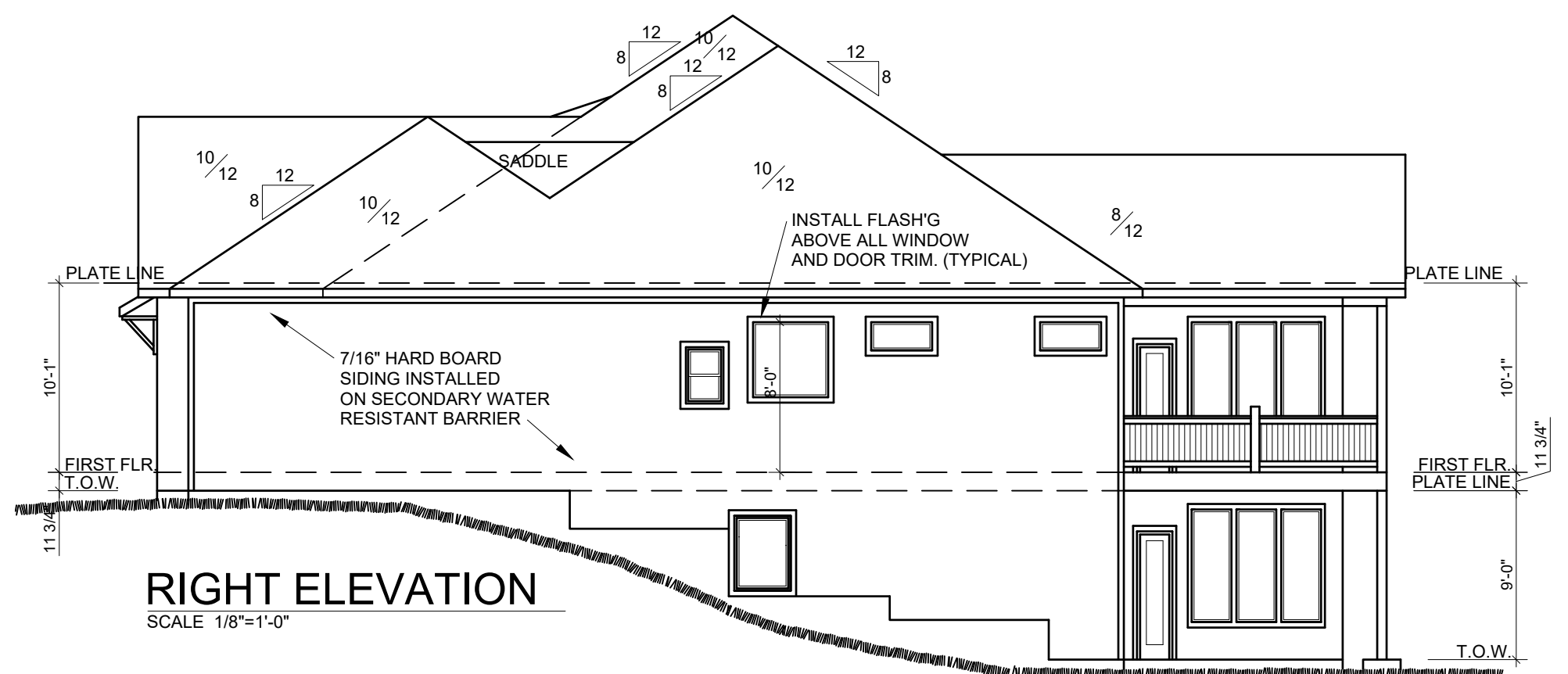
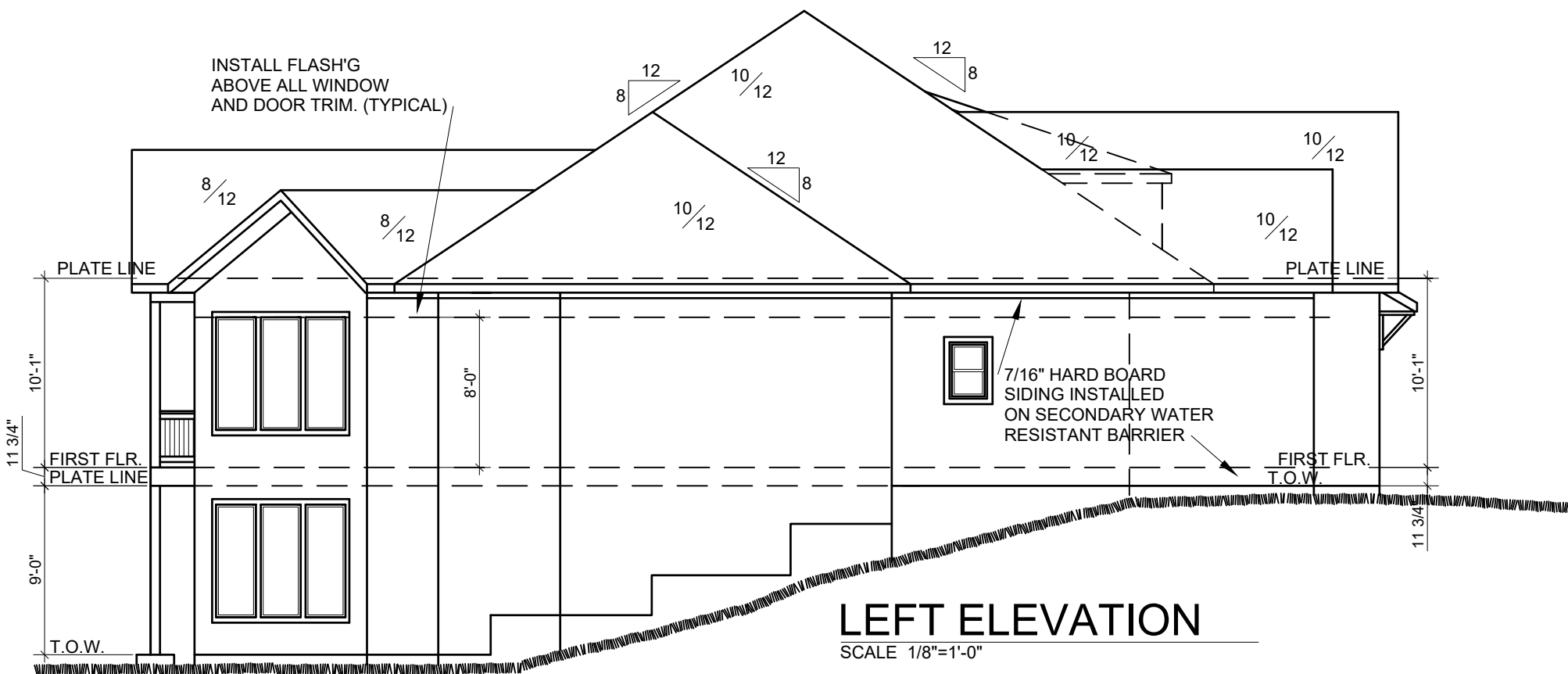


MARSHALL HOME DESIGN

"BUILDERS PLANS DEFINITION"
THE TERM "BUILDERS PLAN" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS, AS THE NAME IMPLIES. THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION. THE CONTRACTOR WARRANTS TO MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS, THAT THEY POSSESS THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND ARCHITECTURAL DESIGN SERVICES, AND FOR THAT REASON THE CONTRACTOR OR HOME OWNER HAS RESTRICTED THE SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TERMED "BUILDERS PLANS" IN RECOGNITION OF THE CONTRACTORS SOPHISTICATION. ALTHOUGH MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, WE CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO MARSHALL HOME DESIGN, LLC. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER PLANS" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUALITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES. IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED BY THE CONTRACTOR OR HOMEOWNER FOR THE CONSTRUCTION OF ANY ASPECT OF THE PROJECT MARSHALL HOME DESIGN, LLC OR A QUALIFIED ARCHITECT OR ENGINEER SHALL IMMEDIATELY BE RETAINED. FAILURE TO NOTIFY MARSHALL HOME DESIGN, LLC OF THESE NEEDS, OR OF CHANGES TO THE PLANS, SHALL RELIEVE MARSHALL HOME DESIGN, LLC, AND ITS CONSULTANTS OF ALL RESPONSIBILITIES OF THE CONSEQUENCES. STRUCTURAL DESIGN, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.

STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)
- = BEARING WALL
- = 4'-0" LONG PANEL UNO



1. THIS IS AN ENGINEERED ROOF STRUCTURE DESIGNED FOR COMPLIANCE WITH IRC 802.3, BUILD AS SHOWN WITH NO DEVIATIONS.
2. ALL HIPPS ARE DESIGNED TO BE CONTROLLED BY BENDING.
3. SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN. FOR VALLEYS REF 4/S3.2

ROOF FRAMING NOTES

ROOF DESIGNED FOR LIGHT ROOF COVERING
30psf TOTAL LOAD [10psf DL, 20psf LL (SL)]
**THIS IS AN ENGINEERED ROOF STRUCTURE DESIGNED
FOR COMPLIANCE WITH IRC 802.3, BUILD AS SHOWN
WITH NO DEVIATIONS

ROOF SYSTEM IS DESIGNED TO MEET REQUIREMENTS OF
IRC 802

*RAFTERS (HEM-FIR, DOUG-FIR, OR EQUAL):
SEE SPAN CHARTS BELOW

CODE MINIMUM		
RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	11'-7"
#2-2x6	AT 16" OC	14'-2"
#2-2x8	AT 24" OC	14'-8"
#2-2x8	AT 16" OC	17'-11"
#2-2x10	AT 24" OC	17'-10"
#2-2x10	AT 16" OC	21'-11"

NOTE: CODE MINIMUM ALLOWS FOR A RAFTER DEFLECTION OF L/180 TOTAL LOAD

HIGHER PERFORMANCE

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	8'-6"
#2-2x6	AT 16" OC	9'-9"
#2-2x8	AT 24" OC	11'-3"
#2-2x8	AT 16" OC	12'-9"
#2-2x10	AT 24" OC	14'-3"
#2-2x10	AT 16" OC	16'-3"

APEX ENGINEERS, INC. RECOMMENDED DEFLECTION = L/240 LIVE LOAD, L/240 TOTAL LOAD

*RIDGE BOARDS ARE (UNLESS OTHERWISE NOTED)
#2-2x10 UP TO 8-12 PITCH
#2-2x12 OVER 8-12 PITCH

*ALL HIPPS AND VALLEYS ARE (UNLESS OTHERWISE NOTED)
#2-2x10 UP TO 8-12 PITCH
#2-2x12 OVER 8-12 PITCH

*PURLINS ARE 2x6 MIN

- PURLIN STRUTS ARE AT 4'-0" OC
- PURLIN STRUTS SHALL BE INSTALLED AT NOT LESS THAN A 45 DEGREE ANGLE WITH THE HORIZONTAL
- ALL PURLIN STRUTS SHALL HAVE A MAX UNBRACED LENGTH OF 8'-0"
- PURLIN STRUTS SHALL BE CONSTRUCTED IN A 1" CONFIGURATION AND PER THE FOLLOWING CHART:

PURLIN STRUT	MAX PURLIN STRUT LENGTH
(2)2x4	8'-0"
(1)2x4 AND (1)2x6	12'-0"
(1)2x6 AND (1)2x8	20'-0"
(2)2x6 AND (1)2x8	30'-0"
CONSULT ARCH ENGR	>30'-0"

*EACH END OF STRUT SHALL BE FASTENED WITH MIN (3)#4 OR (2)#6 NAILS

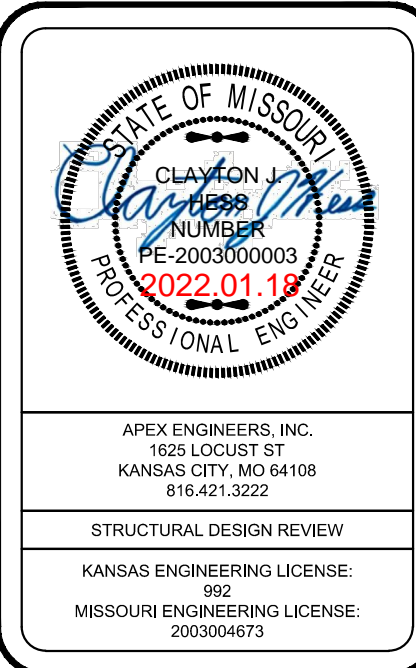
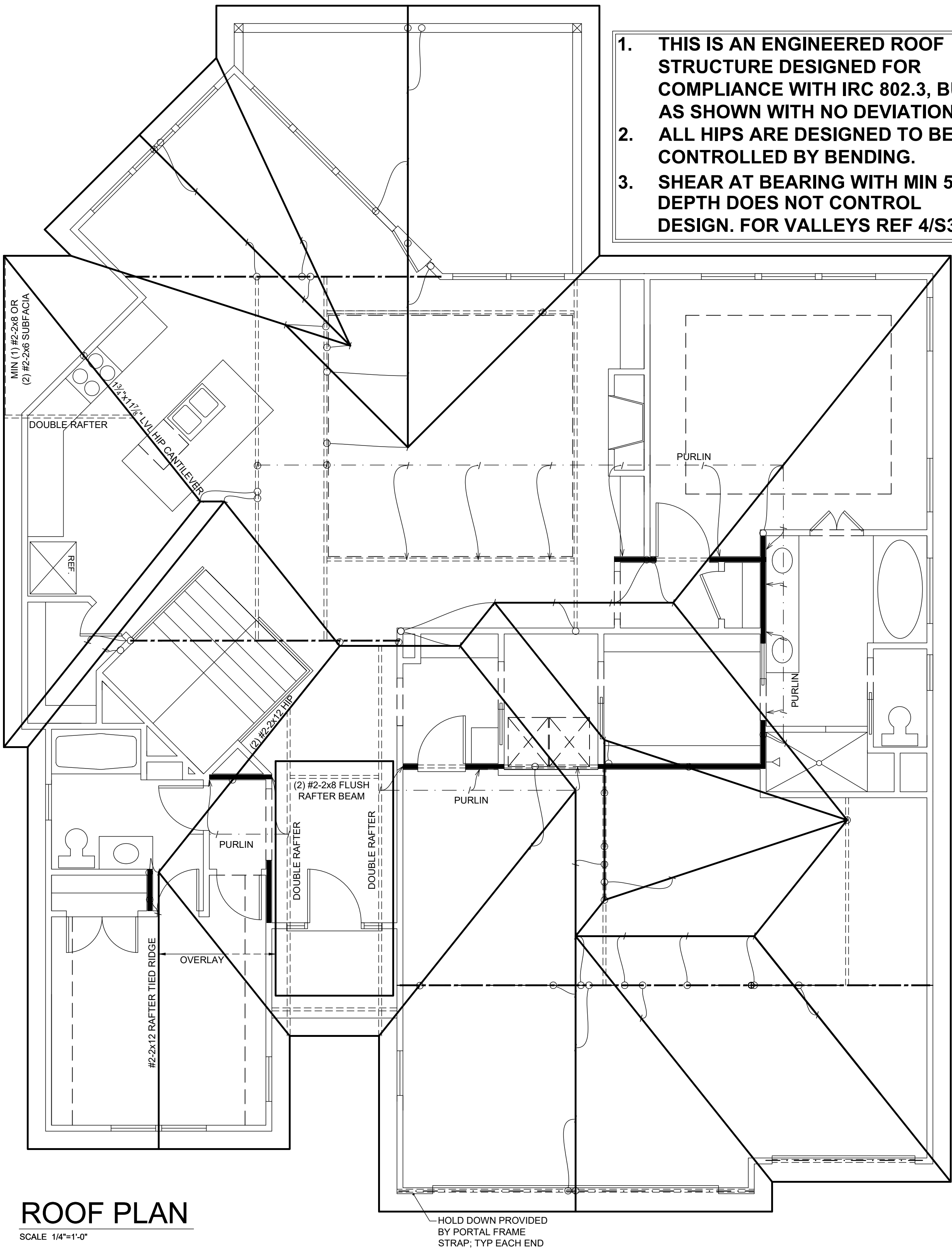
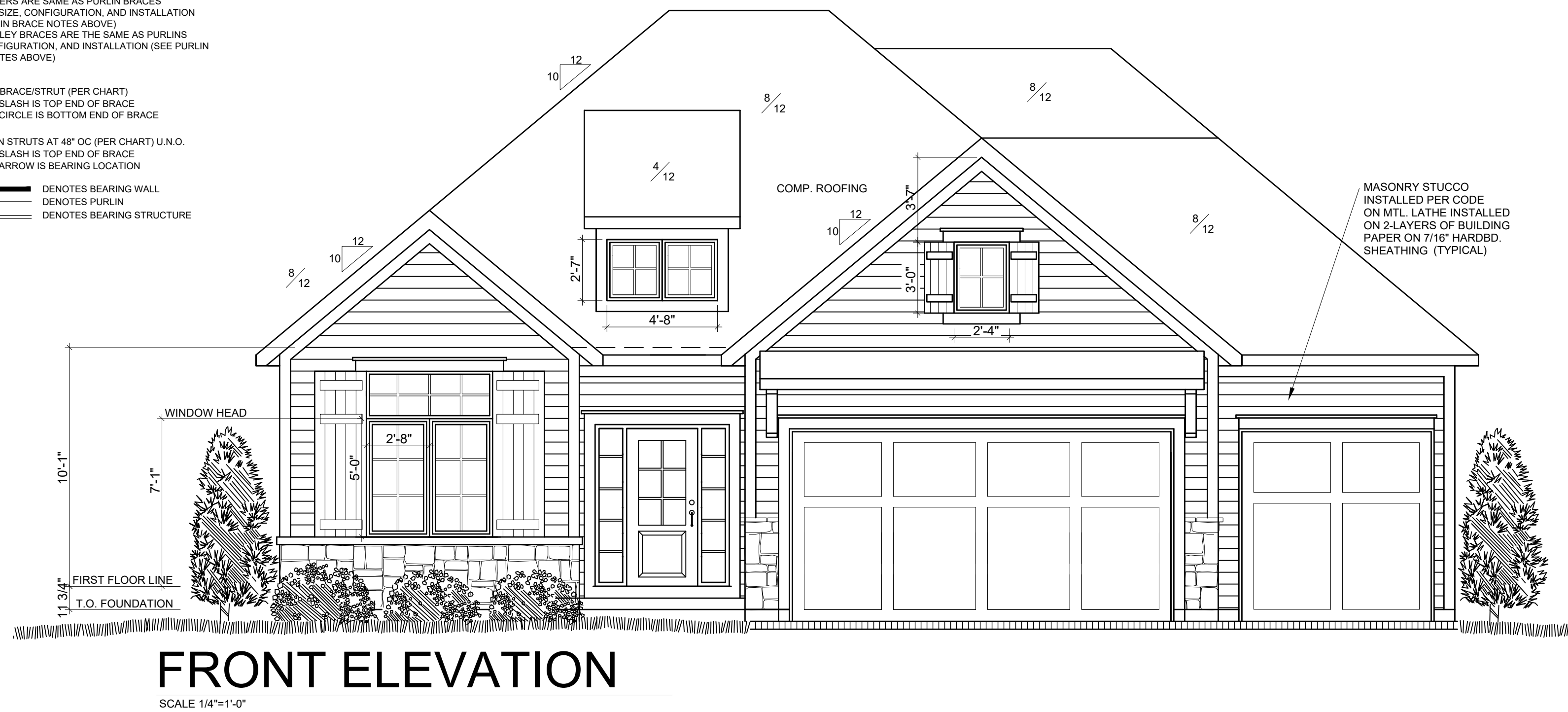
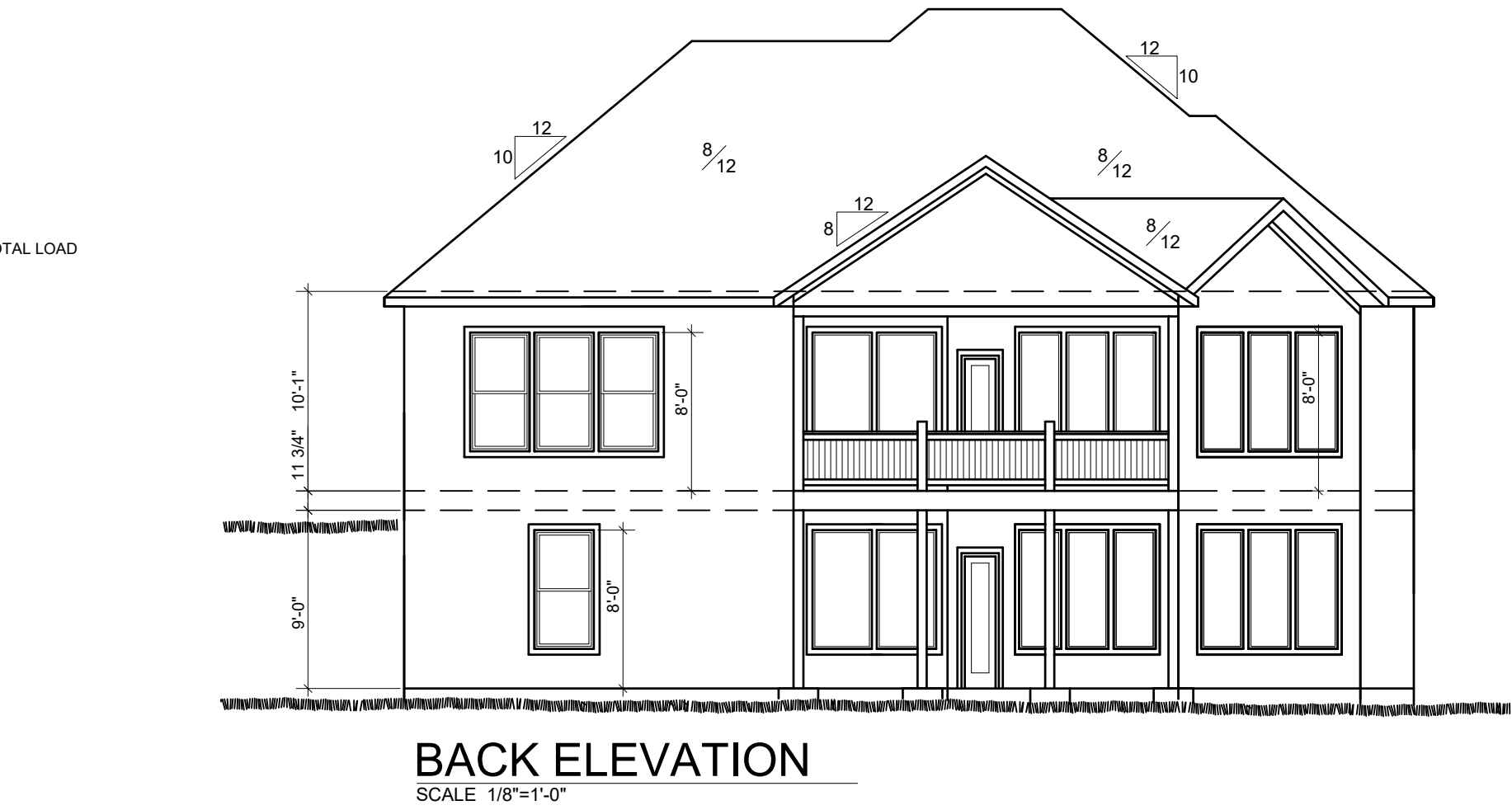
*RIDGE BRACERS ARE SAME AS PURLIN BRACES

SPACING, SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

*HIP AND VALLEY BRACES ARE THE SAME AS PURLINS

SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

- = ROOF BRACE/STRUT (PER CHART)
- SLASH IS TOP END OF BRACE
- CIRCLE IS BOTTOM END OF BRACE
- = PURLIN STRUTS AT 48" OC (PER CHART) U.O.
- SLASH IS TOP END OF BRACE
- ARROW IS BEARING LOCATION
- DENOTES BEARING WALL
- DENOTES BEARING STRUCTURE



HOMEBUILDER:
ASPEN HOMES
6618 ROYAL ST., PLEASANT VALLEY, MO. 64068
RESIDENTIAL DESIGN BY:

LEYLAND
Lot 64 Hook Farms
2042 SW Red Barn Rd
Lee's Summit, MO 64082

MARSHALL HOME DESIGN, LLC.
1723 N.W. 57th COURT, KANSAS CITY, MO. 64151

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MARSHALL HOME DESIGN

"BUILDERS PLANS DEFINITION"

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BRACED WALL METHODOLOGY
CONTINUOUS EXTERIOR SHEATHING PER WSP METHOD (BELOW)
UNLESS OTHERWISE NOTED ON THE PLAN

XXXX EXTERIOR BRACED WALLS:

WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 1/4" WITH MINIMUM SPAN RATING OF 24/0 FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.
(NOTE: FRAMING MEMBERS 16" OC MAX UNLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

///// INTERIOR BRACED WALLS (REF 2-S4.0):

GB METHOD: 1/2" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - 1 1/2" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)

OR

LIB METHOD: 1x4 WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUAL) STL. X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

XXXX = EXTERIOR BRACED WALLS

///// = INTERIOR BRACED WALLS (REF 2/S4.0)

EC = END CONDITON (REF 3/S3.1 FOR CONTINUOUS SHEATHED BRACED WALL END CONDITIONS)

COLUMN & PIER PAD SCHEDULE (REF. 5/S2.0)

COLUMN MARK	PAD SIZE	REINFORCEMENT	COLUMN SIZE	COLUMN TYPE
A	30" x 30" x 12"	(4) #4 BAR E.W.	3" DIA.	SCHEDULE 40 STEEL PIPE (Fy = 36 ksi MIN.)
B	36" x 36" x 12"	(4) #4 BAR E.W.	3" DIA.	
C	42" x 42" x 12"	(5) #4 BAR E.W.	3" DIA.	
D	48" x 48" x 12"	(6) #4 BAR E.W.	3" DIA.	
E	54" x 54" x 16"	(8) #4 BAR E.W.	3 1/2" DIA.	
F	60" x 60" x 16"	(10) #4 BAR E.W.	3 1/2" DIA.	

- COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0". REQUIRES SEPARATE ENGR'D DESIGN IF GREATER THAN 10'-0" TALL.
- COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2000psf.

MARK	COLUMN SIZE	PIER DIA.
A	6x6	12"
B	6x6	16"
C	6x6	18"
K	6x6	24"
L	6x6	28"

- ALL PIERS TO BEAR ON ORIGINAL UNDISTURBED SOIL OF 2000psf BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.
- PIERS SHALL EXTEND BELOW THE FROST LINE, MIN. DEPTH OF 36" BELOW GRADE.
- POST SHALL BE TREATED OR CEDAR WITH SIMPSON ABU66 POST BASE.

DETAIL REFERENCES

- 1 S2.0 TYPICAL FOUNDATION WALL DETAIL
- 2 S2.0 TYPICAL "UNRESTRAINED" FOUNDATION WALL DETAIL
- 3 S2.0 TYPICAL DEAD MAN DETAIL
- 4 S2.0 FOUNDATION WALL JUMP DETAIL
- 5 S2.0 COLUMN PAD DETAIL
- 1 S2.1 TYPICAL STRUCTURAL GARAGE SLAB PLAN
- 2 S2.1 STRUCTURAL GARAGE SLAB PIER PAD DETAIL
- 3 S2.1 STRUCTURAL GARAGE SLAB / WALL SECTION
- 6 S2.1 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB
- 1 S4.0 ALTERNATE BRACED WALL PANEL DETAIL
- 1 S4.0 APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS ALT.
- A COLUMN AND PIER PAD SCHEDULE (SHEET S2.0)

EXPANSIVE SOILS DISCLAIMER:

THESE PLANS HAVE BEEN PREPARED BASED ON A PRESUMPTIVE ALLOWABLE BEARING CAPACITY AS ALLOWED BY IRC CODE AND THE LOCAL ENFORCING JURISDICTION.

APEX ENGINEERS, INC. (APEX) RECOMMENDS THAT ALL FOOTING EXCAVATIONS BE EVALUATED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOUNDATION ELEMENTS. GEOTECHNICAL INVESTIGATION AND/OR TESTING IS NOT A SERVICE PROVIDED OR OFFERED BY APEX.

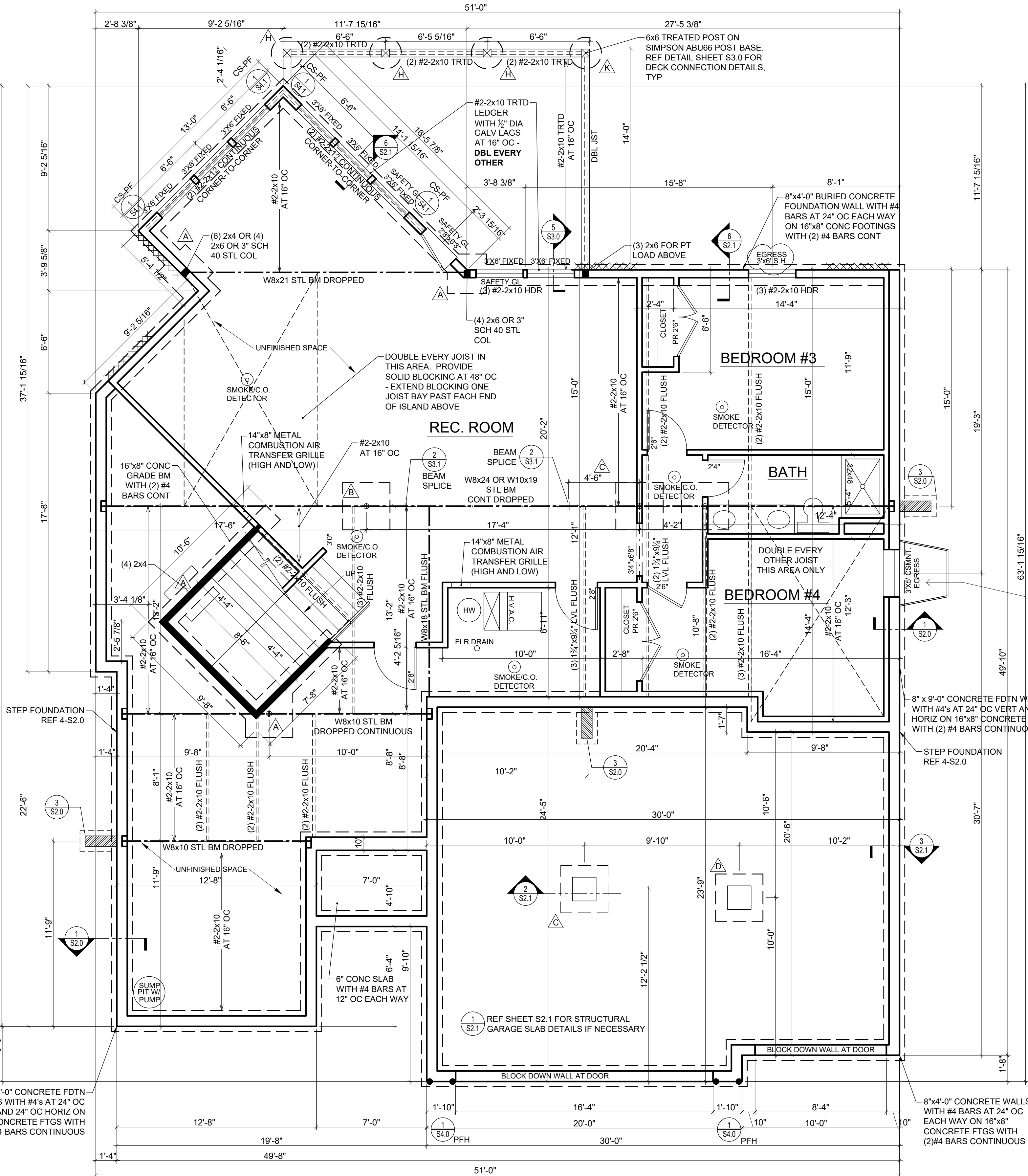
APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING BELOW THE BASEMENT SLAB). BY USE OF THESE PLANS WITHOUT AN ACCOMPANYING GEOTECHNICAL ENGINEERING REPORT, APEX SHALL NOT BE HELD LIABLE FOR ANY FUTURE MOVEMENT AND/OR DIFFERENTIAL MOVEMENT OF THE PROPOSED STRUCTURE AND THE POSSIBLE DAMAGE THAT MAY BE CAUSED AS A RESULT OF SUCH MOVEMENT. DAMAGE FROM EXPANSIVE SOILS AND/OR SETTLEMENT CAN RESULT IN AMONGST OTHER THINGS, THE FOLLOWING: BASEMENT SLAB HEAVE, SHEETROCK CRACKS, WINDOWS AND DOOR BECOMING OUT OF PLUMB AND STICKING AND/OR NOT OPENING, DAMAGE TO TILE, MOULDING, AND OTHER COSMETIC FINISHES.

STRUCTURAL NOTES:

- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL. (OR EQ.)
- ■■■■■ = BEARING WALL
- XXXXXXXXXX = 4'-0" LONG PANEL, UNO

FOUNDATION PLAN

SCALE 1/4"=1'-0"



LEYLAND

Lot 64 Hook Farms
2042 SW Red Barn Rd
Lee's Summit, MO 64082

HOMEBUILDER:
ASPEN HOMES

6618 ROYAL ST., PLEASANT VALLEY, MO. 64068
RESIDENTIAL DESIGN BY:

MARSHALL HOME DESIGN, LLC.

1723 N.W. 57th COURT, KANSAS CITY, MO. 64151

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MARSHALL HOME DESIGN
9-15-16

PLAN NO.:
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RELEASE FOR CONSTRUCTION
AS NOTED FOR PLAN REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

01/19/2022

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STRUCTURAL DESIGN, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.

XXXX EXTERIOR BRACED WALLS

WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN $\frac{3}{8}$ " WITH MINIMUM SPAN RATING OF 24/0 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN $\frac{1}{8}$ " WITH MINIMUM SPAN RATING OF $\frac{24}{16}$ FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.

(NOTE: FRAMING MEMBERS 16" OC MAX UNBLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

//// INTERIOR BRACED WALLS (REF 2-S4.0):

GB METHOD: 1/2" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - 1 1/4" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)



OF

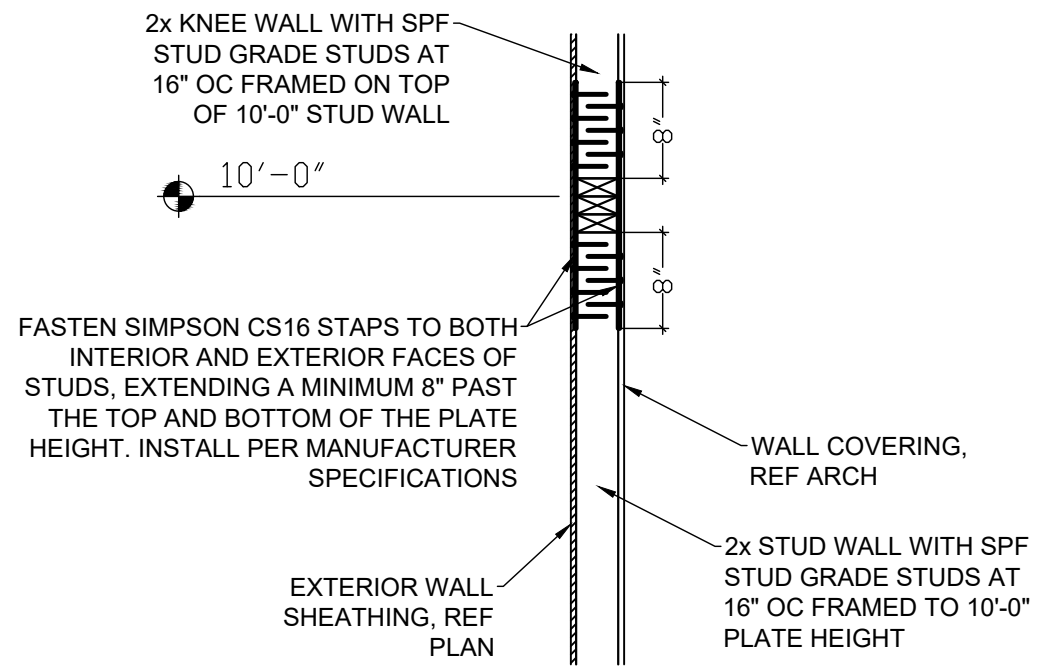
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XXXX = EXTERIOR BRACED WALLS

///// = INTERIOR BRACED WALLS (REF 2/S4.0)

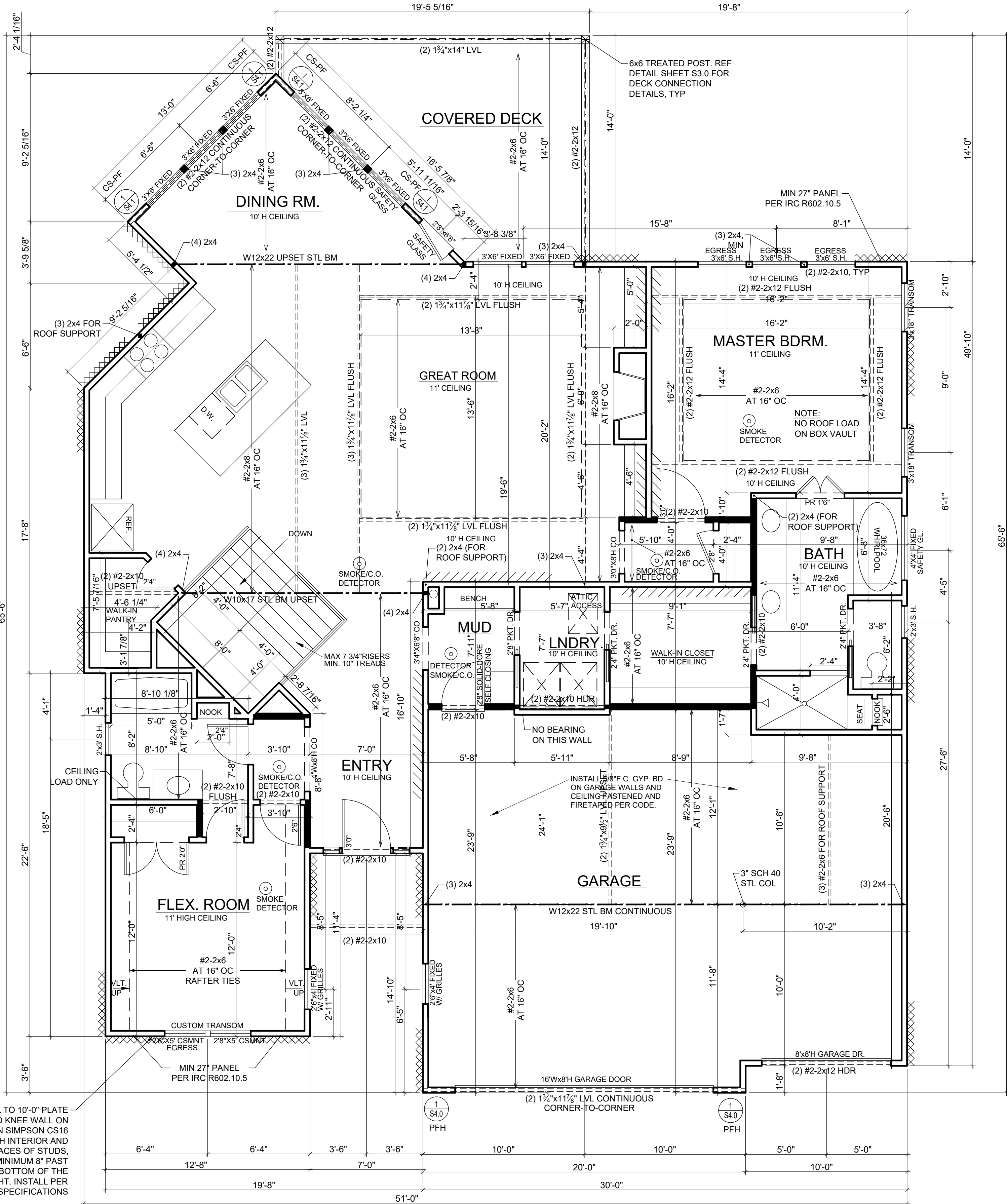
EC = END CONDITON (REF 3/S3.1 FOR
CONTINUOUS SHEATHED BRACED WALL END
CONDITONS

STRUCTURAL NOTES:
 - ALL UNMARKED HEADERS MIN (2)#2-2x10
 - ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
 -  = BEARING WALL
 -  = 4'-0" LONG PANEL, UNO

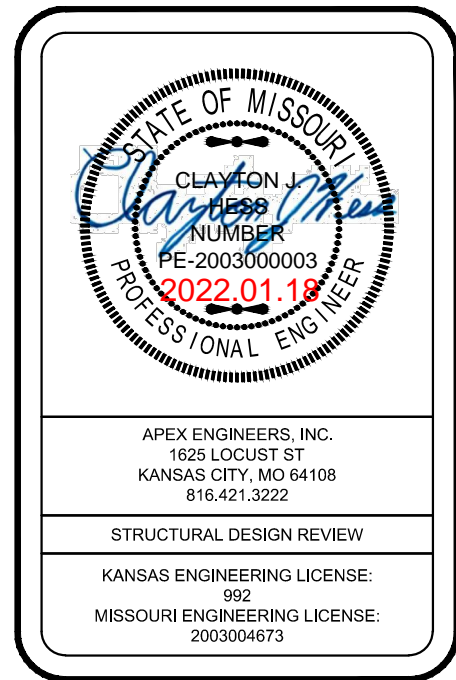


WALL FRAMING OVER 10'-0"
SCALE $\frac{3}{4}" = 1'-0"$

SCALE 1/4"=1'-0"



676 SF GARAGE
204 SF COVERED DECK
35 SF FRONT STOOP
1004 SF UNFINISHED BASEMENT



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BUILDING COMPONENT	MATERIAL	FASTENING
ROOF SHEATHING ¹	7/16" PLYWOOD 1x4 #3 FURRING	16 GA X 1-3/4" STAPLES AT 3" OC EDGES AND 6" OC IN FIELD 1/2" CROWN STAPLES
FLOOR SHEATHING ¹	3/4" T&G YELLOW PINE PLYWOOD APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED	8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD 14 GA X 2" STAPLES AT 4" OC EDGES AND 8" OC IN THE FIELD 12.5 GA X 1-1/2" RING OR SCREW SHANK NAILS AT 6" OC EDGES AND 8" OC IN THE FIELD
CEILING COVERING ¹	1/2" GYPSUM SHEATHING	7" OC NAILED / 12" OC SCREWED WITH 13 GA, 1-3/8" LONG, 19/64" HEAD; 0.098 DIA, 1-1/4" LONG, ANGLE-RINGED; 5d COOLER NAIL, 0.086 DIA, 1-5/8" LONG, 19/64" HEAD; OR GYP BD NAIL, 0.086 DIA, 1-5/8" LONG, 9/32" HEAD
INTERIOR WALL COVERING ¹	1/2" GYPSUM SHEATHING	6d COMMON NAILS: 1-5/8" GALVANIZED STAPLES; 1-1/4" SCREWS, TYPE W OR S; AT 4" OC EDGES AND 8" OC IN THE FIELD
EXTERIOR WALL SHEATHING	MIN 3/8" APA RATED SHEATHING	8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD
CONVENTIONAL WOOD FRAMED WALLS	*SUPPORTING 2 FLOORS, ROOF, AND CEILING OR LESS. *HEIGHT: 10'-0" OR LESS SIZE: NOM 2x4 (NOM 2x6 WHEN SUPPORTING 2 FLOORS, CEILING, AND ROOF) *SPECIES: DOUG-FIR, HEM-FIR, SOUTH PINE, SPRUCE-PINE-FIR *MAXIMUM SPACING 16" OC *STUDS 10' LENGTH OR LESS SHALL BE #3 STANDARD, OR STUD GRADE *STUDS OVER 10' LENGTH SHALL BE MIN #2 GRADE	*TOE NAIL RIM JOIST TO SILL OR TOP PLATE: 8d COMMON AT 6" OC; 3"x0, 3"x10 AT 6" OC; 3"x0, 3"x10 AT 6" OC *TOE NAIL STUD TO TOP AND SOLE PLATE: (1) 8d COMMON; (4) 3"x0, 3"x10 *END NAIL TOP AND SOLE PLATE TO STUD: (2) 16d COMMON; (3) 3"x0, 3"x10 *FACE NAIL BUILT-UP CORNER STUDS AT BRACED WALL PANEL: 16d COMMON AT 16" OC; 3"x0, 3"x10 AT 12" OC *FACE NAIL BUILT-UP CORNER STUDS AT BRACED WALL PANEL: 16d COMMON NAILS AT 16" OC; 3"x0, 3"x10 AT 12" OC *FACE NAIL JACK STUDS/TRIMMERS SUPPORTING HEADERS WITH: 16d NAILS AT 6" OC *FACE NAIL DBL TOP PLATE: 16d COMMON AT 16" OC; 3"x0, 3"x10 AT 12" OC; 3"x0, 12" AT 12" OC *DBL TOP PLATES WITH MIN 48" OFFSET OF EACH FACE NAIL LAPPED AREA WITH: (8) 16d COMMON; (12) 3"x0, 3"x10; (12) 3"x0, 12" AT 12" OC *FACE NAIL DBL TOP PLATE AT LAPPED CORNERS AND INTERSECTIONS WITH: (2) 16d COMMON; (3) 3"x0, 3"x10; (3) 3"x0, 12" AT 12" OC *FACE NAIL SOLE PLATE TO FRAMING SYSTEM WITH: 16d COMMON AT 16" OC; 3"x0, 3"x10 AT 12" OC *TOENAIL BRIDGING TO JOIST: EACH END: (2) 8d COMMON; (2) 3"x0, 3"x10; (3) 3"x0, 12" AT 12" OC *FACE NAIL LEDGER STRIPS SUPPORTING JOISTS OR RAFTERS WITH: (3) 16d COMMON; (4) 3"x0, 3"x10; (4) 3"x0, 12" AT 12" OC
CONVENTIONAL WOOD HEADER FRAMING	PER PLAN	*TOE NAIL HEADERS TO WALL STUDS WITH (4) 8d NAILS AT EACH END. *FACE NAIL DOUBLE PIECE HEADERS WITH 16d NAILS AT 16" CENTERS ALONG EACH EDGE.
RAFTER TIES ²	MIN 2x4 MEMBERS AT EACH RAFTER	REF TABLE R802.5.2
COLLAR TIES	MIN 1x4 MEMBERS AT 48" OC	FACENAIL TO RAFTERS IN UPPER 1/3 OF ATTIC SPACE WITH 16d NAILS AT EACH
1. NOTE: ALL SHEATHING MATERIALS TO BE APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED. 2. RAFTER TIES SHALL NOT BE REQUIRED WHEN A STRUCTURAL RIDGE HAS BEEN PROVIDED AND ADEQUATELY DESIGNED (AS IN A FULLY VAULTED ROOM). SUCH SHALL BE NOTED AS "STRUCTURAL" ON THE PLAN.		
BUILDING COMPONENT	FASTEN TO	FASTEN WITH
RAFTERS	TO RIDGE/VALLEY/HIP RAFTERS	TOENAIL WITH (3) 16d ENDNAIL WITH (2) 16d
	TO PLATE	TOENAIL WITH (2) 16d
CEILING JOISTS	TO TOP PLATE WHERE CEILING JOISTS RUN PARALLEL TO RAFTERS FACENAIL TO RAFTERS WITH (3) 16d MIN.	TOENAIL WITH (3) 8d AT EACH END
FLOOR JOISTS	TO SILL OR GIRDER TO RIM JOIST	TOENAIL WITH: (3) 8d COMMON; (3) 3"x0, 3"x10; (4) 3"x0, 12" AT 12" OC ENDNAIL WITH: (3) 16d COMMON; (4) 3"x0, 3"x10; (4) 3"x0, 12" AT 12" OC
BRACED WALL PANELS PERP TO FRAMING MEMBERS ABOVE/BELOW: PARALLEL TO FRAMING MEMBERS ABOVE/BELOW:	TO FRAMING MEMBER TO FRAMING AND BLOCKING AT 16" OC	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0, 3"x10 TOP PL, 6" OC WITH: 8d COMMON; 3"x0, 3"x10 SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0, 3"x10 AND AT EACH BLOCK: (3) 16d COMMON; (4) 3"x0, 3"x10 TOP PL, 6" OC WITH: 8d COMMON; 3"x0, 3"x10 AND AT EACH BLOCK: (3) 8d COMMON; 3"x0, 3"x10
NOTE: MEMBER THICKNESS AND FASTENING LISTED IN THIS SCHEDULE ARE MINIMUM IRC REQUIREMENTS. SPECIFIC PROJECT REQUIREMENTS NOTED WITHIN THE STRUCTURAL OR ARCHITECTURAL DRAWINGS, IF REQUIRED BY APEX ENGINEERS DESIGN NEEDING TO BE MORE STRINGENT, SHALL BE FOLLOWED.		

1. LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE IC-RATED, LEAKAGE RATED, AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER N1102.4.5
2. PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER N1103.1
3. AIR HANDLERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER N1103.3.2.1
4. BUILDING FRAMING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS PER N1103.3.5
5. HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER N1103.4
6. ALL EXHAUST FANS SHALL TERMINATE TO THE BUILDING EXTERIOR AS REQUIRED PER N1501.1
7. MAKEUP AIR SYSTEMS SHALL BE INSTALLED FOR KITCHEN EXHAUST HOODS THAT EXCEED 400 CFM AS REQUIRED PER M1503.6
8. AN AIR HANDLING SYSTEM SHALL NOT SERVE BOTH THE LIVING SPACE AND THE GARAGE PER M1601.6

THE ENERGY EFFICIENCY OF THE DWELLING SHALL COMPLY WITH THE FOLLOWING TABLE(S) (WHERE THERE ARE DISCREPANCIES BETWEEN THIS TABLE AND THE PLANS, THE MOST RESTRICTIVE SHALL APPLY). IF TABLE 1 IS NOT COMPLETED AND ACCOMPANIED BY RESCHECK CALCULATIONS, THEN TABLE 2 SHALL BE APPLIED.

BUILDING ELEMENT		MIN VALUE
WALLS - FRAMED		R-
WALLS - BASEMENT		R-
FLOORS - UNCONDITIONED SPACE		R-
FLOORS - OVER OUTSIDE AIR		R-
FLOORS - CRAWL SPACE		R-
SLAB - PERIMETER		R-
CEILING - FLAT		R-
CEILING - CATHEDRAL		R-
DOORS - GLASS		U-
DOORS - SOLID		U-
WINDOWS - OPERABLE		U-
WINDOWS - FIXED		U-
WINDOWS - OTHER		U-
FURNACE		AFUE-
AIR CONDITIONER		SEER-

NOTE: FOR USE OF TABLE 1 A ResCheck COMPLIANCE FORM MUST BE SUBMITTED WITH PLANS.

BUILDING ELEMENT		MIN VALUE
CEILING - FLAT		R-49
CEILING - CATHEDRAL**		R-30
CEILING - CATHEDRAL		R-38
FLOORS - UNCONDITIONED SPACED		R-19
FLOORS - OVER OUTSIDE AIR		R-30
WALLS - BASEMENT		R-10 (CONT) OR R-13 (CAVITY)
CONCRETE SLAB ON GRADE		R-10 (FOR 4" OR 2FT)
SKYLIGHTS		U<=0.55
WALLS - EXTERIOR (2x4)		R-13 (CAVITY) + R-5 (CONT)
WALLS - EXTERIOR (2x6)		R-20
WALLS - CRAWL SPACE		R-19
GLAZING*		U<=0.32
GLAZING*		SHGF<=0.40

NOTE:

TABLE 2 PER IRC TABLE N1102.1.2

*DEFAULT U-FACTOR FOR DOUBLE PANE, ARGON FILLED LOW-E TREATMENT IS U=0.35

**LIMITED TO AREAS LESS THAN 500 SQ-FT OR 20% OF CEILING AREA.

1. THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE PLANS FOR REVIEW BY THE BUILDING OFFICIAL. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN THE GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ARCHITECT OR ENGINEER OF RECORD HAS BEEN APPROVED BY THE BUILDING OFFICIAL. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITH A SPECIFIED PERIOD. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL.
2. DEFERRED SUBMITTAL ITEMS (WHEN APPLICABLE):
 - A. TRUSSES
 - B. I-JOISTS
 - C. GUARDRAILS AND HANDRAILS
 - D. STEEL FABRICATED STAIRS
 - E. PRE-MANUFACTURED CANOPIES AND AWNINGS
 - F. PRECAST HOLLOW CORE SLABS
 - G. GROUND IMPROVEMENT AND/OR STRUCTURAL FOUNDATION SOLUTIONS (SUCH AS DRILLED PIERS)

CONCRETE SHALL BE AIR ENTRAINED WITH A MINIMUM COMPRESSIVE STRENGTH OF 28 DAYS OF 2,500 PSI FOR BASEMENT AND INTERIOR FLOOR SLABS, 3,000 PSI FOR BASEMENT AND FOUNDATION WALLS, AND 3,500 FOR PORCHES, CARPORTS, AND GARAGE FLOOR SLABS.

GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE OF APPROVED SAFETY GLAZING MATERIALS: GLASS IN STORM DOORS; INDIVIDUAL FIXED OR OPENABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 24" ARCH OF THE DOOR IN A CLOSED POSITION AND WHOSE BOTTOM EDGE IS WITHIN 60" OF THE FLOOR; WALLS ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR; ENCLOSURES FOR SPAS, TUBS, SHOWERS, AND WHIRLPOOLS; GLAZING IN FIXED OR OPENABLE PANELS EXCEEDING 9 SQUARE FEET AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".

1. PROVIDE ONE WINDOW FROM EACH BEDROOM THAT HAS A MINIMUM OPENABLE AREA OF 5.7 SQUARE FEET WITH A MINIMUM OPENABLE HEIGHT OF 24 INCHES AND WIDTH OF 20 INCHES.
2. BASEMENT EGRESS TO MEET THE REQUIREMENTS OF IRC SECTION 310.
3. SMOKE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R314. SMOKE ALARMS SHALL BE INSTALLED IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA, ON EACH FLOOR INCLUDING BASEMENTS AND HABITABLE ATTICS, AND NOT LESS THAN 3'-0" HORIZONTALLY FROM DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER. ALARMS SHALL BE PERMANENTLY TESTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.
5. CARBON MONOXIDE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R315.
6. CARBON MONOXIDE ALARMS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA, WHERE A FUEL-BURNING APPLIANCE IS LOCATED IN THE SAME ROOM OR ATTACHED TO THE SAME FLOOR. CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM.

1. ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE.
2. ALL HEADERS TO BE MIN (2) #2-2x10 UNLESS NOTED OTHERWISE.
3. BLOCK CANTILEVERS, DOORJAMBS, AND OVER BEAMS.
4. ALL HEADERS TO BEAR ON A MINIMUM OF (2) 2x4 STUD POSTS UNLESS NOTED OTHERWISE.
5. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE EXISTING SLAB, TO BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
6. WHERE JOISTS RUN PARALLEL TO FOUNDATION WALLS, SOLID BLOCKING FOR A MINIMUM OF (2) JOIST SPACES BE PROVIDED TO A MAXIMUM OF 2'-0" CENTERS TO TRANSFER LATERAL LOADS ON THE WALL TO THE FLOOR DIAPHRAGM. THE BLOCKING SHALL BE SECURELY NAILED TO THE JOISTS AND FLOORING. NAIL JOISTS AND BLOCKING TO SILL PLATE WITH (3) 10d NAILS (IRC SECTION R602.3.1(1)). PROVIDE AN IN LINE JOIST OR AN IN LINE JOIST SPACE, 2x4s FLAT AT 2'-0" CENTERS WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING. INSTALLED UPRIGHT, IN THE NEXT TWO JOIST SPACES, SECURE THE 2x4s TO THE SILL PLATE WITH (4) 10d NAILS.
7. ALL SILLS AND SLEEPERS SUPPORTED ON CONCRETE OR MASONRY AND FURNISHING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT MATERIALS.
8. JOISTS UNDER BEARING PARTITIONS SHALL BE DOUBLED AND COMPLY WITH IRC SECTION R502.4.
9. JOISTS FRAMING FROM OPPOSITE SIDES OVER BEARING SUPPORTS SHALL LAP AT MINIMUM 1'-0". JOISTS SHALL BE NAILED TOGETHER WITH A MINIMUM 10d FACE NAILS. JOISTS BEARING INTO AN WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR MINIMUM 2"x2"x2" LEDGER STRIPS.
12. FRAMING OF OPENINGS - HEADERS AND TRIMMERS SHALL BE OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR FRAMING. TRIMMER JOISTS SHALL BE DOUBLED WHEN THE HEADER IS SUPPORTED MORE THAN 3'-0" FROM THE TRIMMER JOIST BEARING. WHEN THE HEADER SPAN EXCEEDS 4'-0", THE TRIMMER SHALD BE TRIMMER SHAD.
13. JOISTS AT SUPPORTS SHALL BE SUPPORTED Laterally AT THE ENDS BY FULL-DEPTH SOLID BLOCKING NOT LESS THAN 2" NOMINAL THICKNESS OR BY ATTACHMENT TO A HEADER, BAND OR RIM JOIST OR TO AN ADJOINING STUD OR OTHER PROVIDER PROVIDED WITH LATERAL SUPPORT TO PREVENT ROTATION. LATERAL RESISTIVE BARRIER SHALL BE PROVIDED OVER ALL EXTERIOR WALLS. ONE LAYER OF NO 15 ASPHALT FELT OR ANY OTHER BARRIER THAT MEETS ASTM D226 TYPE 1 FELT. (R703.2)
15. WHERE CEILING JOISTS ARE NOT INSTALLED CONNECTED TO THE RAFTERS AT THE TOP PLATE AND/OR WHERE CEILING JOISTS ARE NOT INSTALLED PARALLEL TO THE RAFTERS, RAFTER TIES SHALL BE INSTALLED IN THE LOWER PORTION OF THE JOIST AND IN ACCORDANCE WITH TABLE 1-51.0.
16. COLLAR TIES SHALL BE PROVIDED IN THE UPPER 1/3 OF THE ATTIC SPACE IN ACCORDANCE WITH TABLE 1-51.0.

1. THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
2. DOORS BETWEEN THE GARAGE AND THE DWELLING - MINIMUM 1-3/8" SOLID CORE OR HONEY COMBED STEEL DOOR OR 20-MINUTE FIRE RATED.
3. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY 5/8" TYPE X GYPSUM BOARD, OR EQUIVALENT MATERIALS APPROVED BY THE BUILDING DEPARTMENT. MINIMUM CONSTRUCTION, APPLIED TO GARAGE SIDE WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY 5/8" TYPE X GYPSUM BOARD, OR MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION OR EQUIVALENT, APPLIED TO THE GARAGE SIDE. PULL DOWN STAIRS LOCATED WITHIN GARAGE SHALL BE RATED TO BE ADEQUATELY PROTECTED WITH MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION. ATTIC ACCESS PANELS LOCATED WITHIN GARAGE SHALL BE OF 5/8" TYPE X GYPSUM BOARD, OR MATERIALS FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION.
4. GARAGE DOOR AND FRAME, THE H-FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x6 VENEERED, HAMBURG RAINING, 10M THICK TO CEILING GAGE AND WITH 1-3/4" (12" NALS) 3/4" OC TAGGERED WITH (7) 3/4" 12" NALS THRU THE JAMB INTO THE HEADER, MINIMUM 2x8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.

1. STAIRWAYS SHALL PROVIDE A MAXIMUM 7-3/4" RISE AND MINIMUM 10" RUN.
2. PROVIDE MINIMUM 36" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES, AND BALCONIES; MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF STAIRWAYS LOCATED MORE THAN 30" ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL FILLING THAT DOES NOT ALLOW PASSAGE OF A SPHERE 4 1/2" IN DIAMETER.
3. EACH STAIRWAY OF THREE OR MORE RISERS SHALL PROVIDE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34" AND 38" ABOVE THE NOSING OF THE TREADS.
4. HANDRAILS SHALL HAVE A CIRCULAR CROSS SECTION OF 1-1/4" MINIMUM TO 2" MAXIMUM OR OTHER APPROVED GRASPABLE SHAPE PER IRC SECTION 311.7.5.5.
5. PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS.
6. ENCLOSED ACCESSIBLE SPACE UNDER STAIRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON ENCLOSURE SIDE PER IRC SECTION 302.7.
7. SPIRAL STAIRS TO BE CONSTRUCTED PER IRC SECTION 311.7.10.1.
8. SPACE STRINGERS AT 16" OC MAX.

1. PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION. IF ANY CHANGES OR DEVIATIONS FROM THE PLANS ARE MADE DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND ENGINEER OF RECORD, EITHER ORALLY OR IN WRITING, FOR WHOM MAY REQUIRE REVISED DRAWINGS OR CALCULATIONS AT ITS DISCRETION.
2. REPRODUCTION, ALTERATION, OR RE-USE BY ANY METHOD OF ALL OR PORTIONS OF THESE STRUCTURAL PLANS OR VARIATIONS THEREOF WITHOUT WRITTEN PERMISSION FROM APEX ENGINEERS, INC IS STRICTLY PROHIBITED. THE DRAWINGS AND DETAILS OF THIS SHEET SET, BEING ENGINEERINGS OF SERVICE, SHALL REMAIN THE PROPERTY OF APEX ENGINEERS, INC. AN UNSEALED VERSION, OR ANY PART, OR VOID OF APEX ENGINEERING LOGO AND/OR TITLE BLOCK, SHALL BE CONSIDERED AN UNAUTHORIZED REPRODUCTION.
3. WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, NOTES FROM THE DESIGN PROFESSIONAL OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY. THE DWELLING SHALL COMPLY WITH THE FOLLOWING LOAD CONDITIONS:

AREA	MIN DEAD LOAD	MIN LIVE LOAD
EXTERIOR BALCONIES	10 PSF	60 PSF
DECKS	10 PSF	40 PSF
CEILING JOISTS/ATTICS NO STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE 3:12 OR LESS	5 PSF	10 PSF
CEILING JOISTS/ATTICS WITHOUT STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE OVER 3:12 OR LESS	10 PSF	10 PSF
CEILING JOISTS/ATTICS WITH STORAGE - DOOR/PULL DOWN LADDER ACCESS	10 PSF	20 PSF
ROOMS - NON-SLEEPING	10 PSF	40 PSF
ROOMS - SLEEPING	10 PSF	30 PSF
ROOF - LIGHT ROOF COVERING	10 PSF	20 PSF
ROOF - HEAVY ROOF COVERING CONCRETE/TILE/SLATE	20 PSF	20 PSF

NOTE: HEAVY ROOF COVERING WILL NOT BE INSTALLED OR USED IN THE DESIGN CALCULATIONS UNLESS IT IS SPECIFICALLY NOTED ON THE PLANS THAT THE DESIGN IS FOR HEAVY ROOF COVERINGS.

THE FOUNDATION DESIGN SHALL BE BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2000 PSF, UNLESS OTHERWISE INDICATED ON THE PLANS OR IF MODIFIED BY AN ENGINEERING REPORT BASED ON ACTUAL SITE CONDITIONS. CONCRETE SHALL MEET THE FOLLOWING SPECIFIED DESIGN STRENGTH CRITERIA:

- 2500 PSI FOR BASEMENT FLOOR SLABS ON UNDISTURBED SOIL
- 3000 PSI FOR FOOTINGS AND FOUNDATION WALLS
- 3500 PSI FOR GARAGE FLOOR SLABS

3. FOOTINGS SHALL EXTEND BELOW THE FROST LINE; MINIMUM DEPTH 36 INCHES BELOW GRADE.

4. UNLESS OTHERWISE NOTED ON THE PLANS OR IF SITE CONDITIONS REQUIRE OTHERWISE, FOOTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINUOUS.

5. COLUMN PADS SHALL BE A MINIMUM 30"x30"x12" WITH (4) #4 BARS EACH WAY UNLESS NOTED OTHERWISE.

6. UNLESS NOTED OTHERWISE ON THE PLANS, FOUNDATION WALLS SHALL BE MINIMUM 8" THICK X 8'-0" (OR 9'-0") TALL AND REINFORCED PER DETAIL 1-52.0 (AND 2-52.0 WHERE APPLICABLE); FOUNDATION WALLS GREATER THAN 10'-0" TALL REQUIRE A SEPARATE ENGINEERED DESIGN. PROVIDE A 2'-0" LONG INTERIOR OR EXTERIOR DEAD-MAN FOR ANY STRAIGHT WALL PANELS.

7. REINFORCEMENT SHALL BE MINIMUM GRADE 40 UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS.

8. FOUNDATION WALLS SHALL BE BACKFILLED WITH A CLEAN LEAN CLAY (OR OTHER APPROVED) FILL TO THE FINISH GRADE. ON-SITE MATERIAL MAY BE USED IF DEEMED ACCEPTABLE BY THE GEOTECHNICAL ENGINEER OF RECORD.

9. FOUNDATION WALLS WILL NOT ACHIEVE FULL STRENGTH UNTIL THE BASEMENT SLAB AND THE FIRST FLOOR DECK HAVE BEEN PROPERLY PLACED. IF BACKFILLING THE INTERIOR OF THE FOUNDATION WALL WITH GREATER THAN 24" OF LEANING GRAVEL OR GRANULAR FILL, A STRUCTURAL BASEMENT SLAB, OR ALTERNATE ENGINEERED SOLUTION (i.e. ENGINEERED FILL) WILL BE REQUIRED.

10. WHERE JUMPS OR STEPS IN ELEVATION OCCUR FOUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POURED PER DETAIL 4-52.0.

11. CONCRETE FLOOR SLABS SHALL BE A MINIMUM 4" THICK OVER A MINIMUM 4" THICK POLYETHYLENE OR POLYPROPYLENE BARRIER, UNLESS NOTED OTHERWISE OR IF SITE CONDITIONS REQUIRE OTHERWISE.

12. PROVIDE A MIN 6 MIL THICK POLYETHYLENE MOISTURE BARRIER OVER POURING GRAVEL BASED UNDER BASEMENT FLOOR SLAB PER RA05.2. LAP JOINTS MINIMUM 6" (NOT REQUIRED FOR GARAGE SLABS OR DETACHED ACCESSORY BUILDINGS).

13. FOR A STRUCTURAL REINFORCED CONCRETE FLOOR OVER A USABLE AREA, SUCH AS A GARAGE FLOOR LOCATED OVER A STORAGE AREA, SUBMIT SEALED ENGINEERED DETAILS AND CALCULATIONS.

14. GARAGE SLABS AND BASEMENT OVERDIGS SUPPORTED BY FILL CONSISTING OF MORE THAN 24" OF GRANULAR FILL, OR 8" OF EARTH SHALL BE REINFORCED PER DETAILS 1-52.1 AND 6-52.1 RESPECTIVELY. WHEN THE LIMITATIONS OF DETAILS 1-52.1 AND 6-52.1 ARE NOT MET, A SEPARATE ENGINEERED DESIGN SHALL BE REQUIRED.

15. BASEMENT FOUNDATION SILL PLATES SHALL BE BOLTED TO THE FOUNDATION WITH A MINIMUM OF 1/2" ANCHOR BOLTS EMBEDDED AT LEAST 7" INTO THE CONCRETE AND SPACED NOT MORE THAN 3'-0" ON CENTER AND 1'-0" ON EACH END OF EACH PIECE.

16. FOUNDATION WALLS SHALL BE DAMP-PROOFED PER IRC SECTION RA06.

17. PROVIDE A MINIMUM 4" PERFORATED DRAIN AROUND USABLE SPACE BELOW GRADE OR OTHER EQUIVALENT MATERIALS PER IRC SECTION 405.1. THE PIPE SHALL BE PLACED ON A MINIMUM OF 2" OF WASHED GRAVEL OR CRUSHED ROCK AND COVERED WITH NOT LESS THAN 6". THE DRAIN SHALL DAYLIGHT TO THE EXTERIOR AT THE FLOOR LEVEL, OR TERMINATE IN A MINIMUM 24" DIAMETER OR 20" SQUARE SUMP PIT EXTENDING A MINIMUM 24" BELOW THE BOTTOM OF BASEMENT FLOOR.

18. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.

19. EXTERIOR BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.

20. ALL EARTH RETAINING STRUCTURES ON THE SITE GREATER THAN 4'-0" TALL (EXCLUDING CONCRETE FOUNDATION WALLS RESTRAINED AT BOTH TOP AND BOTTOM) SHALL REQUIRE A SEPARATE ENGINEERED DESIGN (i.e. RETAINING WALLS, WINCHES, ETC.).

21. INSULATION SHALL BE INSTALLED FOR ALL BASEMENT WALLS AS REQUIRED PER N102.2.9.

22. A CONCRETE ENCASED GROUNDING ELECTRODE CONNECTION SHALL BE PROVIDED TO THE ELECTRICAL SERVICES PER 3608.1.

23. ANY GEOTECHNICAL IMPROVEMENT METHODS AND/OR STRUCTURAL METHODS (SUCH AS DRILLED PILES) EMPLOYED TO ADDRESS UNACCEPTABLE SUBGRADE CONDITIONS SHALL BE SUBMITTED TO EOR AS ENGINEERED SHOP DRAWINGS FOR REVIEW AND APPROVAL.

THESE PLANS HAVE BEEN PREPARED BASED ON A PRESUMPTIVE ALLOWABLE BEARING CAPACITY AS ALLOWED BY IRC CODE AND THE LOCAL ENFORCING JURISDICTION.

APEX ENGINEERS, INC. (APEX) RECOMMENDS THAT ALL FOOTING EXCAVATIONS BE EVALUATED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOUNDATION ELEMENTS. GEOTECHNICAL INVESTIGATION AND/OR TESTING IS NOT A SERVICE PROVIDED OR OFFERED BY APEX.

APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING BELOW THE BASEMENT SLAB). BY USE OF THESE PLANS WITHOUT AN ACCOMPANYING GEOTECHNICAL ENGINEERING REPORT, APEX SHALL NOT BE HELD LIABLE FOR ANY FUTURE MOVEMENT AND/OR DIFFERENTIAL MOVEMENT OF THE PROPOSED STRUCTURE AND THE POSSIBLE DAMAGE THAT MAY BE CAUSED AS A RESULT OF SUCH MOVEMENT. DAMAGE FROM EXPANSIVE SOILS AND/OR SETTLEMENT CAN RESULT IN AMONGST OTHER THINGS, THE FOLLOWING: BASEMENT SLAB HEAVE, SHEETROCK CRACKS, WINDOWS AND DOOR BECOMING OUT OF PLUMB AND STICKING AND/OR NOT OPENING, DAMAGE TO TILE, MOULDING, AND OTHER COSMETIC FINISHES.



STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE:
E-992

MISSOURI ENGINEERING LICENSE:
2003004673

PROJECT:
Lot 64 Hook Farms
2042 SW Red Barn Rd
Lee's Summit, MO 64082

CLIENT:
Aspen Homes KC
6618 Royal St
Pleasant Valley, MO 64068

PROJECT #:	43595
DRAWN BY:	BCH
CHECKED BY:	BDC
SUBMITTAL DATE:	2022.01.18

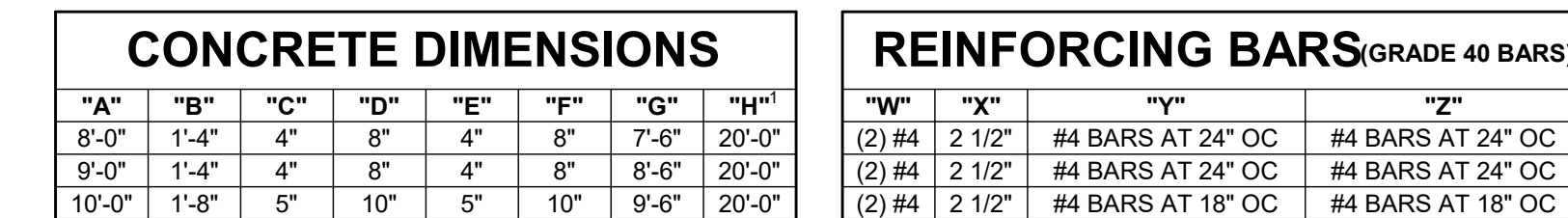
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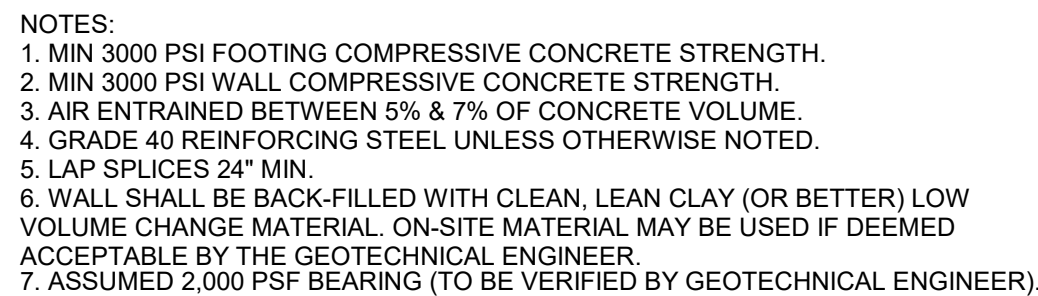
GENERAL NOTES

S1.0
 RELEASE FOR CONSTRUCTION
 AS NOTED FOR PLAN REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI

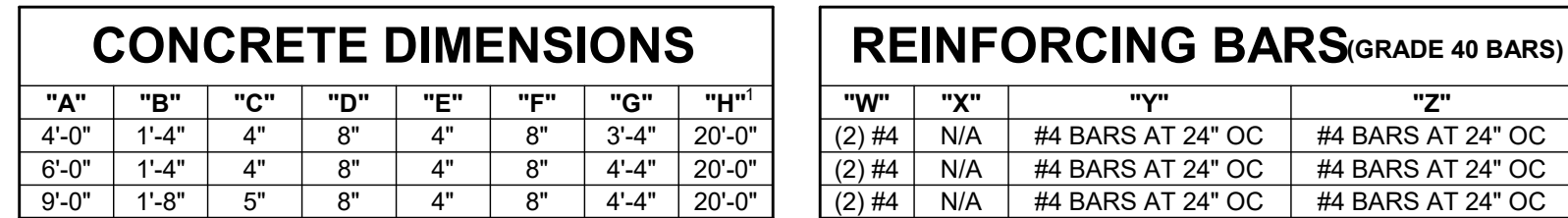
01/19/2022



1	TYPICAL FOUNDATION WALL DETAIL
S2.0	3/4" = 1'-0"

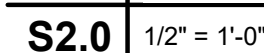


S2.0	$3/4" = 1'-0"$
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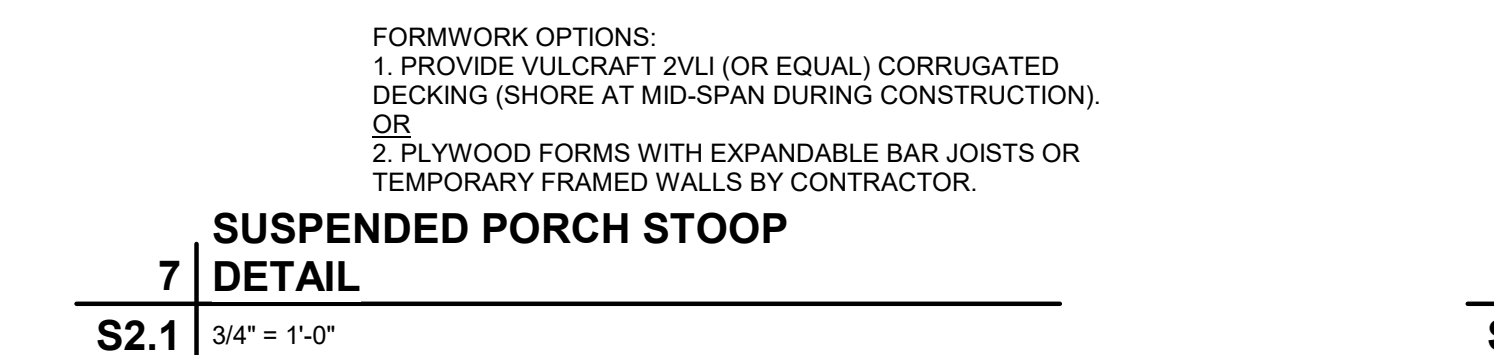
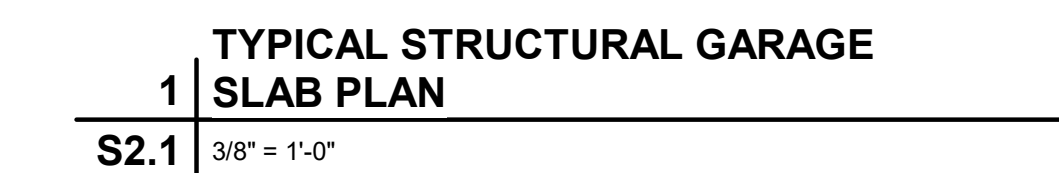
2	TYPICAL 'UNRESTRAINED' FOUNDATION WALL DETAIL
S2.0	3/4" = 1'-0"

S2.0	$3/4" = 1'-0"$
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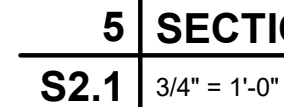
SHEET:
FOUNDATION DETAILS
S210
RELEASE FOR CONSTRUCTION
AS NOTED FOR PLAN REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI

01/19/2022

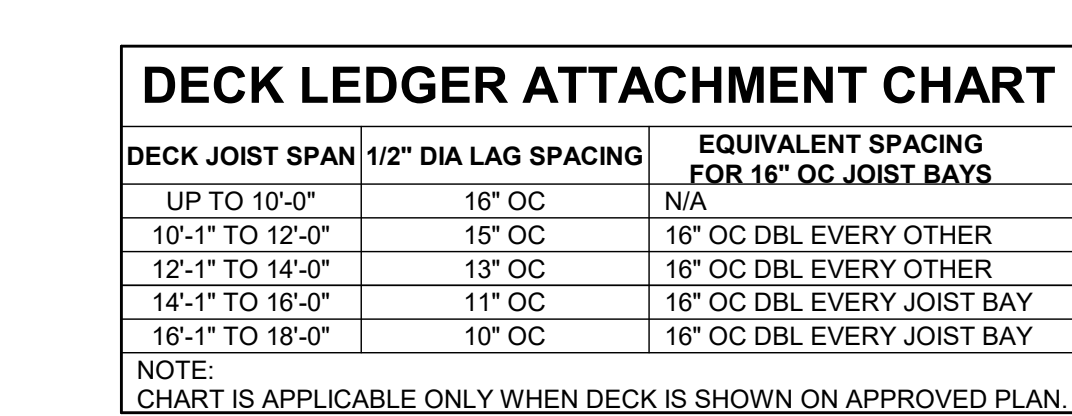
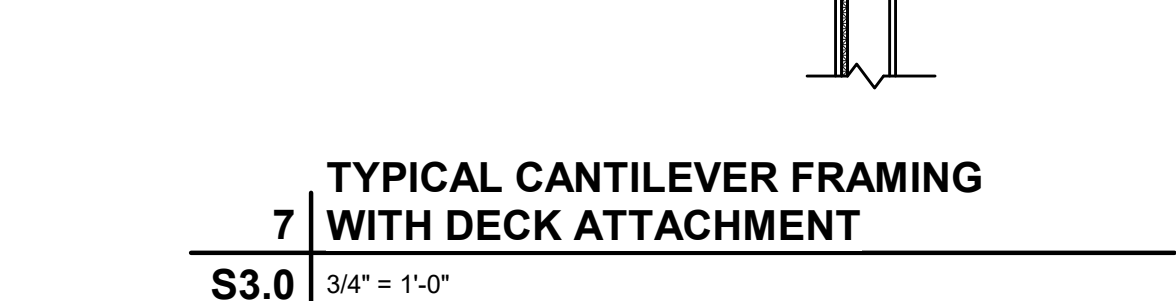


8	POST BASE DETAIL
S2.1	3/4" = 1'-0"

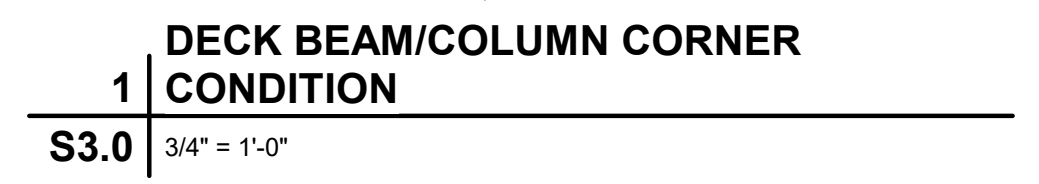
4	TYPICAL EGRESS WINDOW SECTION DETAIL
S2.1	3/4" = 1'-0"

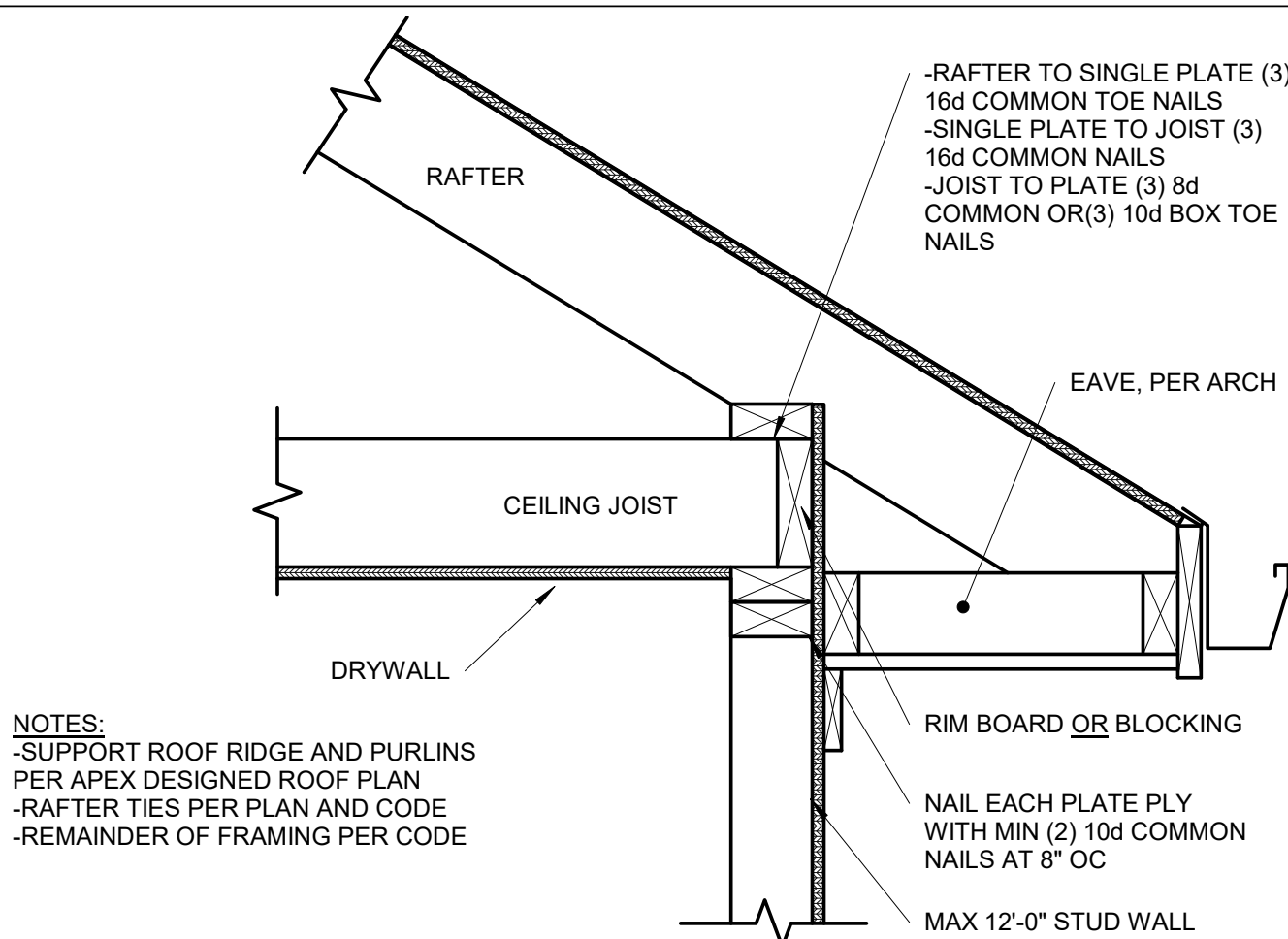


01/19/2022

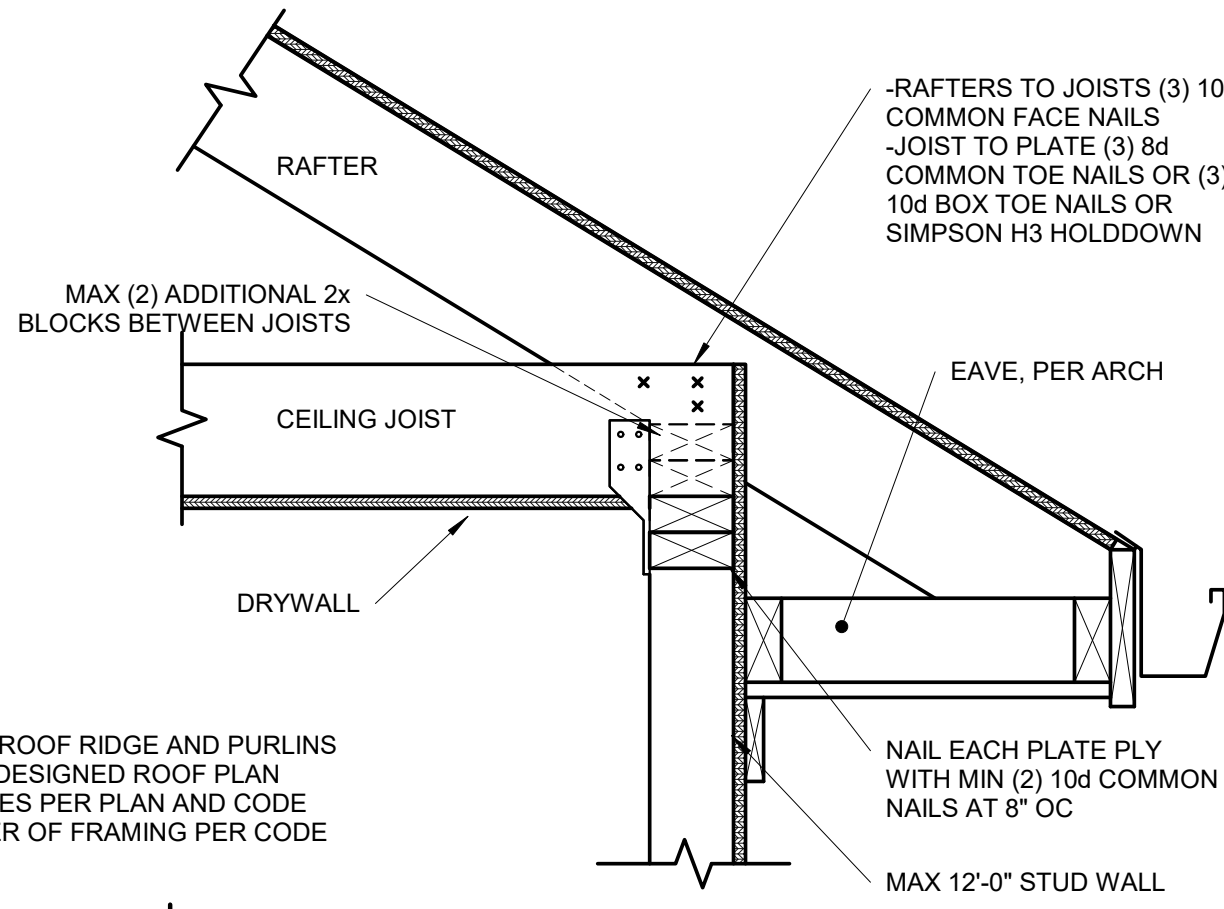


6	TYPICAL LEDGER ATTACHMENT
S3.0	3/4" = 1'-0"

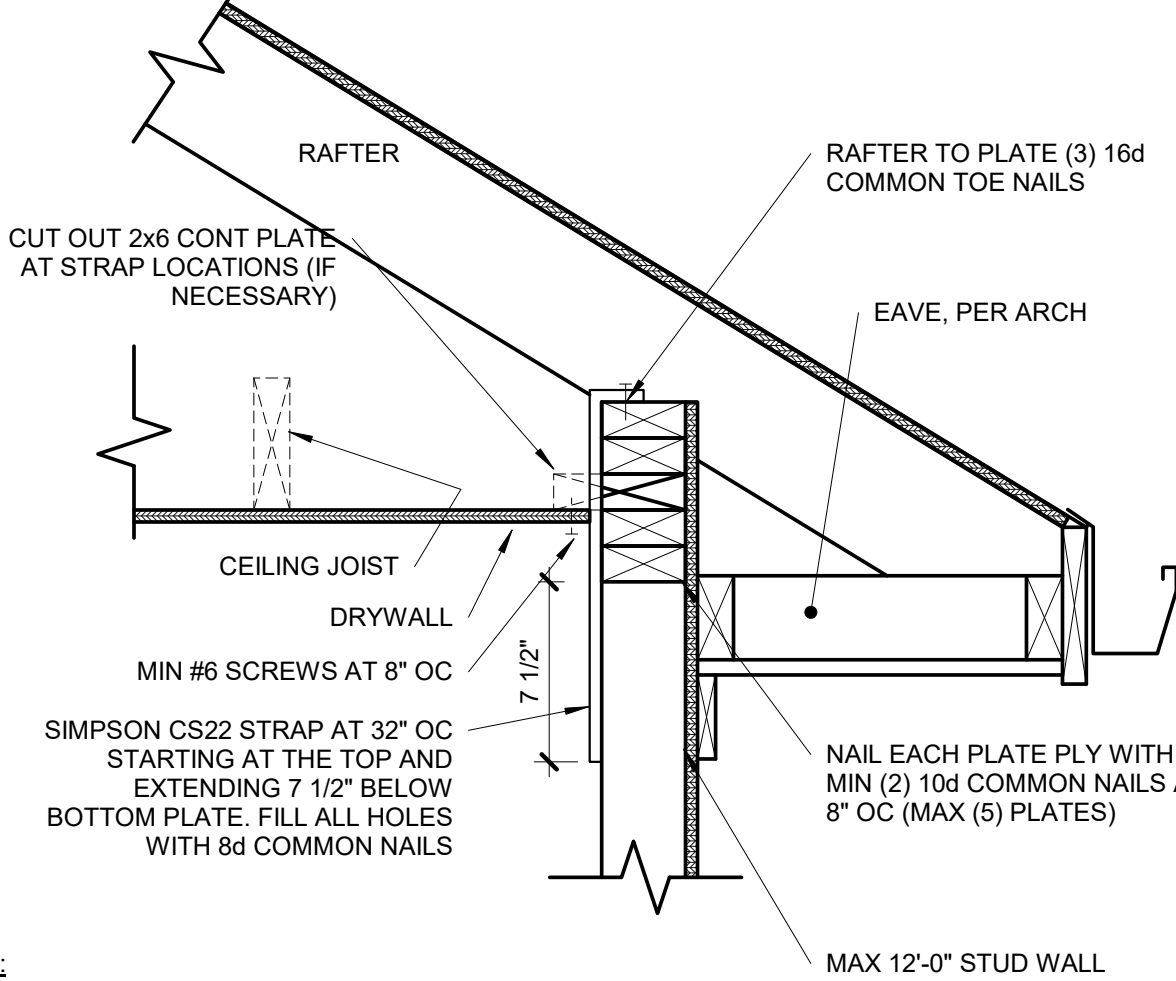




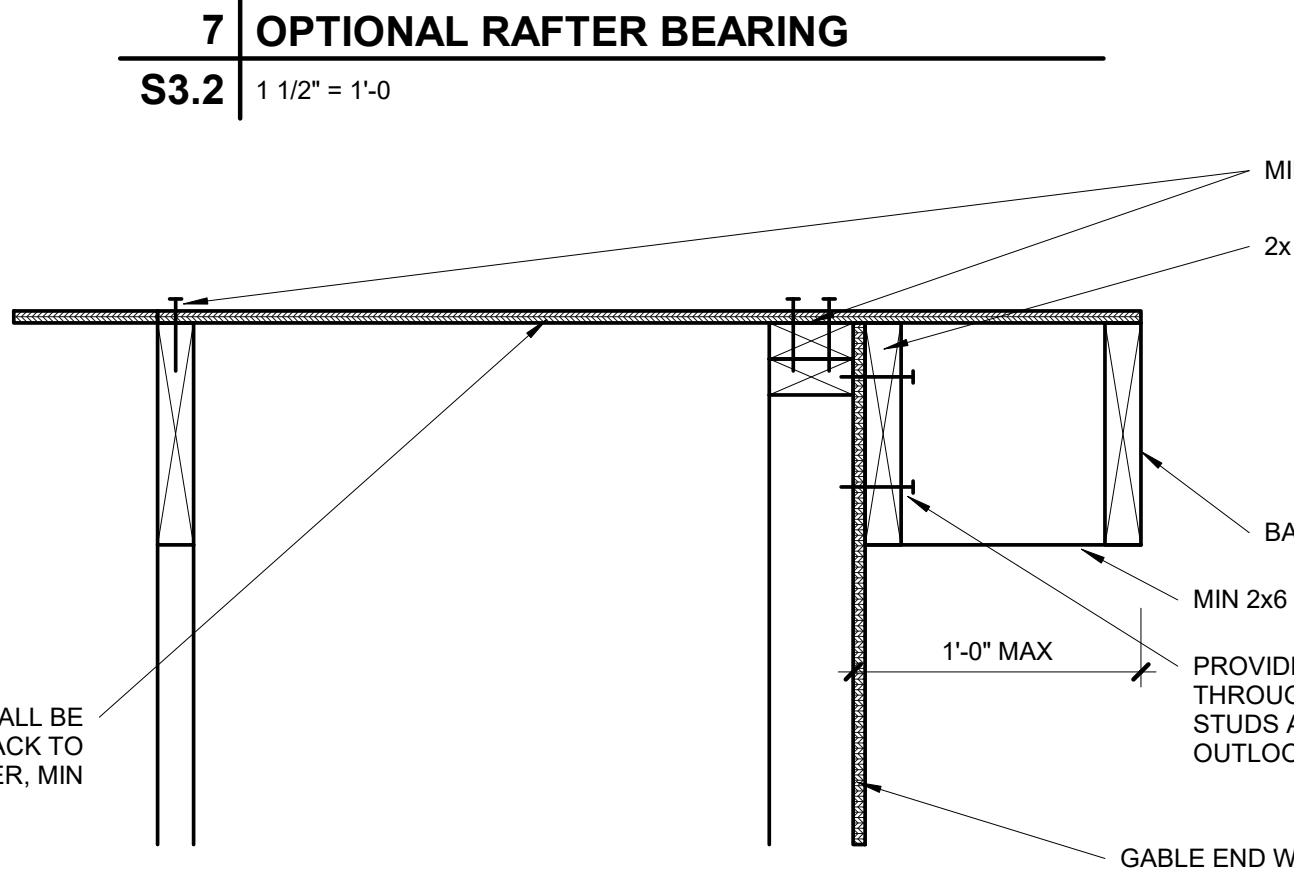
9 | OPTIONAL RAFTER BEARING
S3.2 1 1/2" = 1'-0"



8 | OPTIONAL RAFTER BEARING
S3.2 1 1/2" = 1'-0"



5 | OUTLOOKER RAFTERS ROOF FRAMING
S3.2 NOT TO SCALE



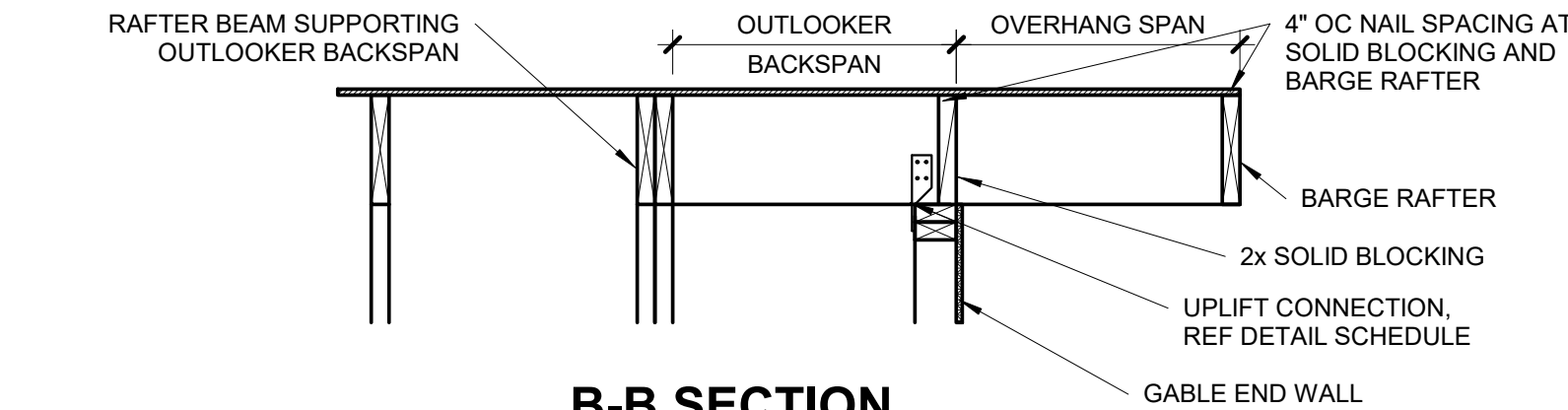
7 | OPTIONAL RAFTER BEARING
S3.2 1 1/2" = 1'-0"

6 | OPTIONAL OVERHANG 1'-0" OR LESS
S3.2 1 1/2" = 1'-0"

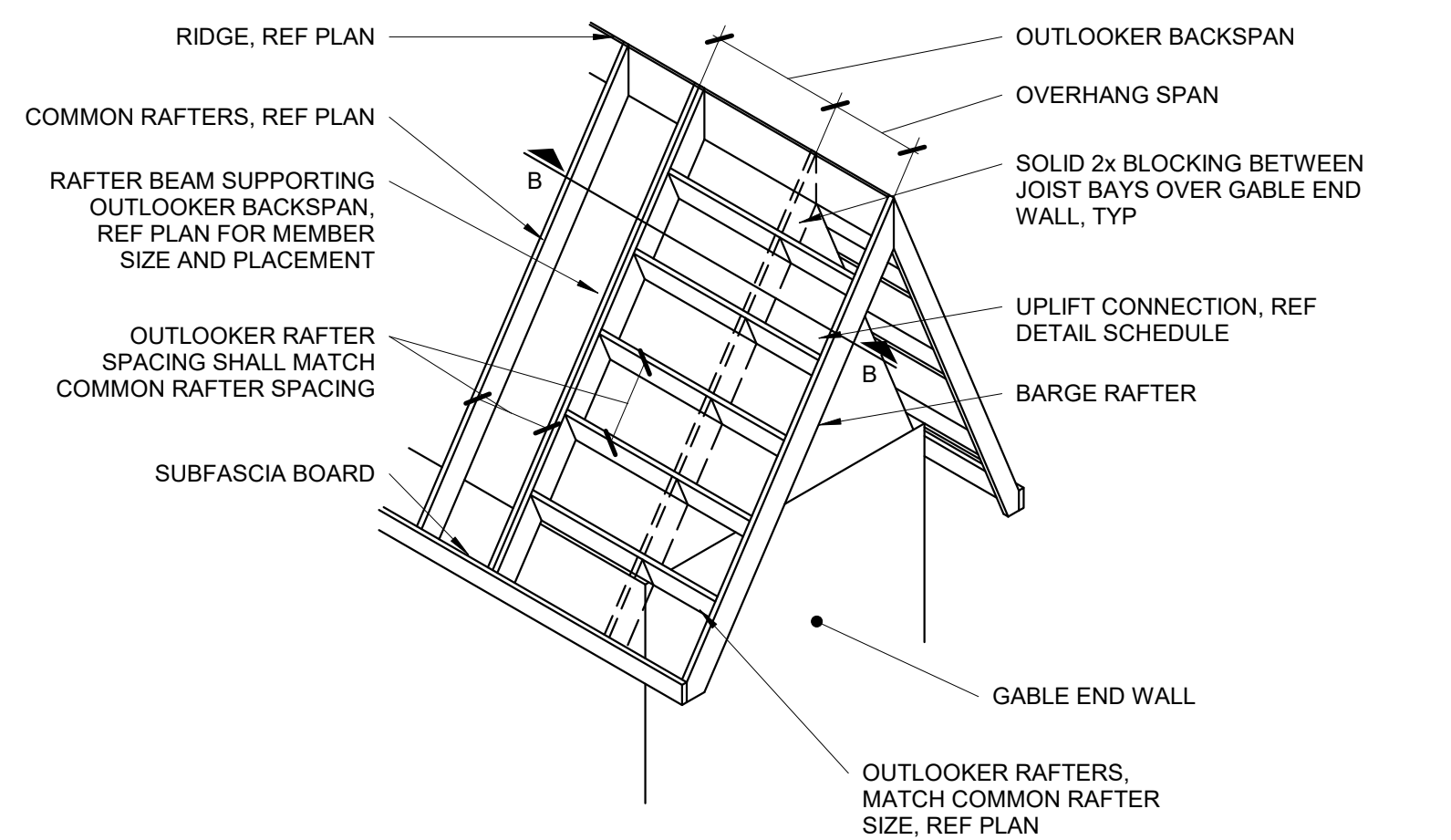
UPLIFT CONNECTION SCHEDULE			
OVERHANG SPAN: 1'-1" TO 1'-9"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
16" OC	SIMPSON H2.5A	(1) AT 32" OC	(1) AT 16" OC
24" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
OVERHANG SPAN: 1'-10" TO 2'-6"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 12" OC	(1) AT 12" OC
16" OC	SIMPSON H2.5A	(1) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	(2) AT 24" OC
OVERHANG SPAN: 2'-7" TO 3'-9"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(2) AT 12" OC	(2) AT 12" OC
16" OC	SIMPSON H2.5A	(2) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	N/A

OVERHANG SPAN	MIN BACKSPAN LENGTH
≤1'-0"	1'-0"
1'-1" to 2'-0"	EQUALS OVERHANG SPAN
≥2'-1"	OVERHANG SPAN x2

NOTES:
-CHART IS ONLY APPLICABLE IF NO RAFTER BEAM SHOWN ON PLAN.
-CONTACT EOR IF OVERHANG LENGTH EXCEEDS CHART OPTIONS.
-ALTERNATE, REF BARGE RAFTER DETAIL FOR OVERHANGS 1'-0" OR LESS.



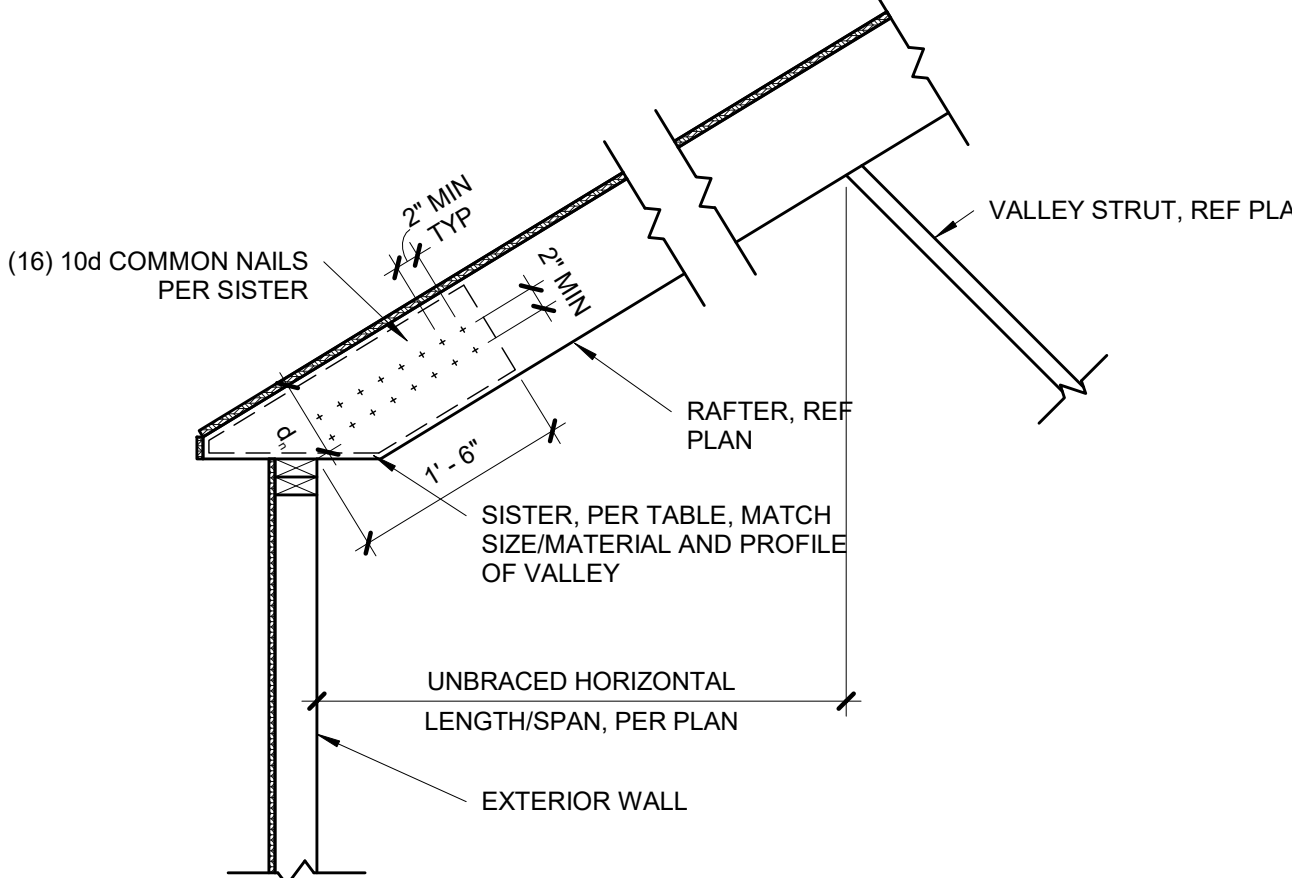
B-B SECTION



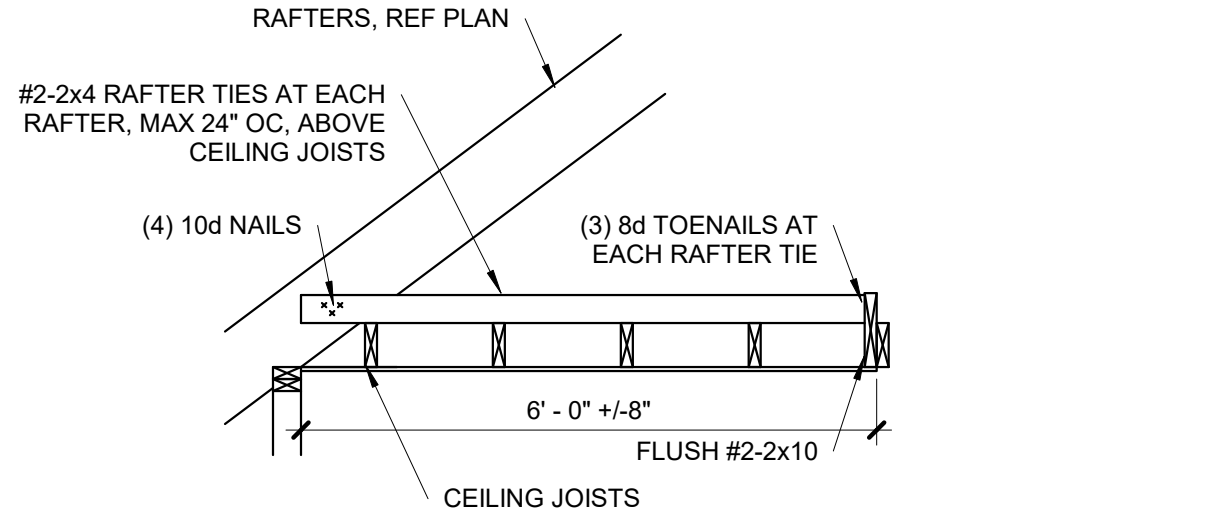
OUTLOOKER RAFTERS ROOF FRAMING
S3.2 NOT TO SCALE

REQUIRED NUMBER OF SISTER PLIES			
LIGHT ROOF			
2x VALLEY		LVL VALLEY	
# OF SISTER PLIES	RAFTER SIZE	# OF SISTER PLIES	RAFTER SIZE
	2x6	2x8	2x10
0	4'-8"	6'-2"	7'-11"
1	9'-5"	*	*
2	*	N/A	N/A
HEAVY ROOF			
# OF SISTER PLIES	RAFTER SIZE	# OF SISTER PLIES	RAFTER SIZE
	2x6	2x8	2x10
0	3'-6"	4'-7"	5'-11"
1	7'-1"	9'-3"	*
2	*	N/A	N/A

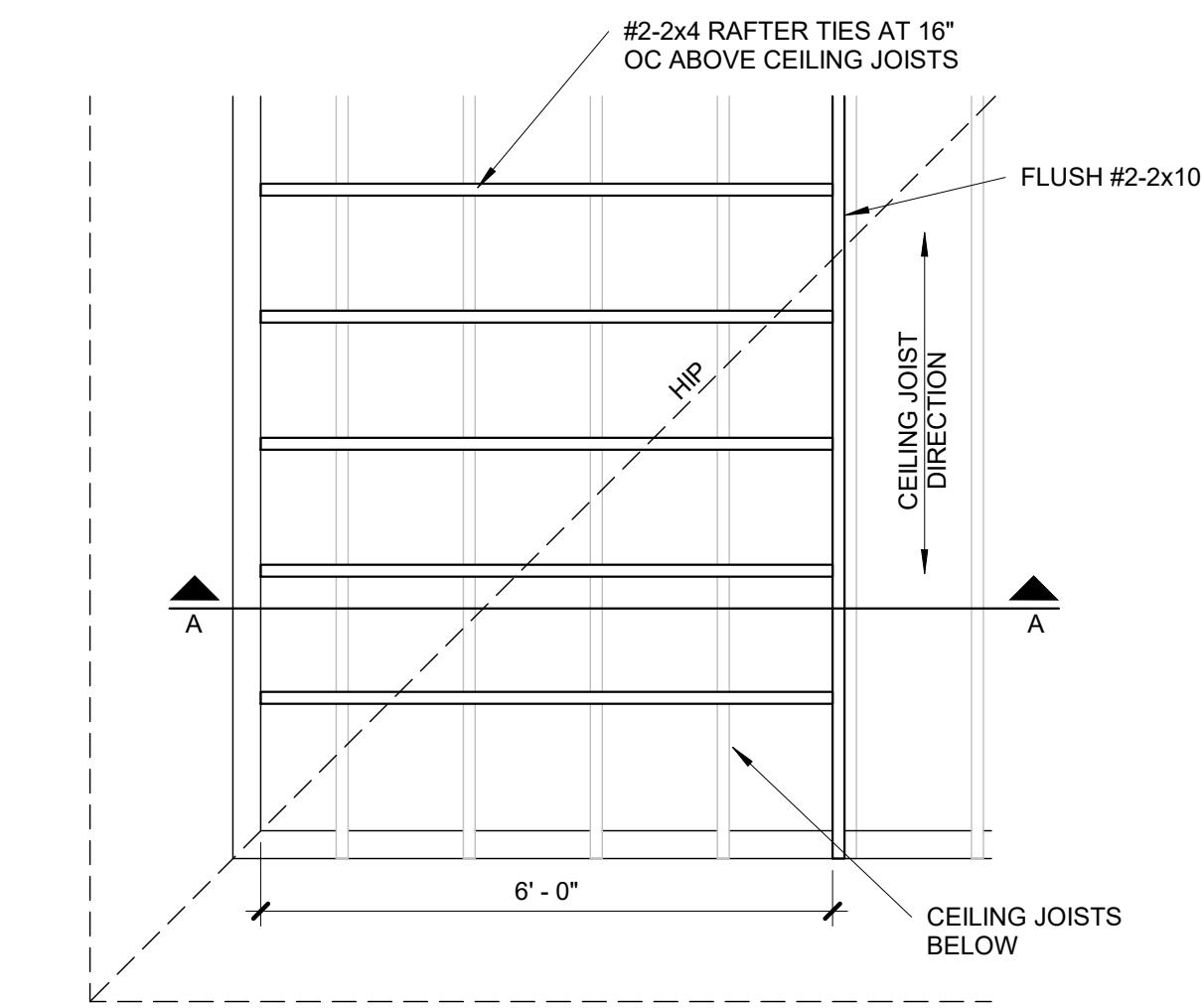
*VALLEYS OF A LENGTH GREATER THAN THAT FOUND IN THE CELL ABOVE ARE CONTROLLED BY BENDING. APPLY THE NUMBER OF SISTER PLIES CORRESPONDING TO THIS ROW.
1. THIS TABLE IS INTENDED TO BE USED IN CONJUNCTION WITH THE STAMPED, ENGINEERED PLANS AS THEY ARE DRAWN BY APEX. BRACING LOCATIONS SHALL DETERMINE HORIZONTAL UNSUPPORTED SPAN FROM VALLEY BEARING AND BE USED TO DETERMINE THE NUMBER OF SISTERS REQUIRED. BRACING LOCATIONS ARE **NOT** TO BE INFERRED USING THIS TABLE.
2. TABLE VALUES ARE BASED ON A DEPTH OF MEMBER REMAINING, d_r, EQUAL TO THE DEPTH OF THE RAFTERS. IF d_r IS OBSERVED TO BE LESS THAN THE DEPTH OF THE RAFTER, THE VALLEY WILL NEED TO BE EITHER REPLACED OR ANALYZED BY APEX.
3. TABLE VALUES ARE VALID FOR TAPERED CUTS ONLY, REF DETAIL 4/S3.2.
4. IF MULTI-PLY VALLEY IS SPECIFIED ON PLAN TREAT EACH ADDITIONAL PLY AS A SISTER PLY WHEN LOOKING UP MAX SPAN.
5. MAX 14'-0" HORIZONTAL RAFTER SPAN IN BOTH DIRECTIONS FROM VALLEY.
6. ALL HIPs ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN.



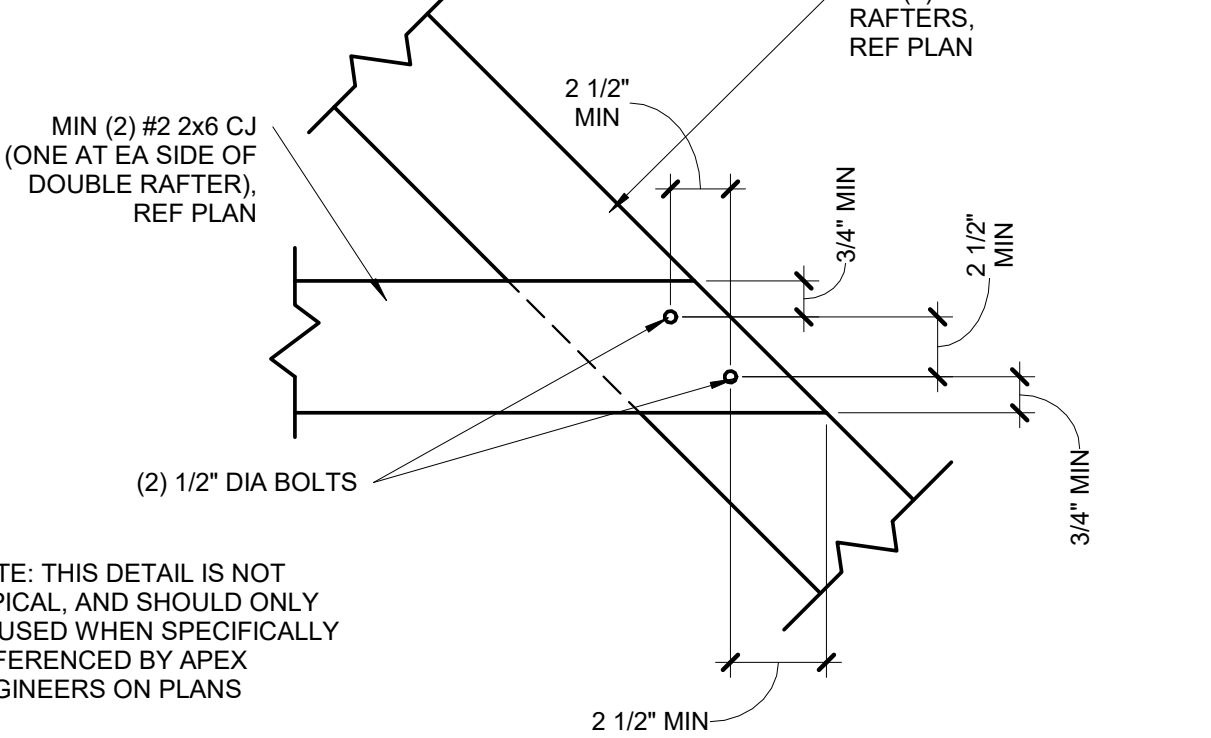
4 | TAPERED VALLEY
S3.2 3/4" = 1'-0"



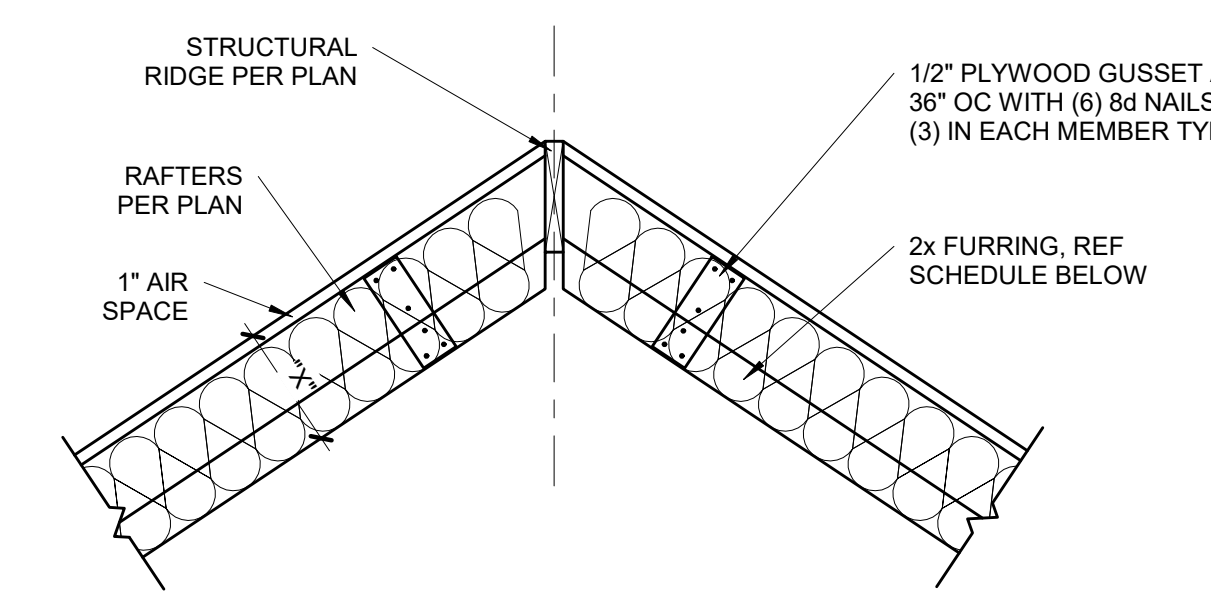
A-A SECTION



3 | ROOF WITH PERP CEILING JOISTS
S3.2 1/2" = 1'-0"



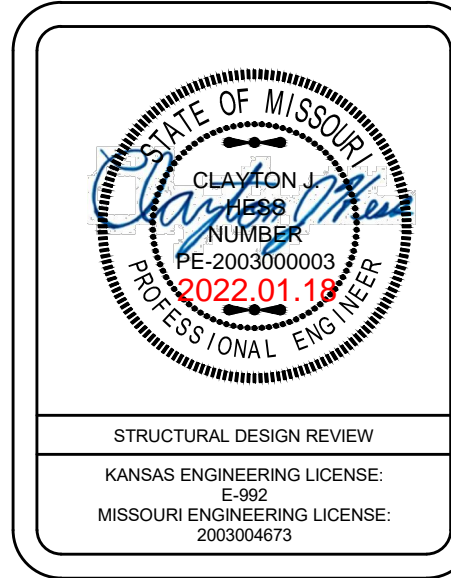
2 | BOLTED RAFTER HIP CONNECTION
S3.2 1 1/2" = 1'-0"



FURR OUT SCHEDULE		
RAFTER SIZE	R-30C INSULATION (X= 9 1/4")	R-38C INSULATION (X=11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	REQUIRED

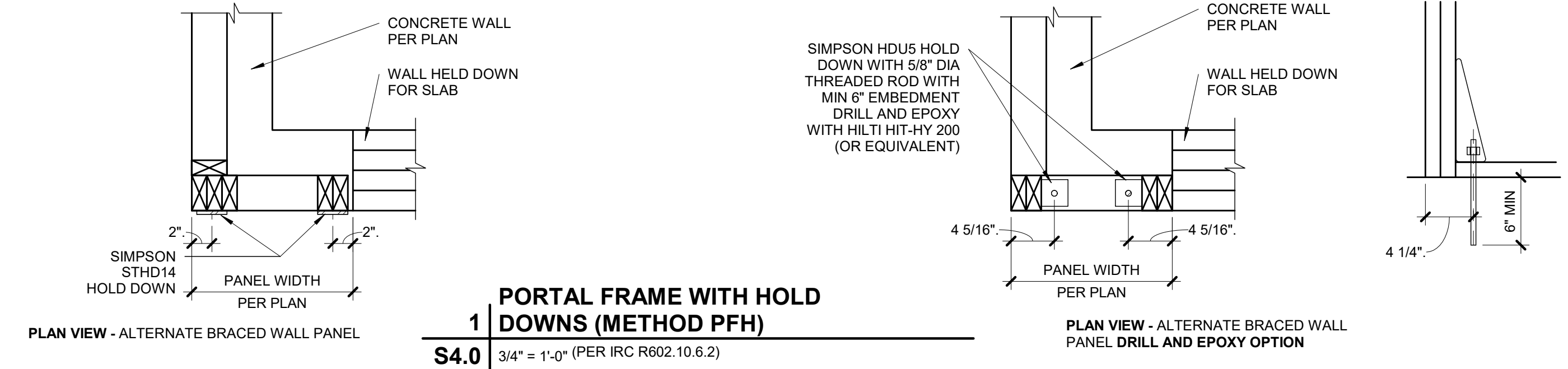
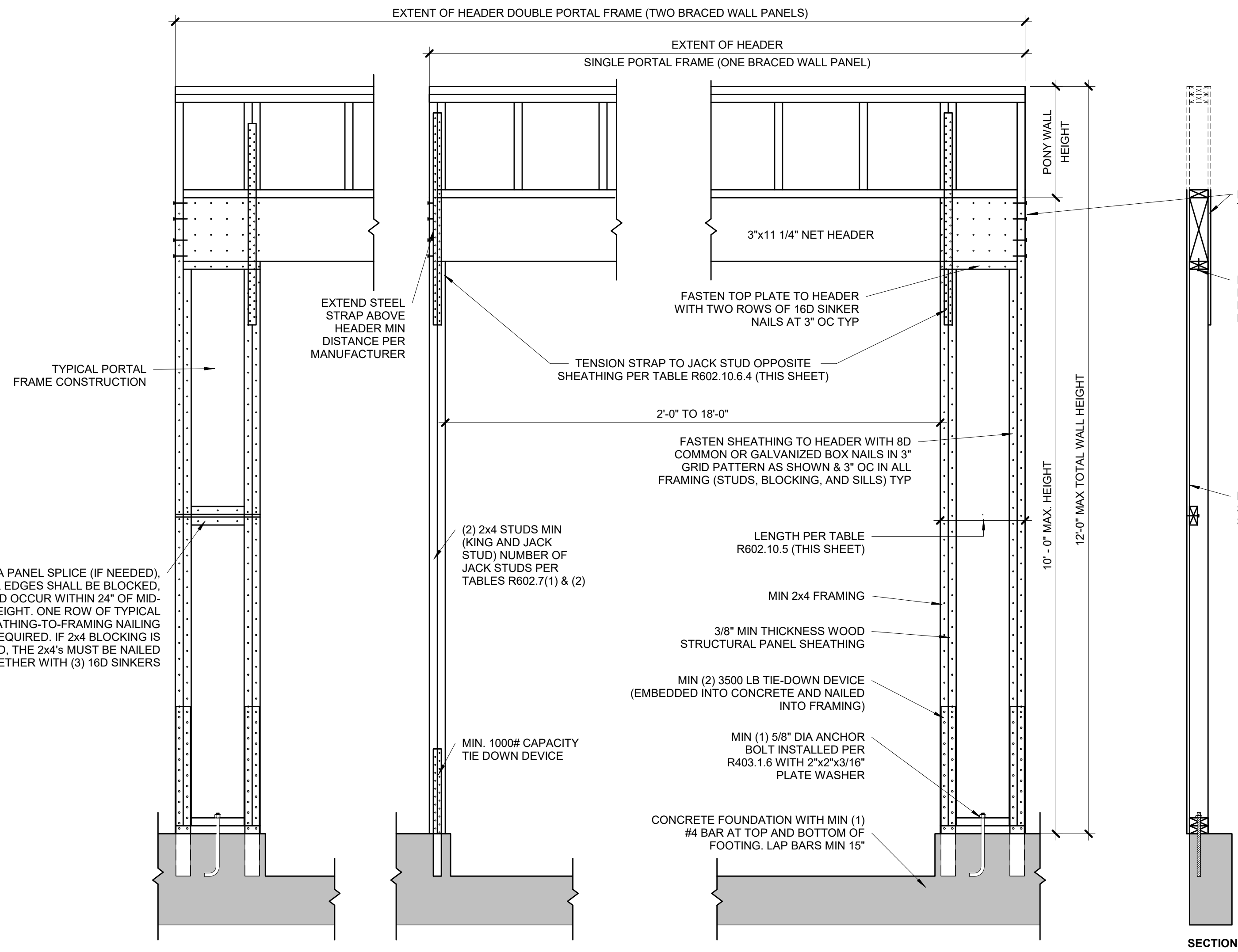
NOTES:
1. ALL VAULTED RAFTERS SHALL BE #2-2x6 DF-L, MINIMUM, AT 16" OC, PER SPAN CHART, UNLESS NOTED OTHERWISE.
2. ALL VAULTS SHALL BE FURRED DOWN WITH 2x FURRING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.
3. R-30C INSULATION = 8 1/4" THICK
4. R-38C INSULATION = 10 1/4" THICK
5. INSULATION REQUIREMENTS MAY BE REDUCED TO R30 IF ROOF/CEILING ASSEMBLY DOES NOT ALLOW SUFFICIENT SPACE BUT IS LIMITED TO VAULTED CEILING AREAS THAT ARE LESS THAN 500 SQUARE FEET OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA, WHICHEVER IS LESS. (PER N1102.2.2)

1 | VAULTED RAFTER INSULATION
S3.2 3/4" = 1'-0"



PROJECT: Lot 64 Hook Farms
2042 SW Red Barn Rd
Lee's Summit, MO 64082
CLIENT: Aspen Homes KC
6618 Royal St
Pleasant Valley, MO 64068

PROJECT #:		43595
DRAWN BY:		BCH
CHECKED BY:		BDC
SUBMITTAL DATE:		2022.01.18
#	DATE	COMMENTS



PORTAL FRAME AT GARAGE DOOR WITHOUT HOLD DOWNS (METHOD PFG)

1
S4.0
ALT 3/4" = 1'-0" (ALT ALLOWED AT GARAGE DOOR ONLY) (PER IRC R602.10.6.3)

TABLE R602.10.5 (PARTIAL)

METHOD	MINIMUM LENGTH OF BRACED WALL PANELS					
	MIN LENGTH (INCHES)					
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET	
1. SUPPORTING ROOF ONLY	16	16	16	16	16	
2. ONE STORY AND ROOF	24	24	24	24	24	
PFG	24	27	30	30	30	

NOTE: MAX HEADER HEIGHT IS 10'-0", BUT WALL HEIGHT SHALL BE PERMITTED TO BE INCREASED TO 12'-0" WITH PONY WALL

TABLE R602.10.6.4					
TENSION CAPACITY STRAP TABLE					
MIN WALL STUD FRAMING NOMINAL SIZE AND GRADE	MAX PONY WALL HEIGHT (FEET)	MAX TOTAL WALL HEIGHT (FEET)	MAX OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQ (LBS)	
				115 MPH, EXP B	
2x4 #2 GRADE	0	10	18	1,000	
			9	1,000	
	1	10	16	1,025	
			18	1,275	
			9	1,000	
	2	10	16	2,175	
			18	2,500	
			9	1,500	
	2	10	16	3,375	
			18	3,975	
2x6 STUD GRADE	4	12	9	2,750	
			12	3,775	
			9	1,000	
	2	12	16	2,150	
			18	2,550	
			9	1,750	
	4	12	16	2,400	
			18	3,800	

BRACED WALL METHODOLOGY
CONTINUOUS EXTERIOR SHEATHING (CS-WSP) PER WSP METHOD (BELOW) UNLESS OTHERWISE NOTED ON THE PLAN

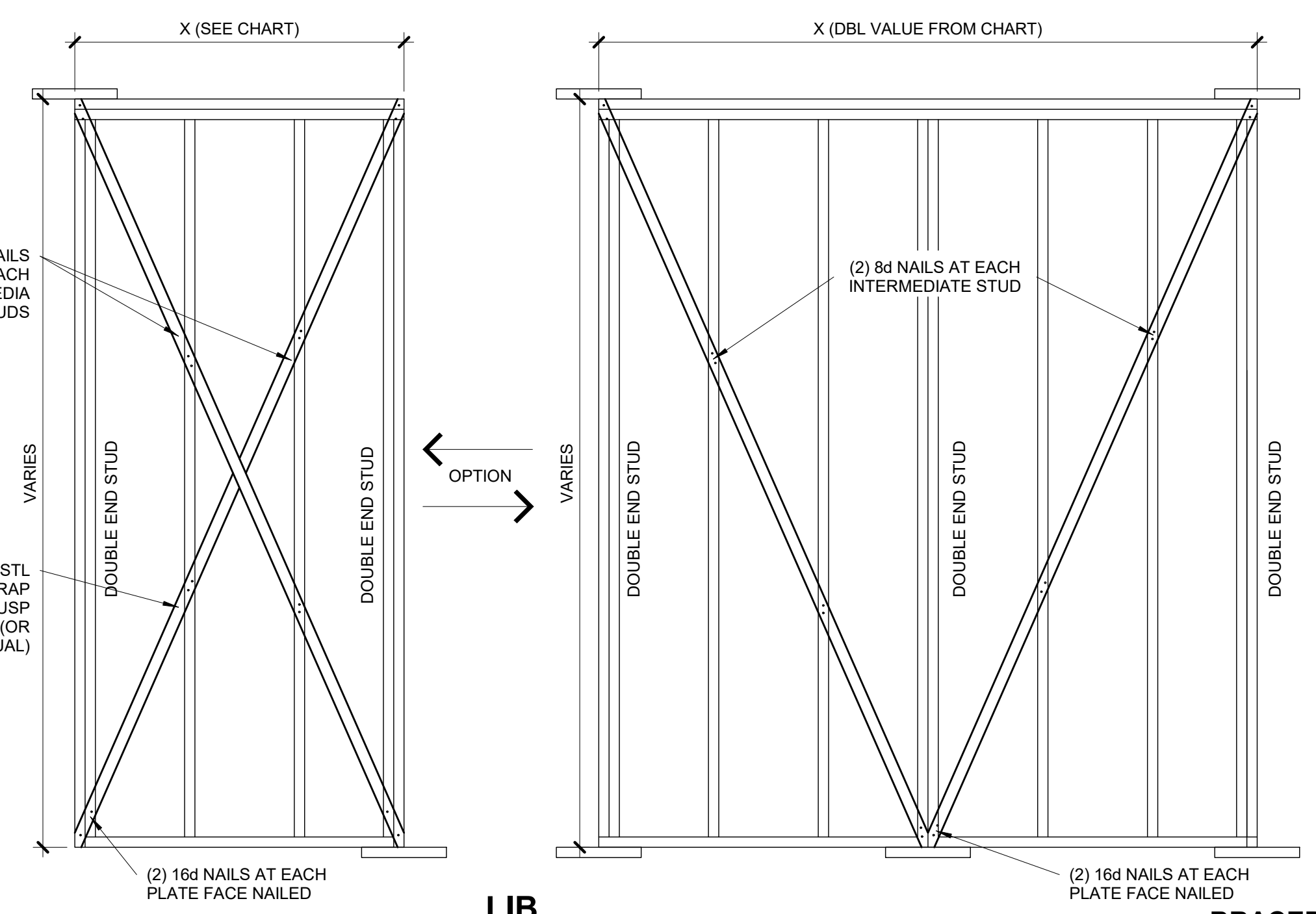
XXXX EXTERIOR BRACED WALLS:
WSP METHOD:
WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.
(NOTE: FRAMING MEMBERS 16" OC MAX UNBLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

///// INTERIOR BRACED WALLS (REF 2/S4.0):
GB METHOD:
1/2" MIN GYPSUM BOARD OVER STUDS SPACED 24" MAX FASTENED WITH #6 - 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)
OR
LIB METHOD:
1/4" WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" OC STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

BRACED WALL PANEL SCHEDULE

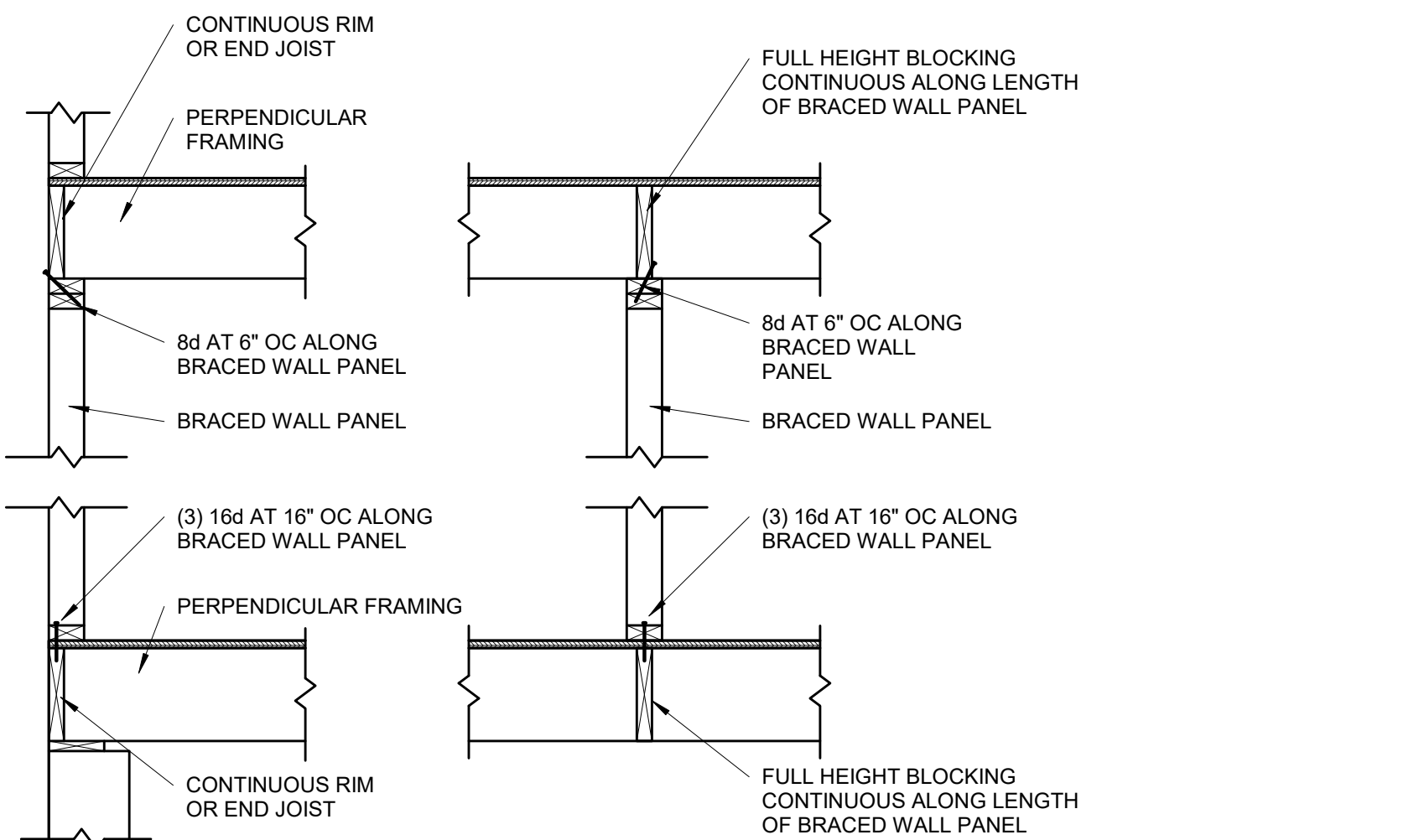
WALL HEIGHT	MIN WALL LENGTH (X)	MAX WALL LENGTH (X)
8'-0"	4'-7"	8'-0"
9'-0"	5'-2"	9'-0"
10'-0"	5'-9"	10'-0"
11'-0"	NP	-
12'-0"	NP	-

NOTE: BRACED WALL PANEL LENGTHS BASED ON WALL HEIGHT FOR IRC, LIB



BRACED WALL PANEL-IRC

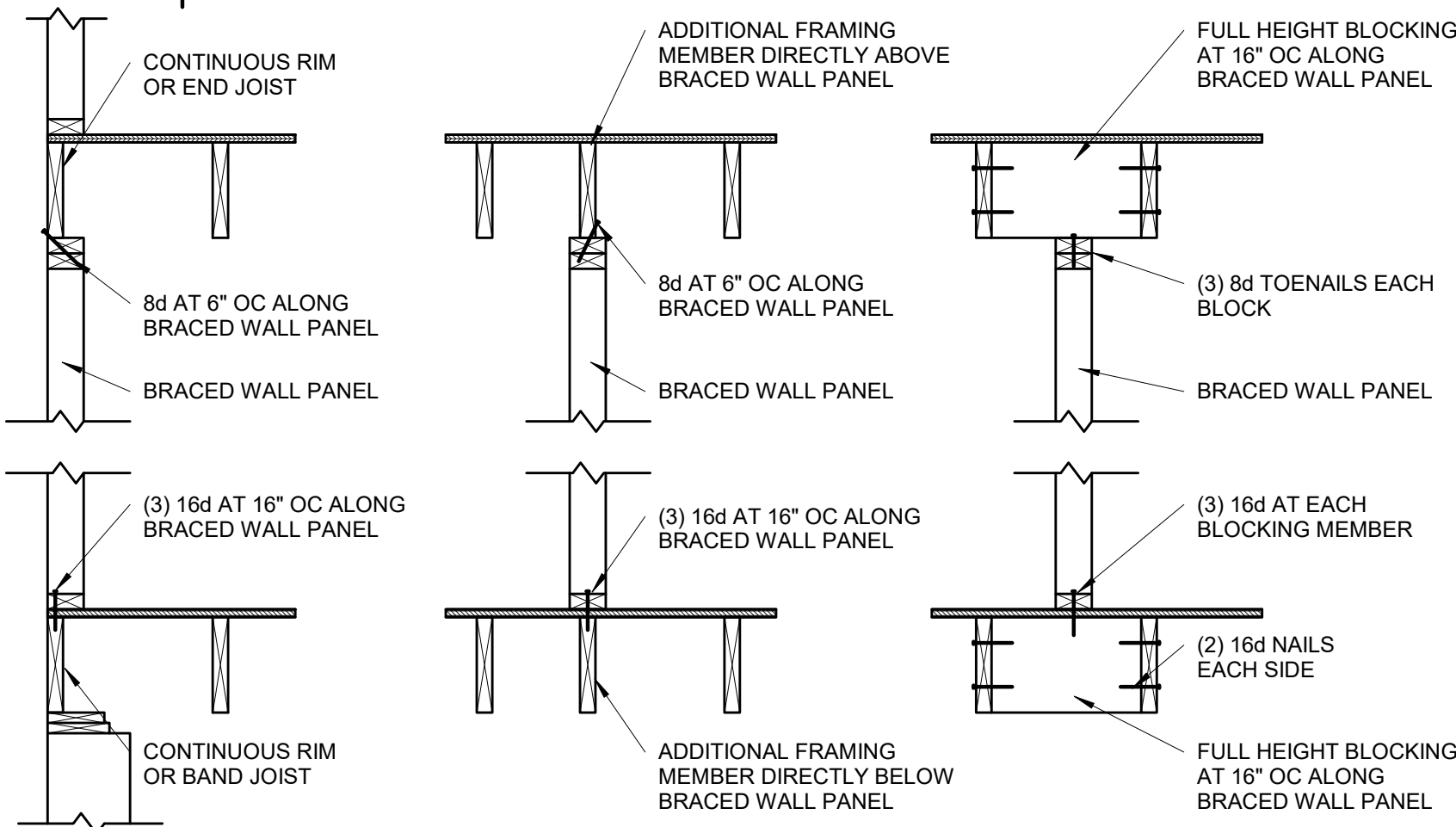
2
S4.0
3/4" = 1'-0"



**BRACED WALL PANEL
CONNECTION WHEN
PERPENDICULAR TO
FLOOR/CEILING FRAMING**

S4.1

3/4" = 1'-0"

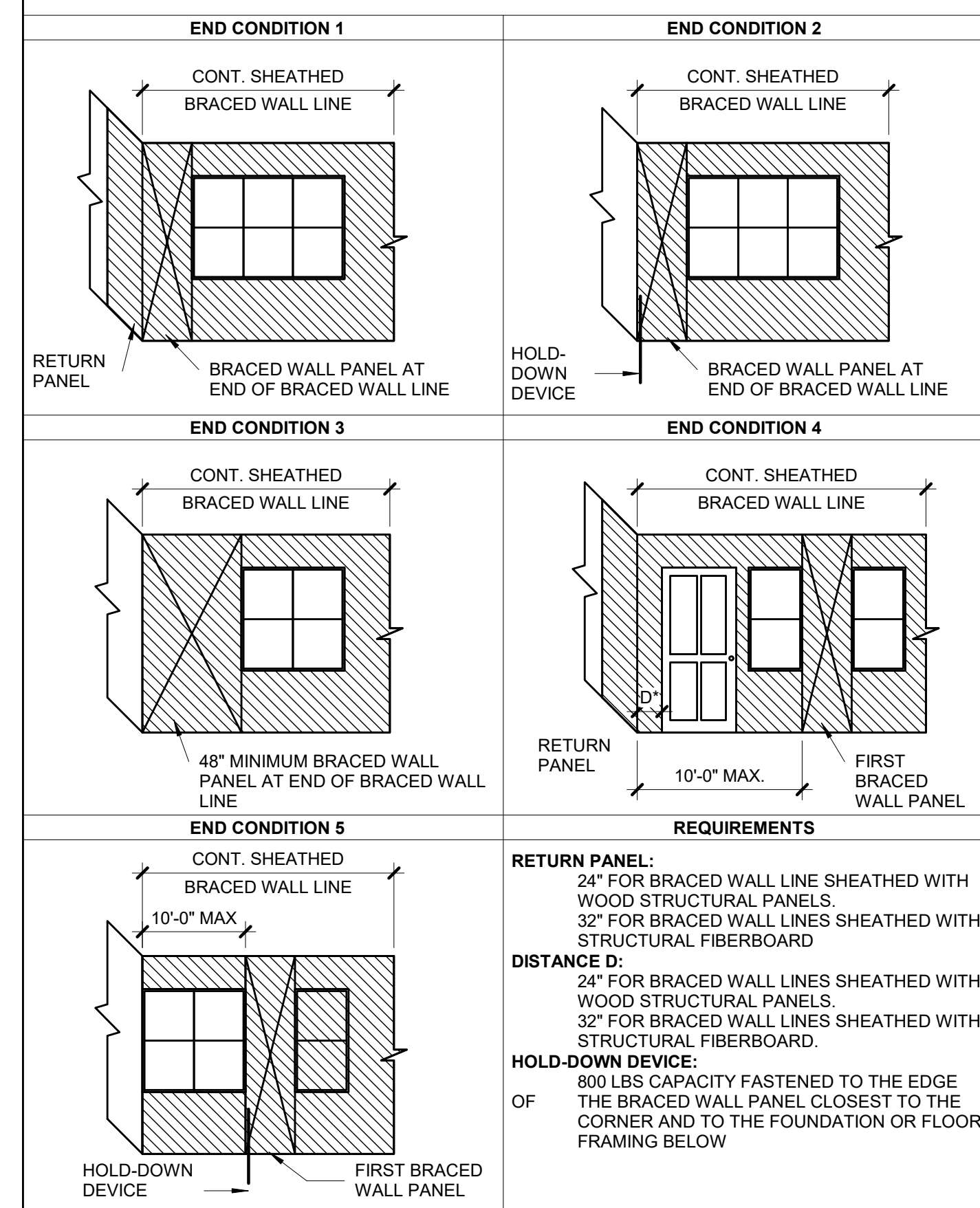


**BRACED WALL PANEL
CONNECTION WHEN PARALLEL
TO FLOOR/CEILING FRAMING**

S4.1

3/4" = 1'-0"

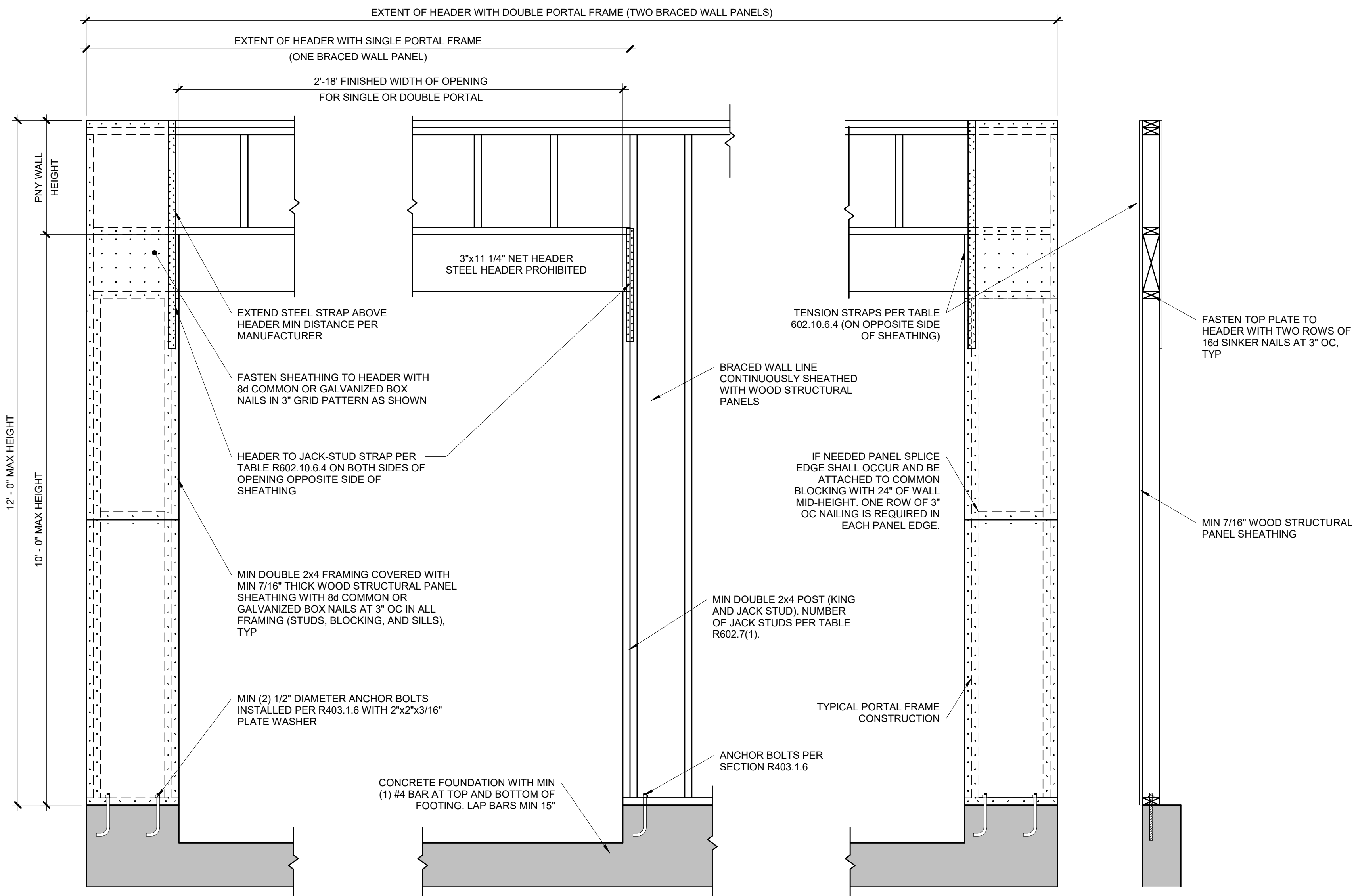
CONT. SHEATHED BRACED WALL END CONDITIONS



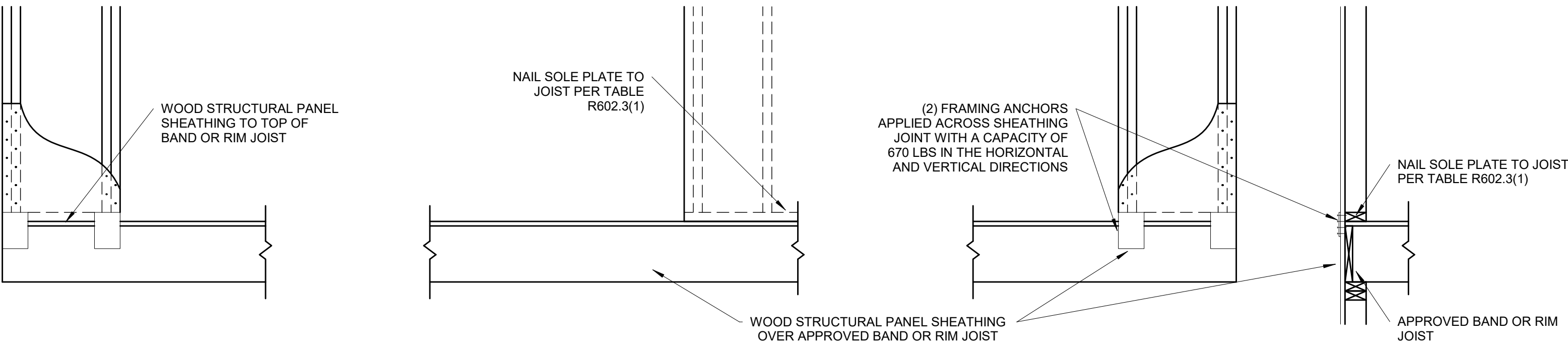
**CONTINUOUS SHEATHED BRACED
WALL END CONDITIONS**

S4.1

NOT TO SCALE (COMPLIANCE WITH IRC R602.10.7)

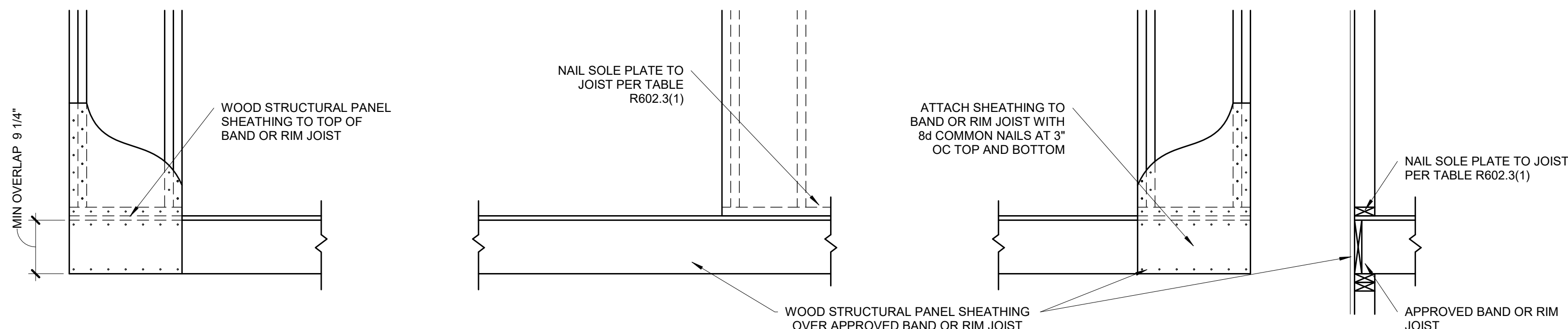


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISE WOOD FLOOR - FRAMING ANCHOR OPTION

(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISE WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIMBOARD)

**BRACED WALL PANEL-IRC
METHOD CS-PF CONTINUOUSLY
SHEATHED PORTAL FRAME
PANEL CONSTRUCTION**

S4.1

3/4" = 1'-0"

(PER IRC R602.10.6.4)