Location (ft)	7.5	12.3	17.0	21.0	

Other Braces:

Column	COL02	COL02	COL02	COL02	COL02	COL03	COL03	COL03	COL03	COL03
Left Brace	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Right Brace	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Location (ft)	7.5	12.3	17.0	21.0	25.8	7.5	12.3	17.0	21.0	25.8

L O A D I N G C O N D I T I O N S

Building Code & Year : IBC2021
Risk Category : II-Standard Buildings
AISC Specification : 2016 ASD

L O A D S (Psf)

Roof Dead load : 5.00
Roof Coll load : 10.00
Roof Live load : 20.00
Roof Snow load : 9.41
Floor dead load : 0.00
Floor live load : 0.00
Ground Snow load: 15.00 Ce = 1.00
Ss = 1.500 S1 = 0.460 Seismic Design Category = D Site Class = D
R = 3.50 Cd = 3.00 Sds = 1.000 Sd1 = 0.564 rho = 1.30 omega = 2.500

Is Building Irregular = False

Roof Seismic Factor : 0.286 PSF
Floor Seismic Factor : 0.286 PSF

Wind speed : 97.00 Mph Exp. : B
Wind pressure : 14.34 Psf

Building is Partially Enclosed

Wind pressure coefficients Is End Bay? True

	C1	C2E	C2	C3	C3E	C4
W1R	1.246	0.000	-0.520	-0.052	0.000	0.025
W1L	0.025	0.000	-0.052	-0.520	0.000	1.246
W2R	0.146	0.000	-1.620	-1.152	0.000	-1.075
W2L	-1.075	0.000	-1.152	-1.620	0.000	0.146
W5B	0.070	0.000	-0.520	0.020	0.000	0.070
W5F	0.070	0.000	0.020	-0.520	0.000	0.070
W6B	-1.030	0.000	-1.620	-1.080	0.000	-1.030
W6F	-1.030	0.000	-1.080	-1.620	0.000	-1.030

Wind Loads for Interior Column

Column Id	Pressure (PSF)	Suction (PSF)
COL02	22.23	-23.67
COL03	22.23	-23.67

Tributary Widths

Panel	Trib. Width (ft)
WP1	25.00

WP2	25.00
COL02	0.00
COL03	0.00
RP1	25.00
RP2	25.00

P R O G R A M - A P P L I E D L O A D S

Panel Loads

Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.125	-0.125	0.000	30.667
RDL	RP2	-0.125	-0.125	30.667	61.333
COL	RP1	-0.250	-0.250	0.000	30.667
COL	RP2	-0.250	-0.250	30.667	61.333
SL	RP1	-0.262	-0.262	0.000	30.667
SR	RP2	-0.262	-0.262	30.667	61.333
UOS	RP1	-0.625	-0.625	0.000	30.667
UOS	RP2	-0.625	-0.625	30.667	61.333
RLL	RP1	-0.500	-0.500	0.000	30.667
RLR	RP2	-0.500	-0.500	30.667	61.333
W1R	RP1	-0.186	-0.186	0.000	30.667
W1R	RP2	-0.019	-0.019	30.667	61.333
W1R	WP1	0.447	0.447	3.750	26.000
W1R	WP2	-0.009	-0.009	3.750	26.000
W1L	RP1	-0.019	-0.019	0.000	30.667
W1L	RP2	-0.186	-0.186	30.667	61.333
W1L	WP1	0.009	0.009	3.750	26.000
W1L	WP2	-0.447	-0.447	3.750	26.000
W2R	RP1	-0.581	-0.581	0.000	30.667
W2R	RP2	-0.413	-0.413	30.667	61.333
W2R	WP1	0.052	0.052	3.750	26.000
W2R	WP2	0.385	0.385	3.750	26.000
W2L	RP1	-0.413	-0.413	0.000	30.667
W2L	RP2	-0.581	-0.581	30.667	61.333
W2L	WP1	-0.385	-0.385	3.750	26.000
W2L	WP2	-0.052	-0.052	3.750	26.000
W5B	RP1	-0.186	-0.186	0.000	30.667
W5B	RP2	0.007	0.007	30.667	61.333
W5B	WP1	0.025	0.025	3.750	26.000
W5B	WP2	-0.025	-0.025	3.750	26.000
W5F	RP1	0.007	0.007	0.000	30.667
W5F	RP2	-0.186	-0.186	30.667	61.333
W5F	WP1	0.025	0.025	3.750	26.000
W5F	WP2	-0.025	-0.025	3.750	26.000
W6B	RP1	-0.581	-0.581	0.000	30.667
W6B	RP2	-0.387	-0.387	30.667	61.333
W6B	WP1	-0.369	-0.369	3.750	26.000
W6B	WP2	0.369	0.369	3.750	26.000
W6F	RP1	-0.387	-0.387	0.000	30.667
W6F	RP2	-0.581	-0.581	30.667	61.333
W6F	WP1	-0.369	-0.369	3.750	26.000
W6F	WP2	0.369	0.369	3.750	26.000
EQR	RP1	0.166	0.166	0.000	30.667
EQR	RP2	0.166	0.166	30.667	61.333
EQL	RP1	-0.166	-0.166	0.000	30.667
EQL	RP2	-0.166	-0.166	30.667	61.333
LRD	RP1	-0.235	-0.235	0.000	30.667
LRD	RP1	-0.275	-0.275	21.847	30.667
LRD	RP2	-0.071	-0.071	30.667	61.333
RRD	RP1	-0.071	-0.071	0.000	30.667
RRD	RP2	-0.235	-0.235	30.667	61.333
RRD	RP2	-0.275	-0.275	30.667	39.486

Concentrated Loads

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	0.685	0.000	0.000	26.000
W1R	COL04	0.685	0.000	0.000	26.000
W1L	COL01	-0.685	0.000	0.000	26.000
W1L	COL04	-0.685	0.000	0.000	26.000
W2R	COL01	0.685	0.000	0.000	26.000
W2R	COL04	0.685	0.000	0.000	26.000
W2L	COL01	-0.685	0.000	0.000	26.000
W2L	COL04	-0.685	0.000	0.000	26.000

Endwall Bracing Loads

Shear loads that are applied perpendicular to the web have been
considered in the baseplate design only.

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.

U S E R - A P P L I E D L O A D S

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.
The locations listed below for each longitudinal bracing load apply only to the column axial load
(tension on base of column and compression when at top of column).

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.	Special Load #	Description
RDL	COL01	0.000	-0.500	0.000	1.342	25.000	C-1	FSW Eave
RDL	COL04	0.000	-0.500	0.000	-1.342	25.000	C-13	BSW Eave
COL	COL01	0.000	-0.750	0.000	2.013	25.000	C-2	FSW Eave
COL	COL04	0.000	-0.750	0.000	-2.013	25.000	C-14	BSW Eave

SL	COL01	0.000	-0.750	0.000	2.013	25.000	C-4	FSW Eave
SR	COL04	0.000	-0.750	0.000	-2.013	25.000	C-16	BSW Eave
UOS	COL01	0.000	-1.750	0.000	4.696	25.000	C-25	FSW Eave
UOS	COL04	0.000	-1.750	0.000	-4.696	25.000	C-26	BSW Eave
RLL	COL01	0.000	-1.500	0.000	4.025	25.000	C-3	FSW Eave
RLL	COL04	0.000	-1.500	0.000	-4.025	25.000	C-15	BSW Eave
W1R	COL01	0.000	1.250	0.000	-3.354	25.000	C-7	FSW Eave
W1R	COL04	0.000	1.250	0.000	3.354	25.000	C-19	BSW Eave
W1L	COL01	0.000	1.250	0.000	-3.354	25.000	C-5	FSW Eave
W1L	COL04	0.000	1.250	0.000	3.354	25.000	C-17	BSW Eave
W2R	COL01	0.000	1.250	0.000	-3.354	25.000	C-8	FSW Eave
W2R	COL04	0.000	1.250	0.000	3.354	25.000	C-20	BSW Eave
W2L	COL01	0.000	1.250	0.000	-3.354	25.000	C-6	FSW Eave
W2L	COL04	0.000	1.250	0.000	3.354	25.000	C-18	BSW Eave
W5B	COL01	0.000	1.250	0.000	-3.354	25.000	C-9	FSW Eave
W5B	COL04	0.000	1.250	0.000	3.354	25.000	C-21	BSW Eave
W5F	COL01	0.000	1.250	0.000	-3.354	25.000	C-11	FSW Eave
W5F	COL04	0.000	1.250	0.000	3.354	25.000	C-23	BSW Eave
W6B	COL01	0.000	1.250	0.000	-3.354	25.000	C-10	FSW Eave
W6B	COL04	0.000	1.250	0.000	3.354	25.000	C-22	BSW Eave
W6F	COL01	0.000	1.250	0.000	-3.354	25.000	C-12	FSW Eave
W6F	COL04	0.000	1.250	0.000	3.354	25.000	C-24	BSW Eave
BWU	COL01	0.000	4.000	-4.000	0.000	0.500	Long. Bracing-1	COL01
BWC	COL01	0.000	-4.000	4.000	0.000	24.375	Long. Bracing-1	COL01
EQB	COL01	0.000	-15.000	15.000	0.000	24.375	Long. Bracing-1	COL01
EQF	COL01	0.000	15.000	-15.000	0.000	0.500	Long. Bracing-1	COL01

L O A D C O M B I N A T I O N S

	ASR	Cases
1)	1.00	SW+RDL+COL+NLL
2)	1.00	SW+RDL+COL+NLR
3)	1.00	SW+RDL+COL+SL+SR+NLL
4)	1.00	SW+RDL+COL+SL+SR+NLR
5)	1.00	SW+RDL+COL+RLL+RLR+NLL
6)	1.00	SW+RDL+COL+RLL+RLR+NLR
7)	1.00	SW+RDL+COL+0.60W1L
8)	1.00	SW+RDL+COL+0.60W2L
9)	1.00	SW+RDL+COL+0.60W1R
10)	1.00	SW+RDL+COL+0.60W2R
11)	1.00	0.60SW+0.60RDL+0.60W1L
12)	1.00	0.60SW+0.60RDL+0.60W2L
13)	1.00	0.60SW+0.60RDL+0.60W1R
14)	1.00	0.60SW+0.60RDL+0.60W2R
15)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
16)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
17)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
18)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
19)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
20)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
21)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
22)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
23)	1.00	SW+RDL+COL+0.60W5B+0.60BWC
24)	1.00	SW+RDL+COL+0.60W6B+0.60BWC
25)	1.00	SW+RDL+COL+0.60W5F+0.60BWC
26)	1.00	SW+RDL+COL+0.60W6F+0.60BWC
27)	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
28)	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
29)	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
30)	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
31)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B+0.45BWC
32)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B+0.45BWC
33)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F+0.45BWC
34)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F+0.45BWC
35)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
36)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
37)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
38)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
39)	1.00	SW+RDL+COL+UOS+NLL
40)	1.00	SW+RDL+COL+UOS+NLR
41)	1.00	SW+RDL+COL+LRD+NLL
42)	1.00	SW+RDL+COL+LRD+NLR
43)	1.00	SW+RDL+COL+RRD+NLL
44)	1.00	SW+RDL+COL+RRD+NLR
45)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
46)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
47)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLL
48)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB+NLR
49)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLL
50)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF+NLR
51)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQL
52)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQR
53)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLL
54)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQB+NLR
55)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLL
56)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQF+NLR
57)	1.00	0.46SW+0.46RDL+0.91EQL
58)	1.00	0.46SW+0.46RDL+0.91EQR
59)	1.00	0.46SW+0.46RDL+0.91EQB+NLL
60)	1.00	0.46SW+0.46RDL+0.91EQB+NLR
61)	1.00	0.46SW+0.46RDL+0.91EQF

*** DESIGN SUMMARY REPORT ***

Built Up Rafter - RAF01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	Shear Ratio	Flow T/L	(k/in) B/R
1	F6.25	F6.31	W150	46	1	5.4	0.02	105.8	0.85	0.61	0.82	45	1	11.55	0.44	0.30	0.34

Chkpt	1	5
Depth	26.56	26.56
Section	| 1 |	

	width	thick	Fy
T/L Flg	6.0	0.2500	55.00
Web		0.1500	55.00
B/R Flg	6.0	0.3125	55.00

Built Up Rafter - RAF02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	Shear Ratio	Flow T/L	(k/in) B/R
1	F6.25	F6.25	W150	46	8	4.3	0.02	-54.2	0.36	0.44	0.42	46	8	-13.76	0.50	0.37	0.37
2	F6.25	F6.25	W150	46	9	-0.6	0.01	-54.7	0.36	0.44	0.45	40	9	8.51	0.33	0.23	0.23

Chkpt	6	8	9	12
Depth	26.50	26.50		26.50
Section	| 1 |	|	2 |	

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.2500	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF03

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	Shear Ratio	Flow T/L	(k/in) B/R
1	F6.25	F6.25	W150	45	16	-0.7	0.01	-55.5	0.36	0.45	0.46	39	16	-8.85	0.34	0.24	0.24
2	F6.25	F6.25	W150	45	17	4.3	0.02	-55.0	0.36	0.45	0.43	45	17	13.97	0.50	0.37	0.37

Chkpt	13	16	17	19
Depth	26.50	26.50		26.50
Section	| 1 |	|	2 |	

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.2500	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF04

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	Shear Ratio	Flow T/L	(k/in) B/R
1	F6.25	F6.31	W150	45	24	5.5	0.02	106.5	0.85	0.61	0.83	46	24	-12.30	0.47	0.32	0.36

Chkpt	20	24
Depth	26.56	26.56
Section	| 1 |	

	width	thick	Fy
T/L Flg	6.0	0.2500	55.00
Web		0.1500	55.00
B/R Flg	6.0	0.3125	55.00

Built Up Column - COL01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	Shear Ratio	Flow T/L	(k/in) B/R
1	F6.31	F6.31	W188	45	34	-15.5	0.10	-117.2	0.62	0.65	0.70	46	25	4.81	0.12	0.35	0.35

Chkpt	25	34
Depth	12.00	26.62
Section	| 1 |	

	width	thick	Fy
T/L Flg	6.0	0.3125	55.00
Web		0.1875	55.00
B/R Flg	6.0	0.3125	55.00

Wide Flange Members

Shipping Length	Mat'l Code	ID	Fy	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	Bend Ratio	Max Ratio	Load Comb	Loc	Shear Kips	Shear Ratio

COL02	WF1226	W12x 26	50.0	46	35	-23.0	0.14	-0.0	0.00	0.14	46	40	-0.37	0.01
COL03	WF1226	W12x 26	50.0	45	45	-23.3	0.14	0.0	0.00	0.14	45	50	0.38	0.01

*** DESIGN SUMMARY REPORT ***

Built Up Column - COL04

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	Load Comb	Loc	SHEAR Force Kips	SHEAR Shear Ratio	SHEAR Flow T/L	SHEAR Flow B/R (k/in)
1	F6.31	F6.31	W188	46	63	-15.3	0.10	119.2	0.66	0.63	0.71	46	63	4.78	0.12	0.35	0.35

Chkpt 55 63
Depth 12.00 26.62
Section | 1 |

	width	thick	Fy
T/L Flg	6.0	0.3125	55.00
Web		0.1875	55.00
B/R Flg	6.0	0.3125	55.00

Frame Weight (lbs) = 3948
Deflections (in):

10 yr Wind dx =	1.08 = H/ 260	WIND CASE 2 TO RIGHT	
Seismic dx =	3.38 = H/ 83	SEISMIC TO RIGHT	
Story Drift =	10.15 = 0.036H	SEISMIC TO RIGHT	
Stability Coefficient =	0.02	1.14SW+1.14RDL+1.14COL+0.91EQB	
Stability Ratio =	0.10	1.14SW+1.14RDL+1.14COL+0.91EQB	
Fundamental Period =	1.2080	Single Story Period	
Maximum dx =	-3.10 = H/ 91	1.14SW+1.14RDL+1.14COL+0.91EQL	
Maximum dy =	-0.86 = L/ 263 @ MOD 3,	1.14SW+1.14RDL+1.14COL+0.91EQL	
Max. Live dy =	-0.05 = L/ 4318 @ MOD 1,	LIVE ON LEFT AND RIGHT	
Rigidity =	3.01 kip/in		

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 6
Creation Date   : 2026-09-04
Final Design Date: 2026-09-16
Designer   : BG\Weili.Du
File   : F14 - FL 6.nfr
App Version   : 2.7.34

C O N N E C T I O N S U M M A R Y

Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	Stiff. No.	Theta Degrees	Axial Ratio
2.50:12	W188	0.92	FWS3		FWS3	1.00	0.00	0.68	FWS3	0.75	0.51		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.2500	55.0			26.56	Stiffener				
Web		0.1875	55.0	21.14	26.00						
Bot Plate	3.0	0.3750	50.0			26.00					

Knee Connection - COL04

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	Stiff. No.	Theta Degrees	Axial Ratio
-2.50:12	W188	0.92	FWS3		FWS3	1.00	0.00	0.67	FWS3	0.76	0.51		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	6.0	0.2500	55.0			26.56	Stiffener				
Web		0.1875	55.0	21.14	26.00						
Bot Plate	3.0	0.3750	50.0			26.00					

Pinned Column Cap from COL02 to RAF02

Connx Type	Cap Plate Matl	Bottom Rft Flg Matl	Bolt Qty/Size	Load Comb	Axial Kips	Shear Kips	Moment Ft-kip	Cap Plate Ratio	B/R Rft Flg Ratio	BOLT Load Comb	BOLT Axial Kips	BOLT Shear Kips	BOLT Moment Ft-kip	BOLT Bolt Ratio
	F8.63		4-0.625-S							47	10.7	0.2	0.0	0.04

Pinned Column Cap from COL03 to RAF03

Connx Type	Cap Plate Matl	Bottom Rft Flg Matl	Bolt Qty/Size	Load Comb	Axial Kips	Shear Kips	Moment Ft-kip	Cap Plate Ratio	B/R Rft Flg Ratio	BOLT Load Comb	BOLT Axial Kips	BOLT Shear Kips	BOLT Moment Ft-kip	BOLT Bolt Ratio
	F8.63		4-0.625-S							48	10.6	0.2	0.0	0.04

Splice Load Combinations:

No.	ASR	Cases
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL

44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51	1.20	Special Seismic
52	1.20	Special Seismic
53	1.20	Special Seismic
54	1.20	Special Seismic
55	1.20	Special Seismic
56	1.20	Special Seismic
57	1.20	Special Seismic
58	1.20	Special Seismic
59	1.20	Special Seismic
60	1.20	Special Seismic
61	1.20	Special Seismic
62	1.20	Special Seismic
63	1.20	Special Seismic
64	1.20	Special Seismic
65	1.20	Special Seismic
66	1.20	Special Seismic
67	1.20	Special Seismic
68	1.20	Special Seismic
69	1.20	Special Seismic
70	1.20	Special Seismic
71	1.20	Special Seismic
72	1.20	Special Seismic
73	1.20	Special Seismic
74	1.20	Special Seismic
75	1.20	Special Seismic
76	1.20	Special Seismic
77	1.20	Special Seismic
78	1.20	Special Seismic
79	1.20	Special Seismic
80	1.20	Special Seismic
81	1.20	Special Seismic
82	1.20	Special Seismic
83	1.20	Special Seismic
84	1.20	Special Seismic
85	1.20	Special Seismic
86	1.20	Special Seismic

NUCOR BUILDINGS GROUP

Job #	: U26H0545A	Job Name	: Nisqually - Vocational & Emergency Operations Center	Frame	: Line(s) 6
File	: F14 - FL 6.nfr	Designer	: BG\Weili.Du		
App Version:	: 2.7.34.0	Date	: 2026-09-16		

BOLTED END-PLATES (BEP) SUMMARY — Bolt Pre Tension Method : TurnOfNut

PLATE SIZE: (in)

Splice ID	Left Type	Right Type	Members Joined	Loc	Web Depth	Left Plate Width	Left Plate Thick	Left Plate Length	Left Plate Fy(ksi)	Right Plate Width	Right Plate Thick	Right Plate Length	Right Plate Fy(ksi)
1	8E	8E	COL01 To RAF01	Top	26.00	6.00	0.50	32.06	55.00	6.00	0.50	32.06	55.00
1	8E	8E	COL01 To RAF01	Bot	26.00	6.00	0.50	32.06	55.00	6.00	0.50	32.06	55.00
2	4E	4E	RAF01 To RAF02	Top	26.00	6.00	0.38	31.37	55.00	6.00	0.38	31.37	55.00
2	4E	4E	RAF01 To RAF02	Bot	26.00	6.00	0.38	31.37	55.00	6.00	0.38	31.37	55.00
3	4E	4E	RAF02 To RAF03	Top	26.00	6.00	0.38	32.18	55.00	6.00	0.38	32.18	55.00
3	4E	4E	RAF02 To RAF03	Bot	26.00	6.00	0.38	32.18	55.00	6.00	0.38	32.18	55.00
4	4E	4E	RAF03 To RAF04	Top	26.00	6.00	0.38	31.37	55.00	6.00	0.38	31.37	55.00
4	4E	4E	RAF03 To RAF04	Bot	26.00	6.00	0.38	31.37	55.00	6.00	0.38	31.37	55.00
5	8E	8E	RAF04 To COL04	Top	26.00	6.00	0.50	32.06	55.00	6.00	0.50	32.06	55.00
5	8E	8E	RAF04 To COL04	Bot	26.00	6.00	0.50	32.06	55.00	6.00	0.50	32.06	55.00

PLATE DESIGN

Splice ID	Left Type	Right Type	Tension Location	Max Moment Load Comb	Max Moment Axial (kip)	Max Moment Shear (kip)	Max Moment Moment (ft-kip)	Max Shear Load Comb	Max Shear Axial (kip)	Max Shear Shear (kip)	Max Shear Moment (ft-kip)	Left Plate Ratio	Right Plate Ratio
1	8E	8E	Top	-57	-8.73	19.99	-201.60	-65	8.17	-14.76	195.99	0.92	0.92
1	8E	8E	Bot	-65	8.17	-14.76	195.99	-57	-8.73	19.99	-201.60	0.96	0.97
2	4E	4E	Top	25	4.44	1.47	-2.33	47	-3.61	7.50	1.02	0.09	0.09
2	4E	4E	Bot	40	4.53	-11.42	0.53	47	-3.61	7.50	1.02	0.07	0.07
3	4E	4E	Top	25	5.63	-0.11	2.51	39	-0.43	-3.81	7.08	0.05	0.05
3	4E	4E	Bot	35	3.71	0.08	13.21	8	-1.88	-1.63	-1.11	0.22	0.22
4	4E	4E	Top	27	4.41	-1.66	-2.43	48	-3.60	-7.49	1.04	0.09	0.09
4	4E	4E	Bot	33	4.44	5.46	0.83	48	-3.60	-7.49	1.04	0.07	0.07
5	8E	8E	Top	-63	-9.55	-20.89	-200.59	-59	8.99	14.29	194.39	0.91	0.91
5	8E	8E	Bot	-59	8.99	14.29	194.39	-63	-9.55	-20.89	-200.59	0.97	0.96

BOLT RUPTURE DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	2.88	1.88	1.13	-57	-8.73	-201.60	0.89	0.90
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.25	2.88	1.88	1.13	-65	8.17	195.99	0.95	0.95
2	4E	4E	Top	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	25	4.44	-2.33	0.06	0.06
2	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.19	1.25	2.75	--	1.13	40	4.53	0.53	0.05	0.05
3	4E	4E	Top	A325	Yes	0.63	3.50	--	1.44	1.51	3.13	--	1.13	25	5.63	2.51	0.03	0.03
3	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.44	1.35	3.13	--	1.13	35	3.71	13.21	0.14	0.14
4	4E	4E	Top	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	27	4.41	-2.43	0.06	0.06
4	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	33	4.44	0.83	0.05	0.05
5	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.27	2.88	1.88	1.13	-63	-9.55	-200.59	0.89	0.88
5	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	-59	8.99	194.39	0.95	0.95

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	2.88	1.88	1.13	-65	-14.76	0.19	0.19
1	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.25	2.88	1.88	1.13	-57	19.99	0.25	0.25
2	4E	4E	Top	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	47	7.50	0.23	0.23
2	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.19	1.25	2.75	--	1.13	47	7.50	0.23	0.23
3	4E	4E	Top	A325	Yes	0.63	3.50	--	1.44	1.51	3.13	--	1.13	39	-3.81	0.11	0.11
3	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.44	1.35	3.13	--	1.13	8	-1.63	0.05	0.05
4	4E	4E	Top	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	48	-7.49	0.23	0.23
4	4E	4E	Bot	A325	Yes	0.63	3.50	--	1.19	1.31	2.75	--	1.13	48	-7.49	0.23	0.23

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
5	8E	8E	Top	A325	Yes	0.63	3.50	--	1.25	1.27	2.88	1.88	1.13	-59	14.29	0.18	0.18
5	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.25	1.41	2.88	1.88	1.13	-63	-20.89	0.26	0.26

WELD DESIGN

Splice ID	Loc	Left							Right						
		Welds			Checks				Welds			Checks			
		Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture	Flg	Web	Stf	Load Comb	Tensile Rupture	Load Comb	Shear Rupture
1	Top	FWD3	WP13		-57	0.81	-65	0.24	FWD3	WP13		-57	0.88	-65	0.29
1	Bot	FWD3	WP13		-65	0.87	-57	0.32	FWD3	WP13		-65	0.95	-57	0.40
2	Top	FWD3	WP13		25	0.05	47	0.18	FWD3	WP13		25	0.05	47	0.18
2	Bot	FWD3	WP13		40	0.04	47	0.18	FWD3	WP13		40	0.04	47	0.18
3	Top	FWD3	WP13		25	0.03	39	0.09	FWD3	WP13		25	0.03	39	0.09
3	Bot	FWD3	WP13		35	0.12	8	0.04	FWD3	WP13		35	0.12	8	0.04
4	Top	FWD3	WP13		27	0.05	48	0.18	FWD3	WP13		27	0.05	48	0.18
4	Bot	FWD3	WP13		33	0.04	48	0.18	FWD3	WP13		33	0.04	48	0.18
5	Top	FWD3	WP13		-63	0.87	-59	0.28	FWD3	WP13		-63	0.81	-59	0.23
5	Bot	FWD3	WP13		-59	0.95	-63	0.42	FWD3	WP13		-59	0.86	-63	0.33

BASEPLATE AND ANCHOR ROD DESIGN RESULTS

BASEPLATE AND ANCHOR ROD INFORMATION: (in)

Col ID	Col Type	Pattern	Col Depth	Base Plate				Anchor Rods					
				Width	Thickness	Length	Fy(ksi)	Qty	Dia.	Grade	Pfi	Pb	Gage
01	WF/BU	Left	12.000	8	0.75	12.0000	55	4	1	Grade36	4	4	4
02	WF/BU	Centered	12.220	8	0.625	12.2200	55	4	0.75	Grade36	4	4	4
03	WF/BU	Centered	12.220	8	0.625	12.2200	55	4	0.75	Grade36	4	4	4
04	WF/BU	Right	12.000	8	0.5	12.0000	55	4	0.75	Grade36	4	4	4

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression)					Base Plate Yielding (Tension)				
	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
01	-72	-37.54	-3.35	26.25	0.30	-86	28.22	2.59	-26.25	0.72
02	-63	-33.10	0.00	0.00	0.26	-59	18.76	0.00	0.00	0.70

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	Base Plate Yielding (Tension) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
03	-57	-33.30	0.00	0.00	0.26	-65	18.84	0.00	0.00	0.70
04	-63	-23.04	9.50	0.00	0.18	-59	13.42	-8.94	0.00	0.74

ANCHOR ROD SHEAR AND TENSION DESIGN CHECKS

Col ID	Anchor Rod Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Anchor Rod Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Tension-Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Shear-Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio
01	-86	28.22	2.59	-26.25	0.34	-72	-37.54	-3.35	26.25	0.67	-86	28.22	2.59	-26.25	0.56	-86	28.22	2.59	-26.25	0.79
02	-59	18.76	0.00	0.00	0.41	40	-22.98	-0.37	0.00	0.02	-59	18.76	0.00	0.00	0.45	40	-22.98	-0.37	0.00	0.02
03	-65	18.84	0.00	0.00	0.41	39	-23.27	0.38	0.00	0.02	-65	18.84	0.00	0.00	0.45	39	-23.27	0.38	0.00	0.02
04	-59	13.42	-8.94	0.00	0.29	-63	-23.04	9.50	0.00	0.43	-59	13.42	-8.94	0.00	0.36	-63	-23.04	9.50	0.00	0.47

BASEPLATE LEFT FLANGE WELD DESIGN CHECKS

Col ID	Left Flange Weld (Pipe Weld) Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Web Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Right Flange Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio
01	FWS4	-86	28.22	2.59	-26.25	0.93	FWR3	-86	28.22	2.59	-26.25	0.25	FWS3	-86	28.22	2.59	-26.25	0.72
02	FWS3	-59	18.76	0.00	0.00	0.15	FWR3	-59	18.76	0.00	0.00	0.12	FWS3	-59	18.76	0.00	0.00	0.15
03	FWS3	-65	18.84	0.00	0.00	0.15	FWR3	-65	18.84	0.00	0.00	0.12	FWS3	-65	18.84	0.00	0.00	0.15
04	FWS3	-59	13.42	-8.94	0.00	0.12	FWR3	-59	13.42	-8.94	0.00	0.19	FWS3	-59	13.42	-8.94	0.00	0.12

LOAD COMBINATIONS:

No	ASR	Combination
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B+0.60BWC
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B+0.60BWC
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F+0.60BWC
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F+0.60BWC
24	1.00	0.60SW+0.60RDL+0.60W5B+0.60BWU
25	1.00	0.60SW+0.60RDL+0.60W6B+0.60BWU
26	1.00	0.60SW+0.60RDL+0.60W5F+0.60BWU
27	1.00	0.60SW+0.60RDL+0.60W6F+0.60BWU
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B+0.45BWC
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B+0.45BWC
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F+0.45BWC
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F+0.45BWC
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B+0.45BWC
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B+0.45BWC

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

LOAD COMBINATIONS:

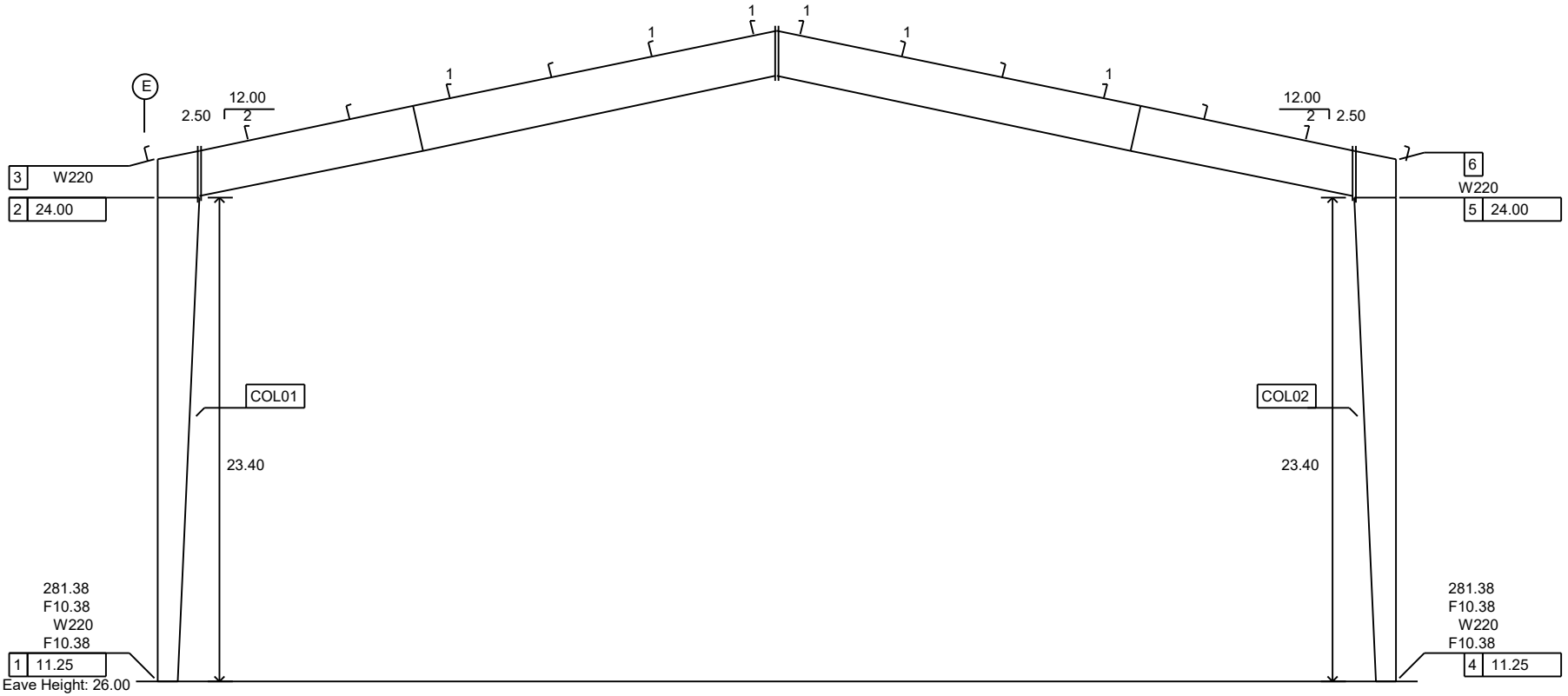
No	ASR	Combination
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F+0.45BWC
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F+0.45BWC
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.14SW+1.14RDL+1.14COL+0.91EQB
42	1.00	1.14SW+1.14RDL+1.14COL+0.91EQF
43	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
44	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
45	1.00	1.105SW+1.105RDL+1.105COL+0.683EQB
46	1.00	1.105SW+1.105RDL+1.105COL+0.683EQF
47	1.00	0.457SW+0.457RDL+0.91EQL
48	1.00	0.457SW+0.457RDL+0.91EQR
49	1.00	0.457SW+0.457RDL+0.91EQB
50	1.00	0.457SW+0.457RDL+0.91EQF
51*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL
52*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL
53*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL
54*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQB
55*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQB
56*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQB
57*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL+0.525EQF
58*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL+0.394EQF
59*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL+0.525EQF
60*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR
61*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR
62*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR
63*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQB
64*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQB
65*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQB
66*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR+0.525EQF
67*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR+0.394EQF
68*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR+0.525EQF
69*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQB
70*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQB
71*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQB
72*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQB
73*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQB
74*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQB
75*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQB
76*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQB
77*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQB
78*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQF
79*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQF
80*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQF
81*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQL+1.75EQF
82*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQL+1.313EQF
83*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQL+1.75EQF
84*	1.20	1.14SW+1.14RDL+1.14COL+0.525EQR+1.75EQF
85*	1.20	1.105SW+1.105RDL+1.105COL+0.394EQR+1.313EQF
86*	1.20	0.46SW+0.46RDL+0.46COL+0.525EQR+1.75EQF

*Indicates a Special Seismic Load Combination - Longitudinal Omega = 2.500

Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)	Member	X (kips)	Y (kips)	Z (kips)	In Plane Bending Mz (kip-ft)	Out of Plane Bending Mx (kip-ft)
COL02	-2	6	0	0	0						

	7	8	9	10	11
Web Depth	27.00	27.00 CT	27.00	27.00 CT	27.00
Length on Slope	127.21	216.00	216.00	127.21	
Left/Top Flange	F6.31	F6.25	F6.25	F6.31	
Web	W150	W150	W150	W150	
Right/Bottom Flange	F6.31	F6.25	F6.25	F6.31	
Horizontal Tail Dim.			30.6667		
Purlin Offset: 9.5		RAF01		RAF02	
Projected Area: 212					

Note - Stiffener spacing is given on Flat (inches).



Left Eave Height: 26.00
Left Girt Offset: 8.0
Right Eave Height: 26.00
Right Girt Offset: 8.0
Total Width: 61.33 Frame Wt: 3860 Max Wind dx: H/435 Max dx: H/135 Max dy: L/336

Location Code	1 P	2	3	4 P	5	6	7 M	8	9 M	10	11 M
Left Plate	NA	5x0.500	10x0.375	NA	5x0.500	10x0.375	10x0.500	-	6x0.375	-	8x0.500
Left Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Right Plate	10x0.375	-	-	10x0.375	-	-	8x0.500	-	6x0.375	-	10x0.500
Right Stiffener / Weld	-	-	-	-	-	-	NA	-	NA	-	NA
Bolt Quantity-Diameter	4-1.000	-	-	4-1.000	-	-	12-0.625-S	-	16-0.625-S	-	12-0.625-S
Pfi/Pf	4.000/NA	-	-	4.000/NA	-	-	1.250/3.000	-	1.438/3.125	-	1.250/3.000
Top Welds (L/R)	FWS3	-	W1-FWS3	FWS3	-	W1-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Bottom Welds (L/R)	FWS3	-	W3-FWS3	FWS3	-	W3-FWS3	FWD3/FWD3	-	FWD3/FWD3	-	FWD3/FWD3
Web Welds (L/R)	FWR3	-	W4-FWS3	FWR3	-	W4-FWS3	WP13/WP13	-	WP13/WP13	-	WP13/WP13
Connection Code	BHFCNA	-	-	BHFCNA	-	-	KVEUEU	-	SVEUEU	-	KVEUEU
Pb/Gage	4.000/4.000	-	-	4.000/4.000	-	-	1.875/3.500	-	1.875/3.500	-	1.875/3.500

Job #: U26H0545A File: F15 - REW.frame Title: Line(s) 7 Designer: BG\Weili.Du Date: 2026-09-16 - 13:44 Frame Ver: 2.7.34 Page: ___

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 7
Creation Date   : 2026-09-04
Final Design Date: 2026-09-16
Designer   : BG\Weili.Du
File   : F15 - REW.nfr
App Version   : 2.7.34.0

F R A M E D E S C R I P T I O N

Frame type : RCG
Frame width : 61.33 Ft.
Bay width   : 17.00 Ft.

	LEFT	RIGHT		
Dim to ridge	30.67 Ft.	30.67 Ft.		
Roof slope	2.50/12	-2.50/12		
Eave height	26.00 Ft.	26.00 Ft.		
Girt offset	8.00 In.	8.00 In.	Typ. Girt spacing	4.58 Ft.
Purlin offset	9.50 In.	9.50 In.	Typ. Purlin spacing	5.00 Ft.

Col. spacing : 61.3333

Supports / Spring Constants

COL01 - Bottom V H
COL02 - Bottom V H

Column Bracing:

WP1 Girt Brace   :
     Flange Brace :
     Location (ft):

WP2 Girt Brace   :
     Flange Brace :
     Location (ft):

Other Braces:

Column   :
Left Brace   :
Right Brace :
Location (ft):

L O A D I N G C O N D I T I O N S

Building Code & Year   : IBC2021
Risk Category   : II-Standard Buildings
AISC Specification   : 2016 ASD

L O A D S (Psf)

Roof Dead load :   5.50
Roof Coll load : 10.00
Roof Live load : 20.00
Roof Snow load :   9.41
Floor dead load :   0.00
Floor live load :   0.00
Ground Snow load: 15.00   Ce = 1.00
Ss = 1.500   S1 = 0.460   Seismic Design Category = D   Site Class = D
 R = 3.50   Cd = 3.00   Sds = 1.000   Sd1 = 0.564   rho = 1.30   omega = 2.500

Is Building Irregular = False

Roof Seismic Factor   : 0.286 PSF
Floor Seismic Factor   : 0.286 PSF

Wind speed   : 97.00 Mph Exp. : B
Wind pressure   : 14.34 Psf

Building is Partially Enclosed

Wind pressure coefficients   Is End Bay? True

	C1	C2E	C2	C3	C3E	C4
W1R	1.246	0.000	-0.520	-0.052	0.000	0.025
W1L	0.025	0.000	-0.052	-0.520	0.000	1.246
W2R	0.146	0.000	-1.620	-1.152	0.000	-1.075
W2L	-1.075	0.000	-1.152	-1.620	0.000	0.146
W5B	0.070	0.000	-0.520	0.020	0.000	0.070
W5F	0.070	0.000	0.020	-0.520	0.000	0.070
W6B	-1.030	0.000	-1.620	-1.080	0.000	-1.030
W6F	-1.030	0.000	-1.080	-1.620	0.000	-1.030

Tributary Widths

Panel	Trib. Width (ft)
WP1	17.00
WP2	17.00
RP1	17.00
RP2	17.00

P R O G R A M - A P P L I E D L O A D S

Panel Loads

Load Case	On Panel	Start Load Klf	End Load Klf	Start Loc Ft.	End Loc Ft.
RDL	RP1	-0.094	-0.094	0.000	30.667
RDL	RP2	-0.094	-0.094	30.667	61.333
COL	RP1	-0.170	-0.170	0.000	30.667
COL	RP2	-0.170	-0.170	30.667	61.333
SL	RP1	-0.160	-0.160	0.000	30.667
SR	RP2	-0.160	-0.160	30.667	61.333
UOS	RP1	-0.425	-0.425	0.000	30.667
UOS	RP2	-0.425	-0.425	30.667	61.333
RLL	RP1	-0.340	-0.340	0.000	30.667
RLR	RP2	-0.340	-0.340	30.667	61.333
W1R	RP1	-0.127	-0.127	0.000	30.667
W1R	RP2	-0.013	-0.013	30.667	61.333
W1R	WP1	0.304	0.304	13.000	26.000
W1R	WP2	-0.006	-0.006	13.000	26.000
W1L	RP1	-0.013	-0.013	0.000	30.667
W1L	RP2	-0.127	-0.127	30.667	61.333
W1L	WP1	0.006	0.006	13.000	26.000
W1L	WP2	-0.304	-0.304	13.000	26.000
W2R	RP1	-0.395	-0.395	0.000	30.667
W2R	RP2	-0.281	-0.281	30.667	61.333
W2R	WP1	0.036	0.036	13.000	26.000
W2R	WP2	0.262	0.262	13.000	26.000
W2L	RP1	-0.281	-0.281	0.000	30.667
W2L	RP2	-0.395	-0.395	30.667	61.333
W2L	WP1	-0.262	-0.262	13.000	26.000
W2L	WP2	-0.036	-0.036	13.000	26.000
W5B	RP1	-0.127	-0.127	0.000	30.667
W5B	RP2	0.005	0.005	30.667	61.333
W5B	WP1	0.017	0.017	13.000	26.000
W5B	WP2	-0.017	-0.017	13.000	26.000
W5F	RP1	0.005	0.005	0.000	30.667
W5F	RP2	-0.127	-0.127	30.667	61.333
W5F	WP1	0.017	0.017	13.000	26.000
W5F	WP2	-0.017	-0.017	13.000	26.000
W6B	RP1	-0.395	-0.395	0.000	30.667
W6B	RP2	-0.263	-0.263	30.667	61.333
W6B	WP1	-0.251	-0.251	13.000	26.000
W6B	WP2	0.251	0.251	13.000	26.000
W6F	RP1	-0.263	-0.263	0.000	30.667
W6F	RP2	-0.395	-0.395	30.667	61.333
W6F	WP1	-0.251	-0.251	13.000	26.000
W6F	WP2	0.251	0.251	13.000	26.000
EQR	RP1	0.101	0.101	0.000	30.667
EQR	RP2	0.101	0.101	30.667	61.333
EQL	RP1	-0.101	-0.101	0.000	30.667
EQL	RP2	-0.101	-0.101	30.667	61.333
LRD	RP1	-0.160	-0.160	0.000	30.667
LRD	RP1	-0.187	-0.187	21.847	30.667
LRD	RP2	-0.048	-0.048	30.667	61.333
RRD	RP1	-0.048	-0.048	0.000	30.667
RRD	RP2	-0.160	-0.160	30.667	61.333
RRD	RP2	-0.187	-0.187	30.667	39.486

Concentrated Loads

Load Case	On Mem	Hor. Kips	Vert. Kips	Moment K-Ft.	Loc Ft.
W1R	COL01	0.466	0.000	0.000	26.000
W1R	COL02	0.466	0.000	0.000	26.000
W1L	COL01	-0.466	0.000	0.000	26.000
W1L	COL02	-0.466	0.000	0.000	26.000
W2R	COL01	0.466	0.000	0.000	26.000
W2R	COL02	0.466	0.000	0.000	26.000
W2L	COL01	-0.466	0.000	0.000	26.000
W2L	COL02	-0.466	0.000	0.000	26.000

Endwall Bracing Loads

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.

U S E R - A P P L I E D L O A D S

Shear loads that are applied perpendicular to the web have been considered in the baseplate design only.
The locations listed below for each longitudinal bracing load apply only to the column axial load
(tension on base of column and compression when at top of column).

Load Case	On Mem	Hor. Kips	Vert. Kips	Perp Shear Kips	Moment K-Ft.	Loc Ft.	Special Load #	Description
RDL	COL01	0.000	-0.500	0.000	1.300	25.000	C-1	FSW Eave
RDL	COL02	0.000	-0.500	0.000	-1.300	25.000	C-11	BSW Eave
COL	COL01	0.000	-0.750	0.000	1.950	25.000	C-2	FSW Eave
COL	COL02	0.000	-0.750	0.000	-1.950	25.000	C-12	BSW Eave
SL	COL01	0.000	-0.750	0.000	1.950	25.000	C-4	FSW Eave
SR	COL02	0.000	-0.750	0.000	-1.950	25.000	C-14	BSW Eave
UOS	COL01	0.000	-1.750	0.000	4.550	25.000	C-21	FSW Eave
UOS	COL02	0.000	-1.750	0.000	-4.550	25.000	C-22	BSW Eave
RLL	COL01	0.000	-1.500	0.000	3.900	25.000	C-3	FSW Eave
RLL	COL02	0.000	-1.500	0.000	-3.900	25.000	C-13	BSW Eave
W1R	COL01	0.000	1.250	0.000	-3.250	25.000	C-7	FSW Eave
W1R	COL02	0.000	1.250	0.000	3.250	25.000	C-17	BSW Eave
W1L	COL01	0.000	1.250	0.000	-3.250	25.000	C-5	FSW Eave
W1L	COL02	0.000	1.250	0.000	3.250	25.000	C-15	BSW Eave
W2R	COL01	0.000	1.250	0.000	-3.250	25.000	C-8	FSW Eave
W2R	COL02	0.000	1.250	0.000	3.250	25.000	C-18	BSW Eave

W2L	COL01	0.000	1.250	0.000	-3.250	25.000	C-6	FSW Eave
W2L	COL02	0.000	1.250	0.000	3.250	25.000	C-16	BSW Eave
W5B	COL01	0.000	1.250	0.000	-3.250	25.000	C-9	FSW Eave
W5B	COL02	0.000	1.250	0.000	3.250	25.000	C-19	BSW Eave
W6B	COL01	0.000	1.250	0.000	-3.250	25.000	C-10	BSW Eave
W6B	COL02	0.000	1.250	0.000	3.250	25.000	C-20	BSW Eave

L O A D C O M B I N A T I O N S

	ASR	Cases
1)	1.00	SW+RDL+COL+NLL
2)	1.00	SW+RDL+COL+NLR
3)	1.00	SW+RDL+COL+SL+SR+NLL
4)	1.00	SW+RDL+COL+SL+SR+NLR
5)	1.00	SW+RDL+COL+RLL+RLR+NLL
6)	1.00	SW+RDL+COL+RLL+RLR+NLR
7)	1.00	SW+RDL+COL+0.60W1L
8)	1.00	SW+RDL+COL+0.60W2L
9)	1.00	SW+RDL+COL+0.60W1R
10)	1.00	SW+RDL+COL+0.60W2R
11)	1.00	0.60SW+0.60RDL+0.60W1L
12)	1.00	0.60SW+0.60RDL+0.60W2L
13)	1.00	0.60SW+0.60RDL+0.60W1R
14)	1.00	0.60SW+0.60RDL+0.60W2R
15)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1L
16)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2L
17)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W1R
18)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W2R
19)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1L
20)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2L
21)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W1R
22)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W2R
23)	1.00	SW+RDL+COL+0.60W5B
24)	1.00	SW+RDL+COL+0.60W6B
25)	1.00	SW+RDL+COL+0.60W5F
26)	1.00	SW+RDL+COL+0.60W6F
27)	1.00	0.60SW+0.60RDL+0.60W5B
28)	1.00	0.60SW+0.60RDL+0.60W6B
29)	1.00	0.60SW+0.60RDL+0.60W5F
30)	1.00	0.60SW+0.60RDL+0.60W6F
31)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5B
32)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6B
33)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W5F
34)	1.00	SW+RDL+COL+0.75SL+0.75SR+0.45W6F
35)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5B
36)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6B
37)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W5F
38)	1.00	SW+RDL+COL+0.75RLL+0.75RLR+0.45W6F
39)	1.00	SW+RDL+COL+UOS+NLL
40)	1.00	SW+RDL+COL+UOS+NLR
41)	1.00	SW+RDL+COL+LRD+NLL
42)	1.00	SW+RDL+COL+LRD+NLR
43)	1.00	SW+RDL+COL+RRD+NLL
44)	1.00	SW+RDL+COL+RRD+NLR
45)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
46)	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
47)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQL
48)	1.00	1.11SW+1.11RDL+1.11COL+0.68EQR
49)	1.00	0.46SW+0.46RDL+0.91EQL
50)	1.00	0.46SW+0.46RDL+0.91EQR

*** DESIGN SUMMARY REPORT ***

Built Up Rafter - RAF01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.31	F6.31	W150	39	1	-10.7	0.08	-143.3	0.76	0.84	0.88	39	1	18.56	0.72	0.50	0.50
2	F6.25	F6.25	W150	40	9	-7.0	0.07	106.6	0.83	0.67	0.87	39	5	11.63	0.45	0.30	0.30

Chkpt	1	4	5	10
Depth	27.62	27.56		27.50
Section	1	2		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.3125	55.00	6.0	0.2500	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.3125	55.00	6.0	0.2500	55.00

Built Up Rafter - RAF02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F6.25	F6.25	W150	39	12	-7.0	0.07	106.7	0.83	0.67	0.87	40	16	-11.65	0.45	0.30	0.30
2	F6.31	F6.31	W150	40	20	-10.7	0.08	-143.1	0.76	0.84	0.88	40	20	-18.58	0.72	0.50	0.50

Chkpt	11	16	17	20
Depth	27.50	27.56		27.62
Section	1	2		

	width	thick	Fy	width	thick	Fy
T/L Flg	6.0	0.2500	55.00	6.0	0.3125	55.00
Web		0.1500	55.00		0.1500	55.00
B/R Flg	6.0	0.2500	55.00	6.0	0.3125	55.00

Built Up Column - COL01

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F10.38	F10.38	W220	39	27	-25.3	0.26	-146.0	0.46	0.82	1.00	39	21	-6.13	0.13	0.48	0.48

Chkpt	21	27
Depth	12.00	24.75
Section	1	

	width	thick	Fy
T/L Flg	10.0	0.3750	55.00
Web		0.2200	55.00
B/R Flg	10.0	0.3750	55.00

Built Up Column - COL02

Section	T/L Flange Mat'l	B/R Flange Mat'l	Web Mat'l	Load Comb	Loc	Axial Kips	Axial Ratio	Moment Ft-kip	T/L Bend Ratio	B/R Bend Ratio	Max Unity Check	SHEAR Load Comb	SHEAR Loc	SHEAR Force Kips	SHEAR Ratio	Flow (k/in) T/L	Flow (k/in) B/R
1	F10.38	F10.38	W220	40	34	-25.3	0.26	145.9	0.82	0.46	1.00	40	28	6.12	0.13	0.48	0.48

Chkpt	28	34
Depth	12.00	24.75
Section	1	

	width	thick	Fy
T/L Flg	10.0	0.3750	55.00
Web		0.2200	55.00
B/R Flg	10.0	0.3750	55.00

Frame Weight (lbs) = 3237
Deflections (in):

10 yr Wind dx =	0.64 = H/ 435	WIND CASE 2 TO RIGHT	
Seismic dx =	2.06 = H/ 136	SEISMIC TO RIGHT	
Story Drift =	6.17 = 0.022H	SEISMIC TO RIGHT	
Stability Coefficient =	0.01	1.14SW+1.14RDL+1.14COL+0.91EQL	
Stability Ratio =	0.05	1.14SW+1.14RDL+1.14COL+0.91EQL	
Fundamental Period =	0.8709	Single Story Period	
Maximum dx =	-2.07 = H/ 135	1.14SW+1.14RDL+1.14COL+0.91EQL	
Maximum dy =	-2.07 = L/ 336	@ MOD 1, SW+RDL+COL+UOS	
Max. Live dy =	-1.22 = L/ 568	@ MOD 1, LIVE ON LEFT AND RIGHT	
Rigidity =	3.00 kip/in		

NUCOR BUILDINGS GROUP

Job #   : U26H0545A
Job Name   : Nisqually - Vocational & Emergency Operations Center
Frame   : Line(s) 7
Creation Date   : 2026-09-04
Final Design Date: 2026-09-16
Designer   : BG\Weili.Du
File   : F15 - REW.nfr
App Version   : 2.7.34.0

C O N N E C T I O N S U M M A R Y

Knee Connection - COL01

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
2.50:12	W220	0.87	FWS3		FWS3	0.50	0.00	0.87	FWS3	0.22	0.57		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	10.0	0.3750	55.0			24.52	Stiffener				
Web		0.2200	55.0	22.58	24.00						
Bot Plate	5.0	0.5000	55.0			24.00					

Knee Connection - COL02

Roof Slope	Web Matl	Web fv/Fv Ratio	Top Plate Weld W1	Top Plate Weld W2	Top Plate Weld W3	Top Plate Areq/A Ratio	Top Plate req/(W1+W2) Ratio	Top Plate W3req/W3 Ratio	Bottom Plates Weld W4	Bottom Plates Areq/A Ratio	Bottom Plates W4req/W4 Ratio	Horiz./Diagonal Stiffener Stiff. Matl	No. Stiff.	Theta Degrees	Axial Ratio
-2.50:12	W220	0.87	FWS3		FWS3	0.50	0.00	0.87	FWS3	0.22	0.57		0		

	width	thick	Fy	height	depth	length		width	thick	length	Fy
Top Plate	10.0	0.3750	55.0			24.52	Stiffener				
Web		0.2200	55.0	22.58	24.00						
Bot Plate	5.0	0.5000	55.0			24.00					

Splice Load Combinations:

No.	ASR	Cases
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F
24	1.00	0.60SW+0.60RDL+0.60W5B
25	1.00	0.60SW+0.60RDL+0.60W6B
26	1.00	0.60SW+0.60RDL+0.60W5F
27	1.00	0.60SW+0.60RDL+0.60W6F
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
42	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
43	1.00	0.457SW+0.457RDL+0.91EQL
44	1.00	0.457SW+0.457RDL+0.91EQR
45	1.20	Special Seismic
46	1.20	Special Seismic
47	1.20	Special Seismic
48	1.20	Special Seismic
49	1.20	Special Seismic
50	1.20	Special Seismic

BOLTED END-PLATES (BEP) SUMMARY — Bolt Pre Tension Method : TurnOfNut

PLATE SIZE: (in)

Splice ID	Left Type	Right Type	Members Joined	Loc	Web Depth	Left Plate Width	Left Plate Thick	Left Plate Length	Left Plate Fy(ksi)	Right Plate Width	Right Plate Thick	Right Plate Length	Right Plate Fy(ksi)
1	6E	6E	COL01 To RAF01	Top	27.00	10.00	0.50	33.33	55.00	8.00	0.50	33.33	55.00
1	6E	6E	COL01 To RAF01	Bot	27.00	10.00	0.50	33.33	55.00	8.00	0.50	33.33	55.00
2	8E	8E	RAF01 To RAF02	Top	27.00	6.00	0.38	33.20	55.00	6.00	0.38	33.20	55.00
2	8E	8E	RAF01 To RAF02	Bot	27.00	6.00	0.38	33.20	55.00	6.00	0.38	33.20	55.00
3	6E	6E	RAF02 To COL02	Top	27.00	8.00	0.50	33.33	55.00	10.00	0.50	33.33	55.00
3	6E	6E	RAF02 To COL02	Bot	27.00	8.00	0.50	33.33	55.00	10.00	0.50	33.33	55.00

PLATE DESIGN

Splice ID	Left Type	Right Type	Tension Location	Max Moment Load Comb	Max Moment Axial (kip)	Max Moment Shear (kip)	Max Moment Moment (ft-kip)	Max Shear Load Comb	Max Shear Axial (kip)	Max Shear Shear (kip)	Max Shear Moment (ft-kip)	Left Plate Ratio	Right Plate Ratio
1	6E	6E	Top	-45	-8.20	14.51	-191.44	40	-0.47	6.75	3.09	0.63	0.83
1	6E	6E	Bot	-50	3.82	-1.21	99.60	36	-6.64	20.35	-143.28	0.35	0.47
2	8E	8E	Top	11	3.30	-0.54	-13.50	40	-3.12	-2.73	48.15	0.18	0.18
2	8E	8E	Bot	36	-6.64	0.04	104.82	27	4.27	-0.81	-9.93	0.99	0.99
3	6E	6E	Top	-48	-8.23	-14.51	-191.32	39	-0.48	-6.75	3.08	0.83	0.63
3	6E	6E	Bot	-47	3.84	1.21	99.53	36	-6.65	-20.37	-143.10	0.47	0.35

BOLT RUPTURE DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Axial (kip)	Moment (ft-kip)	Left Bolt Ratio	Right Bolt Ratio
1	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	3.00	1.88	1.13	-45	-8.20	-191.44	0.81	0.82
1	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.25	3.00	1.88	1.13	-50	3.82	99.60	0.47	0.47
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.44	1.51	3.13	1.88	1.13	11	3.30	-13.50	0.07	0.07
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.44	1.35	3.13	1.88	1.13	36	-6.64	104.82	0.54	0.54
3	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.33	3.00	1.88	1.13	-48	-8.23	-191.32	0.82	0.81
3	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.53	3.00	1.88	1.13	-47	3.84	99.53	0.47	0.47

COMBINED BOLT BEARING SHEAR DESIGN

Splice ID	Left Type	Right Type	Loc	Bolt Type	Pre-Tension	Dia	Gage	Gage 2	Pfi	Pfo	Pf	Pb	de	Load Comb	Shear (kip)	Left Bolt Ratio	Right Bolt Ratio
1	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.47	3.00	1.88	1.13	40	6.75	0.14	0.14
1	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.25	3.00	1.88	1.13	36	20.35	0.41	0.41
2	8E	8E	Top	A325	Yes	0.63	3.50	--	1.44	1.51	3.13	1.88	1.13	40	-2.73	0.04	0.04
2	8E	8E	Bot	A325	Yes	0.63	3.50	--	1.44	1.35	3.13	1.88	1.13	27	-0.81	0.01	0.01
3	6E	6E	Top	A325	Yes	0.63	3.50	--	1.25	1.33	3.00	1.88	1.13	39	-6.75	0.14	0.14
3	6E	6E	Bot	A325	Yes	0.63	3.50	--	1.25	1.53	3.00	1.88	1.13	36	-20.37	0.41	0.41

WELD DESIGN

Splice ID	Loc	Left Welds Flg	Left Welds Web	Left Welds Stf	Left Checks Load Comb	Left Checks Tensile Rupture	Left Checks Load Comb	Left Checks Shear Rupture	Right Welds Flg	Right Welds Web	Right Welds Stf	Right Checks Load Comb	Right Checks Tensile Rupture	Right Checks Load Comb	Right Checks Shear Rupture
1	Top	FWD3	WP13		-45	0.54	40	0.12	FWD3	WP13		-45	0.87	40	0.16
1	Bot	FWD3	WP13		-50	0.31	36	0.37	FWD3	WP13		-50	0.50	36	0.47
2	Top	FWD3	WP13		11	0.09	40	0.06	FWD3	WP13		11	0.09	40	0.06
2	Bot	FWD3	WP13		36	0.51	27	0.02	FWD3	WP13		36	0.51	27	0.02
3	Top	FWD3	WP13		-48	0.87	39	0.16	FWD3	WP13		-48	0.54	39	0.12
3	Bot	FWD3	WP13		-47	0.50	36	0.47	FWD3	WP13		-47	0.31	36	0.37

BASEPLATE AND ANCHOR ROD DESIGN RESULTS

BASEPLATE AND ANCHOR ROD INFORMATION: (in)

Col ID	Col Type	Col Pattern	Col Depth	Base Plate Width	Base Plate Thickness	Base Plate Length	Base Plate Fy(ksi)	Anchor Rods Qty	Anchor Rods Dia.	Anchor Rods Grade	Anchor Rods Pfi	Anchor Rods Pb	Anchor Rods Gage
01	WF/BU	Left	12.000	10	0.375	12.0000	55	4	1	Grade36	4	4	4
02	WF/BU	Right	12.000	10	0.375	12.0000	55	4	1	Grade36	4	4	4

BASEPLATE DESIGN CHECKS

Col ID	Concrete Bearing (Compression) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio	Base Plate Yielding (Tension) LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Design Ratio
01	36	-26.02	-6.72	0.00	0.20	11	5.49	2.33	0.00	0.76
02	36	-25.93	6.60	0.00	0.20	9	5.49	-2.33	0.00	0.76

ANCHOR ROD SHEAR AND TENSION DESIGN CHECKS

Col ID	Anchor Rod Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Anchor Rod Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Tension-Shear Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio	Combined Shear-Tension Design LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Rod Ratio
01	11	5.49	2.33	0.00	0.08	-45	-17.79	-8.55	0.00	0.22	11	5.49	2.33	0.00	0.08	-45	-17.79	-8.55	0.00	0.24
02	9	5.49	-2.33	0.00	0.08	-48	-17.79	8.55	0.00	0.22	9	5.49	-2.33	0.00	0.08	-48	-17.79	8.55	0.00	0.24

BASEPLATE LEFT FLANGE WELD DESIGN CHECKS

Col ID	Left Flange Weld (Pipe Weld) Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Web Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio	Right Flange Weld Weld Size	LC	Axial (kip)	Shear (kip)	Brace Shear (kip)	Weld Ratio
01	FWS3	11	5.49	2.33	0.00	0.03	FWR3	-45	-17.79	-8.55	0.00	0.14	FWS3	11	5.49	2.33	0.00	0.03
02	FWS3	9	5.49	-2.33	0.00	0.03	FWR3	-48	-17.79	8.55	0.00	0.14	FWS3	9	5.49	-2.33	0.00	0.03

LOAD COMBINATIONS:

No	ASR	Combination
1	1.00	1.00SW+1.00RDL+1.00COL
2	1.00	1.00SW+1.00RDL+1.00COL+1.00SL+1.00SR
3	1.00	1.00SW+1.00RDL+1.00COL+1.00RLL+1.00RLR
4	1.00	1.00SW+1.00RDL+1.00COL+0.60W1L
5	1.00	1.00SW+1.00RDL+1.00COL+0.60W2L
6	1.00	1.00SW+1.00RDL+1.00COL+0.60W1R

*Indicates a Special Seismic Load Combination

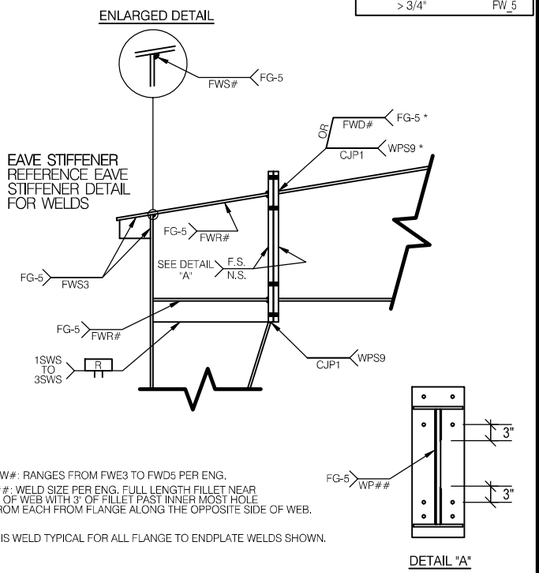
LOAD COMBINATIONS:

No	ASR	Combination
7	1.00	1.00SW+1.00RDL+1.00COL+0.60W2R
8	1.00	0.60SW+0.60RDL+0.60W1L
9	1.00	0.60SW+0.60RDL+0.60W2L
10	1.00	0.60SW+0.60RDL+0.60W1R
11	1.00	0.60SW+0.60RDL+0.60W2R
12	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1L
13	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2L
14	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W1R
15	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W2R
16	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1L
17	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2L
18	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W1R
19	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W2R
20	1.00	1.00SW+1.00RDL+1.00COL+0.60W5B
21	1.00	1.00SW+1.00RDL+1.00COL+0.60W6B
22	1.00	1.00SW+1.00RDL+1.00COL+0.60W5F
23	1.00	1.00SW+1.00RDL+1.00COL+0.60W6F
24	1.00	0.60SW+0.60RDL+0.60W5B
25	1.00	0.60SW+0.60RDL+0.60W6B
26	1.00	0.60SW+0.60RDL+0.60W5F
27	1.00	0.60SW+0.60RDL+0.60W6F
28	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5B
29	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6B
30	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W5F
31	1.00	1.00SW+1.00RDL+1.00COL+0.75SL+0.75SR+0.45W6F
32	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5B
33	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6B
34	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W5F
35	1.00	1.00SW+1.00RDL+1.00COL+0.75RLL+0.75RLR+0.45W6F
36	1.00	1.00SW+1.00RDL+1.00COL+1.00UOS
37	1.00	1.00SW+1.00RDL+1.00COL+1.00LRD
38	1.00	1.00SW+1.00RDL+1.00COL+1.00RRD
39	1.00	1.14SW+1.14RDL+1.14COL+0.91EQL
40	1.00	1.14SW+1.14RDL+1.14COL+0.91EQR
41	1.00	1.105SW+1.105RDL+1.105COL+0.683EQL
42	1.00	1.105SW+1.105RDL+1.105COL+0.683EQR
43	1.00	0.457SW+0.457RDL+0.91EQL
44	1.00	0.457SW+0.457RDL+0.91EQR
45*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQL
46*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQL
47*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQL
48*	1.20	1.14SW+1.14RDL+1.14COL+1.75EQR
49*	1.20	1.105SW+1.105RDL+1.105COL+1.313EQR
50*	1.20	0.46SW+0.46RDL+0.46COL+1.75EQR

*Indicates a Special Seismic Load Combination

STANDARD WELDS AND LEGEND

Thickest Mat. Joined	Weld
≤ 1/2"	FW_3
≤ 3/4"	FW_4
> 3/4"	FW_5



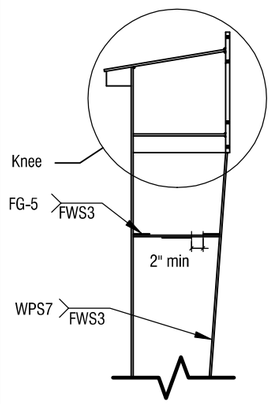
W#: RANGES FROM FWE3 TO FWD5 PER ENG.
WP##: WELD SIZE PER ENG. FULL LENGTH FILLET NEAR SIDE OF WEB WITH 3" OF FILLET PAST INNER MOST HOLE IN FROM EACH FROM FLANGE ALONG THE OPPOSITE SIDE OF WEB.

* THIS WELD TYPICAL FOR ALL FLANGE TO ENDPLATE WELDS SHOWN.

Perpendicular Knee Column

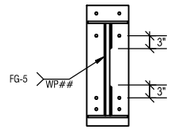
See Weld Standard sheet for WPS description

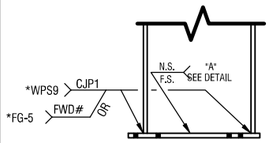
Thickest Mat. Joined	Weld
£ 1/2"	FW_3
£ 3/4"	FW_4
>3/4"	FW_5



Typical Column

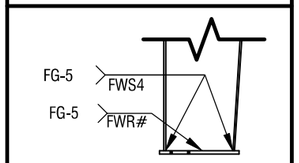
See Weld Standard sheet for WPS description





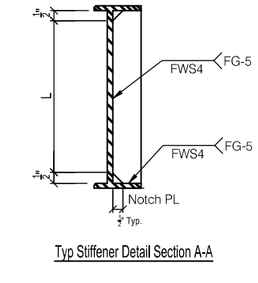
TYP. FIXED BASE DETAIL

See Weld Standard sheet for WPS description
Base plate extension and anchor bolt locations may vary.

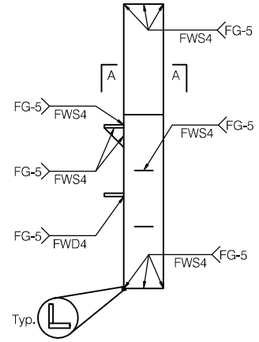


TYP. PINNED BASE DETAIL

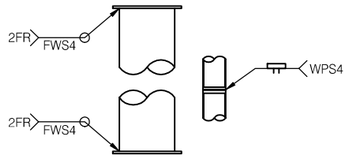
See Weld Standard sheet for WPS description



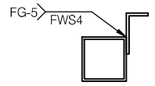
Typ Stiffener Detail Section A-A



Structural Column



Pipe or Tube Column



Tube Bracket

Structural Details

See Weld Standard sheet for WPS description

FWS$ - FILLET WELD, ONE SIDE

$	FILLET LEG
3	3/16"
4	1/4"
5	5/16"

NEAR SIDE WELD: FWS$ $

FAR SIDE WELD: FWSS $

FWS$ $ FILLET $ FILLET

FWD$ - FILLET WELD, BOTH SIDES

$	FILLET LEG
3	3/16"
4	1/4"
5	5/16"

FWD$ OR FWD$ $ $ FWD$ $ FILLET $ FILLET

FWR_-Full length fillet on near side with *(Max. D/5 or 3") fillet return at both ends on opposite side of plate.

$	FILLET LEG
3	3/16"
4	1/4"
5	5/16"

FWR$ OR FWR$ $ $ *(Max.D/5 or 3") D *

WP1$ - Full length fillet on near side of web with 3" of fillet past inner most hole in from each flange along the opposite side of web.

$	FILLET LEG
3	3/16"
4	1/4"
5	5/16"

WP1$ OR WP1$ $ $ 3" OF WELD PAST INNER MOST HOLE IN FROM EACH FLANGE 3" 3"

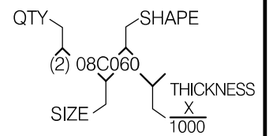
CJP1 - COMPLETE JOINT PENETRATION, SINGLE BEVEL WELD

NEAR SIDE WELD: CJP1 BACK GOUGE 45°

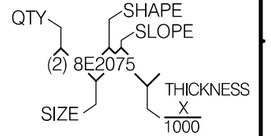
FAR SIDE WELD: CJP1 45° BACK GOUGE

CJP1 or CJP2 BACK GOUGE & SQUARE GROOVE WELD (GRIND FLUSH - CJP2) BEVEL SIDE SINGLE BEVEL GROOVE WELD

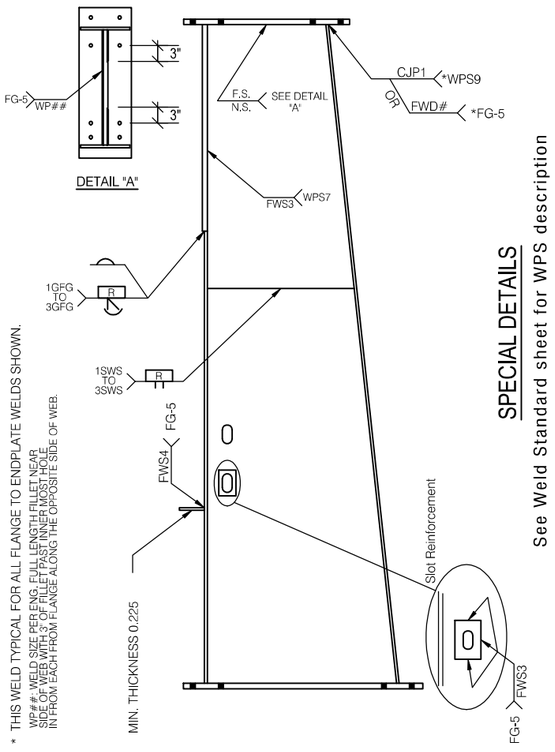
PURLIN / GIRT / CHANNEL



EAVE STRUT



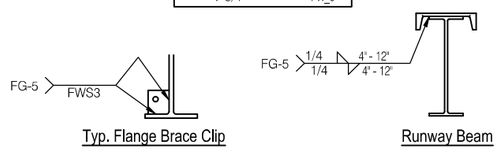
* THIS WELD TYPICAL FOR ALL FLANGE TO ENDPLATE WELDS SHOWN.
WP##: WELD SIZE PER ENG. FULL LENGTH FILLET NEAR SIDE OF WEB WITH 3" OF FILLET PAST INNER MOST HOLE IN FROM EACH FROM FLANGE ALONG THE OPPOSITE SIDE OF WEB.



SPECIAL DETAILS

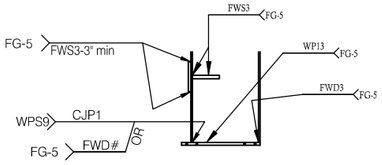
See Weld Standard sheet for WPS description

Thickest Mat. Joined	Weld
≤ 1/2"	FW_3
≤ 3/4"	FW_4
> 3/4"	FW_5

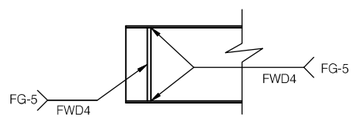


Typ. Flange Brace Clip

Runway Beam



Interior Wide Flange Fixed Base Plate Crane Stop



Runway End

SPECIAL DETAILS

See Weld Standard sheet for WPS description

WPS #	Description	Weld Code	Process	Preq	Position	Limitation	Plant Location UT	IN	SC	TX
FG-3	3/16 & 1/4" multi-pass fillet weld	AWSD1.1-10	GMAW (1/4" multi-pass fillet weld)	PQR	1G	3/16 - 5/16	X	X	X	X
FG-4	1/4" & 5/16" single-pass fillet ≤ weld	AWSD1.1-10	GMAW (1/4" - 5/16" single-pass fillet weld)	PQR	2F	1/4" - 1-1/2"	X	X	X	X
1GFG	1/8" through 1" flange splice	AWSD1.1-10	GMAW (1/8" - 1" flange splice)	PQR	1G	1/8" - 1"	X	X	X	X
2GFG	1/8" flange splice	AWSD1.1-10	GMAW (1/8" flange splice)	PQR	1G	1/8" - 1/4"	X	X	X	X
3GFG	1/4" to 1/2" flange splice	AWSD1.1-10	GMAW (1/4" → 1/2" flange splice)	PQR	1G-2F	Groove: 1/4" Fillet: 1/2"	X	X	X	X
2036	3/8" to 1/2" flange splice	AWSD1.1-10	GMAW (3/8" → 1/2" flange splice)	PQR	1G-2F	Groove: 5/16" Fillet: 5/8"	X	X	X	X
5GFG	1" flange splice	AWSD1.1-10	GMAW (1" flange splice)	PQR	1G-2F	Groove: 1"	X	X	X	X
1SWS	web splice for 0.275" through 0.313" thick	AWSD1.1-10	SAW (0.275-0.313" Web splice)	PQR	1G	0.275 - 0.313	X	X	X	X
2SWS	web splice for 0.125" through 0.150" thick	AWSD1.1-10	SAW (0.125-0.150" Web splice)	PQR	1G	0.125 - 0.150	X	X	X	X
3SWS	web splice for 0.175" through 0.250" thick	AWSD1.1-10	SAW (0.175-0.250" Web splice)	PQR	1G	0.175 - 0.250	X	X	X	X
2038	web splice for 0.375" through 0.500" thick	AWSD1.1-10	SAW (0.375-0.500" Web splice)	PQR	1G	0.375 - 0.500	X	X	X	X
2FR	pipe to endplate weld	AWSD1.1-10	GMAW (Pipe-to-Endplate Weld)	PQR	2F ROTATED	6" thru 10"	X	X	X	X
FBG-1	Rod to plate/angle weld	AWSD1.1-10	GMAW (Rod-to-Plate Weld)	PQR	1G	Diameter: 1/2" - 1", 1-1/4"	X	X	X	X
WPS4	pipe splice for 0.134" through 0.375" thick	AWSD1.1-10	GMAW (Pipe Splice, 0.134" - 0.375")	YES	1G ROTATED	Diamter: 6 - 10"	X	X	X	X
WPS5	pipe splice for 0.375" through 0.500" thick	AWSD1.1-10	GMAW (Pipe Splice, 0.375" - 0.500")	YES	1G ROTATED	0.375 - 0.50 Diamter: 6 - 10"	X	X	X	X
WPS6	wide-flange beam splice, all sizes	AWSD1.1-10	GMAW (Hot-Rolled Splice Weld)	YES	1G	0.313 - 1.50	X	X	X	X
WPS7	flange to web weld made by autowelder using 0.062" Ø electrode	AWSD1.1-10	SAW (Autowelder Weld)	YES	2F	0.125 - 1.00	X	X	X	X
WPS8	flange to web weld made by autowelder using 0.052" Ø electrode	AWSD1.1-10	SAW (Small Autowelder Welds)	YES	2F	0.125 - 1.00	X	X	X	X
WPS9	complete penetration groove weld for tee connection, 3/8" thick	AWSD1.1-10	GMAW (Flange to endplate weld)	YES	1G	0.375 - 1.00	X	X	X	X
WPS11	vertical tack-fitters	AWSD1.1-10	GMAW (Vertical tack-fitters)	YES	3F	0.125 - Unlimited	X	X	X	X
WPS-1	Cold-Form seam stitch weld	AWSD1.3-08	GMAW (CF seam stitch weld)	PQR	FLAT	0.0525" - 0.210"	X	X	X	X
WPS-1a	Cold-Form seam stitch weld (galvanized)	AWSD1.3-08	GMAW (CF seam stitch weld) (galvanized)	PQR	FLAT	0.0525" - 0.210"	X	X	X	X
WPS-2	Cold-Form seam weld	AWSD1.3-08	GMAW (CF seam weld)	PQR	HORIZ.	t1 = 0.0525 - 0.215"	X	X	X	X
WPS-2a	Cold-form seam weld (galvanized)	AWSD1.3-08	GMAW (CF seam weld) (galvanized)	PQR	HORIZ.	t1 = 0.0525 - 0.215"	X	X	X	X
WPS-3	cold-form seam weld to support steel ≤ 0.3125" thick	AWSD1.3-08	GMAW (CF seam weld to support steel)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X
WPS-3a	cold-form seam weld to support steel ≤ 0.3125" thick (galvanized)	AWSD1.3-08	GMAW (CF seam weld to support steel) (galvanized)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X
WPS-4	cold-form tee connection fillet weld	AWSD1.3-08	GMAW (CF tee fillet weld)	PQR	HORIZ.	t1 = 0.0525" - 0.215"	X	X	X	X
WPS-4a	cold-form tee connection fillet weld (galvanized)	AWSD1.3-08	GMAW (CF tee fillet weld) (galvanized)	PQR	HORIZ.	t1 = 0.0525" - 0.215"	X	X	X	X
WPS-5	cold-form tee connection fillet weld to support steel ≥ 0.313" thick	AWSD1.3-08	GMAW (CF tee fillet to support steel)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X
WPS-5a	cold-form tee connection fillet weld to support steel ≥ 0.313" thick (galvanized)	AWSD1.3-08	GMAW (CF tee fillet to support steel) (galvanized)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X
WPS-6	cold-form lap fillet weld	AWSD1.3-08	GMAW (CF lap fillet weld)	PQR	HORIZ.	t1 = 0.0525" - 0.215"	X	X	X	X
WPS-6a	cold-form lap fillet weld (galvanized)	AWSD1.3-08	GMAW (CF lap fillet weld) (galvanized)	PQR	HORIZ.	t1 = 0.0525" - 0.215"	X	X	X	X
WPS-7	cold-form lap fillet weld to support steel ≥ 0.3125" thick	AWSD1.3-08	GMAW (CF lap fillet to support steel)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X
WPS-7a	cold-form lap fillet weld to support steel ≥ 0.3125" thick (galvanized)	AWSD1.3-08	GMAW (CF lap fillet to support steel) (galvanized)	PQR	HORIZ.	t1 = 0.0525" - 0.215" t2 ≥ 0.3125"	X	X	X	X

PCS Structural Solutions

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Tacoma | 1250 Pacific Avenue, Suite 701 | Tacoma, WA 98402 | 253.383.2797
Portland | 101 SW Main Street, Suite 1602 | Portland, OR 97204 | 503.232.3746
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STRUCTURAL CALCULATIONS

FOR

NISQUALLY TRIBE VOCATIONAL CENTER
11940 BILLY FRANK JR BLVD
OLYMPIA, WA 98513

PREPARED BY
PCS STRUCTURAL *SOLUTIONS*



OCTOBER 2, 2026
26-384

0.0 - DESIGN CRITERIA

Project: NISQUALLY VOC | Job Number: 26-384

Sheet: of | Name: DMS

Originating Office: Tacoma | Date: 2026-10-01

DESIGN CRITERIA CHECKLIST

CODE: IBC 2021, ASCE 7-16 | LOCATION: OLYMPIA, WA

RISK CATEGORY: II (Per ASCE 7-16 Table 1.5-1 & IBC Table 1604.5)

VERTICAL DESIGN CRITERIA

	DEAD	LIVE	PARTITION	CONCENTRATED
TYPICAL FLOOR	ACTUAL	100 PSF		
LIGHT STORAGE	ACTUAL	125 PSF		

WIND DESIGN CRITERIA

BASIC WIND SPEED (V) =	97 MPH	(Per ASCE 7-16 Sec. 26.5.1, Fig. 26.5-1A; 1B; 1C & 1D, or as required by Bld'g Dept.)
EXPOSURE CATEGORY:	C	(Per ASCE 7-16 Section 26.7.3)
DIRECTIONALITY FACTOR (K_d):	0.85	(Per ASCE 7-16 Table 26.6-1)
GUST EFFECT FACTOR (G):		(Per ASCE 7-16 Section 26.11)
TOPOGRAPHIC FEATURE:	None	(See ASCE 7-16 Figure 26.8-1)
HILL HEIGHT (H):	0 FT	(See ASCE 7-16 Figure 26.8-1)
UPWIND DISTANCE TO HALF HILL (Lh):	0 FT	(See ASCE 7-16 Figure 26.8-1)
DISTANCE FROM CREST TO SITE (x):	0 FT	UPWI… (See ASCE 7-16 Figure 26.8-1)
MEAN ROOF HEIGHT:	0-15 FT	(See ASC… …ction 26.2 - Definitions)
ELEVATION:	0 FT	(See ASCE 7-16 Section 26.9)
ENCLOSURE CLASSIFICATION:	Enclosed	(See ASCE 7-16 Secion 26.2 & Table 26.13-1)
ROOF TYPE:	Monoslope	(See ASCE 7-16 Figure 27.3-1)
ROOF SLOPE (__:12):	0.00:12	(Enter vertical rise in 12 horizontal units) θ (degrees): 0.00

WIND ONLY APPLICABLE TO PEMB STRUCTURE PER OTHERS

SEISMIC DESIGN CRITERIA

SITE CLASS:	D	(Per IBC Section 1613.2.2, Assumed as "D" or per Geotech.)
IMPORTANCE FACTOR (I_E):	1	(Per ASCE 7-16 Table 1.5-2)
STRUCTURAL SYSTEM (R):	7	(Per ASCE 7-16 Table 12.2-1)
OVERSTRENGTH FACTOR (Ω_o):	2.5	(Per ASCE 7-16 Table 12.2-1)

INFORMATION BELOW FROM "ASCE HAZARD TOOL"

LATITUDE:	0.000	S_S =	1.340	F_a =	1.000
LONGITUDE:	0.000	S_1 =	0.483	F_v =	1.504

DEFLECTION CRITERIA

FLOOR (LIVE):	L/ 480	ROOF (LIVE):	L/ 360
FLOOR (TOTAL):	L/ 360	ROOF (TOTAL):	L/ 240
WALLS:	L/ 360	SPECIAL:	L/

SOIL DESIGN CRITERIA

REPORT: YES

SEE SOILS REPORT FOR ACTIVE, PASSIVE PRESSURES AND FRICTION COEFFICIENT

BEARING:	1500 PSF
ACTIVE:	35 PCF
PASSIVE:	221 PCF
COEFFICIENT OF FRICTION:	0.37

MINIMUM FOOTING DIMENSIONS:

CONTINUOUS:	1'-4"
SPREAD:	1'-6"
FROST DEPTH:	1'-6"

PILE TYPE:	NONE
VERTICAL CAPACITY :	N/A
UPLIFT CAPACITY:	N/A

LATERAL CAPACITY:	N/A
SIZE:	N/A

Project: NISQUALLY VOC | Job Number: 26-384

Sheet: of | Name: DMS

Originating Office: Tacoma | Date: 10-01-26

MATERIALS

CONCRETE

Footings/Piles:	3000 PSI	Columns:	4000 PSI
Slabs/Walls:	4000 PSI	Beams:	4000 PSI
-	-	-	-

REINFORCING

Steel Grade = 60 f_y = 60 KSI

STRUCTURAL STEEL

W-Flange Beams	ASTM A992	f_y = 50 KSI
Shapes & Plates	ASTM A36	f_y = 36 KSI
Pipes	ASTM A53, Grade B	f_y = 35 KSI
HSS Rect.	ASTM A500, Grade C	f_y = 50 KSI
HSS Round	ASTM A500, Grade C	f_y = 46 KSI

MASONRY

ASTM C90 f'_m = 2000 PSI | SOLID GROUTED

GLULAM BEAMS

	Simple Spans		Cantilevers
	24F-V4	Grade =	24F-V8
	1.80E+06 PSI	E =	1.80E+06 PSI
	2400 PSI	$F_{b\,(BOTTOM)}$ =	2400 PSI
	1850 PSI	$F_{b\,(TOP)}$ =	2400 PSI
	240 PSI	F_v =	240 PSI

SCL PRODUCTS

	2x SCL	1¾" SCL	3½, 5¼ SCL
E =	1.30E+06 PSI	1.80E+06 PSI	2.00E+06 PSI
F_b =	1700 PSI	2600 PSI	2900 PSI
F_v =	285 PSI	285 PSI	285 PSI
F_c =	1400 PSI	2400 PSI	2600 PSI

FRAMING LUMBER

Joists & Studs	2x DF #2	2x HF #1	-
E =	1.60E+06 PSI	1.50E+06 PSI	-
F_b =	900 PSI	975 PSI	-
F_v =	180 PSI	150 PSI	-
F_c =	1350 PSI	1350 PSI	-
Beams & Headers	4x DF #2	4x HF #1	6x DF #1
E =	1.60E+06 PSI	1.50E+06 PSI	1.60E+06 PSI
F_b =	900 PSI	975 PSI	1350 PSI
F_v =	180 PSI	150 PSI	170 PSI
Posts & Timbers	6x DF #1	-	-
E =	1.60E+06 PSI	-	-
F_c =	1000 PSI	-	-

Project: NISQUALLY VOC | Job Number: 26-384

Sheet: of | Name: DMS

Originating Office: Tacoma | Date: 10-01-26

DESIGN CRITERIA - SEISMIC

WALLS ARE DESIGNED TO BE ABLE TO BEAR - BUT THEY ARE NOT REQUIRED AND THUS WERE DESIGNED WITH BUILDING FRAME RESPONSE MODIFICATION FACTOR

ASCE 7-16 SECTION 12.8 - EQUIVALENT LATERAL FORCE PROCEDURE

RISK CATEGORY:	II	LATITUDE:	0.000
SITE CLASS:	D	LONGITUDE:	0.000
IMPORTANCE FACTOR (I_E):	1	S_S =	1.340
STRUCTURAL SYSTEM (R):	7	S_1 =	0.483
OVERSTRENGTH FACTOR (Ω_o):	2.5	F_a =	1.000
		F_v =	1.200

ASCE 7-16 SECTION 11.4 SEISMIC GROUND MOTION VALUES

Section 11.4.4 - Coefficients and Risk-Targeted Maximum Considered Earthquake (MCER) Spectral Response Acceleration Parameters

$S_{MS} = F_a*S_S$ = 1.340 SM1 = 1.5*Fv*S1 = 0.869

Section 11.4.5 - Design Spectral Response Acceleration Parameters

$S_{DS} = 2/3*S_{MS}$ = 0.893 $S_{D1} = 2/3*S_{M1}$ = 0.580

ASCE 7-16 SECTION 11.6 - SEISMIC DESIGN CATEGORY - SECTION 12.8.2 - PERIOD DETERMINATION

ASCE 7-16 TABLE 11.6-1

SEISMIC DESIGN CATEGORY BASED ON S_{DS}

	RISK CATEGORY:		
	I & II	III	IV
< 0.167g	A	A	A
< 0.33g	B	B	C
< 0.50g	C	C	D
>= 0.50g	D	D	D
	D		

ASCE 7-16 TABLE 11.6-2

SEISMIC DESIGN CATEGORY BASED ON S_{D1}

	RISK CATEGORY:		
	I & II	III	IV
< 0.067g	A	A	A
< 0.133g	B	B	C
< 0.20g	C	C	D
>= 0.20g	D	D	D
	D		

Each building and structure shall be assigned to the most severe Seismic Design Category in accordance with Table 11.6-1 or Table 11.6-2, irrespective of the fundamental period of vibration of the structure.

PERIOD DETERMINATION:	
C_t =	0.02
h_n =	40 FT
x =	0.75
$T_a = C_t*h_n^x$ =	0.318

ASCE 7-16 SECTION 12.8.1.1 - SEISMIC RESPONSE COEFFICIENT

GENERAL EQUATION:	$C_S = S_{DS}/(R/I)$ =	0.128	<--CONTROLS	EQ. 12.8-2
MAXIMUM:	$C_S = S_{D1}/(T*(R/I))$ =	0.260		EQ. 12.8-3
MINIMUM:	$C_S = 0.044*S_{DS}*I > 0.01$ =	0.039		EQ. 12.8-5
For structures located where S1 > 0.6g	$C_S = 0.5*S_1/(R/I)$ =			EQ. 12.8-6

ASCE 7-16 SECTION 12.8.1 - SEISMIC BASE SHEAR

$V = C_S*W$ = **0.128*W**

W = the total dead load and applicable portion of other loads as indicated in Section 12.7.2