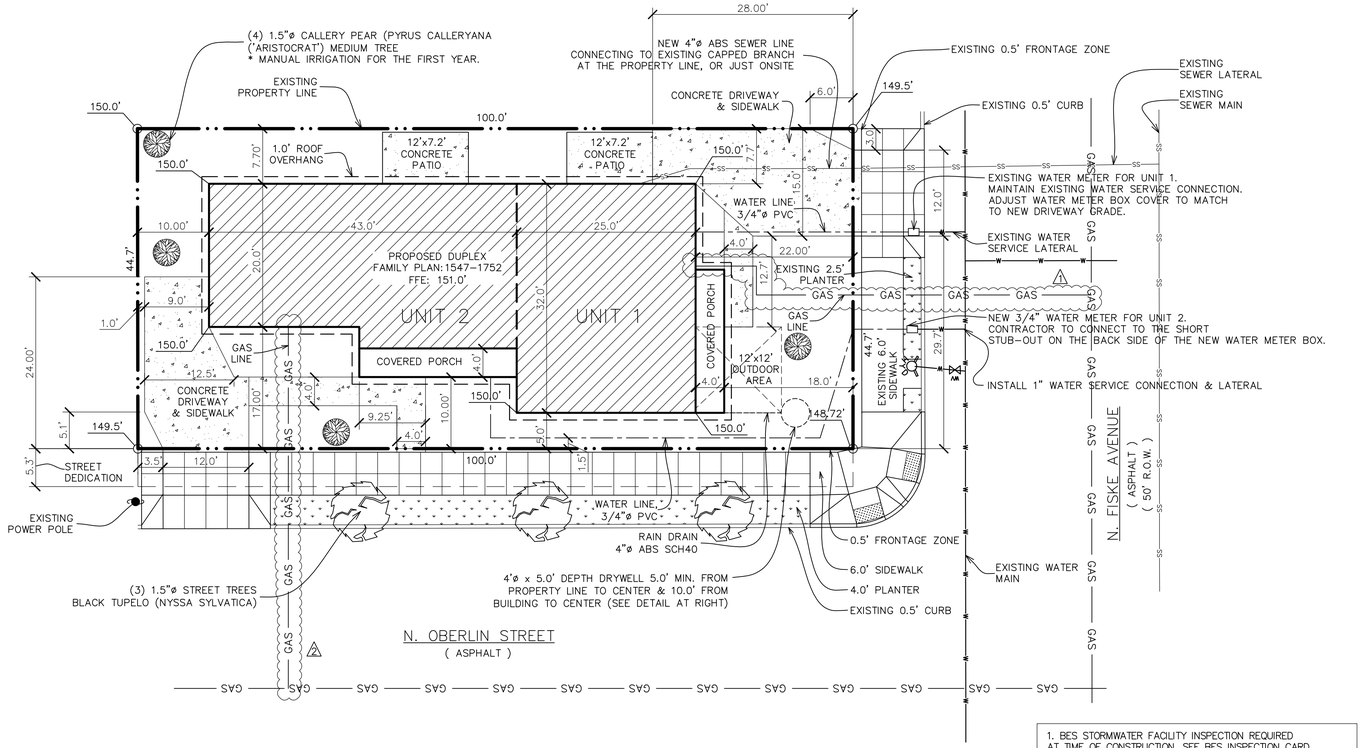
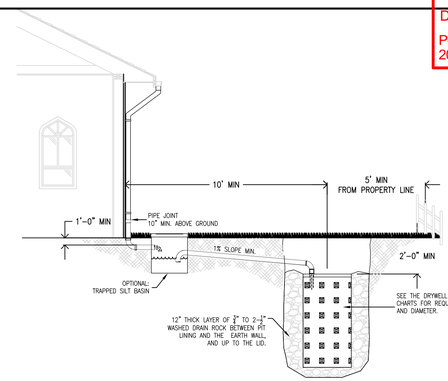




1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.

2. Siting criteria: Gravelly sand, gravelly loamy sand, or other equally porous material must occur in a continuous 5' deep stratum within 12' of the ground surface. Drywell shall not be placed where base of facility has less than 5' of separation to water table.

3. Sizing: **Exhibit 2-36** is used to size the drywell(s) based on impervious area.

4. Top of drywell must be below lowest finished floor.

5. Setbacks (from center of Drywell):
   a. 10' from foundations
   b. 5' from property lines
   c. 20' from cesspools.

6. Piping shall be ABS SCH40, cast iron, or PVC SCH40. 3" pipe required for facilities draining up to 1500 sf. of impervious area, otherwise 4" minimum pipe. Piping must have 1% grade. Uniform Plumbing Code also applies.

7. Trapped silt basin: Optional for roof runoff or pedestrian only paved areas.

Exhibit 2-36: Drywell Sizing Table

Once approval has been given by BES for onsite infiltration of stormwater, the following chart shall be used to select the number and size of drywells. Gray boxes are acceptable.

IMPERVIOUS Area (sq–ft)	28" Diameter Drywell Depth				48" Diameter Drywell Depth			
	5'	10'	15'	20'	5'	10'	15'	20'
1000								
2000								
3000								
4000								
5000								
6000								
7000								
8000								
9000								
10000								

-DRAWING NOT TO SCALE-

STORMWATER MANAGEMENT TYPICAL DETAILS

- Simplified Design Approach -

DRYWELL

Bureau of Environmental Services

NUMBER SW-130 7-1-16

1. BES STORMWATER FACILITY INSPECTION REQUIRED AT TIME OF CONSTRUCTION. SEE BES INSPECTION CARD. To schedule, contact the automated inspection request (IVR) system at 503–823–7000 and request inspection #487 BES Onsite Stormwater Facility Eval–OR–contact BES at 503–823–7761 for assistance.

2. BDS INSPECTOR APPROVAL REQUIRED FOR DOWNSPOUTS & PRIVATE STORM SEWER PIPING OUTSIDE OF STORM FACILITIES.

NOTES:
1. ALL UTILITIES IN THE RIGHT OF WAY WITHIN THE DEVELOPMENT PROPERTY'S FRONTAGE MUST BE LOCATED THROUGH 811, ONE CALL, AND SHOWN ON THE ASSOCIATED PLAN SET. APPLICANT WILL NEED TO BE ABLE TO PROVIDE THE LOCATE TICKET NUMBER IF REQUESTED FOR VERIFICATION.

2.CONTRACTOR TO SPECIFY EXACT LOCATIONS OF UTILITY STUBS.

3. UNDERGROUND GAS LINE (VERIFY LOCATION).

4.
- SEPERATION BETWEEN SANITARY SEWER & WATER LINE SHOULD BE 5 FT. MINIMUM SKIN TO SKIN.
- SEPERATION BETWEEN UNDERGROUND ELECTRICAL SERVICE LINE & WATER LINE SHOULD BE 4 FT. MINIMUM.
- SEPARATION BETWEEN MULTIPLE WATER SERVICES ON ONE TAX LOT SHOULD BE 3 FT. MINIMUM.
- SEPARATION BETWEEN WATER SERVICE AND PROPERTY LINES SHOULD BE 1.5 FT. MINIMUM.
- ALL OTHER UNDERGROUND UTILITIES NEED TO HAVE 3 FT. MINIMUM SEPERATION FROM WATER LINE.
- NEW WATER METERS SHOULD NOT BE PLACED IN DRIVEWAY WINGS.
- STREET TREES MUST BE A MINIMUM OF 5 FT. FROM THE NEAREST EDGE OF WATER PIPE. VALVE OR METER BOX & A MINIMUM OF 10 FT. FROM A FIRE HYDRANT. REFERENCE STANDARD DRAWING P-845 FOR MORE INFORMATION.

NO.	REVISION DATE:	DESCRIPTION:
1	1-20-21	RELOCATED GAS LINE TO UNIT 1. 3' MIN. SEPERATION FROM WATER LINE.
2	1-20-21	ADDED GAS LINE TO UNIT 2.

APPROVED PW CONCEPTUAL DESIGN
PERMIT: 20–204576

UNIT 1: IMPERVIOUS AREA (UNCOVERED PORTIONS)
379.6 SQ. FT. DRIVEWAY & SIDEWALK
84 SQ. FT. REAR PATIO

UNIT 2: IMPERVIOUS AREA (UNCOVERED PORTIONS)
381.6 SQ. FT. DRIVEWAY & SIDEWALK
84 SQ. FT. REAR PATIO

2,106 ROOF AREA
= 3,035.2 SQ. FT. TOTAL IMPERVIOUS AREA

REFERENCE TO ASSOCIATED DEMOLITION PERMIT:
RS 20–150480.

396.1 SQ. FT. UNIT 1
DRIVEWAY & SIDEWALK

400.0 SQ. FT. UNIT 2
DRIVEWAY & SIDEWALK

PROJECT LEGAL DESCRIPTION:
PROP. ID: R292163 **STATE ID:** 1N1E08CC -16800
UNIVERSITY PK, BLOCK 73, NLY 1/2 OF LOT 1-3
SW 1/4 SEC. 8 T.1N. R.1E. W.M.
MULTNOMAH COUNTY

PROJECT ADDRESS:

7314 N FISKE AVE
PORTLAND, OR 97203

PROPOSED PROJECT FOR:
SENTAUR INC.

ROOF AREA: 2,106.0 SQ. FT.

FLATWORK AREA:
(2) DRIVEWAYS & SIDEWALKS 796.1 SQ. FT.
(2) COVERED FRONT PORCHES 168.0 SQ. FT.
REAR PATIOS (2) 12' x 7.2' 172.8 SQ. FT.
TOTAL=1,136.9 SQ. FT.

LOT COVERAGE:
LOT AREA 4,468.5 SQ. FT.
BUILDING AREA 1,894.0 SQ. FT.
(*NOT INCLUDING OVERHANGS*)
42.4 % LOT COVERAGE

ZONING:
ZONE: R5, OVERLAY: N/A PLAN DISTRICT: N/A

SITE PLAN

SCALE: 1" = 10.0'
DATE: 7-16-20, REV. 9-10-20, 1-6-21, 1-20-21
JOB# 20-40

NORTH

MASSIE HOME DESIGN
500 NW 20TH ST STE 203 GRESHAM, OREGON 97030
(o) PHONE: 503-663-1100
EMAIL: brian@massiehd.com

FRONT ELEVATION

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

UNIT 2

UNIT 1

CITY OF PORTLAND BASE ZONE DESIGN STANDARD

STREET-FACING FACADE:
235.5 SQ. FT. WINDOW & DOOR AREA OF STREET FACING FACADE DIVIDED BY 1,331.1 SQ. FT. AREA OF STREET FACING FACADE = 17.6% WINDOW & DOOR AREA OF STREET FACING FACADE (15% MIN.)

CITY OF PORTLAND BASE ZONE DESIGN STANDARD

STREET-FACING FACADE:
122.5 SQ. FT. WINDOW & DOOR AREA OF STREET FACING FACADE DIVIDED BY 542.7 SQ. FT. AREA OF STREET FACING FACADE = 22.5% WINDOW & DOOR AREA OF STREET FACING FACADE (15% MIN.)

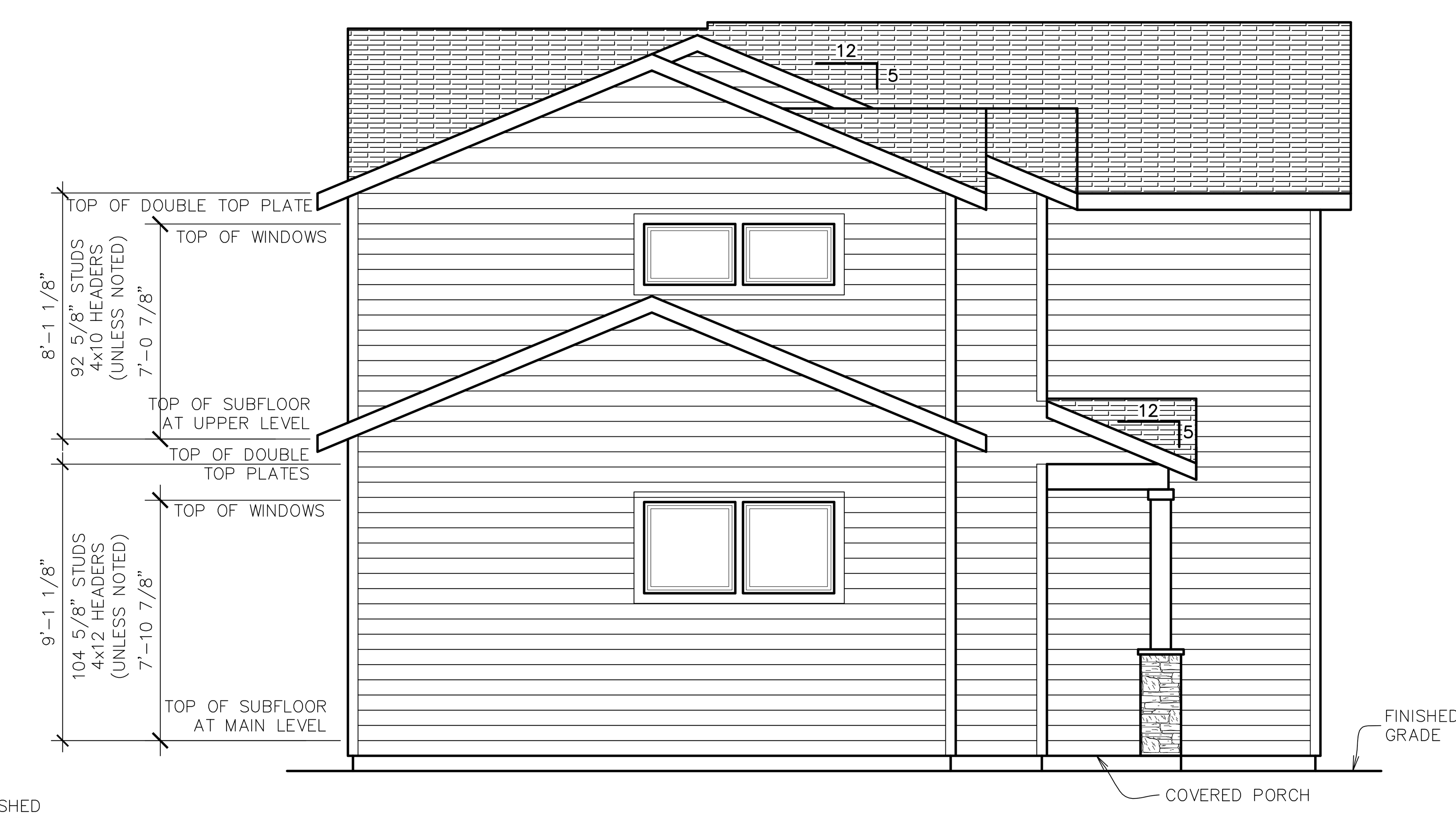
RIGHT SIDE ELEVATION

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

UNIT 1

REAR ELEVATION

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



LEFT SIDE ELEVATION

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

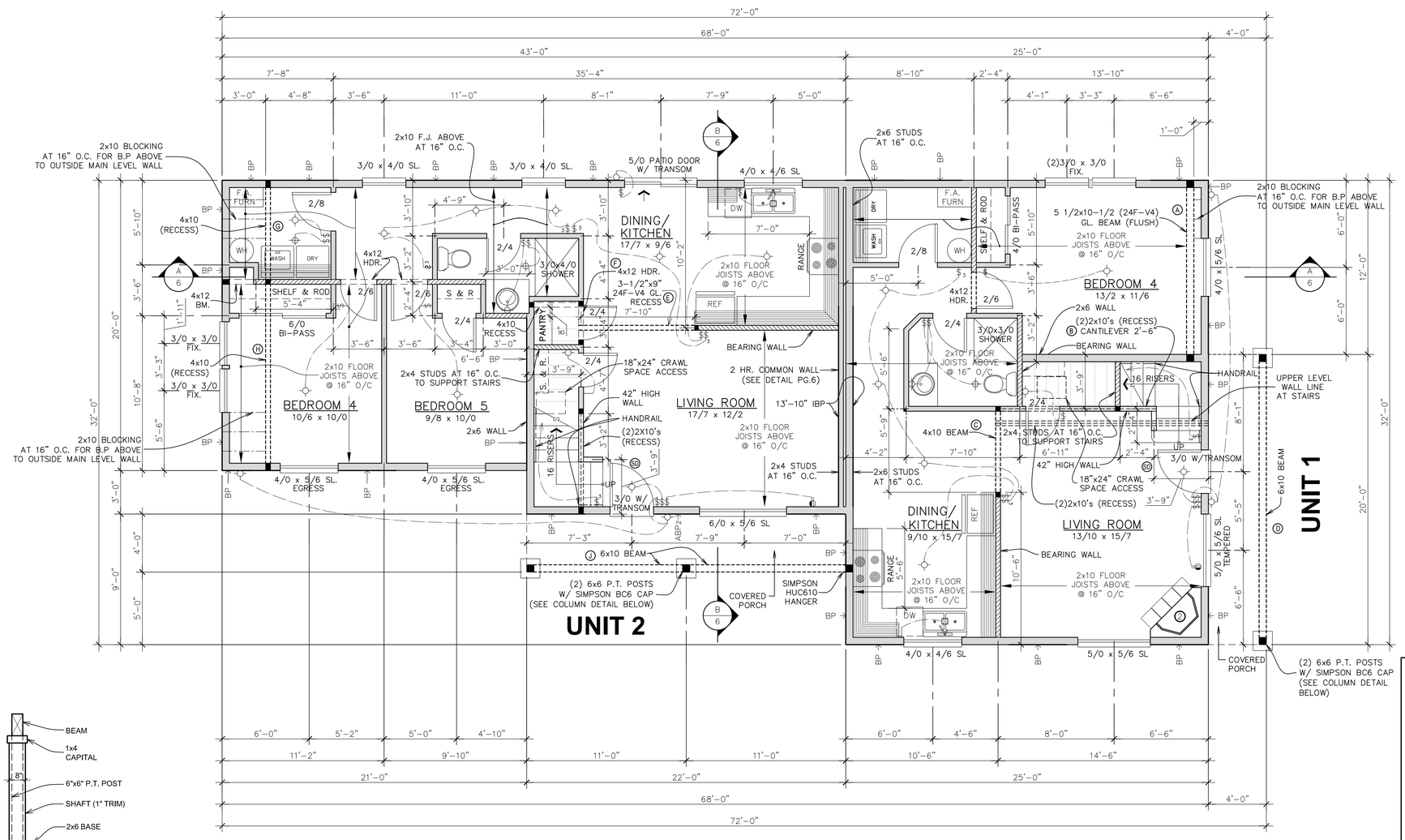
City Of Portland
REVIEWED FOR CODE COMPLIANCE
Date: 02/08/21
Permit #: 20-172950-000-00-RS

MASSIE HOME DESIGN
500 NW 20TH ST STE 203
GRESHAM OREGON 97030
( ) PHONE: 503-66[illegible]00
EMAIL: brian@massie[illegible]com

PROJECT ADDRESS:
7314 N. FISKE AVE.
PORTLAND, OREGON 97203

DUPLEX PLAN 1547-1752 FOR SENTAUR INC.

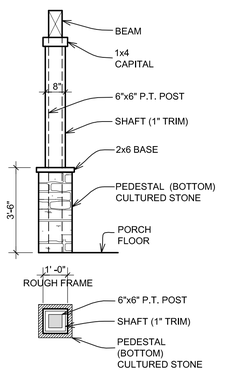
DRAWN BY: BM.
DATE: 7-16-2020
REV.
JOB# 20-40



MAIN FLOOR PLAN

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

UNIT 1	UNIT 2
MAIN: 800 Sq. Ft.	MAIN: 926 Sq. Ft.
TOTAL LIVING AREA: 1547 Sq. Ft.	TOTAL LIVING AREA: 1752 Sq. Ft.
MAIN FLOOR TOTAL LIVING AREA: 1726 Sq. Ft.	



8" COLUMN DETAIL W/ STONE

NOT TO SCALE

LEGEND:
- SURFACE MOUNTED INCANDESCENT
- WALL MOUNTED INCANDESCENT
- RECESSED INCANDESCENT
- EXHAUST FAN VENTED TO EXTERIOR
- CEILING MOUNTED DUPLEX OUTLET
- SPLIT-WIRED OUTLET, WIRE TO SWITCH
- $ SINGLE-POLE SWITCH
- $3 THREE-WAY SWITCH
- TELEPHONE OUTLET
- T TELEVISION OUTLET
- SE 110V SMOKE ALARM / DETECTOR WITH BATTERY BACKUP-INNERCONNECT
- CM 110V CARBON MONOXIDE ALARM / DETECTOR WITH BATTERY BACKUP-IN EACH BEDROOM OR WITHIN 15 FEET OUTSIDE OF EACH BEDROOM DOOR
- (A) STRUCTURAL BEAM, SEE INCLUDED CALCULATIONS FOR BEAM DATA
- INTERIOR BEARING WALL
- BEARING POINT LOCATION, PROVIDE 2 x STUDS MIN. OF BEAM WIDTH, UNLESS NOTED

NOTES:

1. 1. VENT RANGE HOOD, DRYER, LAUNDRY & BATH FANS TO OUTSIDE. BATH ROOMS WITH BATHING FACILITIES SHALL HAVE A MECHANICAL VENTILATION SYSTEM DESIGNED TO EXHAUST A MINIMUM OF 80 CFM INTERMITTENT OR 20 CFM CONTINUOUS CONTROLLED BY A DE-HUMIDISTAT TIMER OR SIMILAR MEANS OF AUTOMATIC CONTROL.
   IN ADDITION, WHEN NOT PROVIDED WITH NATURAL VENTILATION , TOILET ROOMS WITHOUT BATHING OR SPA FACILITIES SHALL HAVE A MECHANICAL VENTILATION SYSTEM DESIGNED TO EXHAUST A MINIMUM OF 50 CFM.
2. METAL GAS FIREPLACE TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS, PROVIDE OUTSIDE COMBUSTIBLE AIR.
3. PROVIDE 18" HIGH PLATAFORM FOR WATER HEATER AND FURNACE.
4. SEISMIC STRAPPING OF WATER HEATER IS REQUIRED PER SECTION M1307.2

STATEWIDE ALTERNATE METHOD NO:ORSC 13-01 (REF.ORS 455.060) ALLOWS USE OF 2008 (ORSC) WALL BRACING PROVISIONS AS AN ALTERNATE METHOD TO THE 2017 (ORSC).

No 97-7 PORTAL FRAME BRACING. USE STATEWIDE ALTERNATE METHOD

LATERAL DESIGN: (SEGMENTAL WALL BRACING)

BP= BRACE PANEL, METHOD # 3, 48" WIDTH w/8d @ 6" O/C EDGES & 12" O/C FIELD, 3/8" MIN. SHEATHING (FOR BP. AT INTERIOR WALL SEE DETAIL PG.7)

ABP2 = ALTERNATE BRACE PANEL, METHOD #3, 32" MIN. WIDTH, (SEE DETAIL PG.7)

IBP AT COMMON WALL= INTERIOR BRACE PANEL AT COMMON WALL, METHOD #5, 48" WIDTH W/6d COOLER COATED NAILS, 1 7/8" LONG, 0.0920 SHANK, 1/4" HEADS @ 7" O.C. MAX., 5/8" TYPE 'X' SHEETROCK (PER TABLE R702.3.5, 2008 ORSC) (SEE DETAIL PG.7)

LIST OF PENETRATIONS AT COMMON WALL:

BOTH UNITS- SWITCHES & OUTLETS; STEEL ELECTRICAL BOX THAT DO NOT EXCEED 16 SQUARE INCHES IN AREA PROVIDED THE AGGREGATE AREA OF THE OPENINGS THROUGH THE MEMBRANE DOES NOT EXCEED 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. THE SPACE BETWEEN THE WALL MEMBRANE AND THE BOX SHALL NOT EXCEED 1/8 INCH.

BOTH UNITS-FIRE-RATED ASSEMBLES SHALL BE TIGHTLY FITTED AT PLATES & BLOCKING OR DRAFT-STOPPED AROUND THE PROTRUSION WITH APPROVED NON-COMBUSTIBLE INSULATING MATERIALS TO MAKE IT TIGHT FITTING. BOTH UNITS-BEHIND BATH TUBS & SOFFITS MAINTAIN THE REQUIRED RATING.

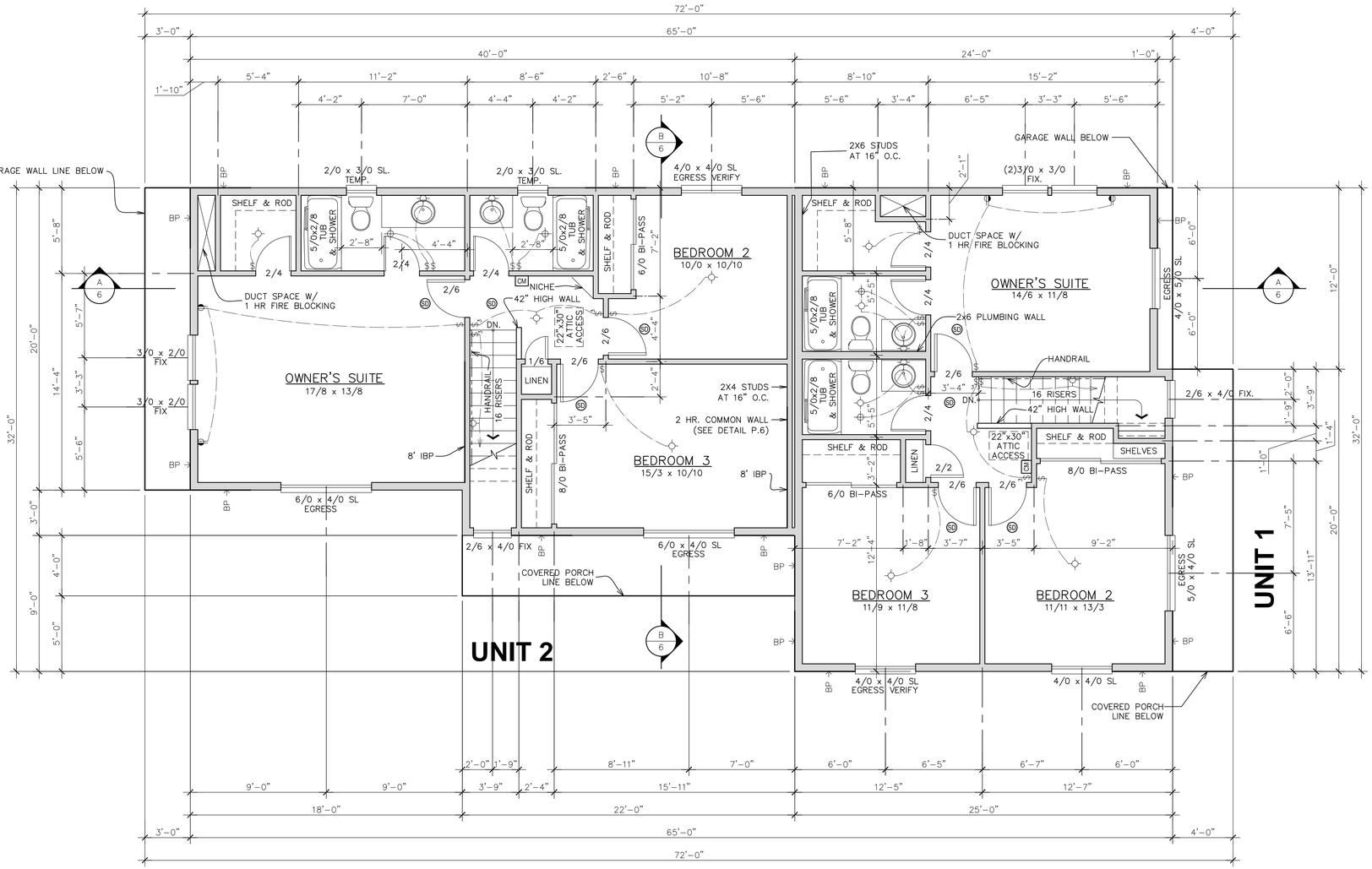
BOTH UNITS: NONMETALIC PIPES THAT PENETRATE A RATED WALL, SUCH PIPES SHALL BE ENCASED IN A RIGID FERROUS METAL TUBE EXTENDING FROM THE SURFACE(S) AT LEAST 18". THE ENCASING TUBE SHALL BE FIRE-STOPPED BY PACKING WITH NONCOMBUSTIBLE INSULATING MATERIAL. ALL PENETRATIONS WITHIN FIRE-RATED ASSEMBLES SHALL BE TIGHTLY FITTED AT PLATES & BLOCKING OR DRAFT-STOPPED AROUND THE PROTRUSION WITH APPROVED NON-COMBUSTIBLE INSULATING MATERIALS TO MAKE IT TIGHT FITTING. BOTH UNITS-BEHIND BATH TUBS & SOFFITS MAINTAIN THE REQUIRED RATING.

NOTES:

BREAK EXTERIOR WALL SHEATHING @ RIM JOIST BETWEEN FLOORS W/8d @ 6" O.C. EDGES

DATE: 7-16-2020

PLAN 1547-1752



UPPER FLOOR PLAN

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

UNIT 1	UNIT 2
UPPER: 747 Sq. Ft.	UPPER: 826 Sq. Ft.
UPPER FLOOR TOTAL LIVING AREA:	1573 Sq. Ft.

LEGEND:
- SURFACE MOUNTED INCANDESCENT
- WALL MOUNTED INCANDESCENT
- RECESSED INCANDESCENT
- EXHAUST FAN VENTED TO EXTERIOR
- CEILING MOUNTED DUPLEX OUTLET
- SPLIT-WIRED OUTLET, WIRE TO SWITCH
- $ SINGLE-POLE SWITCH
- $3 THREE-WAY SWITCH
- TELEPHONE OUTLET
- TV TELEVISION OUTLET
- SD 110V SMOKE ALARM / DETECTOR WITH BATTERY BACKUP-INNERCONNECT
- CM 110V CARBON MONOXIDE ALARM / DETECTOR WITH BATTERY BACKUP-IN EACH BEDROOM OR WITHIN 15 FEET OUTSIDE OF EACH BEDROOM DOOR
- A STRUCTURAL BEAM, SEE INCLUDED CALCULATIONS FOR BEAM DATA
- INTERIOR BEARING WALL
- BEARING POINT LOCATION, PROVIDE 2 x STUDS. MIN. OF BEAM WIDTH, UNLESS NOTED

NOTES:

1. 1. VENT BATH FANS TO OUTSIDE. BATH ROOMS WITH BATHING FACILITIES SHALL HAVE A MECHANCIAL VENTILATION SYSTEM DESIGNED TO EXHAUST A MINIMUM OF 80 CFM INTERMITTENT OR 20 CFM CONTINUOUS CONTROLLED BY A DE-HUMIDISTAT TIMER OR SIMILAR MEANS OF AUTOMATIC CONTROL.
IN ADDITION, WHEN NOT PROVIDED WITH NATURAL VENTILATION , TOILET ROOMS WITHOUT BATHING OR SPA FACILITIES SHALL HAVE A MECHANICAL VENTILATION SYSTEM DESIGNED TO EXHAUST A MINIMUM OF 50 CFM.

STATEWIDE ALTERNATE METHOD NO:ORSC 13-01 (REF.ORS 455.060) ALLOWS USE OF 2008 (ORSC) WALL BRACING PROVISIONS AS AN ALTERNATE METHOD TO THE 2017 (ORSC).

LATERAL DESIGN: (SEGMENTAL WALL BRACING)

BP= BRACE PANEL, METHOD #3, 48" WIDTH w/8d @ 6" O/C EDGES & 12" O/C FIELD, 3/8" MIN. SHEATHING (FOR BP, AT INTERIOR WALL SEE DETAIL PG.7)

IBP AT COMMON WALL= INTERIOR BRACE PANEL AT COMMON WALL, METHOD #5, 48" WIDTH W/6d COOLER COATED NAILS, 1 7/8" LONG, 0.0920 SHANK, 1/4" HEADS @ 7" O.C. MAX., 5/8" TYPE 'X' SHEETROCK (PER TABLE R702.3.5, 2008 ORSC) (SEE DETAIL PG.7)

LIST OF PENETRATIONS AT COMMON WALL:

BOTH UNITS- SWITCHES & OUTLETS; STEEL ELECTRICAL BOX THAT DO NOT EXCEED 16 SQUARE INCHES IN AREA PROVIDED THE AGGREGATE AREA OF THE OPENINGS THROUGH THE MEMBRANE DOES NOT EXCEED 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. THE SPACE BETWEEN THE WALL MEMBRANE AND THE BOX SHALL NOT EXCEED 1/8 INCH.

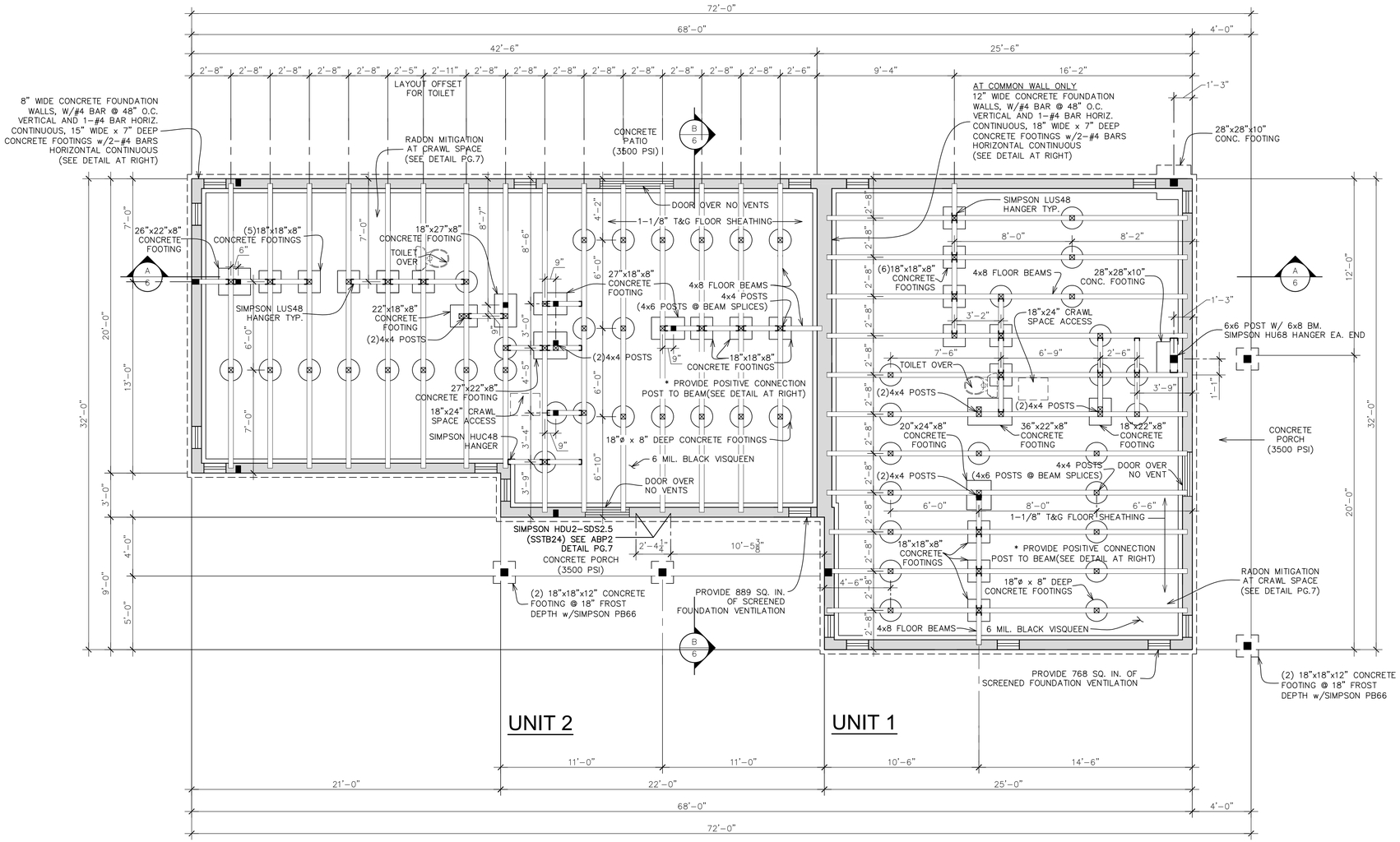
BOTH UNITS-FIRE-RATED ASSEMBLES SHALL BE TIGHTLY FITTED AT PLATES & BLOCKING OR DRAFT-STOPPED AROUND THE PROTRUSION WITH APPROVED NON-COMBUSTIBLE INSULATING MATERIALS TO MAKE IT TIGHT FITTING. BOTH UNITS-BEHIND BATH TUBS & SOFFITS MAINTAIN THE REQUIRED RATING.

BOTH UNITS: NONMETALIC PIPES THAT PENETRATE A RATED WALL, SUCH PIPES SHALL BE ENCASED IN A RIGID FERROUS METAL TUBE EXTENDING FROM THE SURFACE(S) AT LEAST 18". THE ENCASING TUBE SHALL BE FIRE-STOPPED BY PACKING WITH NONCOMBUSTIBLE INSULATING MATERIAL. ALL PENETRATIONS WITHIN FIRE-RATED ASSEMBLES SHALL BE TIGHTLY FITTED AT PLATES & BLOCKING OR DRAFT-STOPPED AROUND THE PROTRUSION WITH APPROVED NON-COMBUSTIBLE INSULATING MATERIALS TO MAKE IT TIGHT FITTING. BOTH UNITS-BEHIND BATH TUBS & SOFFITS MAINTAIN THE REQUIRED RATING.

DATE: 7-16-2020

PLAN 1547-1752

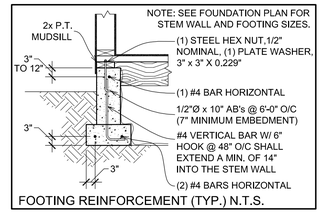
3 OF 8



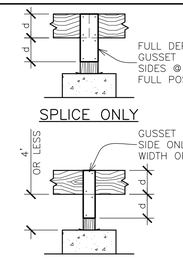
FOUNDATION PLAN

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

NOTE: "SIMPSON" PRODUCTS TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS. SEE CURRENT "SIMPSON" CATALOG FOR MORE INFORMATION.



FOOTING REINFORCEMENT (TYP.) N.T.S.



NOTES:
1. DETAILS SHOWN APPLY WHEN THERE IS FULL PERIMETER FOUNDATION WALLS.
2. THIS IS AN ACCEPTABLE PRACTICE PERTAINING TO SECTIONS R407.3 AND R502.9

NAIL AND SCREW PENETRATION	END OR EDGE DISTANCE
8d NAILS, #8 SCREWS = 1 1/2"	3/4"
10d NAILS, #10 SCREWS = 1 5/8"	13/16"

CONNECTORS:
1. QUANTITY AS SHOWN ON DETAILS.
2. GUSSET PLATE: 1/2" STRUCTURAL SHEATHING OR 1x4" NOMINAL WOOD LUMBER MIN. OR 16 GAUGE (0.0598") STEEL PLATE MIN.
3. NAILS: 8d FOR 1/2" STRUCTURAL SHEATHING OR 1x (VARIES) NOMINAL MATERIALS. 10d FOR 2x (VARIES) NOMINAL MATERIALS & LARGER.
4. WOOD SCREWS & STAPLES ARE AN ACCEPTABLE ALTERNATE.

*EXCEPTION: GIRDERS & POSTS SUPPORTING EXTERIOR DECKS NOT EXCEEDING 18" INCHES (457MM) IN HEIGHT ARE NOT REQUIRED TO BE LATERALLY BRACED OR HAVE GUSSETS AT POST AND GIRDER CONNECTIONS. (SEE SECTION R507)

FIGURE R502.9
POST AND BEAM CONNECTIONS (AT CRAWL SPACE)

ROOF STRUCTURE SPECIFICATIONS:

1. COMPOSITION ROOFING
2. 15# FELT
3. 1/2" ROOF SHEATHING
4. ROOF TRUSSES AT 24" O.C.
   2X4 RAFTERS @ 24" O.C. @ ROOF OVERLAY, 2x6 RIDGE BOARD
   (SEE ROOF OVERLAY DETAIL BELOW)
5. 2x6 BARGE RAFTERS
6. 1'-0" ROOF OVERHANGS EXCEPT 2" ROOF RAKE OVERHANG AS NOTED
7. GUTTERS, OWNER TO SPECIFY & LOCATE DOWNSPOUTS
8. 5/12 ROOF PITCH

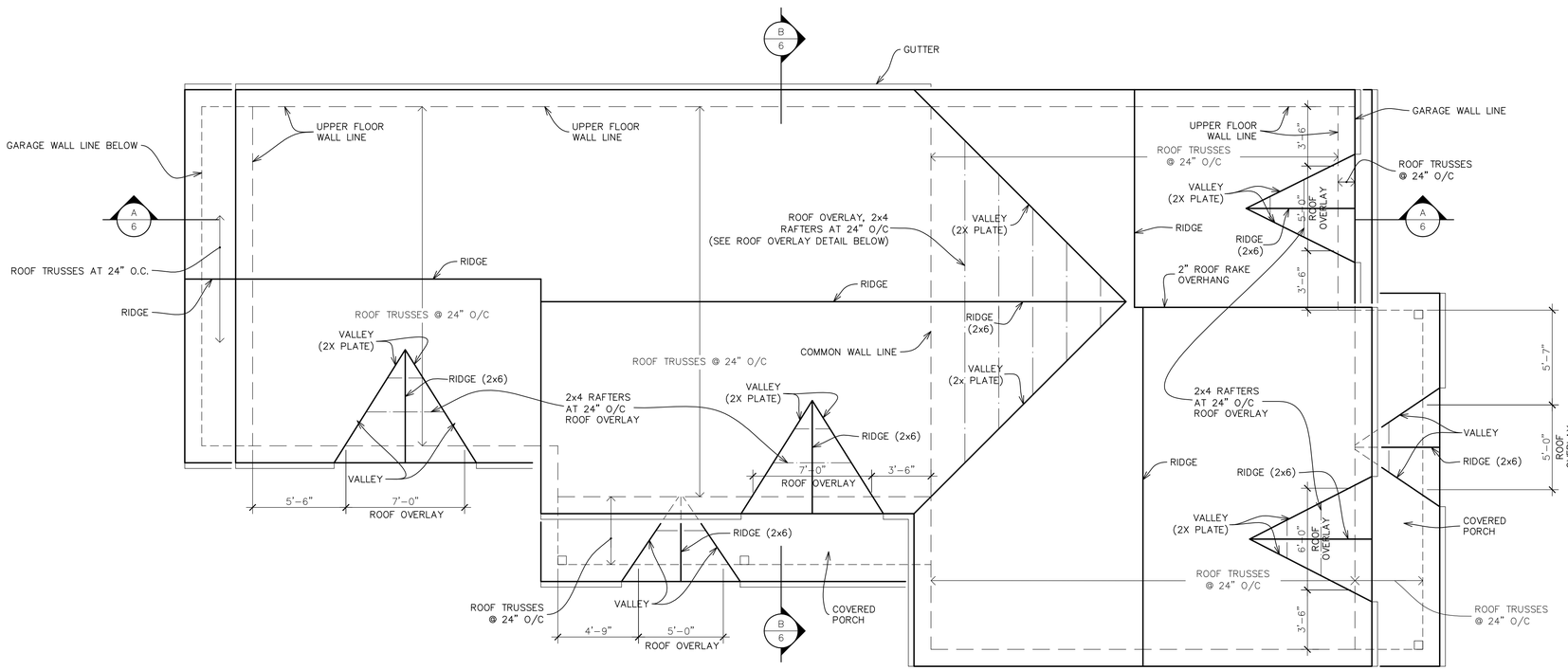
ROOF VENTILATION SPECIFICATIONS:

UNIT #1

1. PROVIDE (4) 50 SQ.IN. SCREENED ROOF RIDGE VENTS AT UPPER LEVEL (187 SQ. IN. TOTAL MIN.) FOR UNIT #1
   PROVIDE (10) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT UPPER LEVEL (187 SQ. IN. TOTAL MIN.) FOR UNIT # 1
2. PROVIDE (4) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT FRONT COVERED PORCH (75 SQ. IN. TOTAL MIN.).
3. PROVIDE (2) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT GARAGE AT MAIN LEVEL (12 SQ. IN. TOTAL MIN.)

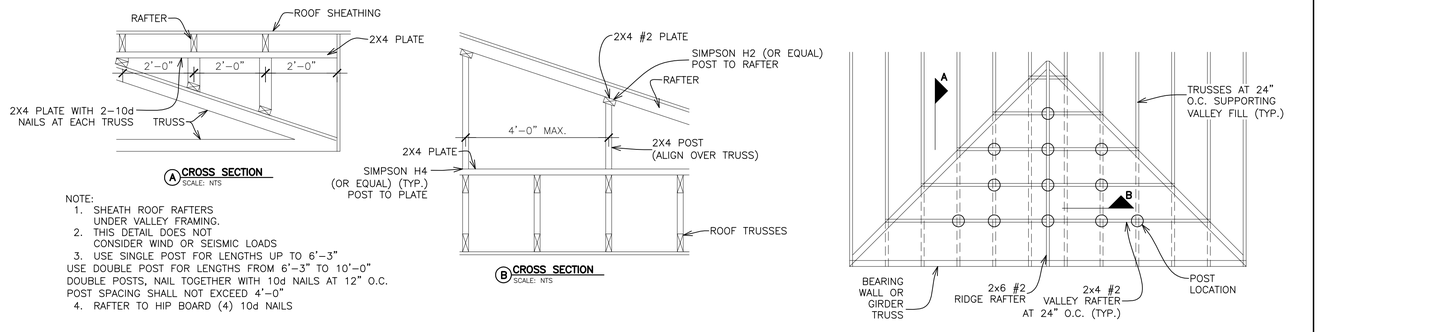
UNIT #2

1. PROVIDE (5) 50 SQ.IN. SCREENED ROOF RIDGE VENTS AT UPPER LEVEL (208 SQ. IN. TOTAL MIN.) FOR UNIT #1
   PROVIDE (11) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT UPPER LEVEL (208 SQ. IN. TOTAL MIN.) FOR UNIT # 1
2. PROVIDE (5) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT FRONT COVERED PORCH (85 SQ. IN. TOTAL MIN.).
3. PROVIDE (1) 50 SQ.IN. SCREENED ROOF RIDGE VENT AT SIDE OF GARAGE AT MAIN LEVEL (15 SQ. IN. TOTAL MIN.)
   PROVIDE (2) 20 SQ. IN. SCREENED ROOF EAVE VENTS AT SIDE OF GARAGE AT MAIN LEVEL (15 SQ. IN. TOTAL MIN.).



ROOF PLAN

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



NOTE:

1. SHEATH ROOF RAFTERS UNDER VALLEY FRAMING.
2. THIS DETAIL DOES NOT CONSIDER WIND OR SEISMIC LOADS
3. USE SINGLE POST FOR LENGTHS UP TO 6'-3"
   USE DOUBLE POST FOR LENGTHS FROM 6'-3" TO 10'-0"
   DOUBLE POSTS, NAIL TOGETHER WITH 10d NAILS AT 12" O.C.
   POST SPACING SHALL NOT EXCEED 4'-0"
4. RAFTER TO HIP BOARD (4) 10d NAILS

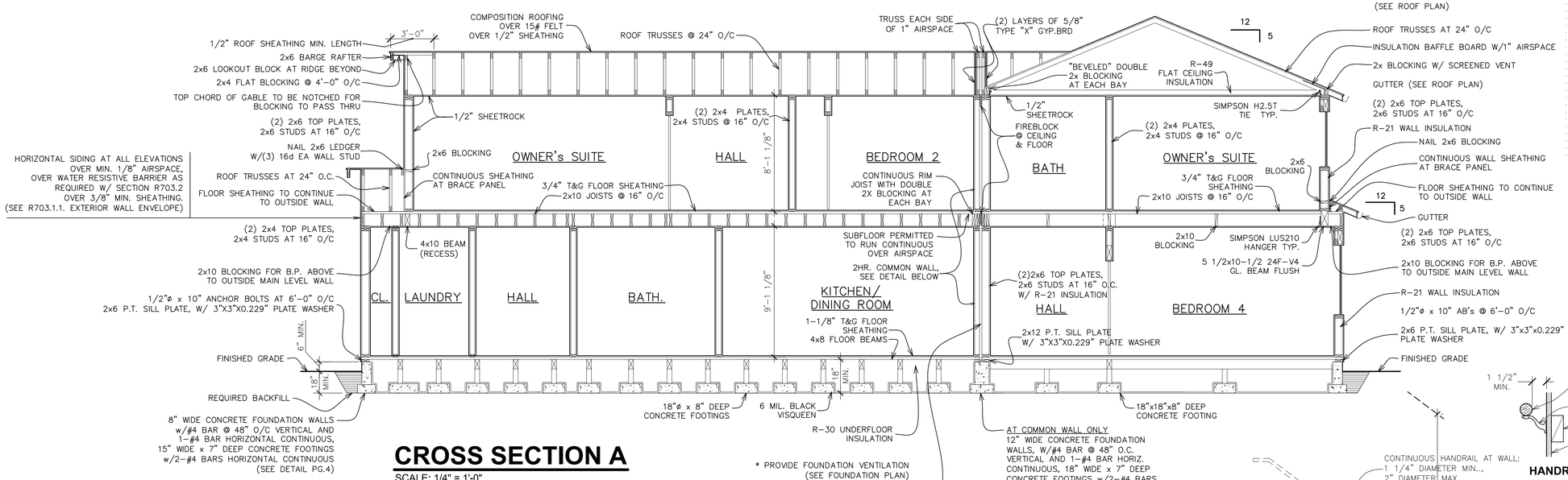
VALLEY FRAMING (DESIGNED FOR GRAVITY LOAD ONLY)

SCALE: NTS

DATE: 7-16-2020

PLAN 1547-1752

5 OF 8

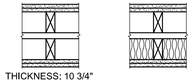


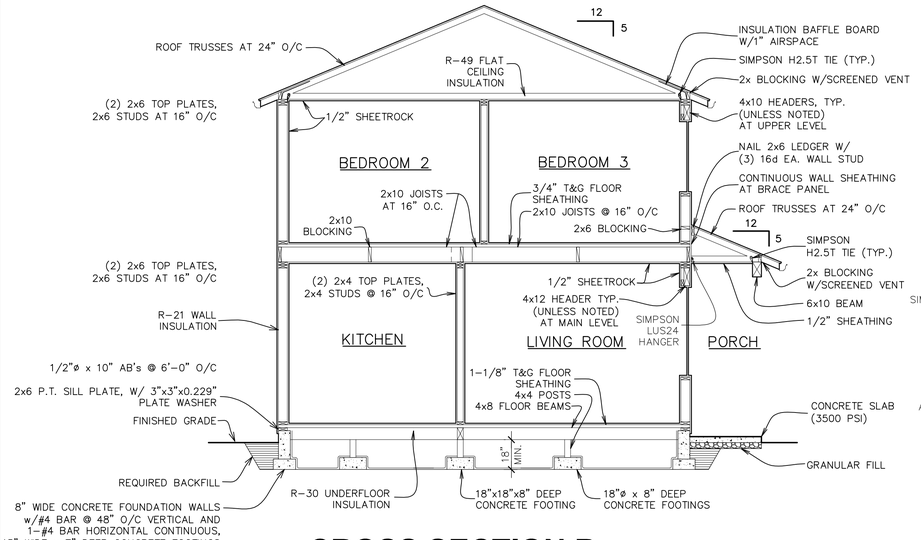
CROSS SECTION A

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

COMMON WALL DETAIL (2x6 STUDS ONLY WHERE NOTED)

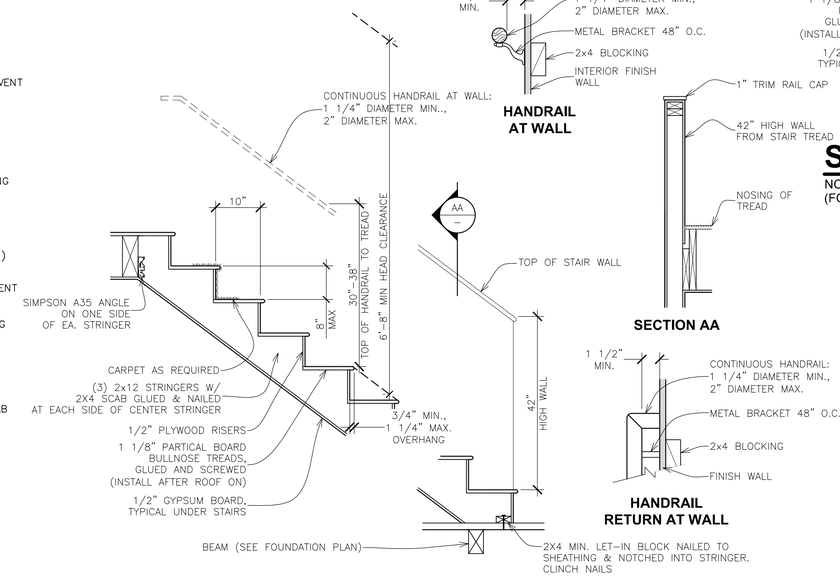
NO SCALE

FIRE RATING	SOUND RATING STC	GA FILE NO.	ASSEMBLY DESCRIPTION	SKETCH AND DESIGN DATA: FIRE	SKETCH AND DESIGN DATA: SOUND
2 HR	55 TO 59	WP 3820	GYPSUM WALLBOARD, WOOD STUDS BASE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE OF DOUBLE ROW OF 2X4 WOOD STUDS 16" O/C ON SEPARATE PLATES 1" APART WITH 6d COATED NAILS, 1 7/8" LONG, 0.085" SHANK, 1/4" HEADS, 24" O/C. FACE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE WITH 8d COATED NAILS, 2 3/8" LONG, 0.100" SHANK, 1/4" HEADS, 8" O/C. JOINTS STAGGERED 16" EACH LAYER AND SIDE. SOUND TEST WITH 3 1/2" GLASS FIBER INSULATION STAPLED TO STUDS IN STUD SPACES ON ONE SIDE AND WITH NAILS FOR BASE LAYER SPACED 16" O.C. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (LOAD BEARING)	 THICKNESS: 10 3/4" APPROX. WEIGHT: 13 PSF FIRE TEST: SEE WP 4135 (FM WP 360, 9-27-74)	 SOUND TEST: NGC 3056, 4-7-70



CROSS SECTION B

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



STAIR DETAIL W/ 42" HIGH WALL

NO SCALE
(FOR INTERIOR STAIRS)

UNIT 1

UNIT 2

DATE: 7-16-2020

PLAN 1547-1752

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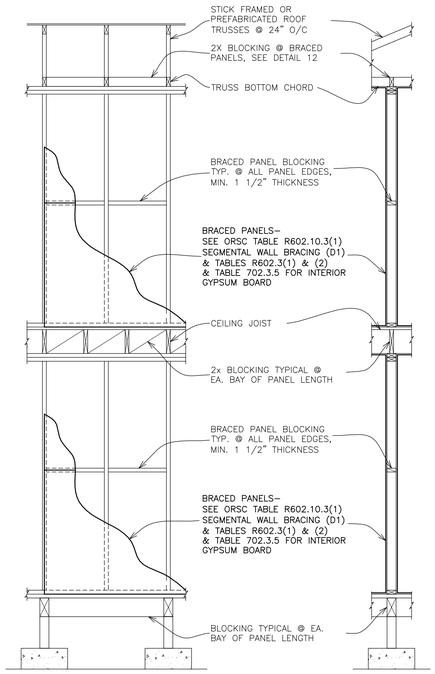
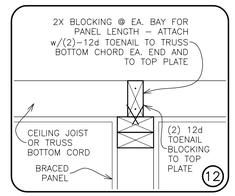
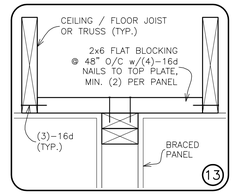
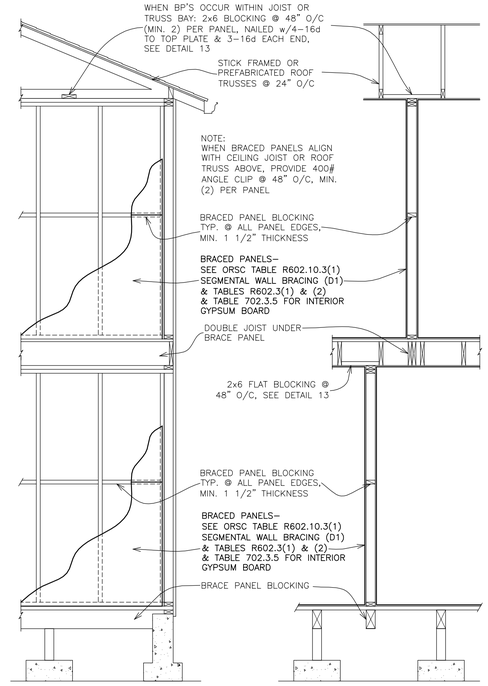
1



BRACED PANEL PERPENDICULAR TO FLOOR / CEILING FRAMING







BRACED PANEL PARALLEL TO FLOOR / CEILING FRAMING

(2008 ORSC)

(IBP) INTERIOR BRACED WALL PANEL METHOD #5 - DETAILS

NTS

OREGON INTERPRETIVE RULING NO. 01-3, SECTION 5

IBP: AT COMMON WALL INTERIOR BRACE PANEL (AT COMMON WALL), 48" WIDTH W/ 6d COOLER COATED NAILS, 1 7/8" LONG, 0.092Ø SHANK, 1/4" HEADS @ 7" O.C. MAX., 5/8" TYPE 'X' SHEETROCK (PER TABLE R702.3.5, 2008 ORSC)

BP: BRACE PANEL, 48" WIDTH W/ 8d @ 6" O.C. EDGES & 12" O.C. FIELD, 3/8" MIN. SHEATHING

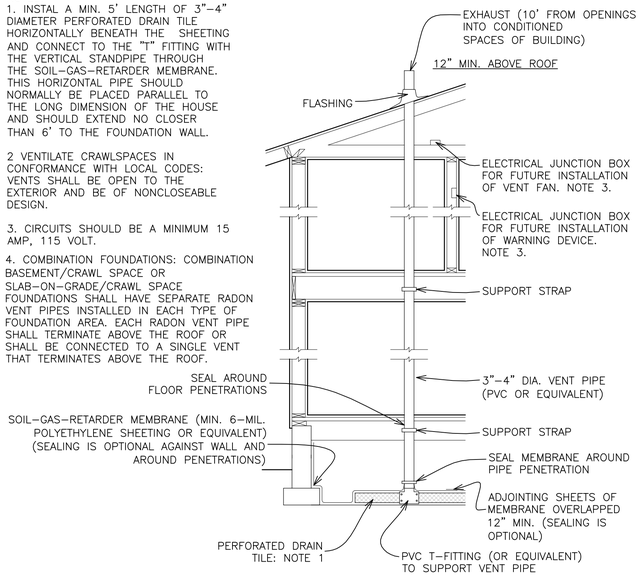
PASSIVE RADON CONTROL SYSTEM IN CRAWL SPACE FOR NEW CONSTRUCTION

NOTES:
1. INSTAL A MIN. 5' LENGTH OF 3"–4" DIAMETER PERFORATED DRAIN TILE HORIZONTALLY BENEATH THE SHEETING AND CONNECT TO THE "T" FITTING WITH THE VERTICAL STANDPIPE THROUGH THE SOIL–GAS–RETARDER MEMBRANE. THIS HORIZONTAL PIPE SHOULD NORMALLY BE PLACED PARALLEL TO THE LONG DIMENSION OF THE HOUSE AND SHOULD EXTEND NO CLOSER THAN 6' TO THE FOUNDATION WALL.

2 VENTILATE CRAWLSPACES IN CONFORMANCE WITH LOCAL CODES: VENTS SHALL BE OPEN TO THE EXTERIOR AND BE OF NONCLOSEABLE DESIGN.

3. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.

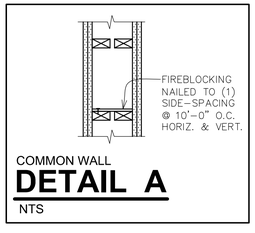
4. COMBINATION FOUNDATIONS: COMBINATION BASEMENT/CRAWL SPACE OR SLAB–ON–GRADE/CRAWL SPACE FOUNDATIONS SHALL HAVE SEPARATE RADON VENT PIPES INSTALLED IN EACH TYPE OF FOUNDATION AREA. EACH RADON VENT PIPE SHALL TERMINATE ABOVE THE ROOF OR SHALL BE CONNECTED TO A SINGLE VENT THAT TERMINATES ABOVE THE ROOF.

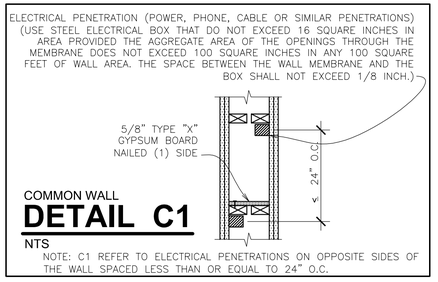


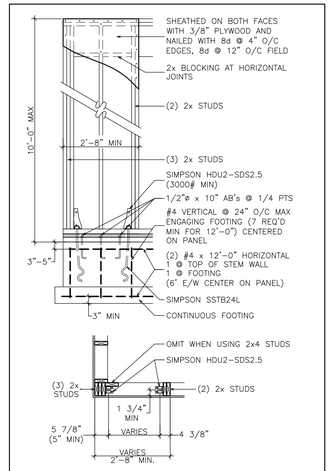
RADON MITIGATION

PASSIVE SUB-MEMBRANE DEPRESSURIZATION SYSTEM

(NOT TO SCALE)







EXCEPTION:
1. WALLS MAY BE BRACED ON ONE SIDE OF THE WALL ONLY WHEN THE PANEL THICKNESS IS INCREASED TO A NOMINAL 1/2–INCH (12.7mm) STRUCTURAL SHEATHING THICKNESS AND THE NAIL SPACING AT THE EDGE OF PANEL IS REDUCED TO 3 INCHES (76mm) ON CENTER.

ABP2	ALTERNATE BRACE PANEL 1ST STORY OF A TWO STORY

1

NO.	REVISION DATE:	DESCRIPTION:
1	8-31-20	REMOVED BOTH PORTAL FRAMES SINCE THEY DON'T APPLY.

DATE: 7-16-2020

PLAN 1547-1752

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City Of Portland
REVIEWED FOR CODE COMPLIANCE
Date: 02/08/21
Permit #: 20-172950-000-00-RS

GENERAL NOTES

1. THESE PLANS ARE TO COMPLY WITH THE 2017 OREGON RESIDENTIAL SPECIALTY CODE (ORSC) EFFECTIVE OCT. 1ST 2017. BASED ON THE 2015 INTERNATIONAL RESIDENTIAL CODE (IRC) AND ANY APPLICABLE STATE, COUNTY OR LOCAL REGULATIONS. BUILDING CODES AND REQUIREMENTS CAN CHANGE AND MAY VARY FROM JURISDICTION TO JURISDICTION. IT IS THE RESPONSIBILITY OF THE PURCHASER AND/OR CONTRACTOR OF THIS PLAN TO SEE THAT THE STRUCTURE IS BUILT IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE TO CHECK THE PLANS FOR ANY ERRORS OR OMISSIONS AND NOTIFY THE DESIGNER PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS. MASSIE HOME DESIGN SHALL BE NOTIFIED OF ANY DISCREPANCY BETWEEN THE EXISTING CONDITIONS AND CONSTRUCTION DOCUMENTS.
4. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS.
5. THESE PLANS ARE FOR THE CONSTRUCTION OF ONE BUILDING ONLY AND ARE NOT TO BE COPIED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF MASSIE HOME DESIGN.

LUMBER GRADES: (BEAM CALCULATIONS TAKE PRECEDENCE OVER TABLE BELOW)

GRADE	STRUCTURAL MEMBER
DOUGLAS FIR–LARCH #2	STUDS, POSTS, BEAMS AND HEADERS, ROOF RAFTERS, FLOOR & CEILING JOISTS
VISUALLY GRADED WESTERN SPECIES 24F–V4	GLULAM BEAMS
DOUGLAS FIR–LARCH #3	SILLS, PLATES, BLOCKING, BRIDGING, ETC.

DESIGN LOADS: MAY VARY IN YOUR LOCAL AREA. CONSULT WITH A LOCAL STRUCTURAL ENGINEER OR DESIGNER FOR APPROPRIATE REVISIONS.

ROOF:	25 PSF LIVE LOAD, 15 PSF DEAD LOAD	
FLOOR, BALCONIES (EXTERIOR) AND DECKS:	40 PSF LIVE LOAD 10 PSF DEAD LOAD	
PASSENGER VEHICLE GARAGES, ELEVATED GARAGE FLOORS SHALL BE CAPABLE OF SUPPORTING A 2,000# POINT LOAD APPLIED OVER A 6–INCH SQUARE–AREA ANYWHERE WHEN ON THE FLOOR. SEE TABLE R301.5		50 PSF LIVE LOAD 2000# POINT LOAD
CEILINGS	10 PSF LIVE LOAD, 5 PSF DEAD LOAD	
STAIRS	40 PSF LIVE LOAD, SEE TABLE R301.5	

CONCRETE AND FOUNDATIONS

1. SOIL BEARING PRESSURE ASSUMED TO BE 1500 PSF.
2. FOOTINGS TO BEAR ON UNDISTURBED LEVEL SOIL DEVOID OF ORGANIC MATERIAL AND STEPPED AS REQUIRED TO MAINTAIN A MINIMUM OF 18" BELOW FINAL GRADE.
3. ALL SLABS ON GRADE SHALL BEAR ON 4" COMPACTED GRANULAR FILL.
4. CONCRETE: (28 DAY COMPRESSIVE STRENGTH)
   2500 PSI – BASEMENT WALLS AND FOUNDATIONS NOT EXPOSED TO THE WEATHER; BASEMENT AND INTERIOR SLABS ON GRADE, EXCEPT GARAGE FLOOR SLABS
   3000 PSI – BASEMENT, FOUNDATION AND EXTERIOR WALLS; OTHER VERTICAL CONCRETE WORK EXPOSED TO THE WEATHER
   3500 PSI – PORCHES, CARPORT SLABS AND STEPS EXPOSED TO THE WEATHER; GARAGE FLOOR SLAB
5. CONCRETE SLABS TO HAVE CONTROL JOINTS AT 25' MAXIMUM INTERVALS EACH WAY.
6. REINFORCING STEEL TO BE ASTM A615 GRADE 40 MIN., WELDED WIRE MESH TO BE A185.
7. COVER ENTIRE CRAWL SPACE WITH 6 MIL. BLACK PLASTIC SHEETING, OVERLAP SEAMS 12" MIN. AND EXTEND UP FOUNDATION WALLS 12".
8. CRAWL SPACE VENTS: CORROSION–RESISTANT WIRE MESH 1/8" MIN. THICK & 1/4" MAX. OPENING
9. PROVIDE CRAWL SPACE DRAIN & SLOPE TO LOW POINT FOR POSITIVE DRAINAGE.
10. BEAM POCKETS IN CONCRETE TO HAVE 1/2" AIRSPACE AT SIDES AND END WITH A MINIMUM BEARING OF 3".
11. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED OR PROTECTED WITH 55# ROLL ROOFING.

MISCELLANEOUS

1. 1/2" WATER–RESISTANT SHEETROCK AROUND TUB & SHOWER.
2. THE LIGHTING LAYOUT IS SUGGESTED ONLY. CONSULT YOUR ELECTRICAL CONTRACTOR FOR EXACT SPECIFICATIONS & LOCATIONS OF LIGHTS, SWITCHES & OUTLETS.
3. BASEMENTS WITH HABITABLE SPACE AND EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPENING FOR EMERGENCY ESCAPE AND RESCUE WITH THE FOLLOWING REQ'S:
   A. A SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR.
   B. THE MINIMUM NET CLEAR OPENING SHALL BE 5.7 SQ. FT.
   C. GRADE FLOOR OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5 SQ. FT.
   D. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 24 INCHES.
   E. THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20 INCHES
4. GLAZING ADJACENT TO STAIRWAYS, LANDINGS AND RAMPS WITHIN 36" (914 MM) HORIZONTALLY OF A WALKING SURFACE WHEN THE EXPOSED SURFACE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE IS TO BE TEMPERED SAFETY GLAZING.
5. GLAZING ADJACENT TO THE LANDING AT THE BOTTOM OF A STAIRWAY WHERE THE GLAZING IS LESS THAN 36 INCHES (914MM) ABOVE THE LANDING AND WITHIN A 60" (1524 MM) HORIZONTAL ARC LESS THAN 180 DEGREES (3.14 RAD) FROM THE BOTTOM TREAD NOSING SHALL BE CONSIDERED A HAZARDOUS LOCATION AND TO BE TEMPERED SAFETY GLAZING.
6. ALL WINDOWS WITHIN 18" OF THE FLOOR AND WITHIN 24" ARC FROM HINGED SIDE OF DOORS TO BE TEMPERED SAFETY GLAZING.
7. ALL SKYLIGHTS TO BE TEMPERED SAFETY GLAZING.
8. ALL TUB & SHOWER GLASS ENCLOSURES / PARTITIONS ARE TO BE TEMPERED SAFETY GLAZING.
9. ALL WINDOWS & PATIO DOORS ARE TO BE DOUBLE GLAZED. EXTERIOR DOORS ARE TO BE SOLID CORE WITH WEATHERSTRIPPING.
10. BACKFILL FOR POSITIVE SLOPE AWAY FROM THE STRUCTURE WITH SLOPE NO LESS THAN 6" IN THE FIRST 10' AND NO GREATER THAN 6:12. (EXCEPTION: DRAINS OR SWALES, SEE R401.3 DRAINAGE.)
11. DO NOT EXCAVATE GREATER THAN A 1 : 2 (VERTICAL TO HORIZONTAL) SLOPE BELOW FOOTINGS.
12. MAINTAIN 6" MINIMUM SPACE FROM GROUND TO WOOD SIDING.
13. N1107.2 HIGH–EFFICACY LAMPS. ALL PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN HIGH–EFFICACY LAMPS. SCREW–IN COMPACT FLUORESCENT AND LED LAMPS COMPLY WITH THIS REQUIREMENT.
    THE BUILDING OFFICIAL SHALL BE NOTIFIED IN WRITING AT THE FINAL INSPECTION THAT THE PERMANENTLY INSTALLED LIGHTING FIXTURES HAVE MET THIS REQUIREMENT.
    EXCEPTION: TWO PERMANENTLY INSTALLED LIGHTING FIXTURES ARE NOT REQUIRED TO HAVE HIGH–EFFICACY LAMPS.
    N1107.3 HIGH–EFFICACY EXTERIOR LIGHTING. ALL EXTERIOR LIGHTING FIXTURES AFFIXED TO THE EXTERIOR OF THE BUILDING SHALL CONTAIN HIGH–EFFICACY LAMPS.
    EXCEPTION: TWO PERMANENTLY INSTALLED LIGHTING FIXTURES ARE NOT REQUIRED TO HAVE HIGH–EFFICACY LAMPS.
14. MOISTURE CONTENT: PRIOR TO INSTALLATION OF INTERIOR FINISHES, ALL MOISTURE SENSITIVE WOOD FRAMING MEMBERS USED IN CONSTRUCTION HAVE A MOISTURE CONTENT OF NOT MORE THAN 19% OF THE WEIGHT OF DRY WOOD FRAMING MEMBERS.

TABLE N1101.1(1) PRESCRIPTIVE ENVELOPE REQUIREMENTS [a]

BUILDING COMPONENT	STANDARD BASE CASE: REQUIRED PERFORMANCE	STANDARD BASE CASE: EQUIV. VALUE [b]
WALL INSULATION–ABOVE GRADE	U–0.059 [c]	R–21 INTERMEDIATE [c]
WALL INSULATION–BELOW GRADE [e]	C–0.063	R–15/R–21
FLAT CEILINGS [f]	U–0.021	R–49
VAULTED CEILINGS [g]	U–0.033	R–30 RAFTER OR R–30A [g,h] SCISSOR TRUSS
UNDERFLOORS	U–0.033	R–30
SLAB EDGE PERIMETER	F–0.520	R–15
HEATED SLAB INTERIOR [i]	N/A	R–10
WINDOWS [j]	U–0.30	U–0.30
WINDOW AREA LIMITATION [j k]	N/A	N/A
SKYLIGHTS [l]	U–0.50	U–0.50
EXTERIOR DOORS [m]	U–0.20	U–0.20
EXTERIOR DOORS W/>2.5FT ^{2} GLAZING [n]	U–0.40	U–0.40
FORCED AIR DUCT INSULATION	N/A	R–8

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m , 1 degree = 0.0175 rad, n/a = not applicable.
a. As allowed in section N1104.1, thermal performance2 of a component may be adjusted provided that overall heat loss does not exceed the total resulting from conformance to the required U–factor standards. Calculations to document equivalent heat loss shall be performed using the procedure and approved U–factors contained in Table N1104.1(1).
b. R–values used in this table are nominal for the insulation only in standard wood framed construction and not for the entire assembly.
c. Wall insulation requirements apply to all exterior wood framed, concrete or masonry walls that are above grade. This includes cripple walls & rim joist areas. Nominal compliance with R–21 insulation and Intermediate Framing (N1104.5.2) with insulated headers.
d. The wall component shall be a minimum solid log or timber wall thickness of 3.5 inches (90mm).
e. Below–grade wood, concrete or masonry walls include all walls that are below grade and do not include those portions of such wall that extend more than 24 inches (609.6mm) above grade. R–21 for insulation in framed cavity; R–15 continuous insulation.
f. Insulation levels for ceilings that have limited attic/rafter depth such as dormers, bay windows or similar architectural features totaling not more than 150 square feet (13.9 m²) in area may be reduced to not less than R–21. When reduced, the cavity shall be filled (except for required ventilation spaces). R–49 insulation installed to minimum 6–inches depth at top plate at exterior of structure to achieve U–factor.
g. Vaulted ceiling surface area exceeding 50 percent of the total heated space floor area shall have a U–factor no greater than U–0.026 (equivalent to R–38 rafter or scissor truss with R–38 advanced framing). ceiling with R–30 insulation is U–0.033 and complies with this requirement, not to exceed 50 percent of the total heated space floor area.
h. A=Advanced frame construction, See Section N1104.6.
i. Heated slab interior applies to concrete slab floors (both on and below grade) that incorporate a radiant heating system within the slab. Insulation shall be installed underneath the entire slab.
j. Sliding glass doors shall comply with window performance requirements. Windows exempt from testing in accordance with section NF1111.2, Item 3 shall comply with window performance requirements if constructed with thermal break aluminum or wood, or vinyl, or fiberglass frames and double–pane glazing with low–emissivity coatings of 0.10 or less. Buildings designed to incorporate passive solar elements may include glazing with a U–factor greater than 0.35 by using Table N1104.1(1) to demonstrate equivalence to building envelope requirements.
k. Reduced window area may not be used as a trade–off criterion for thermal performance of any component.
   Exception: Table N1101.1(2), Envelope Measure 6: calculation allows baseline case 15 percent of total wall area as window when design case utilizes window area of less than 15 percent.
l. Skylight area installed at 2% or less of total heated space floor area shall be deemed to satisfy this requirement with vinyl, wood, or thermally broken aluminum frames and double–pane glazing with low–emissivity coatings. Skylight U–factor is tested in the 20 degree (0.35rad) overhead plane in accordance with NFRC standards.
m. A maximum of 28 square feet (2.6m²) of exterior door area per dwelling unit can have a U–factor of 0.54 or less.
n. Glazing that is either double pane with low–e coating on one surface, or triple pane shall be deemed to comply with this U–0.30 requirement.

from Table N1101.1(1): (WALL INSULATION–ABOVE GRADE, R–21 INTERMEDIATE [c])

N.1104.5.2 Intermediate framing for walls. Intermediate framing for walls is an optional construction method. Intermediate framing, when used to achieve improved wall performance under the requirements of Table 1101.1(1) or Table N1104.1(2), shall meet the following requirements:

1. **Walls**. Walls shall be formed with 2x studs at 16 inches (610 mm) on center and shall include the following, as detailed in Items 2 and 3.

2. **Corners and intersections**. Exterior wall and ceiling corners shall be fully insulated through the use of three–stud corners configured to allow full insulation into the corner, or two–stud corners and drywall backup clips or other approved technique. Intersections of interior partition walls with exterior walls shall be fully insulated through the use of single backer boards, mid–height blocking with drywall clips or other approved technique.

3. **Headers**. Voids in headers 1 inch (25.4 mm) or greater in thickness shall be insulated with rigid insulation that has a value of R–4 or greater per 1 inch (25.4mm) thickness. Nonstructural headers (such as in gable end walls) can be eliminated and replaced with insulation to achieve equivalent levels as the surrounding area.

TABLE R602.3 (1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER & TYPE OF FASTENER [a,b,c]	SPACING & LOCATION
	ROOF		
1	BLOCKING BETWEEN CEILING JOISTS OR RAFTERS TO TOP PLATE	4–8d BOX(2–1/2"x0.113") OR 3–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 3–3"x0.131" NAILS	TOE NAIL
2	CEILING JOISTS TO TOP PLATE	4–8d BOX(2–1/2"x0.113") OR 3–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 3–3"x0.131" NAILS	PER JOIST, TOE NAIL
3	CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS [SEE SECTIONS R802.3.1, R802.3.2 & TABLE R802.5.1(9)]	4–10d BOX(3"x0.128"); OR 3–16d COMMON (3–1/2"x0.162"); OR 4–3"x0.131" NAILS	FACE NAIL
4	CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) [SEE SECTIONS R802.3.1 AND R802.3.2 AND TABLE R802.5.1(9)]	TABLE R802.5.1(9)	FACE NAIL
5	COLLAR TIE TO RAFTER, FACE NAIL OR 1–1/4"x20 GA. RIDGE STRAP TO RAFTER	4–10d BOX (3"x0.128"); OR 3–10d COMMON (3"x0.148"); OR 4–3"x0.131" NAILS	FACE NAIL EACH RAFTER
6	RAFTER OR ROOF TRUSS TO PLATE	3–16d BOX NAILS (3–1/2"x0.135"); OR 3–10d COMMON NAILS (3"x0.148"); OR 4–10d BOX (3"x0.128"); OR 4–3"x0.131" NAILS	2 TOE NAILS ON ONE SIDE & 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS [i]
7	ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS OR ROOF RAFTER TO MINIMUM 2" RIDGE BEAM	4–16d (3–1/2"x0.135"); OR 3–10d COMMON (3–1/2"x0.148"); OR 4–10d BOX (3"x0.128"); OR 4–3"x0.131" NAILS	TOE NAIL
		3–16d BOX NAILS (3–1/2"x0.135"); OR 2–16d COMMON (3–1/2"x0.162"); OR 3–10d BOX (3"x0.128"); OR 3–3"x0.131" NAILS	END NAIL
	WALL		
8	STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3–1/2"x0.162")	24" O.C. FACE NAIL
		10d BOX (3"x0.128"); OR 3"x0.131" NAILS	16" O.C. FACE NAIL
9	STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d BOX (3–1/2"x0.135"); OR 3"x0.131" NAILS	12" O.C. FACE NAIL
		16d COMMON (3–1/2"x0.162")	16" O.C. FACE NAIL
10	BUILT–UP HEADER (2" TO 2" HEADER WITH 1/2" SPACER)	16d COMMON (3–1/2"x0.162")	16" O.C. EACH EDGE FACE NAIL
		16d BOX (3–1/2"x0.135")	16" O.C. EACH EDGE FACE NAIL
11	CONTINUOUS HEADER TO STUD	5–8d BOX (2–1/2"x0.113"); OR 4–8d COMMON (2–1/2"x0.131"); OR 4–10d BOX (3"x0.128")	TOE NAIL
12	TOP PLATE TO TOP PLATE	16d COMMON (3–1/2"x0.162")	16" O.C. FACE NAIL
		10d BOX (3"x0.128"); OR 3"x0.131" NAILS	12" O.C. FACE NAIL
13 [j]	DOUBLE TOP PLATE SPLICE FOR SDCs A–D2 WITH SEISMIC BRACED WALL LINE SPACING <25'	8–16d COMMON (3–1/2"x0.162"); OR 12–16d BOX (3–1/2"x0.135"); OR 12–10d BOX (3"x0.128"); OR 12–3"x0.131" NAILS	FACE NAIL ON EACH SIDE OF END JOINT (MINIMUM 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
	DOUBLE TOP PLATE SPLICE FOR SDCs D1 OR D2; AND BRACED WALL LINE SPACING > THEN OR = TO 25'	12–16d (3–1/2"x0.135")	
14	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, SOLID DECK OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3–1/2"x0.162")	16" O.C. FACE NAIL
		16d BOX (3–1/2"x0.135"); OR 3"x0.131" NAILS	12" O.C. FACE NAIL
15	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, SOLID DECK OR BLOCKING (AT BRACED WALL PANEL)	3–16d BOX (3–1/2"x0.135"); OR 2–16d COMMON (3–1/2"x0.162"); OR 4–3"x0.131" NAILS	3 EACH 16" O.C. FACE NAIL 2 EACH 16" O.C. FACE NAIL 4 EACH 16" O.C. FACE NAIL
16	TOP OR BOTTOM PLATE TO STUD	4–8d BOX (2–1/2"x0.113"); OR 3–16d BOX (3–1/2"x0.135"); OR 4–8d COMMON (2–1/2"x0.131"); OR 4–10d BOX (3"x0.128"); OR 4–3"x0.131" NAILS	TOE NAIL
		3–16d BOX (3–1/2"x0.135"); OR 2–16d COMMON (3–1/2"x0.162"); OR 3–10d BOX (3"x0.128"); OR 3–3"x0.131" NAILS	END NAIL
17	TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	3–10d BOX (3"x0.128"); OR 2–16d COMMON (3–1/2"x0.162"); OR 3–3"x0.131" NAILS	FACE NAIL
18	1" BRACE TO EACH STUD AND PLATE	3–8d BOX (2–1/2"x0.113"); OR 2–8d COMMON (2–1/2"x0.131"); OR 2–10d BOX (3"x0.128"); OR 2 STAPLES 1–3/4"	FACE NAIL
19	1" x 6" SHEATHING TO EACH BEARING	3–8d BOX (2–1/2"x0.113"); OR 2–8d COMMON (2–1/2"x0.131"); OR 2–10d BOX (3"x0.128"); OR 3 STAPLES 1" CROWN, 16 GA., 1–3/4" LONG	FACE NAIL
20	1" x 8" AND WIDER SHEATHING TO EACH BEARING	3–8d BOX (2–1/2"x0.113"); OR 3–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 3–STAPLES 1" CROWN, 16 GA., 1 3/4" LONG	FACE NAIL
		WIDER THAN 1" x 8" 4–8d BOX (2–1/2"x0.113"); OR 3–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 4 STAPLES 1" CROWN, 16GA., 1–3/4" LONG	
	FLOOR		
21	JOIST TO SILL, TOP PLATE OR GIRDER	4–8d BOX (2–1/2"x0.113"); OR 3–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 3–3"x0.131" NAILS	TOE NAIL
22	RIM JOIST, BAND JOIST OR BLOCKING TO SILL OR TOP PLATE (ROOF APPLICATIONS ALSO)	8d BOX (2–1/2"x0.113"	4" O.C. TOE NAIL
		8d COMMON (2–1/2"x0.131") 10d BOX (3"x0.128"); OR 3"x0.131" NAILS	6" O.C. TOE NAIL
23	1" x 6" SUBFLOOR OR LESS TO EACH JOIST	3–8d BOX (2–1/2"x0.113"); OR 2–8d COMMON (2–1/2"x0.131"); OR 3–10d BOX (3"x0.128"); OR 2 STAPLES, 1" CROWN, 16GA., 1–3/4" LONG	FACE NAIL
24	2" SUBFLOOR TO JOIST OR GIRDER	3–16d BOX (3–1/2"x0.135"); OR 2–16d COMMON (3–1/2"x0.162")	BLIND AND FACE NAIL
25	2" PLANKS (PLANK & BEAM–FLOOR & ROOF)	3–16d BOX (3–1/2"x0.135"); OR 2–16d COMMON (3–1/2"x0.162")	AT EACH BEARING, FACE NAIL
26	BAND OR RIM JOIST TO JOIST	3–16d COMMON (3–1/2"x0.162"); OR 4–10d BOX (3"x0.128"), OR 4–3"x0.131" NAILS; OR 4–3"x14 GA. STAPLES, 7/16" CROWN	END NAIL
27	BUILT–UP GIRDERS AND BEAMS, 2–INCH LUMBER LAYERS	20d COMMON (4"x0.192"); OR	NAIL EACH LAYER AS FOLLOWS: 32" O.C. AT TOP AND BOTTOM AND STAGGERED
		10d BOX (3"x0.128"); OR 3"x0.131" NAILS	24" O.C. FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
		AND: 2–20d COMMON (4"x1.192"); OR 3–10 BOX (3x0.128"); OR 3–3"x0.131" NAILS	FACE NAIL AT ENDS AND AT EACH SPLICE
28	LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	4–16d BOX (3–1/2"x0.135"); OR 3–16d COMMON (3–1/2"x0.162"); OR 4–10d BOX (3"x1.128"); OR 4–3"x0.131" NAILS	AT EACH JOIST OR RAFTER, FACE NAIL
29	BRIDGING TO JOIST	2–10d (3"x0.128")	EACH END, TOE NAIL

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER & TYPE OF FASTENER [a,b,c]	SPACING OF FASTENERS: EDGES (inches) [h]	SPACING OF FASTENERS: INTERMITTENT SUPPORTS [c,e] (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing [see Table R602.3(3) for wood structural panel exterior wall sheathing to wall framing]			
30	3/8" – 1/2"	6d COMMON (2"x0.113")NAIL (SUBFLOOR, WALL) [i] 8d COMMON (2–1/2"x0.131") NAIL (ROOF)	6	12 [f]
31	19/32" – 1"	8d COMMON NAIL (2–1/2"x0.131")	6	12 [f]
32	1–1/8" – 1–1/4"	10d COMMON (3"x0.148") NAIL; OR 8d (2–1/2"x0.131") DEFORMED NAIL	6	12
	OTHER WALL SHEATHING [g]			
33	1/2" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1–1/2" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1" CROWN STAPLE 16 ga., 1–1/4" LONG	3	6
34	25/35" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1–3/4" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1" CROWN STAPLE 16 ga., 1–1/4" LONG	3	6
35	1/2" GYPSUM SHEATHING [d]	1–1/2" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1–1/2" LONG; 1–1/4" SCREWS, TYPE W OR S	7	7
36	1/2" GYPSUM SHEATHING [d]	1–3/4" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1–5/8" LONG; 1–5/8" SCREWS, TYPE W OR S	7	7
	WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
37	3/4" AND LESS	6d DEFORMED (2"x0.120") NAIL; OR 8d COMMON (2–1/2"x0.131") NAIL	6	12
38	7/8" – 1"	8d COMMON (2"x0.131") NAIL; OR 8d DEFORMED (2–1/2"x0.120") NAIL	6	12
39	1–1/8" – 1–1/4"	10d COMMON (3"x0.148") NAIL; OR 8d DEFORMED (2–1/2"x0.120") NAIL	6	12

FOR SI: 1 INCH = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi=6.895 MPa

TABLE R602.3 (1) - CONTINUED FASTENING SCHEDULE

a. NAILS ARE SMOOTH–COMMON, BOX OR DEFORMED SHANKS EXCEPT WHERE OTHERWISE STATED, NAILS USED FOR FRAMING AND SHEATHING CONNECTIONS SHALL HAVE MINIMUM AVERAGE BENDING YIELD STRENGTHS AS SHOWN: 80 KSI FOR SHANK DIAMETER OF 0.192 INCH (20d COMMON NAIL), 90 KSI FOR SHANK DIAMETERS LARGER THAN 0.142 INCH BUT NOT LARGER THAN 0.177 INCH, AND 100 KSI FOR SHANK DIAMETERS OF 0.142 INCH OR LESS.
b. STAPLES ARE 16 GAGE WIRE AND HAVE A MINIMUM 7/16–INCH ON DIAMETER CROWN WIDTH.
c. NAILS SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER.
d. FOUR–FOOT BY 8–FOOT OR 4–FOOT BY 9–FOOT PANELS SHALL BE APPLIED VERTICALLY.
e. SPACING OF FASTENERS NOT INCLUDED IN THIS TABLE SHALL BE BASED ON TABLE R602.3(2).
f. WHERE THE ULTIMATE DESIGN WIND SPEED IS 130 MPH OR LESS, NAILS FOR ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL FRAMING SHALL BE SPACED 6 INCHES ON CENTER. WHERE THE ULTIMATE DESIGN WIND SPEED IS GREATER THAN 130 MPH, NAILS FOR ATTACHING PANEL ROOF SHEATHING TO INTERMEDIATE SUPPORTS SHALL BE SPACED 6 INCHES ON CENTER FOR MINIMUM 48–INCH DISTANCE FROM RIDGES, EAVES AND GABLE END WALLS; AND 4 INCHES ON CENTER TO GABLE END WALL FRAMING.
g. GYPSUM SHEATHING SHALL CONFORM TO ASTM C1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C208.
h. SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING AND AT ALL FLOOR PERIMETERS ONLY. SPACING OF FASTENERS ON ROOF SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING. BLOCKING OF ROOF OR FLOOR SHEATHING PANEL EDGES PERPENDICULAR TO THE FRAMING MEMBERS NEED NOT BE PROVIDED EXCEPT AS REQUIRED BY OTHER PROVISIONS OF THIS CODE. FLOOR PERIMETER SHALL BE SUPPORTED BY FRAMING MEMBERS OR SOLID BLOCKING.
i. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE, PROVIDE TWO TOE NAILS ON ONE SIDE OF THE RAFTER AND TOE NAILS FROM THE CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED.
j. INTERIOR NON–BRACED WALL LINES MAY BE NAILED WITH A MINIMUM 4–10d NAILS.

OSSC - 2304.9.5.1 FASTENERS AND CONNECTORS FOR PRESERVATIVE-TREATED WOOD.

Fasteners, including nuts and washers, in contact with preservative–treated wood shall be of hot–dipped zinc–coated galvanized steel, stainless steel, silicon bronze or copper. Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc–coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum. Connectors that are used in exterior applications and in contact with preservative–treated wood shall have coating types and weights in accordance with the treated wood or connector manufacturer's recommendations. In the absence of manufacturer's recommendations, a minimum of ASTM A 653, type G185 zinc–coated galvanized steel, or equivalent, shall be used.

Exception: Plain carbon steel fasteners, including nuts and washers, in SBX/DOT and zinc borate preservative–treated wood in an interior, dry environment shall be permited.

TABLE R602.3 (2) ALTERNATE ATTACHMENTS TO TABLE R602.3(1)

NOMINAL MATERIAL THICKNESS (INCHES)	DESCRIPTION [a,b] OF FASTENER AND LENGTH (INCHES)	SPACING [c] OF FASTENERS: EDGES (INCHES)	SPACING [c] OF FASTENERS: INTERMEDIATE SUPPORTS (INCHES)
WOOD STRUCTURAL PANELS SUBFLOOR, ROOF [g] AND WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING [f]			
UP TO 1/2	STAPLE 15 GAGE 1 3/4	4	8
	0.097 – 0.099 NAIL 2 1/4	3	6
	STAPLE 16 GAGE 1 3/4	3	6
19/32 AND 5/8	0.113 NAIL 2	3	6
	STAPLE 15 AND 16 GAGE 2	4	8
	0.097 – 0.099 NAIL 2 1/4	4	8
23/32 AND 3/4	STAPLE 14 GAGE 2	4	8
	STAPLE 15 GAGE 1 3/4	3	6
	0.097 – 0.099 NAIL 2 1/4	4	8
	STAPLE 16 GAGE 2	4	8
1	STAPLE 14 GAGE 2 1/4	4	8
	0.113 NAIL 2 1/4,	3	6
	STAPLE 15 GAGE 2 1/4	4	8
	0.097 – 0.099 NAIL 2 1/2	4	8
NOMINAL MATERIAL THICKNESS (INCHES)	**DESCRIPTION [a,b] OF FASTENER AND LENGTH (INCHES)**	**SPACING [c] OF FASTENERS: EDGES (INCHES)**	**SPACING [c] OF FASTENERS: BODY OF PANEL [d] (INCHES)**
FLOOR UNDERLAYMENT; PLYWOOD–HARDBOARD–PARTICLEBOARD [f] – FIBER– CEMENT [h]			
FIBER– CEMENT			
1/4	3d, CORROSION–RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)	3	6
	STAPLE 18 GAGE., 7/8, LONG, 1/4 CROWN (FINISHED FLOORING OTHER THAN TILE)	3	6
	1–1/4 LONG x.121 SHANK x.375 HEAD DIAMETER CORROSION–RESISTANT (GALVANIZED OR STAILESS STEEL) ROOFING NAILS (FOR TILE FINISH)	8	8
	1–1/4 LONG, No. 8 x .375 HEAD DIAMETER, RIBBED WAFER–HEAD SCREWS (FOR TILE FINISH)	8	8
PLYWOOD			
1/4 AND 5/16	1 1/4 RING OR SCREW SHANK NAIL – MINIMUM 12 1/2 GAGE (0.099") SHANK DIAMETER	3	6
	STAPLE 18 GAGE., 7/8, 3/16 CROWN WIDTH	2	5
11/32, 3/8, 15/32 AND 1/2	1 1/4 RING OR SCREW SHANK NAIL – MINIMUM 12 1/2 GAGE (0.099") SHANK DIAMETER	6	8 [e]
19/32, 5/8, 23/32 AND 3/4	1 1/2 RING OR SCREW SHANK NAIL – MINIMUM 12 1/2 GAGE (0.099") SHANK DIAMETER	6	8
	STAPLE 16 GAGE, 1 1/2	6	8
HARDBOARD [f]			
0.200	1 1/2 LONG RING–GROOVED UNDERLAYMENT NAIL	6	6
	4d CEMENT–COATED SINKER NAIL	6	6
	STAPLE 18 GAGE, 7/8 LONG (PLASTIC COATED)	3	6
PARTICLEBOARD			
1/4	4d RING–GROOVED UNDERLAYMENT NAIL	3	6
	STAPLE 18 GAGE, 7/8 LONG, 3/16 CROWN	3	6
3/8	6d RING–GROOVED UNDERLAYMENT NAIL	6	10
	STAPLE 16 GAGE, 1 1/8 LONG, 3/8 CROWN	3	6
1/2, 5/8	6d RING–GROOVED UNDERLAYMENT NAIL	6	10
	STAPLE 16 GAGE, 1 5/8 LONG, 3/8 CROWN	3	6

TABLE R602.3(2) ALTERNATE ATTACHMENTS TO TABLE R602.3(1) - CONTINUE

FOR **SI**: 1 INCH = 25.4mm
a. NAIL IS A GENERAL DESCRIPTION AND SHALL BE PERMITTED TO BE T–HEAD, MODIFIED ROUND HEAD OR ROUND HEAD.
b. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16–INCH ON DIAMETER EXCEPT AS NOTED.
c. NAILS OR STAPLES SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER. NAILS OR STAPLES SHALL BE SPACED AT NOT MORE THAN 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR FLOORS.
d. FASTENERS SHALL BE PLACED IN A GRID PATTERN THROUGHOUT THE BODY OF THE PANEL.
e. FOR 5–PLY PANELS, INTERMEDIATE NAILS SHALL BE SPACED NOT MORE THAN 12 INCHES ON CENTER EACH WAY.
f. HARDBOARD UNDERLAYMENT SHALL CONFORM TO CPA/ANSI A135.4.
g. SPECIFIED ALTERNATE ATTACHMENTS FOR ROOF SHEATHING SHALL BE PERMITED WHERE THE ULTIMATE DESIGN WIND SPEED IS LESS THAN 130 MPH. FASTENERS ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL FRAMING SHALL BE INSTALLED USING THE SPACING LISTED FOR PANEL EDGES.
h. FIBER–CEMENT UNDERLAYMENT SHALL CONFORM TO ASTM C1288 OR ISO 8336, CATEGORY C.

TABLE N1101.1(2) ADDITIONAL MEASURES

Envelope Enhancement Measure (Select One)	1	**High efficiency walls:** Exterior walls – U–0.045/R–21 cavity insulation + R–5 continuous
	2	**Upgraded features:** Exterior walls – U–0.057/R–23 intermediate or R–21 advanced, Framed Floors – U–0.026/R–38, and Windows – U–0.28 (average UA)
	3	**Upgraded features:** Exterior wall – U–0.055/R–23 intermediate or R–21 advanced, Flat ceilings [e] – U–0.017/R–60, and Framed floors – U–0.026/R–38
	4	**Super Insulated Windows and Attic OR Framed Floors:** Windows – U–0.22 (Triple pane Low–e), and Flat ceilings [e] – U–0.017/R–60 or Framed floors – U–0.026/R–38
	(5)	**Air sealing home and ducts:** Mandatory air sealing of all wall coverings at top plate and air sealing checklist [f], and Mechanical whole building ventilation system with rates meeting M1503 or ASHRAE 62.2, and ~~All ducts and air handlers contained within building envelope [d] or~~ All ducts sealed with mastic [b]
	6	**High efficiency thermal envelope UA:** [g] Proposed UA is 8% lower than the code UA
Conservation Measure (Select One)	(A)	**High efficiency HVAC system:** [a] Gas–fired furnace or boiler with minimum AFUE of 94%, or Air source heat pump HSPF 9.5/15.0 SEER cooling, or ~~Ground source heat pump COP 3.5 or~~ Energy Star rated
	B	**Ducted HVAC systems within conditioned space:** All ducts and air handlers contained within building envelope [d] Cannot be combined with measure 5
	C	**Ductless heat pump:** Ductless heat pump HSPF 10.0 in primary zone of dwelling
	D	**High efficiency water heater:** [c] Natural gas/propane water heater with UEF 0.85 OR Electric heat pump water heater Tier 1 Northern Climate Specification Product

- For SI: 1 SQUARE foot = 0.093 m3, 1 WATT PER SQUARE FOOT = 10.8w/M2

a. Appliances located within the building thermal envelope shall have sealed combustion air installed. Combustion air shall be ducted directly from the outdoors.
b. All duct joints and seams sealed with listed mastic; tape is only allowed at appliance or equipment connections (for service and replacement). Meet sealing criteria of Performance Tested Comfort Systems program administered by the Bonneville Power Administration (BPA).
c. Residential water heaters less than 55 galon storage volume.
d. A total of 5 percent of an HVAC system's ductwork shall be permitted to be located outside of the conditioned space. Ducts located outside the conditioned space shall have insulation installed as required in this code.
e. The maximun vaulted ceiling surface area shall not be greater than 50 percent of the total heated space floor area unless vaulted area has a U–factor no greater than U–0.026.
f. Continuous air barrier. Additional requirement for sealing of all interior vertical wall covering to top plate framing. Sealing with foam gasket, caulk or other approved sealant listed for sealing wall covering material to structural material (example: gypsum board to wood stud framing).
g Table N1104.1(1) Standard base case design, Code UA shall be at least 8 percent less than the Proposed UA. Buildings with fenestration less than 15 percent of the total vertical wall area may adjust the Code UA to have 15 percent of the wall area as fenestration.

GENERAL NOTES AND SPECIFICATIONS

DATE: 7-16-2020

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