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APPROVED PLANS: IRC 106.3.1
APPROVAL OF CONSTRUCTION DOCUMENTS. WHEN THE BUILDING OFFICIAL ISSUES A PERMIT, THE CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING OR BY A STAMP WHICH STATES "REVIEWED FOR CODE COMPLIANCE." ONE SET OF CONSTRUCTION DOCUMENTS SO REVIEWED SHALL BE RETAINED BY THE BUILDING OFFICIAL. THE OTHER SET SHALL BE RETURNED TO THE APPLICANT, SHALL BE KEPT AT THE SITE OF WORK AND SHALL BE OPEN TO INSPECTION BY THE BUILDING OFFICIAL OR HIS OR HER AUTHORIZED REPRESENTATIVE.

PREMISES IDENTIFICATION: R319.1 ADDRESS IDENTIFICATION. BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

GROUNDED OUTLETS: ALL RECEPTACLES SHALL BE GROUNDED TYPE. RECEPTACLES LOCATED IN KITCHENS AND BATHS SHALL BE INSTALLED ABOVE THE WORK TOP . OTHER RECEPTACLES SHALL BE INSTALLED AT 12" VERTICALLY ABOVE THE FLOOR, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

WALL SWITCHES: WALL SWITCHES SHALL BE INSTALLED 42" ABOVE THE FLOOR, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

M1305.1 APPLIANCE ACCESS FOR INSPECTION SERVICE, REPAIR AND REPLACEMENT. APPLIANCES SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION, OTHER APPLIANCES, OR ANY OTHER PIPING OR DUCTS NOT CONNECTED TO THE APPLIANCE BEING INSPECTED, SERVICED, REPAIRED OR REPLACED. A LEVEL WORKING SPACE NOT LESS THAN 30 INCHES DEEP AND 30 INCHES WIDE (762 MM BY 762 MM) SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE AN APPLIANCE.

APPLIANCES LOCATED IN GARAGE: M1307.3 ELEVATION OF IGNITION SOURCE. APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE SOURCE OF IGNITION IS NOT LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR IN GARAGES. FOR THE PURPOSE OF THIS SECTION, ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT AND THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED TO BE PART OF THE GARAGE.
M1307.3.1 PROTECTION FROM IMPACT. APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHERE PROTECTED BY APPROVED BARRIERS.

CLOTHES DRYERS: M1502.3 DUCT TERMINATION. EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. EXHAUST DUCT TERMINATIONS SHALL BE IN ACCORDANCE WITH THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF THE MANUFACTURER'S INSTRUCTIONS DO NOT SPECIFY A TERMINATION LOCATION, THE EXHAUST DUCT SHALL TERMINATE NOT LESS THAN 3 FEET (914 MM) IN ANY DIRECTION FROM OPENINGS INTO BUILDINGS. EXHAUST DUCT TERMINATIONS SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. M1502.4.5.1 THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (7620 MM)FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. DUCT LENGTH MUST BE REDUCED BY 2'-6" FOR 45° BEND & 5FT FOR 90° BEND FOR A 4" EXHAUST PIPE.

MECHANICAL VENTILATION REQUIREMENTS

M1505.4 WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM. EACH DWELLING UNIT SHALL BE EQUIPPED WITH A VENTILATION SYSTEM. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH SECTIONS M1505.4.1 THROUGH M1505.4.4.

M1505.4.1 SYSTEM DESIGN. THE WHOLE HOUSE VENTILATION SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY FANS, ONE OR MORE EXHAUST FANS, OR AN ERV/HRV WITH INTEGRAL FANS, ASSOCIATED DUCTS AND CONTROLS. WHOLE- HOUSE MECHANICAL VENTILATION SYSTEM WITH SUPPLY AND EXHAUST FANS PER SECTIONS M1505.4.1.2, M1505.4.1.3, M1505.4.1.4, AND M1505.4.1.5. LOCAL EXHAUST FANS ARE PERMITTED TO SERVE AS PART OF THE WHOLE HOUSE VENTILATION SYSTEM WHEN PROVIDED WITH THE PROPER CONTROLS PER SECTION M1505.4.2. THE SYSTEMS SHALL BE DESIGNED AND INSTALLED TO EXHAUST AND/OR SUPPLY THE MINIMUM OUTDOOR AIRFLOW RATES PER SECTION M1505.4.3 AS MODIFIED BY THE WHOLE HOUSE VENTILATION SYSTEM COEFFICIENTS IN SECTION M1504.4.3.1 WHERE APPLICABLE. THE WHOLE HOUSE VENTILATION SYSTEM SHALL OPERATE CONTINUOUSLY AT THE MINIMUM VENTILATION RATE DETERMINED PER SECTION M1505.4.2 UNLESS CONFIGURED WITH INTERMITTENT OFF CONTROLS PER SECTION M1505.4.3.2.

M1505.4.1.1 WHOLE HOUSE SYSTEM COMPONENT REQUIREMENTS. WHOLE HOUSE VENTILATION SUPPLY AND EXHAUST FANS SPECIFIED IN THIS SECTION SHALL HAVE A MINIMUM EFFICACY AS PRESCRIBED IN THE WASHINGTON STATE ENERGY CODE. DESIGN AND INSTALLATION OF THE SYSTEM OR EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH MANUFACTURERS' INSTALLATION INSTRUCTIONS. WHOLE HOUSE VENTILATION FANS SHALL BE RATED FOR SOUND AT NO LESS THAN THE MINIMUM AIRFLOW RATE REQUIRED BY SECTION M1505.4.3.1. VENTILATION FANS SHALL BE RATED FOR SOUND AT A MAXIMUM OF 1.0 SONE. THIS SOUND RATING SHALL BE AT A MINIMUM OF 0.1 IN. W.C. (25 PA) STATIC PRESSURE IN ACCORDANCE WITH HVI PROCEDURES SPECIFIED IN SECTIONS M1505.4.1.2 AND M1505.4.1.3.
EXCEPTION: HVAC AIR HANDLERS, ERV/HRV UNITS, AND REMOTE MOUNTED FANS NEED NOT MEET THE SOUND REQUIREMENTS. TO BE CONSIDERED FOR THIS EXCEPTION, A REMOTE MOUNTED FAN MUST BE MOUNTED OUTSIDE THE HABITABLE SPACES, BATHROOMS, TOILETS, AND HALLWAYS, AND THERE MUST BE AT LEAST 4 FT (1 M) OF DUCTWORK BETWEEN THE FAN AND THE INTAKE GRILLE.
THE WHOLE HOUSE SUPPLY FAN SHALL PROVIDE DUCTED OUTDOOR VENTILATION AIR TO EACH HABITABLE SPACE WITHIN THE RESIDENTIAL UNIT.
EXCEPTION: INTERIOR JOINING SPACES PROVIDED WITH A 30 CFM WHOLE HOUSE TRANSFER FAN OR A PERMANENT OPENING WITH AN AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF THE INTERIOR ADJOINING SPACE BUT NOT LESS THAN 25 SQUARE FEET DO NOT REQUIRE DUCTED OUTDOOR VENTILATION AIR TO BE SUPPLIED DIRECTLY TO THE SPACE. WHOLE HOUSE TRANSFER FANS SHALL MEET THE SONE RATING OF SECTION M1505.4.1.1 AND SHALL HAVE WHOLE HOUSE VENTILATION CONTROLS THAT COMPLY WITH SECTION M1505.4.2.

M1505.4.1.2 EXHAUST FANS. EXHAUST FANS REQUIRED SHALL BE DUCTED DIRECTLY TO THE OUTSIDE. EXHAUST AIR OUTLETS SHALL BE DESIGNED TO LIMIT THE PRESSURE DIFFERENCE TO THE OUTSIDE AND EQUIPPED WITH BACKDRAFT DAMPERS OR MOTORIZED DAMPERS IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE. EXHAUST FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATING INSTITUTE (HVI 915, HVI LOUDNESS TESTING AND RATING PROCEDURE, HVI 916, HVI AIRFLOW TEST PROCEDURE, AND HVI 920, HVI PRODUCT PERFORMANCE CERTIFICATION PROCEDURE AS APPLICABLE). EXHAUST FANS REQUIRED IN THIS SECTION MAY BE USED TO PROVIDE LOCAL VENTILATION. BATHROOM EXHAUST FANS THAT ARE DESIGNED FOR INTERMITTENT EXHAUST AIRFLOW RATES HIGHER THAN THE CONTINUOUS EXHAUST AIRFLOW RATES IN TABLE M1505.4.3(3) SHALL BE PROVIDED WITH OCCUPANCY SENSORS OR HUMIDITY SENSORS TO AUTOMATICALLY OVERRIDE THE FAN TO THE HIGH SPEED AIRFLOW RATE. THE EXHAUST FANS SHALL BE TESTED AND THE TESTING RESULTS SHALL BE SUBMITTED AND POSTED IN ACCORDANCE WITH SECTION M1505.4.1.6.

M1505.4.1.3 SUPPLY FANS. SUPPLY FANS USED IN MEETING THE REQUIREMENTS OF THIS SECTION SHALL SUPPLY OUTDOOR AIR FROM INTAKE OPENINGS IN ACCORDANCE WITH IMC SECTIONS 401.4 AND 401.5. WHEN DESIGNED

FOR INTERMITTENT OFF OPERATION, SUPPLY SYSTEMS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE. SUPPLY FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATING INSTITUTE (HVI 915, HVI LOUDNESS TESTING AND RATING PROCEDURE, HVI 916, HVI AIRFLOW TEST PROCEDURE, AND HVI 920, HVI PRODUCT PERFORMANCE CERTIFICATION PROCEDURE AS APPLICABLE). WHERE OUTDOOR AIR IS PROVIDED BY SUPPLY FAN SYSTEMS, THE OUTDOOR AIR SHALL BE FILTERED. THE FILTER SHALL BE ACCESSIBLE FOR REGULAR MAINTENANCE AND REPLACEMENT. THE FILTER SHALL HAVE A MINIMUM EFFICIENCY RATING VALUE (MERV) OF AT LEAST 8.

M1505.4.1.4 BALANCED WHOLE HOUSE VENTILATION SYSTEM. A BALANCED WHOLE HOUSE VENTILATION SYSTEM SHALL INCLUDE BOTH SUPPLY AND EXHAUST FANS. THE SUPPLY AND EXHAUST FANS SHALL HAVE AIRFLOW THAT IS WITHIN 10 PERCENT OF EACH OTHER. THE TESTED AND BALANCED TOTAL MECHANICAL EXHAUST AIRFLOW RATE IS WITHIN 10 PERCENT OR 5 CFM, WHICHEVER IS GREATER, OF THE TOTAL MECHANICAL SUPPLY AIRFLOW RATE. THE FLOW RATE TEST RESULTS SHALL BE SUBMITTED AND POSTED IN ACCORDANCE WITH SECTION M1505.4.1.7. THE EXHAUST FAN SHALL MEET THE REQUIREMENTS OF SECTION M1505.4.1.2. THE SUPPLY FAN SHALL MEET THE REQUIREMENTS OF SECTION M1505.4.1.3. BALANCED VENTILATION SYSTEMS WITH BOTH SUPPLY AND EXHAUST FANS IN A PACKAGED PRODUCT, SUCH AS AN ERV/HRV, SHALL MEET THE REQUIREMENTS OF HVI 920, AS APPLICABLE. INTERMITTENT DRYER EXHAUST, INTERMITTENT RANGE HOOD EXHAUST, AND INTERMITTENT TOILET ROOM EXHAUST AIRFLOW RATES ABOVE THE RESIDENTIAL DWELLING OR SLEEPING UNIT MINIMUM VENTILATION RATE ARE EXEMPT FROM THE BALANCED AIRFLOW CALCULATION.

M1505.4.1.5 FURNACE INTEGRATED SUPPLY. SYSTEMS USING SPACE HEATING AND/OR COOLING AIR HANDLER FANS FOR OUTDOOR AIR SUPPLY DISTRIBUTION ARE NOT PERMITTED.
EXCEPTION: AIR HANDLER FANS SHALL HAVE MULTISPEED OR VARIABLE SPEED SUPPLY AIRFLOW CONTROL CAPABILITY WITH A LOW SPEED OPERATION NOT GREATER THAN 25 PERCENT OF THE RATED SUPPLY AIRFLOW CAPACITY DURING VENTILATION ONLY OPERATION. OUTDOOR AIR INTAKE OPENINGS MUST MEET THE PROVISIONS OF SECTIONS R303.5 AND R303.6 AND MUST INCLUDE A MOTORIZED DAMPER THAT IS ACTIVATED BY THE WHOLE HOUSE VENTILATION SYSTEM CONTROLLER. THE MOTORIZED DAMPER MUST BE CONTROLLED TO MAINTAIN THE OUTDOOR AIRFLOW INTAKE AIRFLOW WITHIN 10 PERCENT OF THE WHOLE HOUSE MECHANICAL EXHAUST AIRFLOW RATE. THE FLOW RATE FOR THE OUTDOOR AIR INTAKE MUST BE TESTED AND VERIFIED AT THE MINIMUM VENTILATION FAN SPEED AND THE MAXIMUM HEATING OR COOLING FAN SPEED. THE RESULTS OF THE TEST SHALL BE SUBMITTED AND POSTED IN ACCORDANCE WITH SECTION M1505.4.1.7.

M1505.4.1.6 TESTING. WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE TESTED, BALANCED AND VERIFIED TO PROVIDE A FLOW RATE NOT LESS THAN THE MINIMUM REQUIRED BY SECTIONS M1505.4.3 AND M1505.4.4. TESTING SHALL BE PERFORMED ACCORDING TO THE VENTILATION EQUIPMENT MANUFACTURER'S INSTRUCTIONS, OR BY USING A FLOW HOOD, FLOW GRID, OR OTHER AIRFLOW MEASURING DEVICE AT THE MECHANICAL VENTILATION FAN'S INLET TERMINALS, OUTLET TERMINALS OR GRILLES OR IN THE CONNECTED VENTILATION DUCTS. WHERE REQUIRED BY THE BUILDING OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED THIRD PARTY. A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE BUILDING OFFICIAL AND BE POSTED IN THE DWELLING UNIT PER SECTION M1505.4.1.7.

M1505.4.1.7 CERTIFICATE. A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR, TEST AND BALANCE CONTRACTOR OR OTHER APPROVED PARTY AND POSTED ON A WALL IN THE SPACE WHERE THE FURNACE IS LOCATED, A UTILITY ROOM, OR AN APPROVED LOCATION INSIDE THE BUILDING. WHEN LOCATED ON AN ELECTRICAL PANEL, THE CERTIFICATE SHALL NOT COVER OR OBSTRUCT THE VISIBILITY OF THE CIRCUIT DIRECTORY LABEL, SERVICE DISCONNECT LABEL, OR OTHER REQUIRED LABELS. THE CERTIFICATE SHALL LIST THE FLOW RATE DETERMINED FROM THE DELIVERED AIRFLOW OF THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AS INSTALLED AND THE TYPE OF MECHANICAL WHOLE HOUSE VENTILATION SYSTEM USED TO COMPLY WITH SECTION M1505.4.3.1.

M1505.4.2 SYSTEM CONTROLS. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT COMPLY WITH THE FOLLOWING:

1. THE WHOLE HOUSE VENTILATION SYSTEM SHALL BE CONTROLLED WITH MANUAL SWITCHES, TIMERS OR OTHER MEANS THAT PROVIDE FOR AUTOMATIC OPERATION OF THE VENTILATION SYSTEM WITH READY ACCESS BY THE OCCUPANT.

2. WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE OFF OF THE SYSTEM BY THE OCCUPANT DURING PERIODS OF POOR OUTDOOR AIR QUALITY. CONTROLS SHALL INCLUDE PERMANENT TEXT OR A SYMBOL INDICATING THEIR FUNCTION. RECOMMENDED CONTROL PERMANENT LABELING TO INCLUDE TEXT SIMILAR TO THE FOLLOWING: "LEAVE ON UNLESS OUTDOOR AIR QUALITY IS VERY POOR." MANUAL CONTROLS SHALL BE READILY ACCESSIBLE BY THE OCCUPANT.

3. WHOLE HOUSE VENTILATION SYSTEMS SHALL BE CONFIGURED TO OPERATE CONTINUOUSLY EXCEPT WHERE INTERMITTENT OFF CONTROLS AND SIZING ARE PROVIDED PER SECTION M1505.4.3.2.

M1505.4.3 MECHANICAL VENTILATION RATE. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M1505.4.3(1) OR EQUATION 15-1.

EQUATION 15-1
VENTILATION RATE IN CUBIC FEET PER MINUTE = (0.01 × TOTAL SQUARE FOOT AREA OF HOUSE) + (7.5 × (NUMBER OF BEDROOMS + 1)) BUT NOT LESS THAN 30 CFM FOR EACH DWELLING UNIT

M1505.4.3.1 VENTILATION QUALITY ADJUSTMENT. THE MINIMUM WHOLE HOUSE VENTILATION RATE FROM SECTION 1505.4.3 SHALL BE ADJUSTED BY THE SYSTEM COEFFICIENT IN TABLE M1505.4.3(2) BASED ON THE SYSTEM TYPE NOT MEETING THE DEFINITION OF A BALANCED WHOLE HOUSE VENTILATION SYSTEM AND/OR NOT MEETING THE DEFINITION OF A DISTRIBUTED WHOLE HOUSE VENTILATION SYSTEM.

EQUATION 15-2 - QV = QR • CSYSTEM
WHERE:
QV = QUALITY-ADJUSTED VENTILATION AIRFLOW RATE IN CUBIC FEET PER MINUTE (CFM).
QR = VENTILATION AIRFLOW RATE, CUBIC FEET PER MINUTE (CFM) FROM 15-1 OR TABLE M1505.4.3(1).
CSYSTEM = SYSTEM COEFFICIENT FROM TABLE 1505.4.3(2).

M1505.4.3.2 INTERMITTENT OFF OPERATION. WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE PROVIDED WITH ADVANCED CONTROLS THAT ARE CONFIGURED TO OPERATE THE SYSTEM WITH INTERMITTENT OFF OPERATION SHALL OPERATE FOR A LEAST TWO HOURS IN EACH FOUR-HOUR SEGMENT. THE WHOLE HOUSE VENTILATION AIRFLOW RATE DETERMINED IN ACCORDANCE WITH SECTION M1505.4.3 AS CORRECTED BY SECTION M1505.4.3.1 IS MULTIPLIED BY THE FACTOR DETERMINED IN ACCORDANCE WITH TABLE M1505.4.3(3).

M1505.4.4 LOCAL EXHAUST RATES. LOCAL EXHAUST SYSTEMS SHALL BE DESIGNED TO HAVE THE CAPACITY TO EXHAUST THE MINIMUM AIRFLOW RATE DETERMINED IN ACCORDANCE WITH TABLE M1505.4.4(1). IF THE LOCAL EXHAUST FAN IS INCLUDED IN THE WHOLE HOUSE VENTILATION SYSTEM, IN ACCORDANCE WITH SECTION 1505.4.1, THEN THE EXHAUST FAN SHALL BE CONTROLLED TO OPERATE AS SPECIFIED IN SECTION M1505.4.2.

M1505.4.4.1 LOCAL EXHAUST. BATHROOMS, TOILET ROOMS, AND KITCHENS SHALL INCLUDE A LOCAL EXHAUST SYSTEM. SUCH LOCAL EXHAUST SYSTEMS SHALL HAVE THE CAPACITY TO EXHAUST THE MINIMUM AIRFLOW RATE IN ACCORDANCE WITH TABLE M1505.4.4(1). FANS REQUIRED BY THIS SECTION SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE OR AUTOMATIC OCCUPANCY SENSOR, HUMIDITY SENSOR OR POLLUTANT SENSOR CONTROLS. AN "ON/OFF" SWITCH SHALL MEET THIS REQUIREMENT FOR MANUAL CONTROLS. MANUAL FAN CONTROLS SHALL BE READILY ACCESSIBLE IN THE ROOM SERVED BY THE FAN.

M1505.4.4.2 LOCAL EXHAUST FANS. EXHAUST FANS SHALL MEET THE FOLLOWING CRITERIA:
EXHAUST FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATING INSTITUTE (HVI 915, HVI LOUDNESS TESTING AND RATING PROCEDURE, HVI 916, HVI AIRFLOW TEST PROCEDURE, AND HVI 920, HVI PRODUCT PERFORMANCE CERTIFICATION PROCEDURE).
EXCEPTION: WHERE A RANGE HOOD OR DOWN DRAFT EXHAUST FAN IS USED FOR LOCAL EXHAUST FOR A KITCHEN, THE DEVICE IS NOT REQUIRED TO BE RATED PER THESE STANDARDS.
2. FAN AIRFLOW RATING AND DUCT SYSTEM SHALL BE DESIGNED AND INSTALLED TO DELIVER AT LEAST THE EXHAUST AIRFLOW REQUIRED BY TABLE M1505.4.4(1). THE AIRFLOWS REQUIRED REFER TO THE DELIVERED AIRFLOW OF THE SYSTEM AS INSTALLED AND TESTED USING A FLOW HOOD, FLOW GRID, OR OTHER AIRFLOW MEASUREMENT DEVICE. LOCAL EXHAUST SYSTEMS SHALL BE TESTED, BALANCED, AND VERIFIED TO PROVIDE A FLOW RATE NOT LESS THAN THE MINIMUM REQUIRED BY THIS SECTION.
3. DESIGN AND INSTALLATION OF THE SYSTEM OR EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH MANUFACTURERS' INSTALLATION INSTRUCTIONS.
4. FAN AIRFLOW RATING AND DUCT SYSTEM SHALL BE DESIGNED AND INSTALLED TO DELIVER AT LEAST THE EXHAUST AIRFLOW REQUIRED BY TABLE M1505.4.4(1).
EXCEPTIONS:
1. AN EXHAUST AIRFLOW RATING AT A PRESSURE OF 0.25 IN. W.G. MAY BE USED, PROVIDED THE DUCT SIZING MEETS THE PRESCRIPTIVE REQUIREMENTS OF TABLE M1505.4.4(2).
2. WHERE A RANGE HOOD OR DOWN DRAFT EXHAUST FAN IS USED TO SATISFY THE LOCAL VENTILATION REQUIREMENTS FOR KITCHENS, THE RANGE HOOD OR DOWN DRAFT EXHAUST SHALL NOT BE LESS THAN 100 CFM AT 0.10 IN. W.G.

2018 ENERGY CODE REQUIREMENTS

R406.2 CARBON EMISSION EQUALIZATION. THIS SECTION ESTABLISHES A BASE EQUALIZATION BETWEEN FUELS USED TO DEFINE THE EQUIVALENT CARBON EMISSIONS OF THE OPTIONS SPECIFIED. THE PERMIT SHALL DEFINE THE BASE FUEL SELECTION TO BE USED AND THE POINTS SPECIFIED IN TABLE R406.2 SHALL BE USED TO MODIFY THE REQUIREMENTS IN SECTION R406.3. THE SUM OF CREDITS FROM TABLES R406.2 AND R406.3 SHALL MEET THE REQUIREMENTS OF SECTION R406.3.
R406.3 ADDITIONAL ENERGY EFFICIENCY REQUIREMENTS. EACH DWELLING UNIT IN A RESIDENTIAL BUILDING SHALL COMPLY WITH SUFFICIENT OPTIONS FROM TABLE R406.2 SO AS TO ACHIEVE THE FOLLOWING MINIMUM NUMBER OF CREDITS:
1. SMALL DWELLING UNIT: .... 3.0 CREDITS DWELLING UNITS LESS THAN 1500 SQUARE FEET IN CONDITIONED FLOOR AREA WITH LESS THAN 300 SQUARE FEET OF FENESTRATION AREA. ADDITIONS TO EXISTING BUILDING GREATER THAN 500 SQUARE FEET OF HEATED FLOOR AREA BUT LESS THAN 1500 SQUARE FEET.
2. MEDIUM DWELLING UNIT: .... 6.0 CREDITS ALL DWELLING UNITS THAT ARE NOT INCLUDED IN #1, #3 OR #4.
3. LARGE DWELLING UNIT: .... 7.0 CREDITS DWELLING UNITS EXCEEDING 5000 SQUARE FEET OF CONDITIONED FLOOR AREA.
4. DWELLING UNITS SERVING R-2 OCCUPANCIES: .... 4.5 CREDITS
5. ADDITIONS LESS THAN OR EQUAL TO 500 SQUARE FEET:.......... 1.5 CREDITS

THE DRAWINGS INCLUDED WITH THE BUILDING PERMIT APPLICATION SHALL IDENTIFY WHICH OPTIONS HAVE BEEN SELECTED AND THE POINT VALUE OF EACH OPTION, REGARDLESS OF WHETHER SEPARATE MECHANICAL, PLUMBING, ELECTRICAL, OR OTHER PERMITS ARE UTILIZED FOR THE PROJECT.

TABLE 406.2 ENERGY CREDITS (DEBITS)
OPTION DESCRIPTION CREDIT(S)

	ALL OTHERS	GROUP R-2
1. COMBUSTION HEATING EQUIPMENT MEETING MINIMUM FEDERAL EFFICIENCY STANDARDS FOR THE EQUIPMENT LISTED IN TABLE C403.3.2(4) OR C403.3.2(5)	0	0
2 FOR AN INITIAL HEATING SYSTEM USING A HEAT PUMP THAT MEETS FEDERAL STANDARDS FOR THE EQUIPMENT LISTED IN TABLE C403.3.2(1)C OR C403.3.2(2) OR AIR TO WATER HEAT PUMP UNITS THAT ARE CONFIGURED TO PROVIDE BOTH HEATING AND COOLING AND ARE RATED IN ACCORDANCE WITH AHRI 550/590	1.0	1.0
3. FOR HEATING SYSTEM BASED ON ELECTRIC RESISTANCE ONLY (EITHER FORCED AIR OR ZONAL)	-1.0	-1.0
4 FOR HEATING SYSTEM BASED ON ELECTRIC RESISTANCE WITH A DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM IN ACCORDANCE WITH SECTION R403.7.1 INCLUDING THE EXCEPTION	0.5	N/A
5 ALL OTHER HEATING	-1.0	-0.5

1. EFFICIENT BUILDING ENVELOPE OPTIONS
ONLY ONE OPTION FROM ITEMS 1.1 THROUGH 1.7 MAY BE SELECTED IN THIS CATEGORY. COMPLIANCE WITH THE CONDUCTIVE UA TARGETS IS DEMONSTRATED USING SECTION R402.1.4, TOTAL UA ALTERNATIVE, WHERE ¾1-(PROPOSED UA/TARGET UA)⅛ ⑫ THE REQUIRED %UA REDUCTION.

1.1 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.24. ALL OTHERS - 0.5 / GROUP R-2 - 0.5

1.2 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.20. ALL OTHERS - 1.0 / GROUP R-2 - 1.0

1.3 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.28 FLOOR R-38
SLAB ON GRADE R-10 PERIMETER AND UNDER ENTIRE SLAB
BELOW GRADE SLAB R-10 PERIMETER AND UNDER ENTIRE SLAB
OR
COMPLIANCE BASED ON SECTION R402.1.4: REDUCE THE TOTAL CONDUCTIVE UA BY 5%.
ALL OTHERS - 0.5 / GROUP R-2 - N/A

1.4 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.25
WALL R-21 PLUS R-4 CI
FLOOR R-38
BASEMENT WALL R-21 INT PLUS R-5 CI
SLAB ON GRADE R-10 PERIMETER AND UNDER ENTIRE SLAB, BELOW GRADE SLAB R-10 PERIMETER AND UNDER ENTIRE SLAB
OR
COMPLIANCE BASED ON SECTION R402.1.4: REDUCE THE TOTAL CONDUCTIVE UA BY 15%.
ALL OTHERS - 1.0 / GROUP R-2 - 1.0

1.5 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.22
CEILING AND SINGLE-RAFTER OR JOIST-VAULTED R-49 ADVANCED
WOOD FRAME WALL R-21 INT PLUS R-12 CI
FLOOR R-38
BASEMENT WALL R-21 INT PLUS R-12 CI
SLAB ON GRADE R-10 PERIMETER AND UNDER ENTIRE SLAB
BELOW GRADE SLAB R-10 PERIMETER AND UNDER ENTIRE SLAB
OR
COMPLIANCE BASED ON SECTION R402.1.4: REDUCE THE TOTAL CONDUCTIVE UA BY 30%.
ALL OTHERS - 2.0 / GROUP R-2 - 1.5

1.6 PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS:
VERTICAL FENESTRATION U = 0.18
CEILING AND SINGLE-RAFTER OR JOIST-VAULTED R-60 ADVANCED
WOOD FRAME WALL R-21 INT PLUS R-16 CI
FLOOR R-48
BASEMENT WALL R-21 INT PLUS R-16 CI
SLAB ON GRADE R-20 PERIMETER AND UNDER ENTIRE SLAB
BELOW GRADE SLAB R-20 PERIMETER AND UNDER ENTIRE SLAB
OR
COMPLIANCE BASED ON SECTION R402.1.4: REDUCE THE TOTAL CONDUCTIVE UA BY 40%.
ALL OTHERS - 3.0 / GROUP R-2 - 2.0

1.7 ADVANCED FRAMING AND RAISED HEEL TRUSSES OR RAFTERS
VERTICAL GLAZING U-0.28
R-49 ADVANCED (U-0.020) AS LISTED IN SECTION A102.2.1, CEILINGS BELOW A VENTED ATTIC
AND
R-49 VAULTED CEILINGS WITH FULL HEIGHT OF UNCOMPRESSED INSULATION EXTENDING OVER THE WALL TOP PLATE AT THE EAVES. ALL OTHERS - 0.5 / GROUP R-2 - 0.5

2. AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION OPTIONS
ONLY ONE OPTION FROM ITEMS 2.1 THROUGH 2.4 MAY BE SELECTED IN THIS CATEGORY.

2.1 COMPLIANCE BASED ON R402.4.1.2:
REDUCE THE TESTED AIR LEAKAGE TO 3.0 AIR CHANGES PER HOUR MAXIMUM AT 50 PASCALS
OR
FOR R-2 OCCUPANCIES, OPTIONAL COMPLIANCE BASED ON SECTION R402.4.1.2: REDUCE THE TESTED AIR LEAKAGE TO 0.3 CFM/FT2 MAXIMUM AT 50 PASCALS
AND
ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M1507.3 OF THE INTERNATIONAL RESIDENTIAL CODE OR SECTION 403.8 OF THE INTERNATIONAL MECHANICAL CODE SHALL BE MET WITH A HIGH EFFICIENCY FAN(S) (MAXIMUM 0.35 WATTS/CFM), NOT INTERLOCKED WITH THE FURNACE FAN (IF PRESENT). VENTILATION SYSTEMS USING A FURNACE INCLUDING AN ECM MOTOR ARE ALLOWED, PROVIDED THAT THEY ARE CONTROLLED TO OPERATE AT LOW SPEED IN VENTILATION ONLY MODE.

TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED, THE MAXIMUM TESTED BUILDING AIR LEAKAGE, AND SHALL SHOW THE QUALIFYING VENTILATION SYSTEM AND ITS CONTROL SEQUENCE OF OPERATION.
ALL OTHER - 0.5 / GROUP R-2 - 1.0

2.2 COMPLIANCE BASED ON SECTION R402.4.1.2:
REDUCE THE TESTED AIR LEAKAGE TO 2.0 AIR CHANGES PER HOUR MAXIMUM AT 50 PASCALS
OR
FOR R-2 OCCUPANCIES, OPTIONAL COMPLIANCE BASED ON SECTION R402.4.1.2: REDUCE THE TESTED AIR LEAKAGE TO 0.25 CFM/FT2 MAXIMUM AT 50 PASCALS
AND
ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M1507.3 OF THE INTERNATIONAL RESIDENTIAL CODE OR SECTION 403.8 OF THE INTERNATIONAL MECHANICAL CODE SHALL BE MET WITH A HEAT RECOVERY VENTILATION SYSTEM WITH MINIMUM SENSIBLE HEAT RECOVERY EFFICIENCY OF 0.65.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE MAXIMUM TESTED BUILDING AIR LEAKAGE AND SHALL SHOW THE HEAT RECOVERY VENTILATION SYSTEM.
ALL OTHERS - 1.0 / GROUP R-2 - 1.5

2.3 COMPLIANCE BASED ON SECTION R402.4.1.2:
REDUCE THE TESTED AIR LEAKAGE TO 1.5 AIR CHANGES PER HOUR MAXIMUM AT 50 PASCALS
OR
FOR R-2 OCCUPANCIES, OPTIONAL COMPLIANCE BASED ON SECTION R402.4.1.2: REDUCE THE TESTED AIR LEAKAGE TO 0.25 CFM/FT2 MAXIMUM AT 50 PASCALS
AND
ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M1507.3 OF THE INTERNATIONAL RESIDENTIAL CODE OR SECTION 403.8 OF THE INTERNATIONAL MECHANICAL CODE SHALL BE MET WITH A HEAT RECOVERY VENTILATION SYSTEM WITH MINIMUM SENSIBLE HEAT RECOVERY EFFICIENCY OF 0.75.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE MAXIMUM TESTED BUILDING AIR LEAKAGE AND SHALL SHOW THE HEAT RECOVERY VENTILATION SYSTEM.
ALL OTHERS - 1.5 / GROUP R-2 - 2.0

2.4 COMPLIANCE BASED ON SECTION R402.4.1.2:
REDUCE THE TESTED AIR LEAKAGE TO 0.6 AIR CHANGES PER HOUR MAXIMUM AT 50 PASCALS
OR
FOR R-2 OCCUPANCIES, OPTIONAL COMPLIANCE BASED ON SECTION R402.4.1.2: REDUCE THE TESTED AIR LEAKAGE TO 0.15 CFM/FT2 MAXIMUM AT 50 PASCALS
AND
ALL WHOLE HOUSE VENTILATION REQUIREMENTS AS DETERMINED BY SECTION M1507.3 OF THE INTERNATIONAL RESIDENTIAL CODE OR SECTION 403.8 OF THE INTERNATIONAL MECHANICAL CODE SHALL BE MET WITH A HEAT RECOVERY VENTILATION SYSTEM WITH MINIMUM SENSIBLE HEAT RECOVERY EFFICIENCY OF 0.80. DUCT INSTALLATION SHALL COMPLY WITH SECTION R403.3.7.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE MAXIMUM TESTED BUILDING AIR LEAKAGE AND SHALL SHOW THE HEAT RECOVERY VENTILATION SYSTEM.
ALL OTHERS - 2.0 / GROUP R-2 - 2.5

3. HIGH EFFICIENCY HVAC EQUIPMENT OPTIONS
ONLY ONE OPTION FROM ITEMS 3.1 THROUGH 3.6 MAY BE SELECTED IN THIS CATEGORY.

3.1 A ENERGY STAR RATED (U.S. NORTH) GAS OR PROPANE FURNACE WITH MINIMUM AFUE OF 95%
OR
ENERGY STAR RATED (U.S. NORTH) GAS OR PROPANE BOILER WITH MINIMUM AFUE OF 90%.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.0 / GROUP R-2 - 1.0

3.2A AIR-SOURCE CENTRALLY DUCTED HEAT PUMP WITH MINIMUM HSPF OF 9.5.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.0 / GROUP R-2 - N/A

3.3a CLOSED-LOOP GROUND SOURCE HEAT PUMP± WITH A MINIMUM COP OF 3.3
OR
OPEN LOOP WATER SOURCE HEAT PUMP WITH A MAXIMUM PUMPING HYDRAULIC HEAD OF 150 FEET AND MINIMUM COP OF 3.6.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.5 / GROUP R-2 - 1.0

3.4 DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM, ZONAL CONTROL: IN HOMES WHERE THE PRIMARY SPACE HEATING SYSTEM IS ZONAL ELECTRIC HEATING, A DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM WITH A MINIMUM HSPF OF 10.0 SHALL BE INSTALLED AND PROVIDE HEATING TO THE LARGEST ZONE OF THE HOUSING UNIT.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.5 / GROUP R-2 - 2.0

3.5a AIR-SOURCE, CENTRALLY DUCTED HEAT PUMP WITH MINIMUM HSPF OF 11.0.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.5 / GROUP R-2 - N/A

3.6a DUCTLESS SPLIT SYSTEM HEAT PUMPS WITH NO ELECTRIC RESISTANCE HEATING IN THE PRIMARY LIVING AREAS. A DUCTLESS HEAT PUMP SYSTEM WITH A MINIMUM HSPF OF 10 SHALL BE SIZED AND INSTALLED TO PROVIDE HEAT TO ENTIRE DWELLING UNIT AT THE DESIGN OUTDOOR AIR TEMPERATURE.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED, THE HEATED FLOOR AREA CALCULATION, THE HEATING EQUIPMENT TYPE(S), THE MINIMUM EQUIPMENT EFFICIENCY, AND TOTAL INSTALLED HEAT CAPACITY (BY EQUIPMENT TYPE).
ALL OTHER - 2.0 / GROUP R-2 - 3.0

4. HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM OPTIONS

4.1 ALL SUPPLY AND RETURN DUCTS LOCATED IN AN UNCONDITIONED ATTIC SHALL BE DEEPLY BURIED IN CEILING INSULATION IN ACCORDANCE WITH SECTION R403.3.7.
FOR MECHANICAL EQUIPMENT LOCATED OUTSIDE THE CONDITIONED SPACE, A MAXIMUM OF 10 LINEAR FEET OF RETURN DUCT AND 5 LINEAR FEET OF SUPPLY DUCT CONNECTIONS TO THE EQUIPMENT MAY BE OUTSIDE THE DEEPLY BURIED INSULATION. ALL METALLIC DUCTS LOCATED OUTSIDE THE CONDITIONED SPACE MUST HAVE BOTH TRANSVERSE AND LONGITUDINAL JOINTS SEALED WITH MASTIC. IF FLEX DUCTS ARE USED, THEY CANNOT CONTAIN SPLICES.
DUCT LEAKAGE SHALL BE LIMITED TO 3 CFM PER 100 SQUARE FEET OF CONDITIONED FLOOR AREA. AIR HANDLER(S) SHALL BE LOCATED WITHIN THE CONDITIONED SPACE.
ALL OTHER - 0.5 / GROUP R-2 - 0.5

4.2 HVAC EQUIPMENT AND ASSOCIATED DUCT SYSTEM(S) INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R403.3.7.
LOCATING SYSTEM COMPONENTS IN CONDITIONED CRAWL SPACES IS NOT PERMITTED UNDER THIS OPTION.
ELECTRIC RESISTANCE HEAT AND DUCTLESS HEAT PUMPS ARE NOT PERMITTED UNDER THIS OPTION.
DIRECT COMBUSTION HEATING EQUIPMENT WITH AFUE LESS THAN 80% IS NOT PERMITTED UNDER THIS OPTION.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND SHALL SHOW THE LOCATION OF THE HEATING AND COOLING EQUIPMENT AND ALL THE DUCTWORK.
ALL OTHER - 1.0 / GROUP R-2 - N/A

5. EFFICIENT WATER HEATING OPTIONS
ONLY ONE OPTION FROM ITEMS 5.2 THROUGH 5.6 MAY BE SELECTED IN THIS CATEGORY. ITEM 5.1 MAY BE COMBINED WITH ANY OPTION.

5.1 A DRAIN WATER HEAT RECOVERY UNIT(S) SHALL BE INSTALLED, WHICH CAPTURES WASTE WATER HEAT FROM ALL AND ONLY THE SHOWERS, AND HAS A MINIMUM EFFICIENCY OF 40% IF INSTALLED FOR EQUAL FLOW OR A MINIMUM EFFICIENCY OF 54% IF INSTALLED FOR UNEQUAL FLOW. SUCH UNITS SHALL BE RATED IN ACCORDANCE WITH CSA B55.1 OR IAPMO IGC 346-2017 AND BE SO LABELED.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL INCLUDE A PLUMBING DIAGRAM THAT SPECIFIES THE DRAIN WATER HEAT RECOVERY UNITS AND THE PLUMBING LAYOUT NEEDED TO INSTALL IT. LABELS OR OTHER DOCUMENTATION SHALL BE PROVIDED THAT DEMONSTRATES THAT THE UNIT COMPLIES WITH THE STANDARD.
ALL OTHERS - 0.5 / R-2 GROUP - 0.5

5.2 WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ENERGY STAR RATED GAS OR PROPANE WATER HEATER WITH A MINIMUM UEF OF 0.80.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHERS - 0.5 / R-2 GROUP - 0.5

5.3 WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ENERGY STAR RATED GAS OR PROPANE WATER HEATER WITH A MINIMUM UEF OF 0.91
OR
SOLAR WATER HEATING SUPPLEMENTING A MINIMUM STANDARD WATER HEATER. SOLAR WATER HEATING WILL PROVIDE A RATED MINIMUM SAVINGS OF 85 THERMS OR 2000 KWH BASED ON THE SOLAR RATING AND CERTIFICATION CORPORATION (SRCC) ANNUAL PERFORMANCE OF OG-300 CERTIFIED SOLAR WATER HEATING SYSTEMS
OR
WATER HEATER HEATED BY GROUND SOURCE HEAT PUMP MEETING THE REQUIREMENTS OF OPTION 3.3.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY AND, FOR SOLAR WATER HEATING SYSTEMS, THE CALCULATION OF THE MINIMUM ENERGY SAVINGS. ALL OTHER - 1.0 / R-2 GROUP - 1.0

5.4 WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER I OF NEEA'S ADVANCED WATER HEATING SPECIFICATION
OR
FOR R-2 OCCUPANCY, ELECTRIC HEAT PUMP WATER HEATER(S), MEETING THE STANDARDS FOR TIER I OF NEEA'S ADVANCED WATER HEATING SPECIFICATION, SHALL SUPPLY DOMESTIC HOT WATER TO ALL UNITS. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 1.5 / R-2 GROUP - 2.0

5.5 WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION
OR
FOR R-2 OCCUPANCY, ELECTRIC HEAT PUMP WATER HEATER(S), MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION, SHALL SUPPLY DOMESTIC HOT WATER TO ALL UNITS. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 2.0 / R-2 GROUP - 2.5

5.6 WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER WITH A MINIMUM UEF OF 2.9 AND UTILIZING A SPLIT SYSTEM CONFIGURATION WITH THE AIR-TO-REFRIGERANT HEAT EXCHANGER LOCATED OUTDOORS. EQUIPMENT SHALL MEET SECTION 4, REQUIREMENTS FOR ALL UNITS, OF THE NEEA STANDARD ADVANCED WATER HEATING SPECIFICATION WITH THE UEF NOTED ABOVE
OR
FOR R-2 OCCUPANCY, ELECTRIC HEAT PUMP WATER HEATER(S), MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION AND UTILIZING A SPLIT SYSTEM CONFIGURATION WITH THE AIR-TO-REFRIGERANT HEAT EXCHANGER LOCATED OUTDOORS, SHALL SUPPLY DOMESTIC HOT WATER TO ALL UNITS. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE INSULATED WITH R-8 MINIMUM PIPE INSULATION.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. ALL OTHER - 2.5 / R-2 GROUP - 3.0

6. RENEWABLE ELECTRIC ENERGY OPTION

6.1 FOR EACH 1200 KWH OF ELECTRICAL GENERATION PER HOUSING UNIT PROVIDED ANNUALLY BY ON-SITE WIND OR SOLAR EQUIPMENT A 1.0 CREDIT SHALL BE ALLOWED, UP TO 3 CREDITS. GENERATION SHALL BE CALCULATED AS FOLLOWS:
FOR SOLAR ELECTRIC SYSTEMS, THE DESIGN SHALL BE DEMONSTRATED TO MEET THIS REQUIREMENT USING THE NATIONAL RENEWABLE ENERGY LABORATORY CALCULATOR PVWATTS OR APPROVED ALTERNATE BY THE CODE OFFICIAL.
DOCUMENTATION NOTING SOLAR ACCESS SHALL BE INCLUDED ON THE PLANS.
FOR WIND GENERATION PROJECTS DESIGNS SHALL DOCUMENT ANNUAL POWER GENERATION BASED ON THE FOLLOWING FACTORS:
THE WIND TURBINE POWER CURVE± AVERAGE ANNUAL WIND SPEED AT THE SITE± FREQUENCY DISTRIBUTION OF THE WIND SPEED AT THE SITE AND HEIGHT OF THE TOWER.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SHOW THE PHOTOVOLTAIC OR WIND TURBINE EQUIPMENT TYPE, PROVIDE DOCUMENTATION OF SOLAR AND WIND ACCESS, AND INCLUDE A CALCULATION OF THE MINIMUM ANNUAL ENERGY POWER PRODUCTION. ALL OTHER - 1.0 / R-2 GROUP - 1.0

7. APPLIANCE PACKAGE OPTION

7.1 ALL OF THE FOLLOWING APPLIANCES SHALL BE NEW AND INSTALLED IN THE DWELLING UNIT AND SHALL MEET THE FOLLOWING STANDARDS:
DISHWASHER - ENERGY STAR RATED
REFRIGERATOR (IF PROVIDED) - ENERGY STAR RATED
WASHING MACHINE - ENERGY STAR RATED
DRYER - ENERGY STAR RATED, VENTLESS DRYER WITH A MINIMUM CEF RATING OF 5.2.
TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SHOW THE APPLIANCE TYPE AND PROVIDE DOCUMENTATION OF ENERGY STAR COMPLIANCE. AT THE TIME OF INSPECTION, ALL APPLIANCES SHALL BE INSTALLED AND CONNECTED TO UTILITIES. DRYER DUCTS AND EXTERIOR DRYER VENT CAPS ARE NOT PERMITTED TO BE INSTALLED IN THE DWELLING UNIT. ALL OTHER - 0.5 / R-2 GROUP - 1.5

a. AN ALTERNATIVE HEATING SOURCE SIZED AT A MAXIMUM OF 0.5 WATTS/FT2 (EQUIVALENT) OF HEATED FLOOR AREA OR 500 WATTS, WHICHEVER IS BIGGER, MAY BE INSTALLED IN THE DWELLING UNIT.

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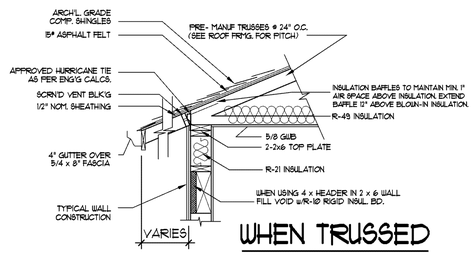

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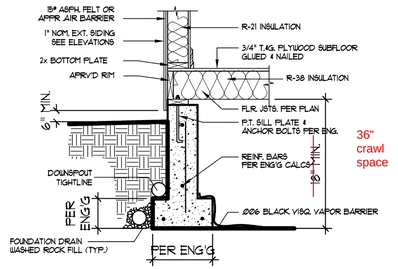
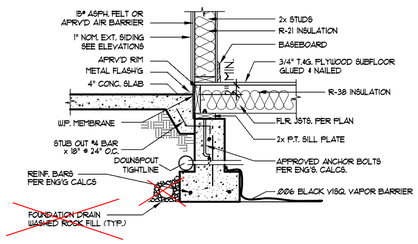


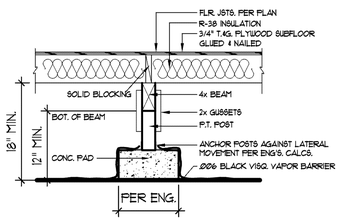
TYP. ONE STORY CONFIG. (A)

SCALE: 1/2" = 1'-Ø"



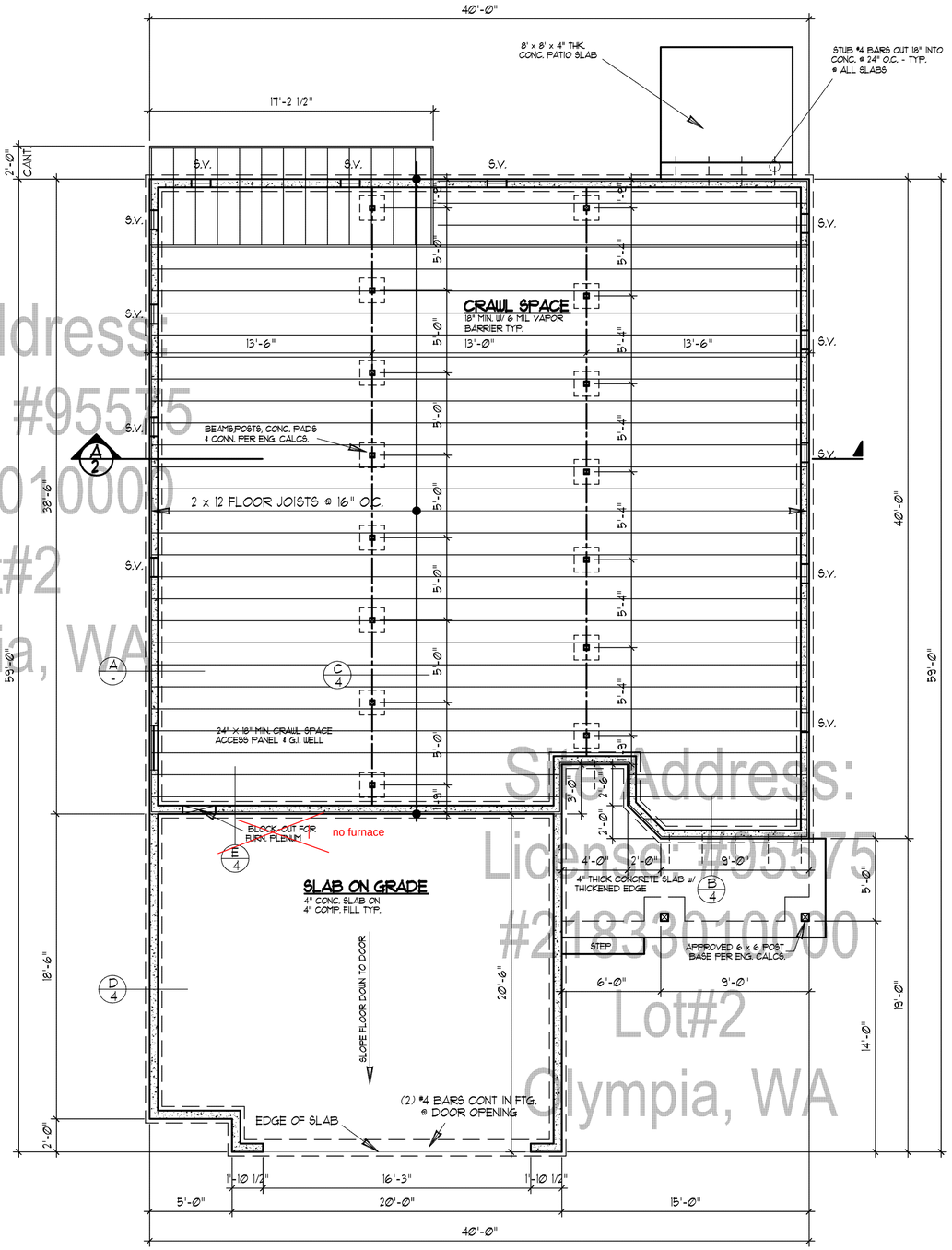
PORCH SLAB DETAIL (B)

SCALE: 1/2" = 1'-Ø"



GIRDER DETAIL (C)

SCALE: 1/2" = 1'-Ø"



FOUNDATION & FLOOR FRAMING PLAN

SCALE : 1/4" = 1'-Ø"

FOUNDATION VENTILATION

PROVIDE CRAWL SPACE VENTILATION AS PER IRC
(1,543 Sq. Ft. x 1/150 = 10.3 Sq. Ft. VENT AREA REQ'D)

NOTE:
While every attempt has been made to assure the accuracy of these drawings, **ALL INFORMATION MUST BE VERIFIED** prior to ordering any raw materials or fabricated components.
Any structural components specified are for reference only and must be verified with the **ENGINEER OF RECORD's "S-Sheets"** and/or (attached) documents

SOILS: IRC R401.4.1 IN LIEU OF A COMPLETE GEO-TECHNICAL EVALUATION, THE LOAD-BEARING VALUES IN TABLE R401.4.1 SHALL BE USED.

R403.1.5 SLOPE. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL NOT HAVE A SLOPE EXCEEDING ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE). FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTINGS OR WHERE THE SLOPE OF THE BOTTOM SURFACE OF THE FOOTINGS WILL EXCEED ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE).

EROSION CONTROL: ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. VERIFY METHOD WITH LOCAL JURISDICTION.

R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES (152 MM) WITHIN THE FIRST 10 FEET (3048 MM)

FOUNDATION WALL SIZE: R404.1.5.2 CONCRETE WALL THICKNESS. THE THICKNESS OF CONCRETE FOUNDATION WALLS SHALL BE EQUAL TO OR GREATER THAN THE THICKNESS OF THE WALL IN THE STORY ABOVE.

R404.1.6 HEIGHT ABOVE FINISHED GRADE. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS NOT LESS THAN 4 INCHES (102 MM) WHERE MASONRY VENEER IS USED AND NOT LESS THAN 6 INCHES (152 MM) ELSEWHERE.

R403.1.6 FOUNDATION ANCHORAGE. WOOD SILL PLATES AND WOOD WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2-INCH DIAMETER (12.7 MM) ANCHOR BOLTS SPACED NOT GREATER THAN 6 FEET (1829 MM) ON CENTER OR APPROVED ANCHORS OR ANCHOR STRAPS SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER (12.7 MM) ANCHOR BOLTS. BOLTS SHALL EXTEND NOT LESS THAN 7 INCHES (178 MM) INTO CONCRETE OR GROUTED CELLS OF CONCRETE MASONRY UNITS. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE NOT FEWER THAN TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES (305 MM) OR LESS THAN SEVEN BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. INTERIOR BEARING WALL SOLE PLATES ON MONOLITHIC SLAB FOUNDATION THAT ARE NOT PART OF A BRACED WALL PANEL SHALL BE POSITIVELY ANCHORED WITH APPROVED FASTENERS. SILL PLATES AND SOLE PLATES SHALL BE PROTECTED AGAINST DECAY AND TERMITES WHERE REQUIRED BY SECTIONS R317 AND R318.

R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOOD-BASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE FOLLOWING LOCATIONS BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1.
4. THE ENDS OF WOOD GIRDERS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS HAVING CLEARANCES OF LESS THAN 1/2 INCH (12.7 MM) ON TOPS, SIDES AND ENDS.

FOUNDATION: R1Ø03.2 FOOTINGS AND FOUNDATIONS. FOOTINGS FOR MASONRY CHIMNEYS SHALL BE CONSTRUCTED OF CONCRETE OR SOLID MASONRY NOT LESS THAN 12 INCHES (305 MM) THICK AND SHALL EXTEND NO LESS THAN 6 INCHES (152 MM) BEYOND THE FACE OF THE FOUNDATION OR SUPPORT WALL ON ALL SIDES. FOOTINGS SHALL BE FOUNDED ON NATURAL UNDISTURBED EARTH OR ENGINEERED FILL BELOW FROST DEPTH.
IN AREAS NOT SUBJECTED TO FREEZING, FOOTINGS SHALL BE NOT LESS THAN 12 INCHES (305 MM) BELOW FINISHED GRADE.

CONCRETE STRENGTH: IRC R402.2 CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2. CONCRETE SUBJECT TO WEATHERING SHALL BE AIR ENTAINED AS SPECIFIED IN TABLE R402.2. UNLESS NOTED OTHERWISE BY THE ENGINEER OF RECORD ON THEIR S-SHEETS.

FILL: R506.2.2 BASE. A 4-INCH-THICK (102 MM) BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, CRUSHED CONCRETE OR CRUSHED BLAST-FURNACE SLAG PASSING A 2-INCH (51 MM) SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHERE THE SLAB IS BELOW GRADE.

R403.1.3 FOOTING AND STEM WALL REINFORCING IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2. CONCRETE FOOTINGS LOCATED IN SEISMIC DESIGN CATEGORIES D0, D1 AND D2, AS ESTABLISHED IN TABLE R301.2(1), SHALL HAVE MINIMUM REINFORCEMENT IN ACCORDANCE WITH THIS SECTION AND FIGURE R403.1.3. REINFORCEMENT SHALL BE INSTALLED WITH SUPPORT AND COVER IN ACCORDANCE WITH SECTION R403.1.3.5.

R403.1.4 MINIMUM DEPTH. EXTERIOR FOOTINGS SHALL BE PLACED NOT LESS THAN 12 INCHES (305 MM) BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE, THE DEPTH OF FOOTINGS SHALL ALSO CONFORM TO SECTION R403.1.4.1.

R403.1.1 MINIMUM SIZE. THE MINIMUM WIDTH, W, AND THICKNESS, T, FOR CONCRETE FOOTINGS SHALL BE IN ACCORDANCE WITH TABLES R403.1(1) THROUGH R403.1(3) AND FIGURE R403.1(1) OR R403.1.3, AS APPLICABLE. THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL IN ACCORDANCE WITH TABLE R401.4.1. FOOTING PROJECTIONS, P, SHALL BE NOT LESS THAN 2 INCHES (51 MM) AND SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. FOOTING THICKNESS AND PROJECTION FOR FIREPLACES SHALL BE IN ACCORDANCE WITH SECTION R1Ø01.2. THE SIZE OF FOOTINGS SUPPORTING PIERS AND COLUMNS SHALL BE BASED ON THE TRIBUTARY LOAD AND ALLOWABLE SOIL PRESSURE IN ACCORDANCE WITH TABLE R401.4.1. FOOTINGS FOR WOOD FOUNDATIONS SHALL BE IN ACCORDANCE WITH THE DETAILS SET FORTH IN SECTION R403.2, AND FIGURES R403.1(2) AND R403.1(3). FOOTINGS FOR PRECAST FOUNDATIONS SHALL BE IN ACCORDANCE WITH THE DETAILS SET FORTH IN SECTION R403.4, TABLE R403.4, AND FIGURES R403.4(1) AND R403.4(2).

R406.1 CONCRETE AND MASONRY FOUNDATION DAMPPROOFING. EXCEPT WHERE REQUIRED BY SECTION R406.2 TO BE WATERPROOFED, FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE DAMPPROOFED FROM THE HIGHER OF (A) THE TOP OF THE FOOTING OR (B) 6 INCHES (152 MM) BELOW THE TOP OF THE BASEMENT FLOOR, TO THE FINISHED GRADE. MASONRY WALLS SHALL HAVE NOT LESS THAN 3/8-INCH (9.5 MM) PORTLAND CEMENT PARGING APPLIED TO THE EXTERIOR OF THE WALL. THE PARGING SHALL BE DAMPPROOFED IN ACCORDANCE WITH ONE OF THE FOLLOWING:
1. BITUMINOUS COATING.
2. THREE POUNDS PER SQUARE YARD (1.63 KG/M2) OF ACRYLIC MODIFIED CEMENT.
3. ONE-EIGHTH-INCH (3.2 MM) COAT OF SURFACE-BONDING CEMENT COMPLYING WITH ASTM C887.
4. ANY MATERIAL PERMITTED FOR WATERPROOFING IN SECTION R406.2.
5. OTHER APPROVED METHODS OR MATERIALS.
EXCEPTION: PARGING OF UNIT MASONRY WALLS IS NOT REQUIRED WHERE A MATERIAL IS APPROVED FOR DIRECT APPLICATION TO THE MASONRY.

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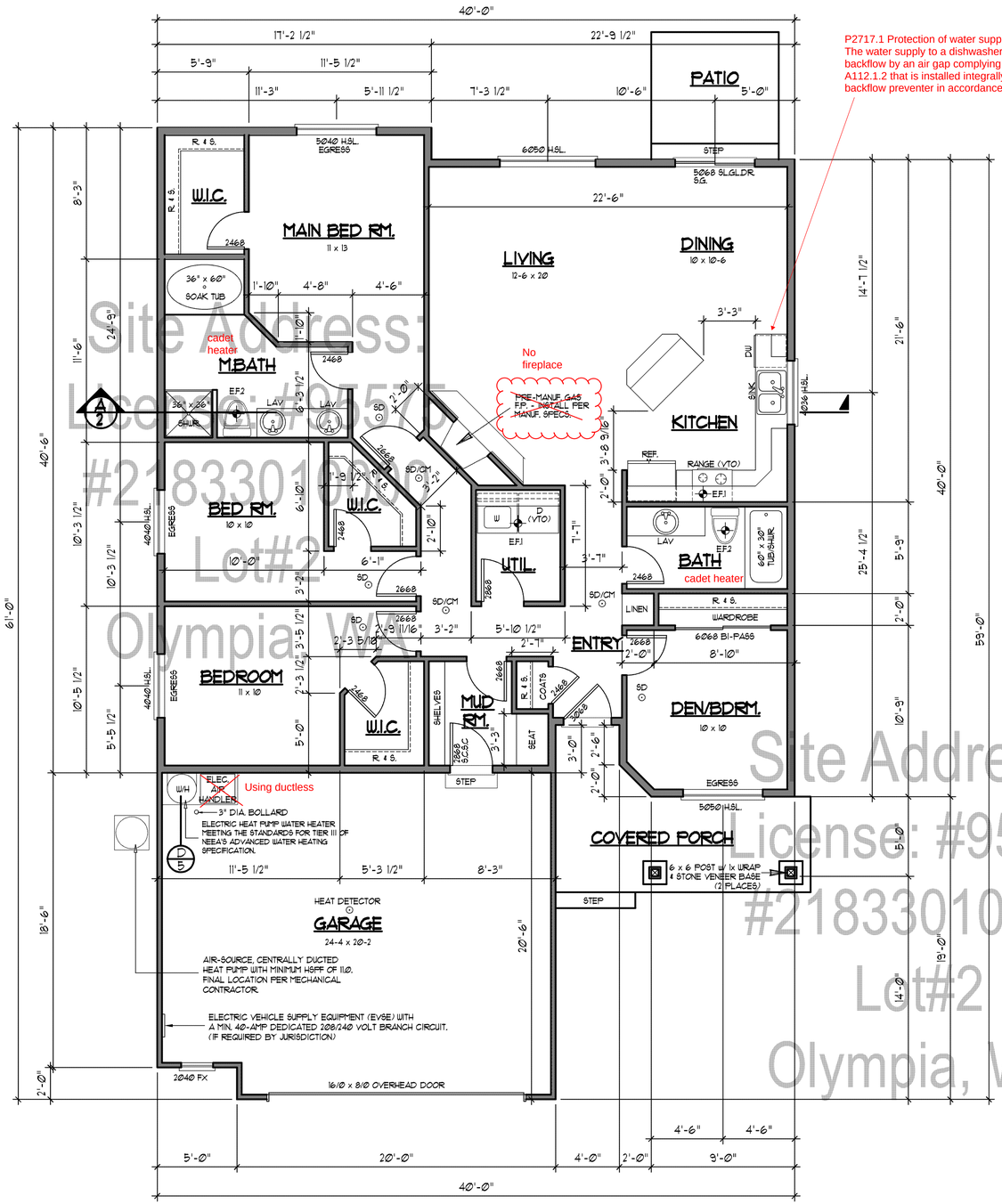

P2717.1 Protection of water supply.
The water supply to a dishwasher shall be protected against backflow by an air gap complying with ASME A112.1.3 or A112.1.2 that is installed integrally within the machine or a backflow preventer in accordance with Section P2902.

RANGE HOOD: M1503.2.1 GENERAL. DOMESTIC OPEN-TOP BROILER UNITS SHALL HAVE A METAL EXHAUST HOOD, HAVING A MINIMUM THICKNESS OF Ø.0157-INCH (Ø.3950 MM) (NO. 28 GAUGE) WITH 1/4 INCH (6.4 MM) CLEARANCE BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL OR CABINETS. A CLEARANCE OF AT LEAST 24 INCHES (610 MM) SHALL BE MAINTAINED BETWEEN THE COOKING SURFACE AND THE COMBUSTIBLE MATERIAL OR CABINET. THE HOOD SHALL BE AT LEAST AS WIDE AS THE BROILER UNIT, EXTEND OVER THE ENTIRE UNIT, DISCHARGE TO THE OUTDOORS AND BE EQUIPPED WITH A BACKDRAFT DAMPER OR OTHER MEANS TO CONTROL INFILTRATION/EXFILTRATION WHEN NOT IN OPERATION. BROILER UNITS INCORPORATING AN INTEGRAL EXHAUST SYSTEM, AND LISTED AND LABELED FOR USE WITHOUT AN EXHAUST HOOD, NEED NOT HAVE AN EXHAUST HOOD.

EXHAUST OPENINGS: M1504.3 AIR EXHAUST OPENINGS SHALL TERMINATE AS FOLLOWS:
1. NOT LESS THAN 3 FEET (914 MM) FROM PROPERTY LINES.
2. NOT LESS THAN 3 FEET (914 MM) FROM GRAVITY AIR INTAKE OPENINGS, OPERABLE WINDOWS AND DOORS.
3. NOT LESS THAN 10 FEET (3048 MM) FROM MECHANICAL AIR INTAKE OPENINGS EXCEPT WHERE THE EXHAUST OPENING IS LOCATED NOT LESS THAN 3 FEET (914 MM) ABOVE THE AIR INTAKE OPENING. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

EXHAUST DUCTING: M1503.3 GENERAL. RANGE HOODS SHALL DISCHARGE TO THE OUT- DOORS THROUGH A DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

R303.10 REQUIRED HEATING. WHERE THE WINTER DESIGN TEMPERATURE IN TABLE R301.2(1) IS BELOW 60°F (16°C), EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68°F (20°C) AT A POINT 3 FEET (914 MM) ABOVE THE FLOOR AND 2 FEET (610 MM) FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

HEATING TYPE: HEATING TYPE AND FUEL SHALL BE SELECTED BY THE OWNER. ALL WARM AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

FIREBLOCKING: R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

M1506.2 RECIRCULATION OF AIR. EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE WITH THE EXCEPTION TO SECTION M1503.3.

M1601.4.1 JOINTS, SEAMS AND CONNECTIONS. LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC- PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL FIBROUS GLASS DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181 A-M" FOR MASTIC OR "181 A-H" FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 B-M" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-C. CRIMP JOINTS FOR ROUND METALLIC DUCTS SHALL HAVE A CONTACT LAP OF NOT LESS THAN 1 INCH (25 MM) AND SHALL BE MECHANICALLY FASTENED BY MEANS OF NOT LESS THAN THREE SHEET-METAL SCREWS OR RIVET EQUALLY SPACED AROUND THE JOINT.

EGRESS DOOR: R311.2 EGRESS DOOR. NOT LESS THAN ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A CLEAR WIDTH OF NOT LESS THAN 32 INCHES (813 MM) WHERE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD), THE CLEAR HEIGHT OF THE DOOR OPENING SHALL BE NOT LESS THAN 78 INCHES (1981 MM) IN HEIGHT MEASURED FROM THE TOP OF THE THRESHOLD TO THE BOTTOM OF THE STOP. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS. EGRESS DOORS SHALL BE READILY OPENABLE FROM INSIDE THE DWELLING WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS. THERE SHALL BE A LANDING OR FLOOR ON EACH SIDE OF EACH EXTERIOR DOOR. THE WIDTH OF EACH LANDING SHALL BE NOT LESS THAN THE DOOR SERVED. LANDINGS SHALL HAVE A DIMENSION OF NOT LESS THAN 36 INCHES (914 MM) MEASURED IN THE DIRECTION OF TRAVEL. THE SLOPE AT EXTERIOR LANDINGS SHALL NOT EXCEED 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

GARAGE/DWELLING DOOR:
R302.5.1 OPENING PROTECTION. OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. OTHER OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 13/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMBCORE STEEL DOORS NOT LESS THAN 13/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING OR AUTOMATIC-CLOSING DEVICE.

R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE THE FLOOR OR WALKING SURFACE AND IT MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES (610 MM) OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON A WALL LESS THAN 180 DEGREES (3.14 RAD) FROM THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES (610 MM) OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

R302.6 DWELLING-GARAGE FIRE SEPARATION. THE GARAGE SHALL BE SEPARATED AS REQUIRED BY TABLE R302.6. OPENINGS IN GARAGE WALLS SHALL COMPLY WITH SECTION R302.5. ATTACHMENT OF GYPSUM BOARD SHALL COMPLY WITH TABLE R702.3.5. THE WALL SEPARATION PROVISIONS OF TABLE R302.6 SHALL NOT APPLY TO GARAGE WALLS THAT ARE PERPENDICULAR TO THE ADJACENT DWELLING UNIT WALL.

TABLE R302.6 DWELLING-GARAGE SEPARATION

FROM THE RESIDENCE AND ATTICS:	NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE GARAGE SIDE
FROM HABITABLE ROOMS ABOVE THE GARAGE:	NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT
STRUCTURE(S) SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION:	NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT
GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT:	NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA

IECC-R402.4.1 LIGHTING EQUIPMENT (MANDATORY.) NOT LESS THAN 75 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR NOT LESS THAN 75 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.

UPC 608.2 FOR WATER PRESSURE HIGHER THAN 80 PSI AN APPROVED PRESSURE REDUCING VALVE (PRV) SHALL BE INSTALLED.

FLOOR PLAN

SCALE : 1/4"= 1'-0"

AREA SUMMARY

FLOOR AREA .. 1,378 S.F.
COV'D PORCH .. 95 S.F.
GARAGE.. 503 S.F.
GLASS AREA .. 154.4 S.F.
GLAZING PERCENTAGE (GL / FL) .. 9.8 %

VENTILATION REQUIREMENTS

1	"PANASONIC" FV-11VK3 110CFM .8 SONES	112 CFM @ .25 WS 110 CFM @ .1 WS
2	"PANASONIC" FV-08VK3 80CFM .4 SONES	79 CFM @ .25 WS 80 CFM @ .1 WS

NOTES: 1. USE PANASONIC FV-11VK3 (100 CFM MIN.) @ ALL KITCHEN & WHOLE HOUSE FAN.
2. USE PANASONIC FV-08VK3 (50 CFM MIN.) @ ALL OTHER LOCATIONS.
3. ALL FANS TO VENT DIRECTLY TO OUTSIDE.
4. ALL OTHER REQUIREMENTS OF WSEC MUST BE MET.

NOTE:
While every attempt has been made to assure the accuracy of these drawings, **ALL INFORMATION MUST BE VERIFIED** prior to ordering any raw materials or fabricated components.
Any structural components specified are for reference only and must be verified with the **ENGINEER OF RECORD's "S-Sheets"** and/or (attached) documents

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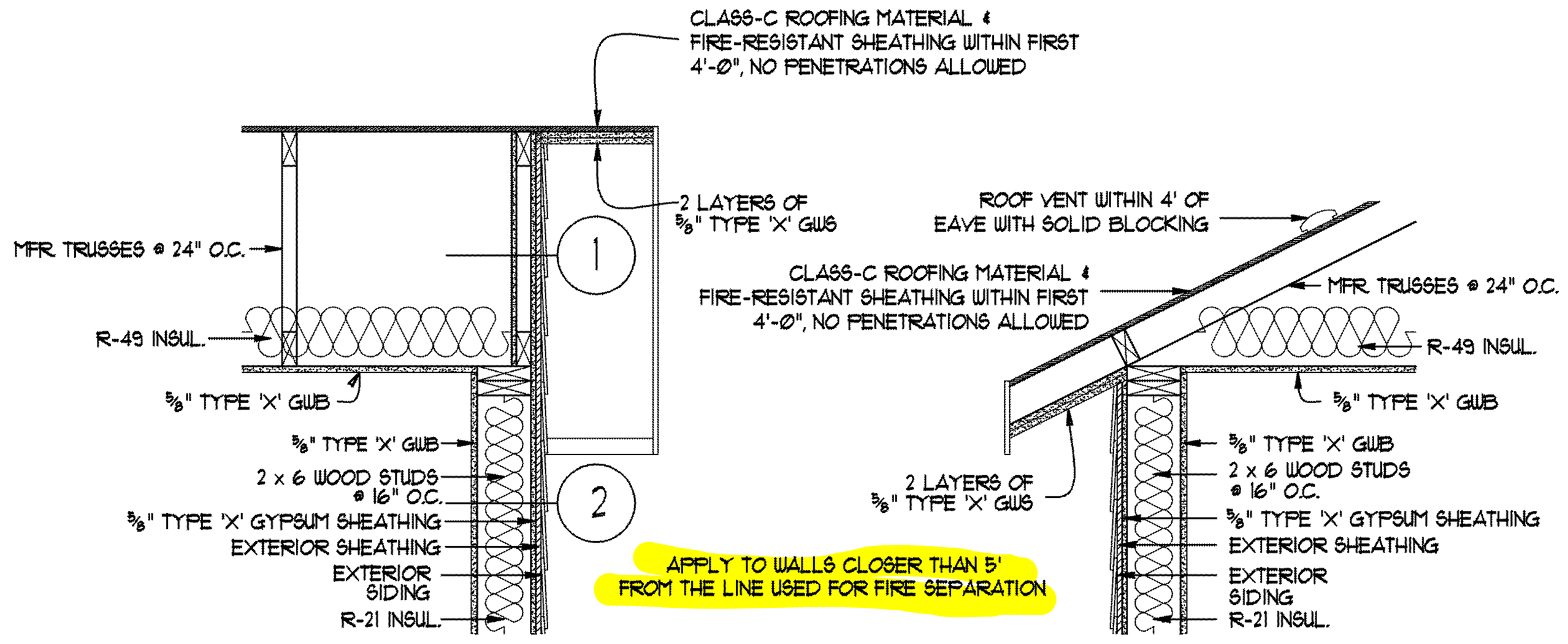


1-HR FIRE RATED WALL & OVERHANG

SCALE : N.T.S.

(1) GA FILE NO. WP 364Ø | GENERIC | ONE HOUR FIRE

GYPSUM WALLBOARD, WOOD STUDS

ONE LAYER 5/8" TYPE "X" GYPSUM WALLBOARD OR GYPSUM VENEER APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF EITHER 2X3 OR 2X4 WOOD STUDS, TURNED FLATWISE, 24" O.C. W/ 6D CEMENT COATED NAILS, 1 7/8" LONG, Ø.Ø915" SHANK, 1/4" HEADS, 7" O.C.

HORIZONTAL JOINTS STAGGERED NOT LESS THAN 12" ON OPPOSITE SIDES. (NLB)

THICKNESS: 2 7/8
APPROX. WEIGHT: 7 Psf
FIRE TEST: (UL, 9-12-96 UL DESIGN U338

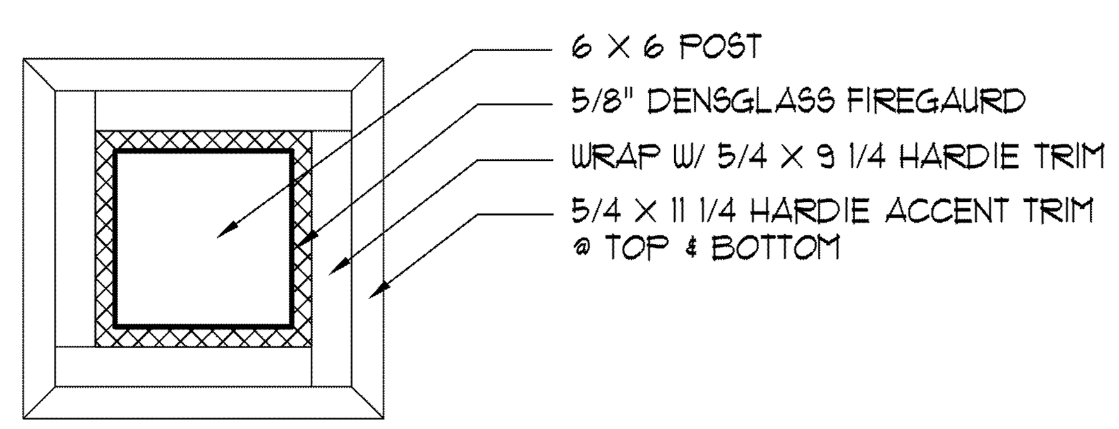
(2) GA FILE NO. WP 81Ø5 | GENERIC | ONE HOUR FIRE

GYPSUM WALLBOARD, GYPSUM SHEATHING, WOOD STUDS

EXTERIOR SIDE: ONE LAYER 48" WIDE 5/8" TYPE "X" GYPSUM SHEATHING APPLIED PARALLEL TO 2 X 4 WOOD STUDS 24" O.C. WITH 1 3/4" GALVANIZED ROOFING NAILS 4" O.C. AT VERTICAL JOINTS AND 7" O.C. AT INTERMEDIATE STUDS AND TOP AND BOTTOM PLATES. JOINTS OF GYPSUM SHEATHING MAY BE LEFT UNTREATED. EXTERIOR CLADDING TO BE ATTACHED THROUGH SHEATHING TO STUDS.

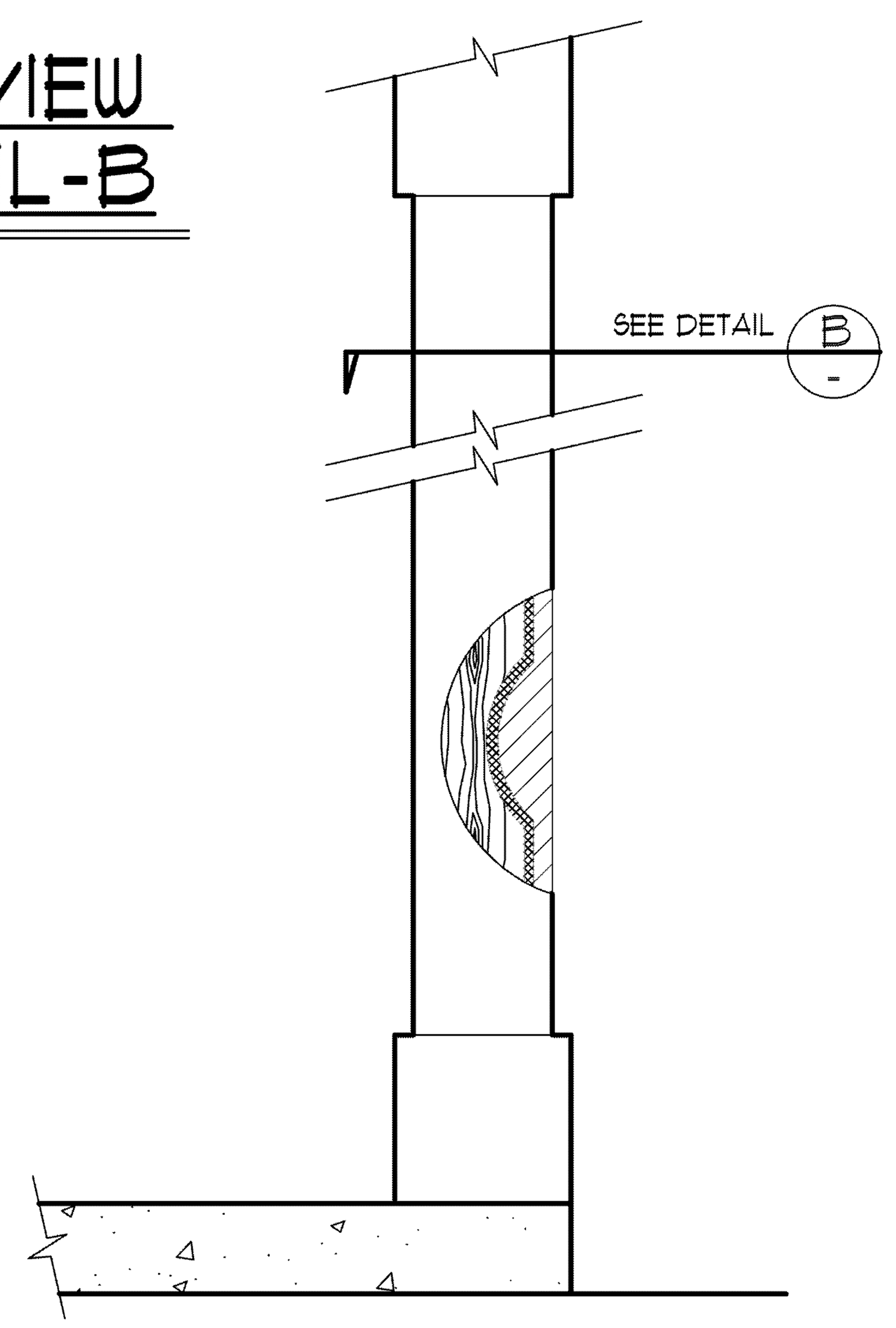
INTERIOR SIDE: ONE LAYER 5/8" TYPE"X" GWB, WATER RESISTANT GYPSUM BACKING BOARD, OR GYPSUM VENEER BASE APPLIED PARALLEL OR AT RIGHT ANGLES TO STUDS WITH 6D COATED NAILS, 1 7/8" LONG, Ø.Ø915" SHANK, 1/4" HEADS, 7" O.C. (LOAD BEARING)

THICKNESS: VARIES
APPROX. WEIGHT: 7 Psf
FIRE TEST: SEE WP 351Ø (UL R35Ø1-47,-48, 9-17-65 UL DESIGN U3Ø9, UL R1319-129, 7-22-7Ø UL DESIGN U314)



1 HR PLAN VIEW POST DETAIL-B

N.T.S.



1 HR POST DETAIL-A

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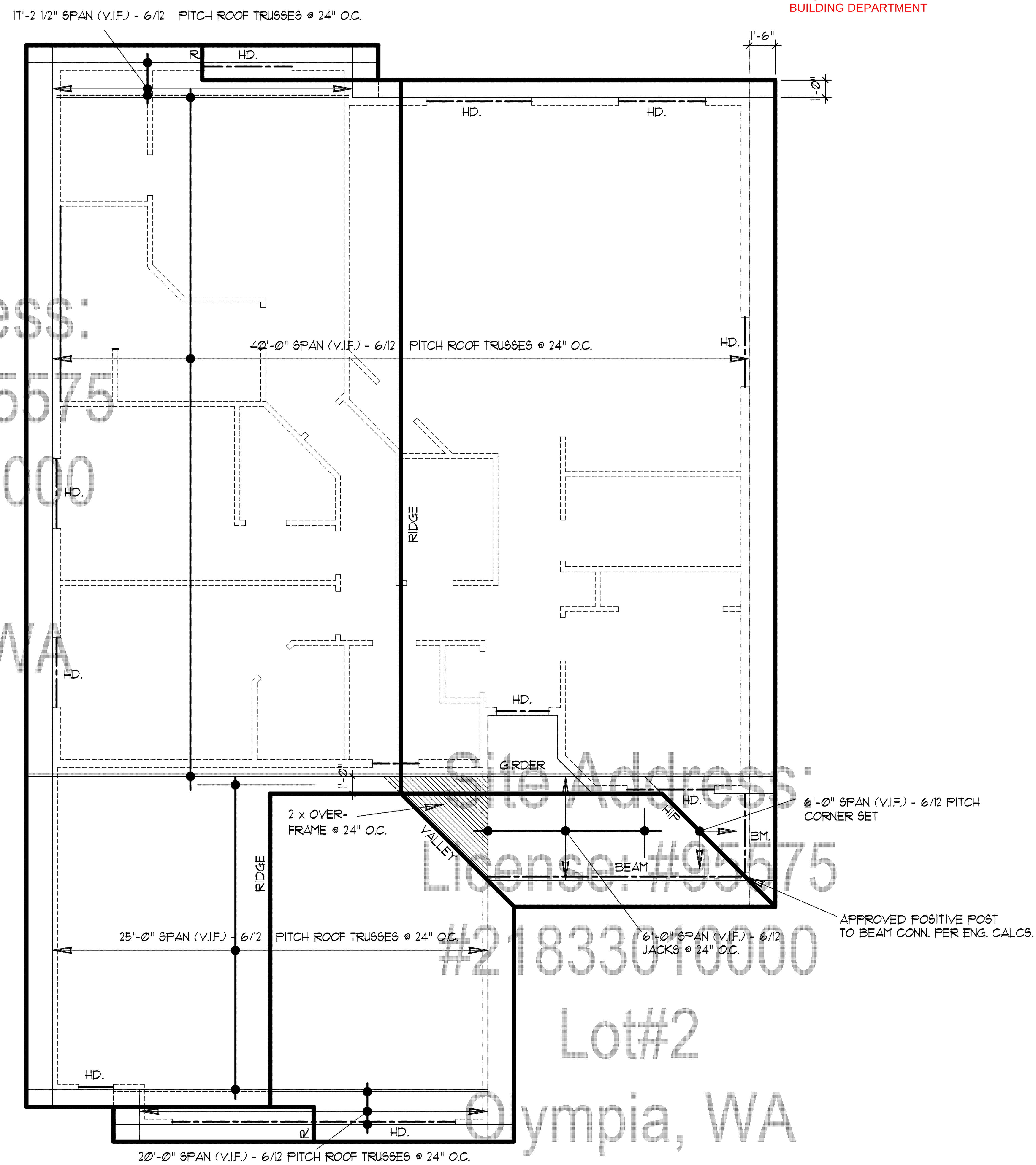

APPROVED PER NOTES ON PLAN
NISQUALLY INDIAN TRIBE
BUILDING DEPARTMENT

ROOF FRAMING PLAN

SCALE : ¼" = 1'-Ø"

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC (2,175 SF. Sq. Ft. x 1/150 = 14.5 Sq. Ft. VENT AREA REQ'D)

TRUSSES: R5Ø2.11.1 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL WHERE REQUIRED BY THE STATUTES OF THE JURISDICTION IN WHICH THE PROJ- ECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION R1Ø6.1.

R5Ø2.11.2 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS FOR THE BUILDING AND ON THE INDIVIDUAL TRUSS DESIGN DRAWINGS. IN THE ABSENCE OF SPECIFIC BRACING REQUIREMENTS, TRUSSES SHALL BE BRACED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICES, SUCH AS, THE SBCA BUILDING COMPONENT SAFETY INFORMATION (BCSI) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.

R9Ø5.2.7 ROOF SLOPES FROM 2 UNITS VERTICAL BY 12 UNITS HORIZONTAL UP TO 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL, UNDERLAYMENT SHALL BE 2 LAYERS OVERLAPPING 19 INCHES. FOR SLOPES OF 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL OR GREATER, UNDERLAYMENT SHALL BE 1 LAYER OVERLAPPPING 2 INCHES.

RAFTERS: R8Ø2.3 FRAMING DETAILS. RAFTERS SHALL BE FRAMED NOT MORE THAN 11/2-INCHES (38 MM) OFFSET FROM EACH OTHER TO RIDGE BOARD OR DIRECTLY OPPOSITE FROM EACH OTHER WITH A GUSSET PLATE AS A TIE. RIDGE BOARD SHALL BE NOT LESS THAN 1-INCH (25 MM) NOMINAL THICKNESS AND NOT LESS IN DEPTH THAN THE CUT END OF THE RAFTER. AT VALLEYS AND HIPS THERE SHALL BE A VALLEY OR HIP RAFTER NOT LESS THAN 2-INCH (51 MM) NOMINAL THICKNESS AND NOT LESS IN DEPTH THAN THE CUT END OF THE RAFTER. HIP AND VALLEY RAFTERS SHALL BE SUPPORTED AT THE RIDGE BY A BRACE TO A BEARING PARTITION OR BE DESIGNED TO CARRY AND DISTRIBUTE THE SPECIFIC LOAD AT THAT POINT. WHERE THE ROOF PITCH IS LESS THAN THREE UNITS VERTICAL IN 12 UNITS HORIZONTAL (25-PERCENT SLOPE), STRUCTURAL MEMBERS THAT SUPPORT RAFTERS AND CEILING JOISTS, SUCH AS RIDGE BEAMS, HIPS AND VALLEYS, SHALL BE DESIGNED AS BEAMS.

RAFTER OPENINGS: IRC R8Ø2.9 OPENINGS IN ROOF & CEILING FRAMING SHALL BE FRAMED WITH HEADER & TRIMMER JOISTS. WHEN THE HEADER JOIST SPAN DOES NOT EXCEED 4', THE HEADER JOIST MAY BE A SINGLE MEMBER THE SAME SIZE AS THE CEILING JOIST OR RAFTER. WHEN THE HEADER JOIST SPAN EXCEEDS 4', THE TRIMMER JOIST AND HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE CEILING JOISTS OR RAFTER FRAMING INTO THE HEADER.

R9Ø3.2.1 LOCATIONS. FLASHINGS SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS. A FLASHING SHALL BE INSTALLED TO DIVERT THE EATER AWAY FROM WHERE THE EAVE OF A SLOPED ROOF INTERSECTS A VERTICAL SIDEWALL. WHERE FLASHING IS OF METAL, THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN Ø.Ø19 INCH (Ø.5 MM) (NO. 26 GALVANIZED SHEET).

R7Ø3.4 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDNG STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
1. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTE- RIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER COMPLYING WITH SECTION 7Ø3.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:
1.1. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER' S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER' S INSTRUCTIONS. WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
1.2. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN PROFESSIONAL.
1.3. IN ACCORDANCE WITH OTHER APPROVED METHODS.
2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CON- STRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO COPINGS.
3. UNDER AND AT THE ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS.
4. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM.
5. WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD-FRAME CONSTRUCTION.
6. AT WALL AND ROOF INTERSECTIONS.
7. AT BUILT-IN GUTTERS.

WEATHER RESISTIVE SHEATHING PAPER: R7Ø3.2 WATER-RESISTIVE BARRIER. ONE LAYER OF NO. 15 ASPHALT FELT, FREE FROM HOLES AND BREAKS, COMPLYING WITH ASTM D 226 FOR TYPE I FELT OR OTHER APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH FELT OR MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM). WHERE JOINTS OCCUR, FELT SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM). THE FELT OR OTHER APPROVED MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PEN- ETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R7Ø3.1. THE WATER-RESISTIVE BARRIER IS NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.

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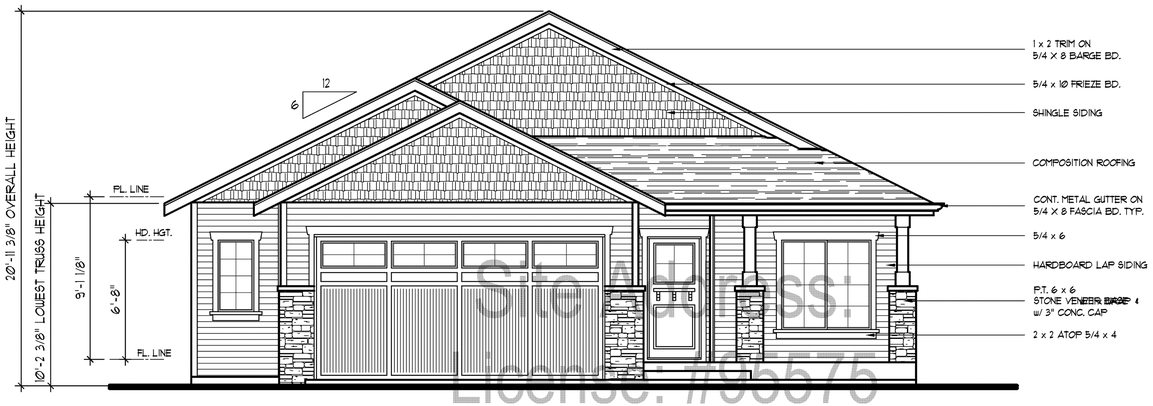
	3 OF 7



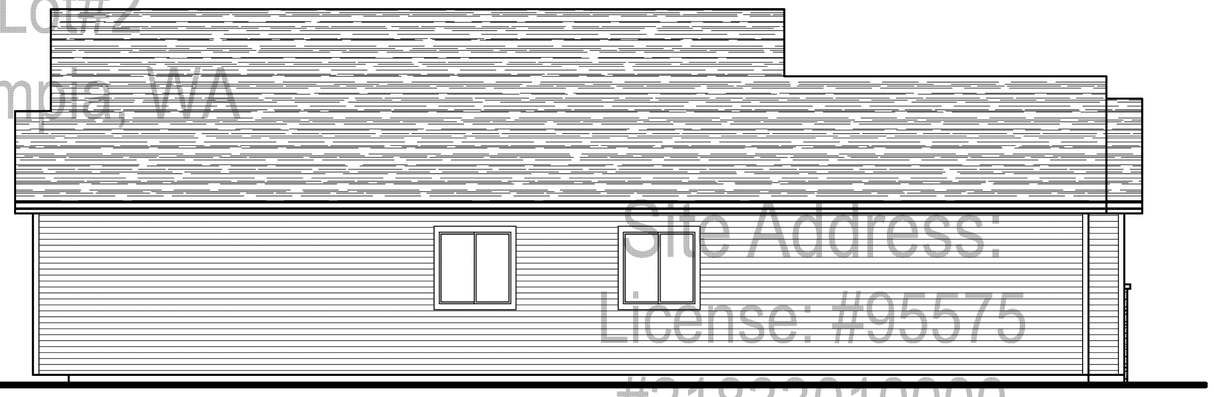
EXPLANATION OF HEIGHT

OVERALL HEIGHT - "X":	20'-11 3/8"
LOWEST TRUSS POINT - "Y":	10'-2 3/8"
20'-11 3/8" (X) - 10'-2 3/8" (Y) =	10'-9" (Q)
10'-9" (Q) / 2 =	5'-4 1/4"
10'-2 3/8" (Y) + 5'-4 1/4" =	15'-6 7/8"

AVERAGE HEIGHT = 15'-6 7/8"

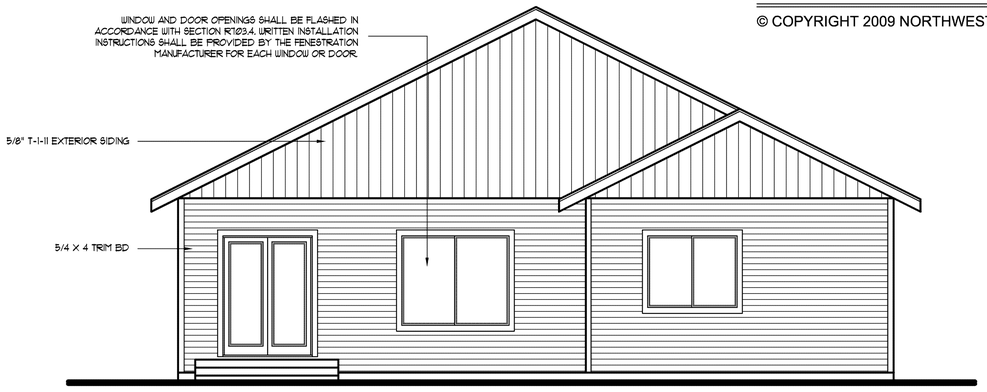
FRONT ELEVATION

SCALE : 1/4"= 1'-0"



FRONT ELEVATION

SCALE : 1/4"= 1'-0"



REAR ELEVATION

SCALE : 1/4"= 1'-0"

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R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY THIS SECTION.

R315.3 CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM.
R315.4 COMBINATION ALARMS. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

LIGHT & VENTILATION: R303.1 HABITABLE ROOMS. HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. NATURAL VENTILATION SHALL BE THROUGH WINDOWS, SKYLIGHTS, DOORS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL BE NOT LESS THAN 4 PERCENT OF THE FLOOR AREA BEING VENTILATED.

EGRESS WINDOWS: R310.2.1 MINIMUM OPENING AREA. EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY THIS SECTION SHALL BE OBTAINED BY THE NORMAL OPERATION OF THE EMERGENCY ESCAPE AND RESCUE OPENING FROM THE INSIDE. THE NET CLEAR HEIGHT OPENING SHALL BE NOT LESS THAN 24 INCHES (610 MM) AND THE NET CLEAR WIDTH SHALL BE NOT LESS THAN 20 INCHES (508 MM).

WINDOW SILLS: R312.2.1 WINDOW SILLS. IN DWELLING UNITS, WHERE THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES (610 MM) ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES (1829 MM) ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. OPERABLE WINDOW OPENINGS WILL NOT ALLOW A 4-INCH DIAMETER (102 MM) SPHERE TO PASS THROUGH WHERE THE OPENINGS ARE IN THEIR LARGEST OPENED POSITION.
2. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090.
3. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW OPENING CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2.

HATCHES AND DOORS: N1102.2.4 (R402.2.4) ACCESS HATCHES AND DOORS. ACCESS DOORS FROM CONDITIONED SPACES TO UNCONDITIONED SPACES SUCH AS ATTICS AND CRAWL SPACES SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES. ACCESS THAT PREVENTS DAMAGING OR COMPRESSING THE INSULATION SHALL BE PROVIDED TO ALL EQUIPMENT, WHERE LOOSE-FILL INSULATION IS INSTALLED, A WOOD-FRAMED OR EQUIVALENT BAFFLE OR RETAINER SHALL BE INSTALLED TO PREVENT THE LOOSE-FILL INSULATION FROM SPILLING INTO THE LIVING SPACE WHEN THE ATTIC ACCESS IS OPENED. THE BAFFLE OR RETAINER SHALL PROVIDE A PERMANENT MEANS OF MAINTAINING THE INSTALLED R-VALUE OF THE LOOSE-FILL INSULATION.

R307.2 BATHTUB AND SHOWER SPACES. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

SHOWER AREAS: R307.1 SHOWERS SHALL BE A MINIMUM SIZE OF 30" BY 30" WITH A 24" IN. CLEARANCE IN FRONT OF OPENING.

WATER CLOSET CLEARANCES: IRC R307.1 WATER CLOSET SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH. THE CLEAR SPACE IN FRONT SHALL NOT BE LESS THAN 21".

WATERPROOF WALL BOARD: ALL WALLS AND CEILINGS OF BATH TUB AND SHOWER ENCLOSURE AREAS SHALL BE COVERED WITH APPROVED WATERPROOF MATERIAL.

UTILITY ROOM WALL BOARD: ALL SURFACES IMMEDIATELY ADJACENT TO WASHERS, DRYERS, AND LAUNDRY TUBS SHALL BE SURFACED WITH APPROVED WATERPROOF MATERIAL.

GYPSUM WALLBOARD: R702.3.7 WATER-RESISTANT GYPSUM BACKING BOARD. GYPSUM BOARD USED AS THE BASE OR BACKER FOR ADHESIVE APPLICATION OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL CONFORM TO ASTM C1178, C1278 OR C1396. USE OF WATER-RESISTANT GYPSUM BACKING BOARD SHALL BE PERMITTED ON CEILINGS. WATER-RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER IN A SHOWER OR TUB COMPARTMENT. CUT OR EXPOSED EDGES, INCLUDING THOSE AT WALL INTERSECTIONS, SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER.

R702.3.7.1 LIMITATIONS. WATER-RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY.

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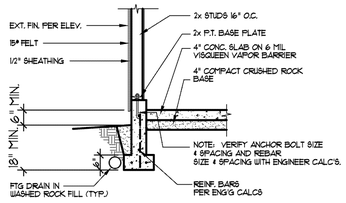
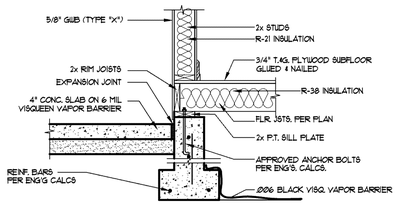


STEM WALL DETAIL (B)

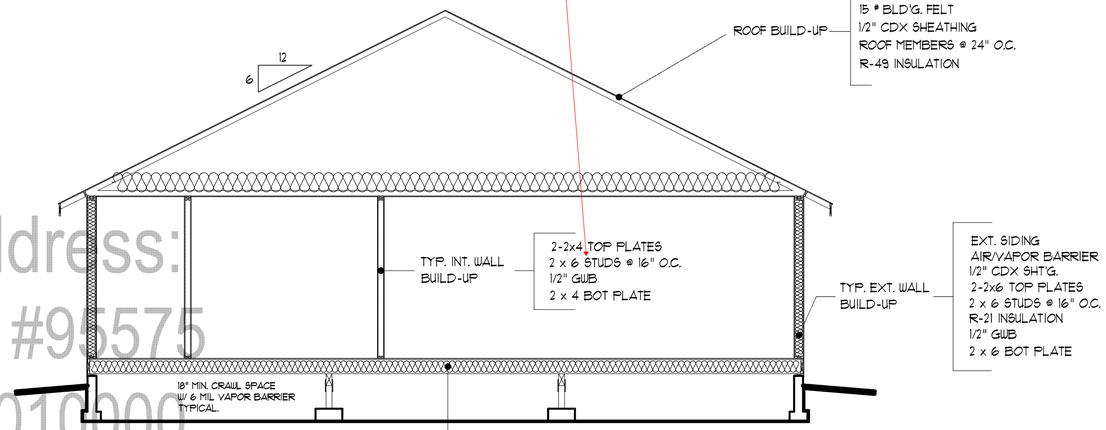
SCALE: 1/2" = 1'-0"



AREA SEP. DETAIL (C)

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

should read 2x4 studs



BUILDING SECTION - A

SCALE : 1/4"= 1'-0"

NOTE: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE. ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

WOOD IN CONTACT WITH CONCRETE AND MASONRY: IRC 317.1/3) SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT IS IN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.

R317.1.4 WOOD COLUMNS. WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.
EXCEPTIONS:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.
2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHERE SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.
3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH.

FLOOR FRAMING: R502.6 BEARING. THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 1/2 INCHES (38 MM) OF BEARING ON WOOD OR METAL, HAVE NOT LESS THAN 3 INCHES OF BEARING (76 MM) ON MASONRY OR CONCRETE OR BE SUPPORTED BY APPROVED JOIST HANGERS. ALTERNATIVELY, THE ENDS OF JOISTS SHALL BE SUPPORTED ON A 1-INCH BY 4-INCH (25 MM BY 102 MM) RIBBON STRIP AND SHALL BE NAILED TO THE ADJACENT STUD, THE BEARING ON MASONRY OR CONCRETE SHALL BE DIRECT, OR A SILL PLATE OF 2-INCH-MINIMUM (51 MM) NOMINAL THICKNESS SHALL BE PROVIDED UNDER THE JOIST, BEAM OR GIRDER. THE SILL PLATE SHALL PROVIDE A MINIMUM NOMINAL BEARING AREA OF 48 SQUARE INCHES (30 865 MM2).

BEARING PARTITIONS. R502.4 JOISTS UNDER BEARING PARTITIONS. JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLE JOISTS, SIZED TO ADEQUATELY SUPPORT THE LOAD, THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL-DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2 INCHES (51 MM) IN NOMINAL THICKNESS SPACED NOT MORE THAN 4 FEET (1219 MM) ON CENTER. BEARING PARTITIONS PERPENDICULAR TO JOISTS SHALL NOT BE OFFSET FROM SUPPORTING GIRDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH UNLESS SUCH JOISTS ARE OF SUFFICIENT SIZE TO CARRY THE ADDITIONAL LOAD.

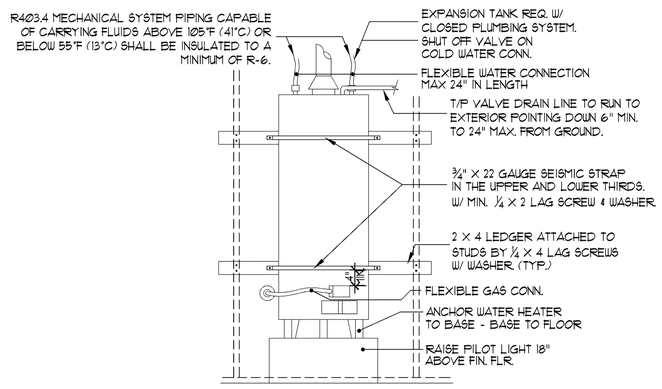
WALL FRAMING. R602.3.2 TOP PLATE. WOOD STUD WALLS SHALL BE CAPPED WITH A DOUBLE TOP PLATE INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH BEARING PARTITIONS. END JOINTS IN TOP PLATES SHALL BE OFFSET NOT LESS THAN 24 INCHES (610 MM). JOINTS IN PLATES NEED NOT OCCUR OVER STUDS. PLATES SHALL BE NOT LESS THAN 2-INCHES (51 MM) NOMINAL THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE STUDS.

HEADERS. R502.10 FRAMING OF OPENINGS. OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER.

STRUCTURAL PROPERTIES FOR HORIZONTAL MEMBERS. THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE. ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

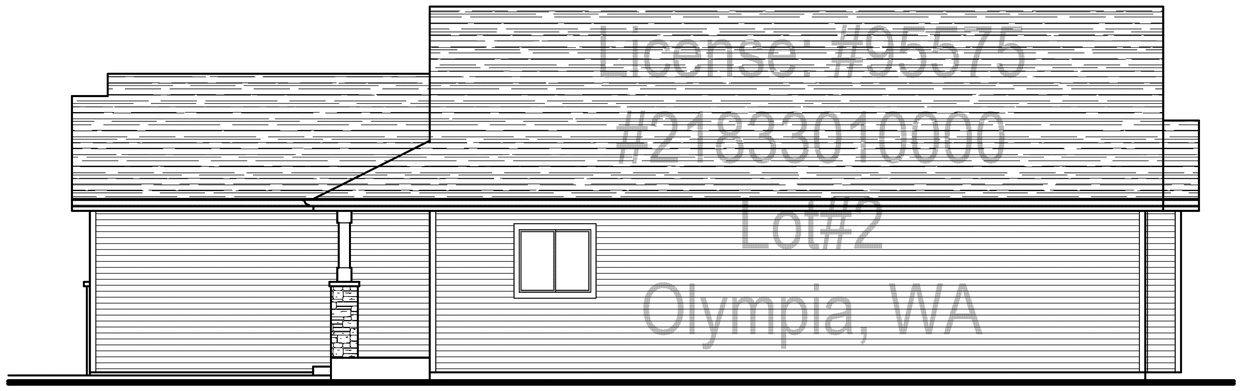
R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE NOSINGS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT THAT ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.



WATER HEATER SUPPORT (D)

(USEC R403.5.5) ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON A INSULATED SURFACE WITH A MIN. THERMAL RESISTANCE OF R-10 AND A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI.



RIGHT ELEVATION

SCALE : 1/4"= 1'-0"

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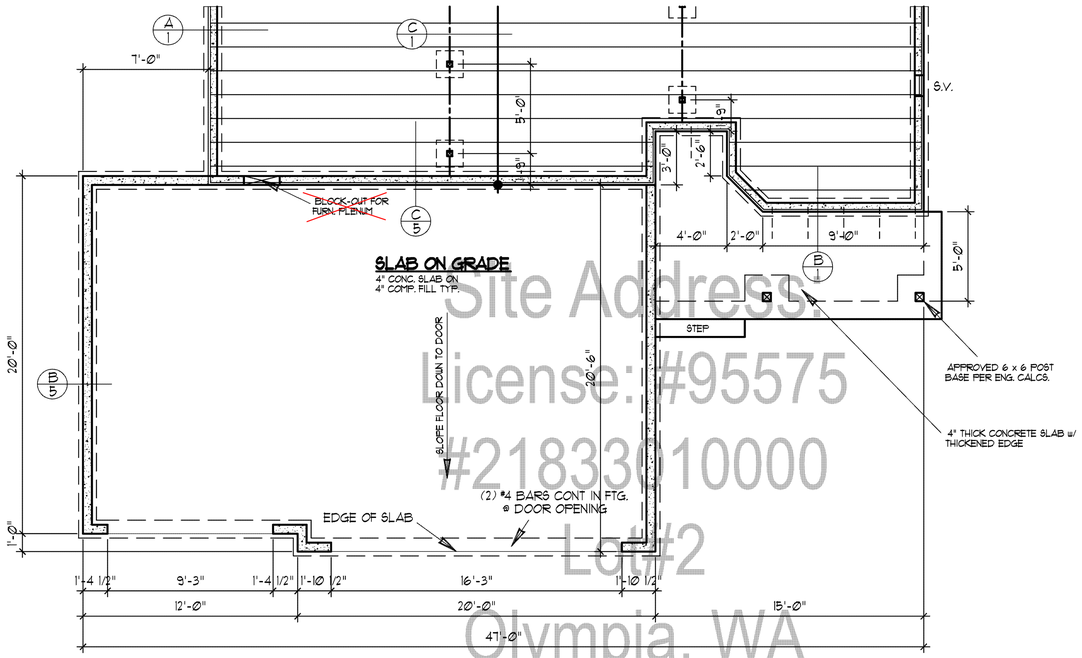

FOUNDATION & FLOOR FRAMING PLAN (3 CAR OPTION)

SCALE : 1/4"= 1'-Ø"

APPROVED PER NOTES
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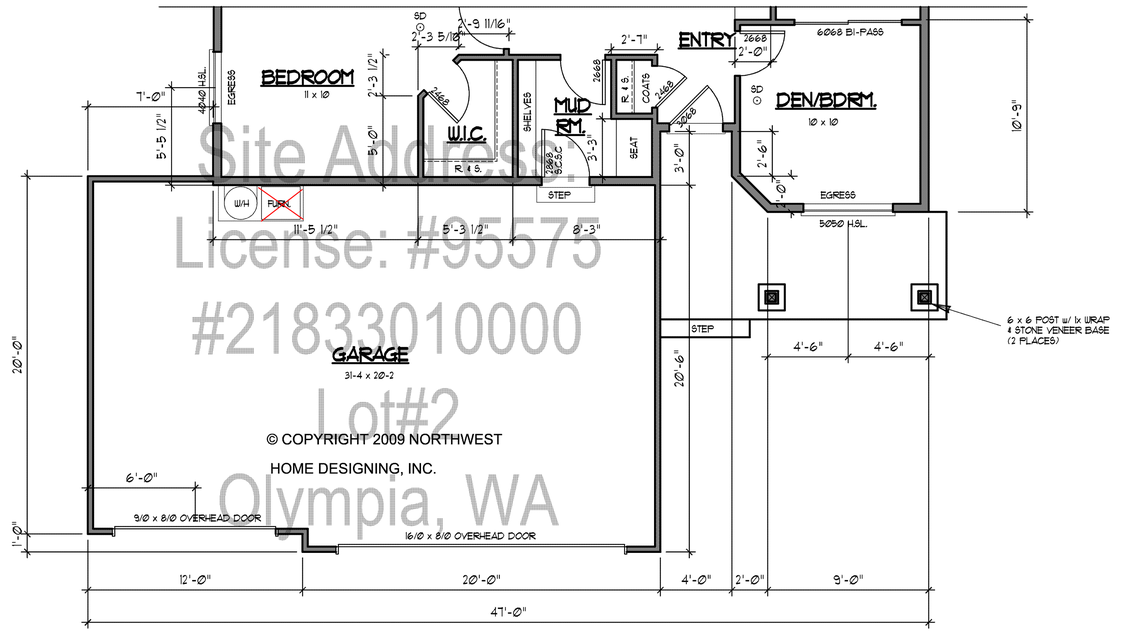

FLOOR PLAN (3 CAR OPTION)

SCALE : 1/4"= 1'-Ø"

AREA SUMMARY

FLOOR AREA .. 1,578 S.F.
COV'D PORCH .. 95 S.F.
GARAGE.. 643 S.F.
GLASS AREA: 154.4 Sq. Ft.
GLAZING PERCENTAGE (GL / FL) .. 9.8 %

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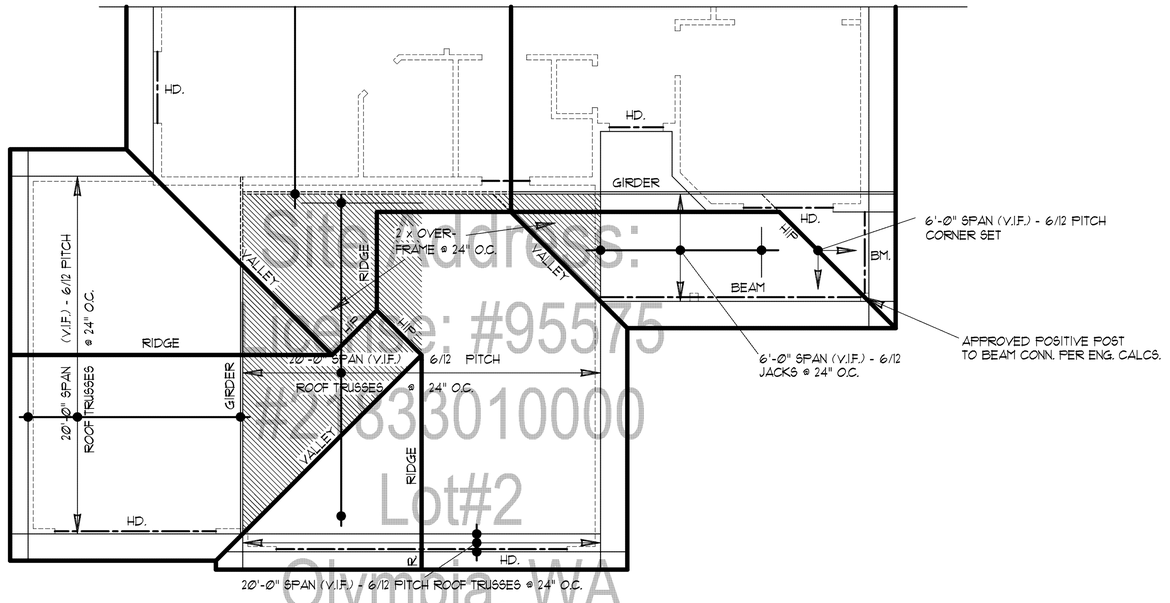

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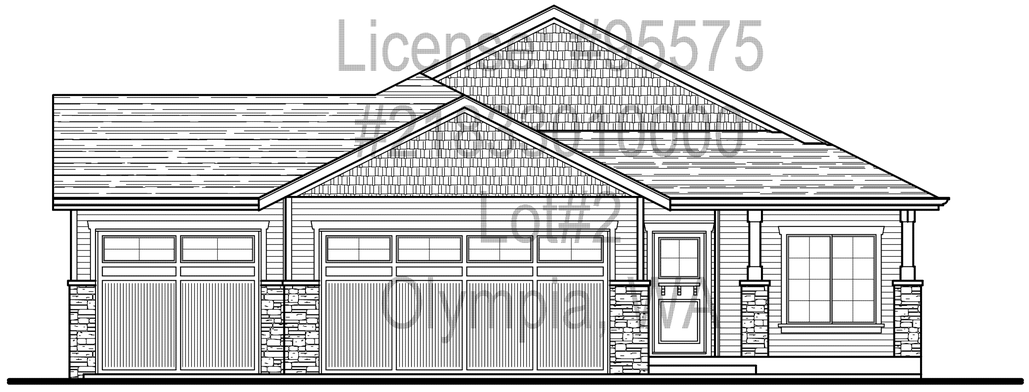
ROOF FRAMING PLAN 3RD CAR OPTION

SCALE : ¼"= 1'-Ø"

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC
(2280 S.F. Sq. Ft. x 1/150 = 15.2 Sq. Ft. VENT AREA REQ'D)



FRONT ELEVATION 3RD CAR ELEVATION

SCALE : ¼"= 1'-Ø"

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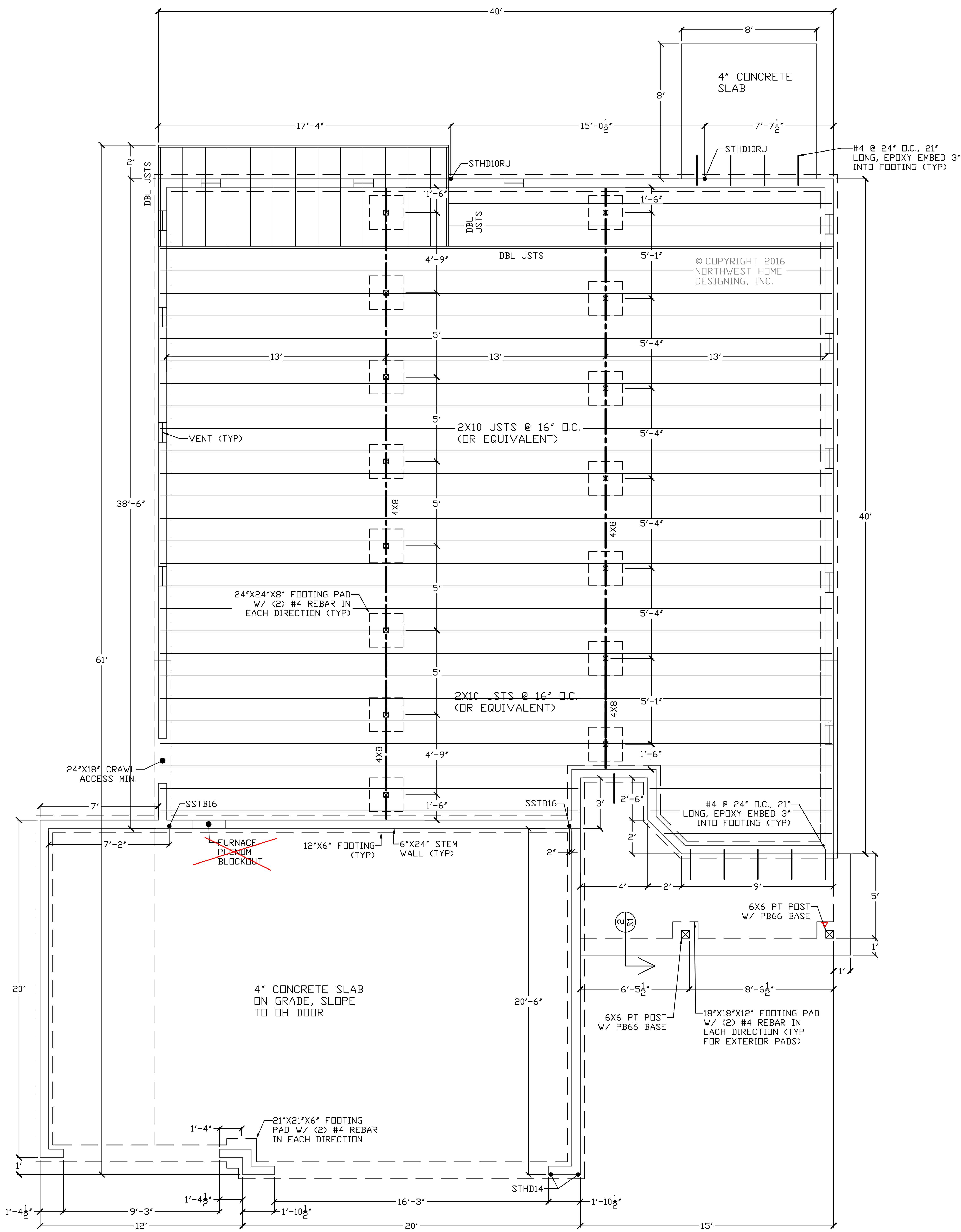
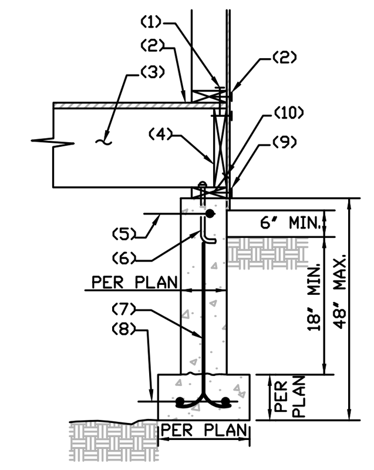


FOUNDATION PLAN

1/4"= 1'-0"

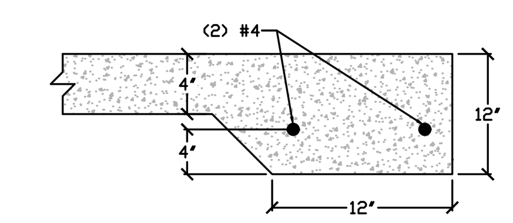
NOTES:

- ALL SAWN LUMBER BEAMS SHALL BE HF #2 MIN.

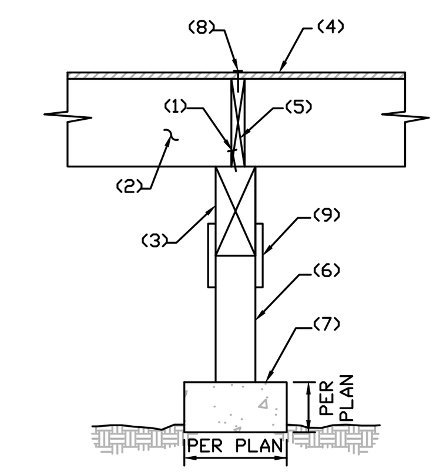


NOTES:
1. BASE PLATE NAILING PER SHEAR WALL SCHEDULE
2. PLYWOOD SHEATHING
3. JOIST PER PLAN
4. 2x CONTINUOUS RIM
5. (1) #4 BARS CONTINUOUS (AT TOP) PROVIDE #4 @ 18" O.C. HORIZONTAL
6. 5/8" DIAMETER ANCHOR BOLTS @ 48" O.C. U.N.O.
7. #4 @ 48" O.C. MAXIMUM, ALTERNATE BENDS
8. (2) #4 BARS CONTINUOUS
9. EDGE NAILING
10. 16d @ 6" O.C.

1 TYPICAL FOUNDATION STEM WALL
NOT TO SCALE



2 THICKENED EDGE SLAB



NOTES:
1. (3) 10d PER BLOCK
2. JOIST PER PLAN
3. FLOOR BEAM PER PLAN
4. PLYWOOD SHEATHING
5. BLOCKING
6. 4x OR 6x POST WITH SIMPSON PC AND PB
7. CONCRETE FOOTING
8. EDGE NAILING
9. 2x WOOD CLEAT OR SIMPSON POST CAP

3 TYPICAL INT. SPREAD FOOTING
NOT TO SCALE

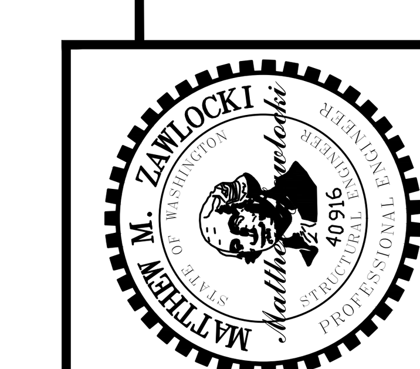
APPROVED PER NOTES ON PLAN
NISQUALLY INDIAN TRIBE
BUILDING DEPARTMENT

NO	DATE	BY	DESCRIPTION
			REVISIONS

	BY	DATE
DESIGNED	NJH	6/16
DRAWN	NJH	6/16
CHECKED	MMZ	6/16
APPROVED		
ACCEPTED		

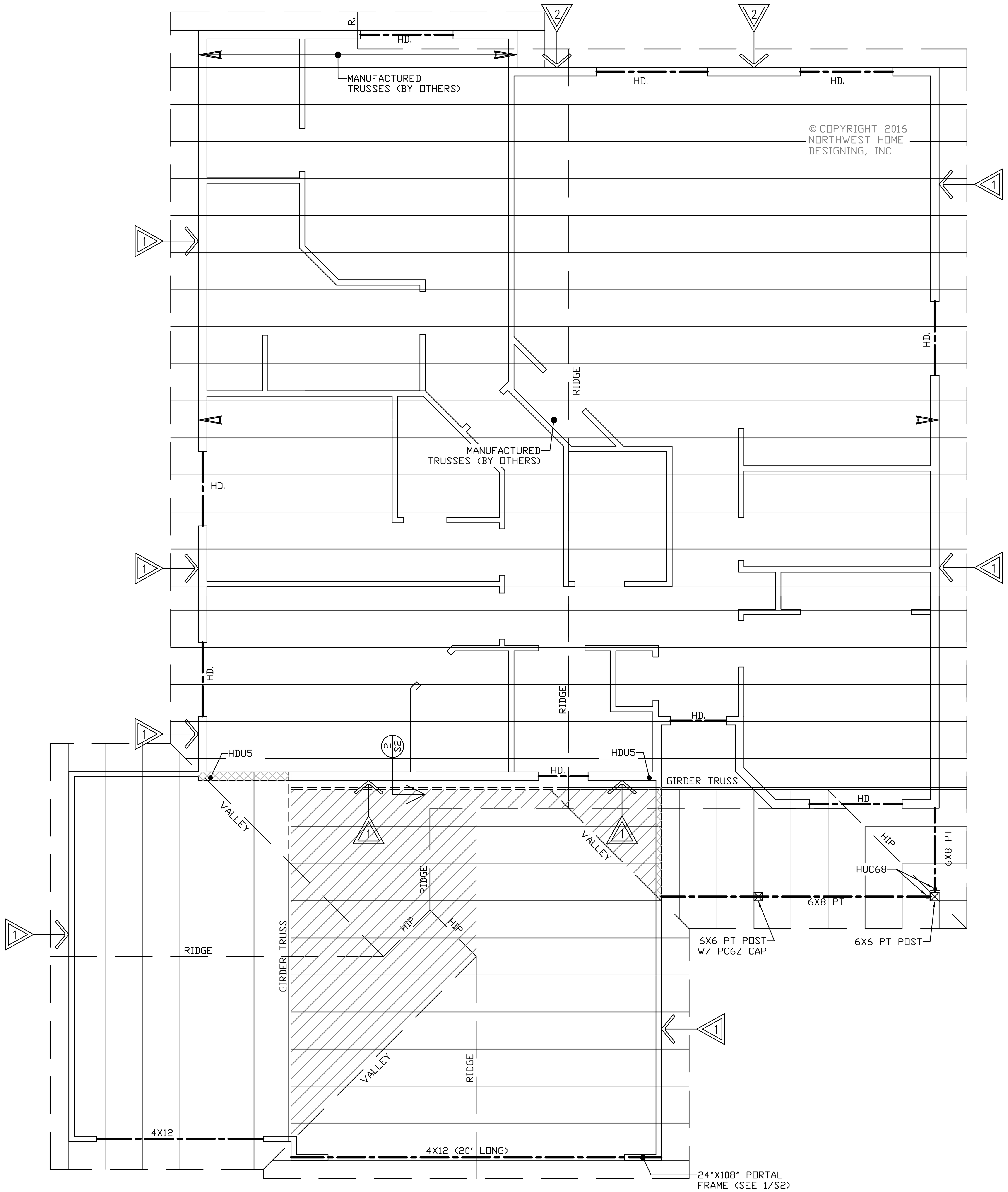
FOR:
Nisqually Indian Tribe
11500 25th Ave S.
Olympia, WA 98513

NHD AJ-532-A
Parcel #21833010000



N.L. Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 895-2350 or (360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

SCALE: AS SHOWN
DATE: Jan. 2024
DRAWING NUMBER
12907-23
SHEET S1



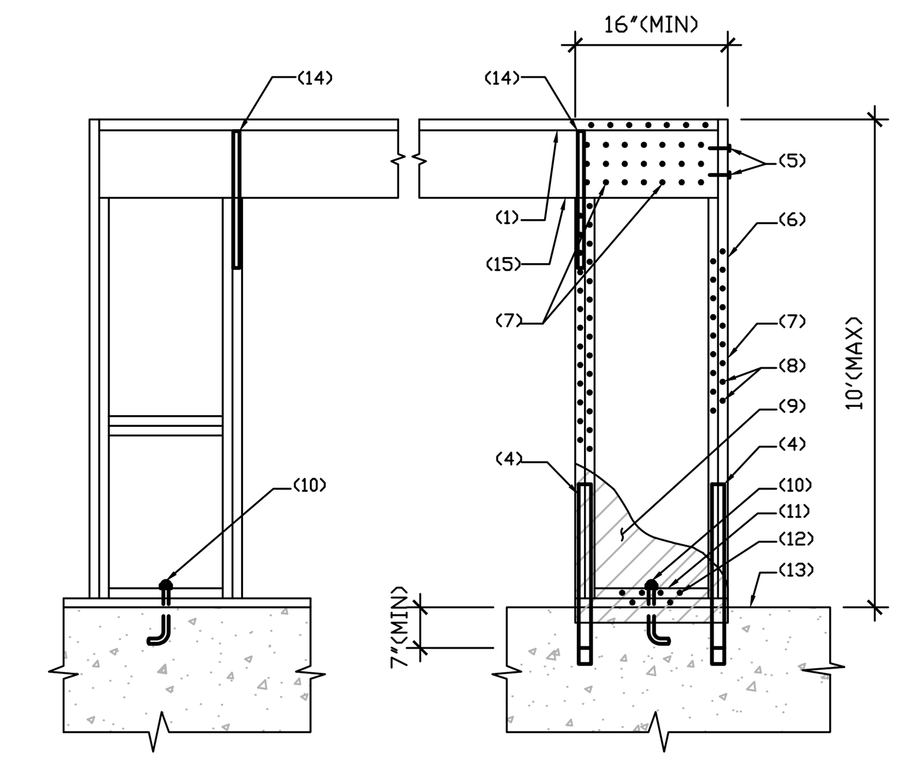
ROOF FRAMING PLAN

1/4"= 1'-0"

NOTES:

- ALL SAWN LUMBER BEAMS SHALL BE HF #2 MIN.
- ALL HEADERS SHALL BE 4X8 U.N.O.
- ALL COLUMNS SHALL BE (2) 2X STUDS U.N.O.
- OVERFRAMING SHALL BE 2X6 JSTS FOR SPANS UNDER 10'-0"; OTHERWISE USE 2X8 JSTS

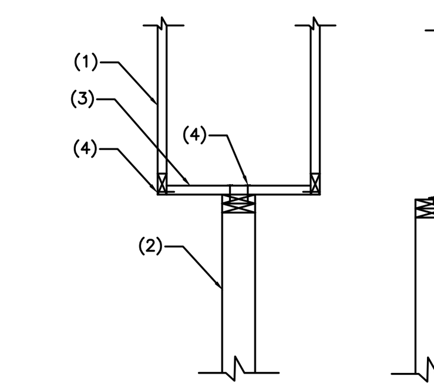
= OVERFRAMING = BEARING WALL



NOTES:
1. 2x TOP PLATE
2. CONTINUE HEADER TO END STUD
3. 8d @ 3" O.C. EACH WAY ON HEADER
4. SIMPSON STHD14 - INSTALL PER MANUFACTURER'S RECOMMENDATIONS
5. (2) 10d NAILS TO HEADER
6. CORNER END STUD AS OCCURS
7. (2) 2X STUDS OR 4x POST
8. 8d @ 3" O.C. ALL PLATES, HEADERS AND STUDS
9. 1/2" NOMINAL APA RATED SHEATHING
10. 5/8"Ø ANCHOR BOLTS - EMBED 7" MINIMUM WITH 3"x3"x1/4" PLATE WASHER
11. (2) 2x PLATES - NAIL SHEATHING TO EACH PLATE
12. 8d 3" O.C. INTO EACH PLATE
13. TOP OF CONCRETE
14. LSTA24 ACROSS HEADER
15. HEADER

NOTES:
A. ALL STUDS TO BE DOUGLAS FIR #2 IN LATERAL RESTRAINT PANELS.

1 GARAGE PORTAL FRAME



NOTES:
1. TRUSS
2. INTERIOR SHEARWALL PER PLAN
3. 2x BLOCKING @ 24"
4. (3)16d NAILS
5. SIMPSON A35 @ 24"

2 TRUSS TO INT. SHEARWALL

APPROVED PER NOTES
ON PLAN
NISQUALLY INDIAN TRIBE
BUILDING DEPARTMENT

BY	DATE
DESIGNED NJH	6/16
DRAWN NJH	6/16
CHECKED MMZ	6/16
APPROVED	
ACCEPTED	

REVISIONS

NO	DATE	BY	DESCRIPTION

FOR:
Nisqually Indian Tribe
11500 25th Ave S.
Olympia, WA 98513

NHD AJ-532-A
Parcel #21833010000

MATTHEW M. ZAWLOCKI 40916 1/19/24

N.L. Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 895-2350 or (360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

SCALE: AS SHOWN
DATE: Jan. 2024
DRAWING NUMBER
12907-23
SHEET S2

STRUCTURAL NOTES

DESIGN CRITERIA:

1. BUILDING CODE: 2018 INTERNATIONAL BUILDING CODE
2. VERTICAL LOADS:

VERTICAL LOADS:	ROOF	FLOOR	DECK
LIVE LOAD	20 psf	40 psf	60 psf
SNOW LOAD	30 psf	0 psf	25 psf
DEAD LOAD	17 psf	12 psf	10 psf

3. LATERAL LOAD FORCES TRANSMITTED BY DIAPHRAGM ACTION TO WOOD SHEARWALLS AND THENCE TO FOUNDATION WHERE DISPLACEMENT IS RESISTED BY PASSIVE PRESSURE AND SLIDING FRICTION OF EARTH.
4. SNOW DESIGN DATA (ASCE 7-16)
   FLAT SNOW LOAD, pf: 25 psf
   SNOW EXPOSURE FACTORY, Ce: 1.0
   SNOW IMPORTANCE FACTOR, is: 1.0
   THERMAL FACTOR, ct: 1.1
5. WIND DESIGN DATA (ASCE 7-16)
   WIND SPEED: Vult=110 mph
   RISK CATEGORY: II
   EXPOSURE CATEGORY: B
6. SEISMIC DESIGN DATA (ASCE 7-16)
   SEISMIC FORCE RESISTING SYSTEM: WOOD SHEARWALLS
   RISK CATEGORY: II
   SEISMIC IMPORTANCE FACTOR, Ie:=1
   MAPPED SPECTRAL RESPONSE ACCELERATION: Ss=1.35, S1=0.49
   DESIGN SPECTRAL RESPONSE ACCELERATION: Sds=1.08, Sd1=
   SITE CLASS: D
   SEISMIC DESIGN CATEGORY: D
   SEISMIC RESPONSE COEFFICIENT, Cs: 0.166
   RESPONSE MODIFICATION COEFFICIENT, R: 6.5
   EQUIVALENT LATERAL FORCE PROCEDURE (ASCE 7 12.8.1)
   DESIGN BASE SHEAR: 9.5k
7. SOIL PROPERTIES
   BEARING CAPACITIES: 1500 psf
   LATERAL CAPACITY: 250 psf/ft

GENERAL

THE STRUCTURAL CONSTRUCTION DOCUMENT REPRESENTS THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTORS MEANS, METHODS, TECHNIQUES, SEQUENCES OF PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO.

CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST ADDITION AND/OR ADDENDA.

ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL , MECHANICAL, PLUMBING, AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

OPTIONS FOR CONTRACTOR'S CONVENIENCE. IF AN OPTION IS CHOSEN, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES AND SHALL COORDINATE ALL DETAILS.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCIES WITH ARCHITECT.

TYPICAL DETAILS MAY NOT NECESSARILY BE CUT ON PLANS, BUT APPLY UNLESS NOTED OTHERWISE.

WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF A REGISTERED ENGINEER RECOGNIZED BY THE BUILDING CODE JURISDICTION OF THIS PROJECT.

ALL GRAVITY LOADS RESISTING AND LATERAL LOAD RESISTING STRUCTURAL MEMBERS ARE SHOWN ON THE ENGINEERING S PAGES. THE ENGINEERING CALCULATIONS ARE NOT REQUIRED TO BE REFERENCED FOR CONSTRUCTION, AND DON'T NEED TO BE ONSITE.

CONTRACTOR SHALL VERIFY ALL NOTES, DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS HAVE BEEN INSTALLED. ENGINEER AND DESIGNER SHALL BE NOTIFIED BY THE CONTRACTOR OF ANY DISCREPANCIES AT THE TIME THEY ARE NOTED.

CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY LINES. CALL 1-800-424-5555 48 HOURS BEFORE DIGGING.

INFORM ENGINEER OF ALL CHANGES PROPOSED ON THE DRAWINGS OR SPECIFICATIONS BY THE ARCHITECT-NOTES PRIOR TO CONSTRUCTION OF THE CHANGE.

CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION MEANS, METHOD, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY OF THE WORKERS AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND FOR COORDINATING ALL PORTIONS OF THE WORK.

DRAWINGS SHALL BE USED FOR ONLY ONE CONSTRUCTION AND FOR LOCATIONS INDICATED HEREIN.

FOUNDATIONS

ALL FOOTINGS SHALL BEAR ON FIRM, UNDISTURBED SOIL OR APPROVED FILL 12" MINIMUM BELOW FINISHED GRADE. FINISHED GRADE IS DEFINED AS TOP OF SLAB FOR INTERIOR FOOTINGS AND LOWEST ADJACENT GRADE EXTENDING UP TO 5 FEET FROM WALL FOR PERIMETER FOOTINGS. DESIGN SOIL BEARING VALUE = 1500 PSF.

WHERE REQUIRED BY THE BUILDING OFFICIAL, THE CLASSIFICATION AND INVESTIGATION OF THE SOIL SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL (1806.2) UNLESS A SOIL INVESTIGATION IS PROVIDED. FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 1500 PSF. ORGANIC SILT, ORGANIC CLAYS, PEAT OR UNPREPARED FILL SHALL NOT BE ASSUMED TO HAVE BEARING CAPACITY (1806.2)

THIS ENGINEERING IS BASED ON SITE CLASS D SOILS IN ACCORDANCE WITH TABLE 1806.2 OF THE 2018 IBC.

SITE GRADING: THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 5 PERCENT FOR A MINIMUM OF 10 FEET.

COMPACTED FILL MATERIAL SHALL NOT BE USED UNLESS ALLOWED BY A SOILS ENGINEERING REPORT.

CONCRETE

MINIMUM 28 DAY STRENGTH 2,500 PSI (f'c = 2,500 PSI), $5\frac{1}{2}$ SACK U.N.O.

ALL CONCRETE CONSTRUCTION SHALL CONFORM TO A.C.I.
MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT SLABS ON GRADE NEED ONLY BE VIBRATED AT TRENCHES, FLOOR DUCTS, TURNDOWNS, ETC. MINIMUM SLUMP $4\frac{1}{2}$" FOR CONCRETE WITHOUT PLASTICIZER. IF PLASTICIZER IS USED, A HIGHER FINAL SLUMP MAY BE ALLOWED UPON STRUCTURAL ENGINEER'S APPROVAL. UNLESS APPROVED OTHERWISE IN WRITING BY THE ARCHITEC, ALL CONCRETE SLABS ON GRADE SHALL BE BOUND BY CONTROL JOINTS (KEYED OR SAW CUT), AS SHOWN ON THE FOUNDATION PLAN, SUCH THAT THE ENCLOSED AREA DOES NOT EXCEED 225 SQUARE FEET. KEYED CONTROL JOINTS NEED ONLY OCCUR AT EXPOSED EDGES DURING POURING, ALL OTHER JOINTS MAY BE SAW CUT.

FLY ASH - IF PERMITTED BY ARCHITECTURAL SPECIFICATIONS - SHALL BE LIMITED TO 18% OF CEMENTITIOUS MATERIALS AND SHALL HAVE A REPLACEMENT FACTOR OF 1.2 RELATIVE TO CEMENT REPLACED. NO FLY ASH ADDITIVES SHALL BE USED IN FLATWORK OR ARCHITECTURALLY EXPOSED CONCRETE.

CONCRETE MINIMUM REINFORCEMENT

THE FOLLOWING MINIMUM REINFORCEMENT SHALL BE PROVIDED U.N.O. ON THE DRAWING:

1. PROVIDE HORIZONTAL CORNER BARS AT ALL FOOTINGS AND WALL CORNERS AND HOOK BARS FOR T INTERSECTIONS WITH EQUAL SIZE AND SPACING OF THE HORIZONTAL REINFORCING USING THE INDICATED DETAILS OF SIMILAR SECTIONS AND DETAILS AS TYPICAL.
2. PROVIDE ONE #4 VERTICAL BAR - FULL HEIGHT OF WALL AT THE CORNER OR T INTERSECTION.
3. PROVIDE A MINIMUM OF 0.2% REINFORCEMENT OF GROSS CONCRETE AREA OF WALL IN HORIZONTAL DIRECTION AND 0.12% IN VERTICAL DIRECTION. MAXIMUM REBAR SPACING IS 18" O.C. IN EACH DIRECTION.
4. PROVIDE A MINIMUM #4 BARS AT 12" ON CENTER IN ISOLATED FOOTINGS.
5. PROVIDE REINFORCING CHAIRS IN ACCORDANCE WITH CRSI PLACING MANUAL.
6. PROVIDE WWF 6X6X10X10 FOR 4" SLAB.
7. PROVIDE CONSTRUCTION JOINT AT 20' MAXIMUM UNLESS NOTED OTHERWISE (SAW CUT 25% OF SLAB THICKNESS).

NAILS:

USE COMMON NAIL ONLY. IF BOX OR OTHER TYPE OF NAILS ARE USED, SIZE ADJUSTMENTS ARE REQUIRED. PROVIDE NAIL PER IBC TABLE 2304.10.1 GALVANIZE NAIL WHEN EXPOSED TO WEATHER. SIMPSON ZMAX AND HOT DIPPED ZINC NAILS SHALL BE USED FOR ALL PRESSURE TREATED WOODS OTHER THAN CHROMATED COPPER ARSENATE AND SODUIM BORATE.

PREFABRICATED WOOD TRUSSES

PREFABRICATED WOOD TRUSSES SHALL BE DESIGNED TO SUPPORT SELF WEIGHT PLUS LIVE LOAD AND SUPERIMPOSED DEAD LOADS STATED IN THE GENERAL STRUCTURE NOTES OR AS LOCATED ON PLANS. BRIDGING SIZE AND SPACING SHALL BE BY TRUSS MANUFACTURER/TRUSS DESIGNER UNLESS NOTED OTHERWISE. CONTRACTOR SHALL SUBMIT A TRUSS SUBMITTAL PACKAGE AS DEFINED IN IBC SECTION 2303.4.1.4, INCLUDING, BUT NOT LIMITED TO, INDIVIDUAL TRUSS DESIGN DRAWINGS, TRUSS PLACEMENT DIAGRAM AND TRUSS MEMBER PERMANENT BRACING REQUIREMENTS. TRUSS DOCUMENTS SHALL BE SEALED BY A REGISTERED DESIGN PROFESSIONAL AS REQUIRED BY IBC SECTION 2303.4.1.3. CALCULATIONS AND SHOT DRAWINGS SHALL SHOW ANY SPECIAL DETAILS REQUIRED AT BEARING POINTS. ALL CONTRACTORS SHALL HAVE CURRENT I.C.C. APPROVAL.

CALCULATIONS SHALL INCLUDE DEFLECTION AND CAMBER REQUIREMENTS. DEFLECTION SHALL BE LIMITED AS FOLLOWS:
ROOF TOTAL LOAD MAXIMUM= L/240. ROOF LIVE LOAD MAXIMUM= L/360.

TRUSS TOP CHORD MATERIAL SHALL HAVE A SPECIFIC GRAVITY OF NOT LESS THAN 0.43.

MULTIPLE TRUSS MEMBERS SHALL BE FASTENED TOGETHER TO ALLOW TRANSFER OF SHEAR AND TENSION FORCES (MINIMUM 200 PLF) AT PLYWOOD SHEATHING JOINTS AND TO PREVENT CROSS GRAIN BENDING OF TOP CHORDS. ATTACHMENT SHALL BE A CONTINUOUS 20 GAGE METAL PLATE OR OTHER APPROVED MEANS. METHOD OF ATTACHMENT SHALL BE INDICATED ON SHOP DRAWINGS FOR REVIEW.

TRUSS MANUFACTURER SHALL HAVE I.C.C APPROVAL OR BE AN APPROVED FABRICATOR ACCORDING TO THE BUILDING JURISDICTION. TRUSS MANUFACTURER SHALL PERMANENTLY IDENTIFY EACH TRUSS.

GLUE-LAMINATED BEAMS (GLULAM)

GLUED - LAMINATED BEAMS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb= 2400PSI, Fv= 265PSI, Fc (PERPENDICULAR)= 650 PSI, E= 1,800,000 PSI. CONTINUOUS BEAMS OR BEAMS CANTILEVERING OVER SUPPORTS SHALL HAVE THE SPECIFIED MINIMUM PROPERTIES TOP AND BOTTOM. ALL BEAMS SHALL BE FABRICATED USING WATERPROOF GLUE. FABRICATION AND HANDLING PER LATEST AITC AND WCLA STANDARDS. BEAM TO BEAR GRADE STAMP AND AITC STAMP AND CERTIFICATE. CAMBER AS SHOWN ON DRAWINGS. STRUCTURAL GLUED-LAMINATED TIMBER SHALL CONFORM TO AITC A190.1 AND ASTM D 3737.

WOOD:

LUMBER SHALL CONFORM TO DOC PS 20.
MANUFACTURED LUMBER SHALL BE AS SPECIFIED ON THE PLAN SET.
DESIGN OF THE MANUFACTURED LUMBER IS THE RESPONSIBILITY OF THE SUPPLIER.

JOISTS:	WOOD TYPE:
2X4	H.F. #2
2X6 OR LARGER	H.F. #2
BEAMS:	
WIDTH 4" OR LESS	D.F. #2
WIDTH GREATER THAN 4"	D.F. #2
LEDGERS AND TOP PLATES:	H.F. #2
STUDS:	
2X4	H.F. #2
2X6 OR LARGER	H.F. #2
POSTS:	
4X4	H.F. #2
4X6 OR LARGER	D.F. #2
6X6 OR LARGER	D.F. #2

CONNECTORS:

METAL CONNECTORS, ANCHORS, AND FASTENERS WILL CORRODE AND LOSE LOAD CARRYING CAPACITY WHEN INSTALLED IN CORROSIVE ENVIRONMENTS OR EXPOSED TO CORROSIVE MATERIALS.
THERE ARE MANY ENVIRONMENTS AND MATERIALS WHICH MAY CAUSE CORROSION INCLUDING: OCEAN SALT WATER, PRESERVATIVE-TREATED WOOD, FUMES, FIRE-RETARDANTS, DISSIMILAR METALS, FERTILIZERS.

PLYWOOD

ALL PLYWOOD SHALL BE AMERICAN PLYWOOD ASSOCIATION CDX-RATED SHEATHING OR BETTER, AND SHALL BEAR THE STAMP OF AN APPROVED TESTING AGENCY. LAY UP PLYWOOD WITH FACE GRAIN PERPENDICULAR TO SUPPORTS (ON ROOFS WHERE PLYWOOD IS LAID UP WITH FACE GRAIN PARALLEL TO SUPPORTS, USE MINIMUM OF 5-PLY PLYWOOD). STAGGER JOINTS. ALL NAILING SHALL BE WITH COMMON NAILS. WHERE SCREWS ARE INDICATED FOR WOOD-TO-WOOD ATTACHMENTS, USE WOOD SCREWS MEETING THE REQUIREMENTS OF A.N.S.I/A.S.M.E. B18.6.1 OF GRADE ASTM A584, GRADE 1013 TO 1022 STEEL (FY=193,600PSI). HORIZONTAL DIAPHRAGM AND SHEARWALL CAPACITIES SHALL BE PER THE LATEST EDITION OF I.C.C. REPOST ESR-1539. ALL PLYWOOD SHALL BE OF THE FOLLOWING NORMAL THICKNESS, SHALL HAVE THE FOLLOWING SPAN/INDEX RATIO, AND SHALL BE ATTACHED AS FOLLOWS, UNLESS OTHERWISE NOTED.

USE:	THICKNESS	SPAN/INDEX RATIO	EDGE ATTACHMENT	INTERMEDIATE ATTACHMENT
ROOF	1/2"	32/16	8d NAILS @ 6" O.C.	8d NAILS @ 12" O.C.
FLOOR	3/4" T&G	40/20	SCREWS @ 6" O.C.	SCREWS @ 12" O.C.
SHEAR WALL	1/2"	24/0	8d NAILS @ 6" O.C.	8d NAILS @ 12" O.C.

SCREWS AT FLOOR SHEATHING SHALL BE #8 x $2\frac{1}{2}$" LONG FOR SHEATHING LESS THAN 1" NORMAL THICKNESS, AND SHALL HAVE CURRENT I.C.C. APPROVAL AS A REPLACEMENT FOR 10d NAILS IN WOOD PANEL DIAPHRAGMS. SCREWS PER I.C.C. ER-5280 OR APPROVAL EQUAL. ALL FLOOR SHEATHING SHALL BE GLUED TO SUPPORT MEMBERS WITH AN A.P.A. AFG-01 OR ASTM D3498 QUALIFIED GLUE IN ACCORDANCE WITH A.P.A. FORM E30.

ALTERNATE SHEATHING

AMERICAN PLYWOOD ASSOCIATION PERFORMANCE RATED SHEATHING MAY BE USED AS AN ALTERNATE TO PLYWOOD WITH PRIOR APPROVAL OF OWNER, ARCHITECT AND ROOFING CONTRACTOR. RATED SHEATHING SHALL COMPLY WITH I.C.C. ESR-1301, EXPOSURE 1, AND SHALL HAVE A SPAN RATING AND SHEAR VALUE EQUIVALENT TO OR BETTER THAN THE PLYWOOD IT REPLACES. ATTACHMENT AND THICKNESS (WITHIN $\frac{1}{32}$") SHALL BE THE SAME AS THE PLYWOOD IT REPLACES. INSTALL PLYWOOD PER MANUFACTURES RECOMMENDATIONS.

PROTECTION AGAINST DECAY (2304.11):

PRESERVATIVE-TREATED WOOD SHALL CONFORM TO APPLICABLE AWPA STANDARDS. TRUSSES, TRUSS DRAWINGS AND TRUSS ENGINEERING SHALL BE PROVIDED BY THE MANUFACTURER. WOOD JOISTS OR THE BOTTOM OF A WOOD STRUCTURAL FLOOR WITHOUT JOISTS SHALL NOT BE CLOSER THAN 18 INCHES, OR WOOD GIRDERS CLOSER THAN 12 INCHES TO THE EXPOSED GROUND IN CRAWL SPACES. WOOD FRAMING MEMBERS, INCLUDING WOOD SHEATHING, WHICH REST ON EXTERIOR FOUNDATION WALLS SHALL NOT BE LESS THAN 8 INCHES FROM EXPOSED EARTH. SILLS IN CONTACT WITH CONCRETE SHALL BE PRESERVATIVE-TREATED WOOD. CLEARANCE BETWEEN WOOD SIDING AND EARTH SHALL NOT BE LESS THAN 6 INCHES. POSTS SHALL BE PRESERVATIVE-TREATED UNLESS SUPPORTED BY A PEDESTAL GREATER THAN 8 INCHES FROM EXPOSED GROUND. AS A MINIMUM CONTRACTORS SHALL USE SIMPSON ZMAX GALVANIZED FASTENERS OR AN APPROVED BARRIER WHEN A CORROSIVE ENVIRONMENT EXISTS.

SHOP DRAWINGS

SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL. ITEMS ARE NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE FLAGGED UPON CONTRACTOR'S REVIEW.

VERIFY ALL DIMENSIONS WITH ARCHITECT

ANY CHANGES, SUBSTITUTIONS, OR DRAWINGS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER OR FABRICATOR. ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY.

THE ENGINEER HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO CONTRACT DOCUMENTS AT ANY TIME BEFORE OR AFTER SHOP DRAWING REVIEW.

THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS OMITTED OR SHOWN INCORRECTLY AND NOT FLAGGED BY THE STRUCTURAL ENGINEER OR ARCHITECT SHALL NOT BE CONSIDERED CHANGES TO CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE ITEMS ITEMS ARE CONSTRUCTED TO CONTRACT DOCUMENTS.

THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY.

REVIEW BY THE E.O.R. IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR.

ABBREVIATIONS

A.B.C ....AGGREGATE BASE COURSE
A.F.F ....ABOVE FINISHED FLOOR
ALT ....ALTERNATE
A.B ....ANCHOR BOLT
BM ....BEAM
B.F.F ....BELOW FINISHED FLOOR
B.O.B ....BOTTOM OF BEAM
B.O.D ....BOTTOM OF DECK
B.O.F ....BOTTOM OF FOOTING
B.O.P ....BOTTOM OF PLATE
B.O.S ....BOTTOM OF STEEL
BRG ....BEARING
C.I.P ....CAST-IN-PLACE
C.L ....CENTERLINE
C.L.B ....CENTERLINE OF BEAM
C.L.C ....CENTERLINE OF COLUMN
C.L.F ....CENTERLINE OF FOOTING
C.L.W ....CENTER LINE OF WALL
CLR ....CLEAR
CONC ....CONCRETE
CONC. C.J ....CONCRETE CONTROL JOINT
CONC. S.J ....CONCRETE SAWCUT JOINT
C.M.U ....CONCRETE MASONRY UNIT
CONN ....CONNECTION
CONT ....CONTINUOUS
D.L ....DEAD LOAD
DIA ....DIAMETER
DN ....DOWN
DWG(S) ....DRAWING(S)
E.O.S ....EDGE OF SLAB
EL ....ELEVATION
EQ ....EQUAL
EQUIP ....EQUIPMENT
EXP ....EXPANSION BOLT
EXP. JT. (E.J.) ....EXPANSION JOINT
E.W ....EACH WAY
F.F ....FINISHED FLOOR
F.O.M ....FACE OF MEMBER
F.O.S. ....FACE OF STEEL
F.O.W ....FACE OF WALL
GA ....GAUGE
GALV ....GALVANIZED
GLB (GLULAM) ....GLUE-LAMINATED BEAM
H/C ....HOLLOW CORE
HORIZ ....HORIZONTAL
I.F.W ....INSIDE FACE OF WALL
I.E ....INVERT ELEVATION
K (KIP) ....1000 POUNDS
L.L ....LIVE LOAD
LBS (#) ....POUNDS
L.L.H ....LONG LEG HORIZONTAL
L.L.V ....LONG LEG VERTICAL
MFR('S) ....MANUFACTURE('S)
MAS. C.J ....MASONRY CONTROL JOINT
MECH'L ....MECHANICAL
N/A ....NOT APPLICABLE
N.T.S ....NOT TO SCALE
O.C ....ON CENTER
O.F.W ....OUTSIDE FACE OF WALL
OPP ....OPPOSITE
P.C ....PRE CAST CONCRETE
P.L.F ....POUNDS PER LINEAR FOOT
PREFAB ........................PREFABRICATED
P.S.F ....POUNDS PER SQUARE FOOT
P.S.I ....POUNDS PER SQUARE INCH
REINF ....REINFORCING
S.L.H ....SHORT LEG HORIZONTAL
S.L.V ....SHORT LEG VERTICAL
SIM ....SIMILAR
SQ ....SQUARE
STD ....STANDARD
T.L ....TOTAL LENGTH
T.O.B ....TOP OF BEAM
T.O.D ....TOP OF DECK
T.O.F ....TOP OF FOOTING
T.O.G ....TOP OF GRADE
T.O.L ....TOP OF LEDGER
T.O.M ....TOP OF MASONRY
T.O.P ....TOP OF PLATE
T.O.S ....TOP OF STEEL
T.O.W ....TOP OF WALL
TYP ....TYPICAL
U.N.O ....UNLESS NOTED OTHERWISE
VERT ....VERTICAL
WTSP ....WATERSTOP
W.W.R ....WELDED WIRE REINFORCEMENT

PLYWOOD WEB JOISTS

DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST EDITION I.C.C. REPORT ESR-1305. CONNECTIONS AND BEARING MATERIAL TO BE SHOP CONNECTED TO JOISTS AND DESIGNED AND FURNISHED BY JOIST FABRICATOR.

MANUFACTURED I-JOISTS SHALL CONFORM TO ASTM505.

CALCULATIONS SHALL INCLUDE DEFLECTION AND CAMBER REQUIREMENTS. DEFLECTION SHALL BE LIMITED AS FOLLOWS:

FLOOR LIVE LOAD MAXIMUM = L/480. FLOOR TOTAL LOAD MAXIMUM = L/240.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DESIGN CALCULATIONS SEALED BY A REGISTERED ENGINEER FOR REVIEW PRIOR TO MANUFACTURE.

ADDITIONAL JOISTS SHALL BE SUPPLIED AS REQUIRED TO SUPPORT MECHANICAL EQUIPMENT.

APPROVED PER NOTES ON PLAN NISQUALLY INDIAN TRIBE BUILDING DEPARTMENT

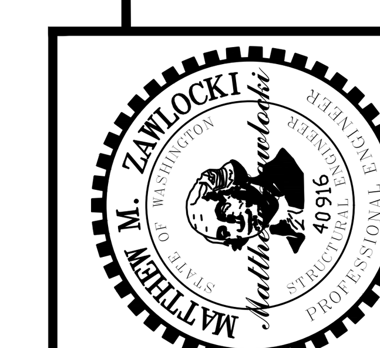
	BY	DATE
DESIGNED	NJH	6/16
DRAWN	NJH	6/16
CHECKED	MMZ	6/16
APPROVED		
ACCEPTED		

REVISIONS

NO	DATE	BY	DESCRIPTION

FOR: Nisqually Indian Tribe
11500 25th Ave S.
Olympia, WA 98513

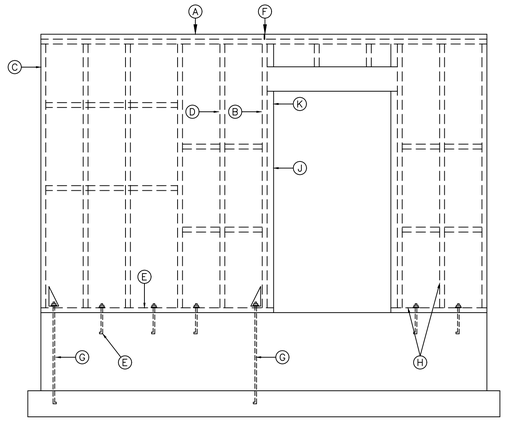
NHD AJ-532-A
Parcel #2183301000



1/19/24

N.L. Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 895-2350 or (360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

SCALE: AS SHOWN
DATE: Jan. 2024
DRAWING NUMBER 12907-23
SHEET S3



(A) DOUBLE TOP PLATE w/ EDGE NAILING (STAGGER) SEE SHEARWALL SCHEDULE FOR LUMBER GRADE).
(B) EDGE NAILING AT ALL PANEL EDGES. BACK w/ 2x BLOCKING OR BACKING
(C) EDGE NAILING TO HOLDOWN POST (FULL HEIGHT)
(D) STUDS @ 16" o.c.
(E) P.T. SILL PLATE w/ EDGE NAILING & ANCHOR BOLTS PER SHEARWALL SCHEDULE (PROVIDE A MINIMUM OF 5/8 dia. ANCHOR BOLTS @ 48" o.c.)
(F) TOP PLATE SPLICE AND NAILING PER PLANS. LAP 4'-0" MINIMUM. CENTER SPLICE ON STUD.
(G) HOLDOWN PER SCHEDULE AND PLAN
(H) COORDINATE ALL STUD AND PLATE SIZES w/ SHEARWALL SCHEDULE REQUIREMENTS
(J) EDGE NAILING TO POSTS. TRIM STUDS AND KING STUDS
(K) BEARING STUD FOR HEADER

TYPICAL WOOD SHEARWALL ELEVATION
NTS

SHEARWALL SCHEDULE

MARK	MINIMUM SHEATHING	EDGE NAILING	FIELD NAILING	SOLE PLATE NAILING	SILL PLATE CONN. @ FND.
1	7/16" OSB ONE FACE	8d @ 6"o.c.	8d @ 12"o.c.	(2)16d @ 16"o/c	5/8dia. @ 48" o.c. w/ 2x BTM. PLATE
2	7/16" OSB ONE FACE	8d @ 4"o.c.	8d @ 12"o.c.	(2)16d @ 12"o/c	5/8"dia. @ 36" o.c. w/ 2x BTM. PLATE
3	7/16" OSB ONE FACE	8d @ 3"o.c.	8d @ 12"o.c.	(2)16d @ 8"o/c	5/8"dia. @ 30" o.c. w/ 3x BTM. PLATE
4	7/16" OSB ONE FACE	8d @ 2"o.c.	8d @ 12"o.c.	(2)16d @ 8"o/c	5/8"dia. @ 18" o.c. w/ 3x BTM. PLATE
5	19/32" OSB ONE FACE	10d @ 2"o.c.	10d @ 12"o.c.	(2)16d @ 8"o/c	5/8"dia. @ 18" o.c. w/ 3x BTM. PLATE

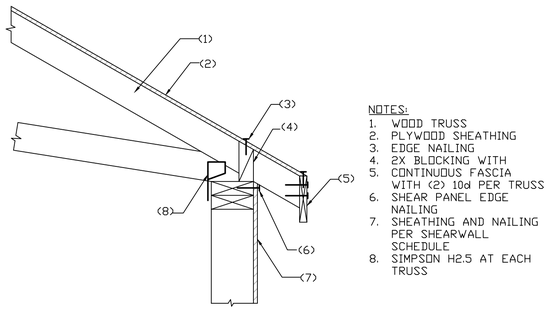
SHEARWALL NOTES:
1. ALL STUDS AND BLOCKING SHALL BE HF#2 ALL TOP AND BOTTOM PLATES SHALL BE HF#2. ALL SHEATHING EDGES SHALL BE BACKED WITH 2x OR WIDER FRAMING UNLESS OTHERWISE NOTED (SEE NOTE#2). SHEATHING MAY BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY.
2. WHERE SHEATHING NAILING IS A 3 OR GREATER, FOUNDATION SILL PLATES AND ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL NOT BE LESS THAN A SINGLE 3-INCH NOMINAL MEMBER AND SILL PLATES NOT BE LESS THAN A SINGLE 3-INCH NOMINAL MEMBER.
3. NAILING CRITERIA IS BASED ON IBC 2306.3 AND AF&PA SPDWS TABLE 4.3A FOR CD PLYWOOD AND HF#2 FRAMING. WIRE STAPLES MAY BE SUBSTITUTED AS OUTLINED IN THE STRUCTURAL NOTES. OTHER SUBSTITUTIONS MUST BE VERIFIED IN WRITING BY THE STRL. ENGINEER.
4. HOLDOWNS AND OTHER CONNECTIONS MAY BE REQUIRED AT THE ENDS OF MANY SHEARWALLS. SIZES AND LOCATIONS OF THESE CONNECTORS ARE INDICATED ON THE PLANS. REFER TO THE APPROPRIATE CONNECTOR DETAILS FOR ADDITIONAL INFORMATION REGARDING ANCHOR BOLTS, EMBEDMENT LENGTH, ETC.
5. ANCHOR BOLTS MUST BE EMBEDDED INTO CONCRETE OR GROUTED CMU A MINIMUM OF 7", AND SHALL BE PLACED TO PROVIDE A MINIMUM OF 2" GROUTED CLEAR TO THE FACE OF FORMED CONCRETE (PROVIDED 3" CLEAR FOR CONCRETE CAST AGAINST SOIL).
6. EDGE OF ANCHOR BOLT WASHER SHALL BE WITHIN 1/2" OF SHEAR WALL SHEATHING

HOLD DOWN SCHEDULE

MARK	SIMPSON (PRODUCT) CAPACITY	ATTACHMENTS	ANCHOR BOLTS
STHD14	STHD14 OR STHD14RJ (OR PHD 2 SUBSTITUTION)	W/ 30x16d TO (2) STUDS	NONE
HDU5	HDU5 - SDS 2.5	(14) SDS ¼"x2½" TO 4x MEMBERS	⅝" DIA. ANCHOR SSTB PER SIMPSON OR "J" BOLT W/ 10" EMBEDMENT
HDU8	HDU8 - SDS 2.5	(20) SDS ¼"x2½" TO 6x MEMBERS	⅞" DIA. ANCHOR SB OR SSTB PER SIMPSON

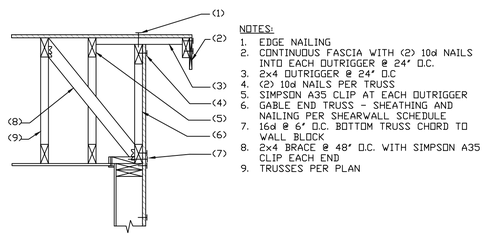
HOLD DOWN NOTES:
1. ALL THREAD BOLTS SHALL CONFORM TO ASTM A307.
2. CONCRETE COMPRESSIVE STRENGTH f'c=2,500 psi.
3. HD11/8 REQUIRES A 6x6 MIN. POST SIZE, HDU2/4/5 REQUIRES (2)2x MIN. POST SIZE, HD19 REQUIRED MIN. 6x8 POST SIZE U.N.O
4. MINIMUM EDGE DISTANCE SHOWN IS FOR FORMED CONCRETE EXPOSED TO SOIL OR WEATHER. FOR CONCRETE CAST AGAINST SOIL PROVIDE 3" CLEAR TO ANCHOR BOLT.
5. NAILS TO HOLDOWN POSTS SHALL BE 0.148"Ø COMMON. (16d SINKERS MAY BE USED WITH PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER)

APPROVED PER NOTES
ON PLAN
NISQUALLY INDIAN TRIBE
BUILDING DEPARTMENT



NOTES:
1. WOOD TRUSS
2. PLYWOOD SHEATHING
3. EDGE NAILING
4. 2X BLOCKING WITH
5. CONTINUOUS FASCIA WITH (2) 10d PER TRUSS
6. SHEAR PANEL EDGE NAILING
7. SHEATHING AND NAILING PER SHEARWALL SCHEDULE
8. SIMPSON H2.5 AT EACH TRUSS

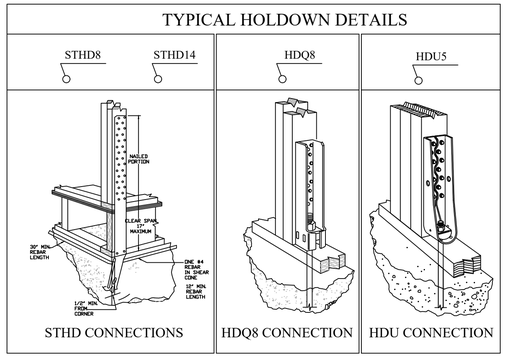
2 TYPICAL TRUSS CONNECTION
SCALE: N.T.S.



NOTES:
1. EDGE NAILING
2. CONTINUOUS FASCIA WITH (2) 10d NAILS INTO EACH OUTRIGGER @ 24" O.C.
3. 2x4 OUTRIGGER @ 24" O.C
4. (2) 10d NAILS PER TRUSS
5. SIMPSON A35 CLIP AT EACH OUTRIGGER
6. GABLE END TRUSS - SHEATHING AND NAILING PER SHEARWALL SCHEDULE
7. 16d @ 6" O.C. BOTTOM TRUSS CHORD TO WALL BLOCK
8. 2x4 BRACE @ 48" O.C. WITH SIMPSON A35 CLIP EACH END
9. TRUSSES PER PLAN

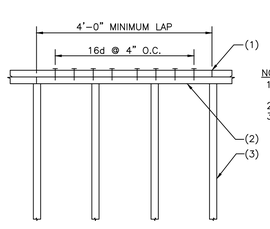
3 TRUSS GABLE END DETAIL
SCALE: N.T.S.

TYPICAL HOLDOWN DETAILS



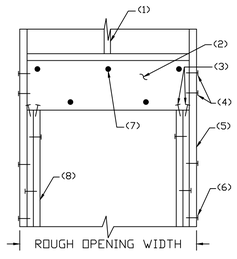
STHD CONNECTIONS | HDQ8 CONNECTION | HDU CONNECTION

4 HOLD DOWN DETAIL
SCALE: N.T.S.



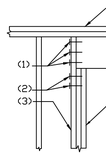
NOTES:
1. TOP PLATE SPLICE OVER STUD ONLY.
2. DOUBLE TOP PLATE
3. WOOD STUDS

5 TYPICAL TOP PLATE SPLICE
SCALE: N.T.S.



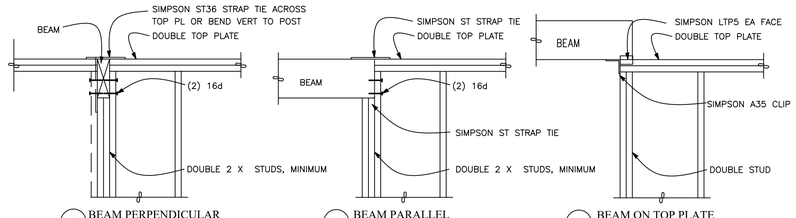
NOTES:
1. WOOD STUD WALL
2. WOOD HEADER PER PLAN
3. (2) 16d TOENAILS EACH SIDE, EACH END
4. (2) 16d AS SHOWN
5. RUN VERTICAL STUDS UP PAST HEADER AS SHOWN-
USE DOUBLE KING STUDS FOR OPENINGS GREATER THAN 5'-0"
6. (2) 16d @ 12" O.C.
7. 16d @ 12" O.C. STAGGERED BOTH SIDES
8. DOUBLE STUDS UNDER HEADER BEARINGS FOR OPENING WIDTHS GREATER THAN 5'-0"

6 WOOD HEADER
SCALE: N.T.S.



NOTES:
1. (6) 16d, TYP.
2. (4) 16d, TYP.
3. FULL HEIGHT STUD
4. CONTINUOUS DOUBLE TOP PLATE
5. HEADER AS PER PLAN, SAME WIDTH AS WALL
6. (2) CRIPPLE STUDS

7 BUILT-UP POST PARALLEL TO WALL
SCALE: N.T.S.



A BEAM PERPENDICULAR | B BEAM PARALLEL | C BEAM ON TOP PLATE

8 BEAM TO FRAMING
SCALE: N.T.S.

REVISIONS			
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