

porterSIPS™  
structural insulated panels

# Installation Guide



Distributed in Ontario by Phoenix Building Components

[www.porterCorp.com](http://www.porterCorp.com)

**porterSIPS™**

structural insulated panels

distributed in ontario by...



**phoenix**  
BUILDING COMPONENTS

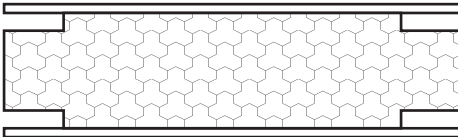
tel. 888.262.2524



## Standard SIP Wall Panel Product Line

Available in 4.5", 6.5" and 8.25" thicknesses

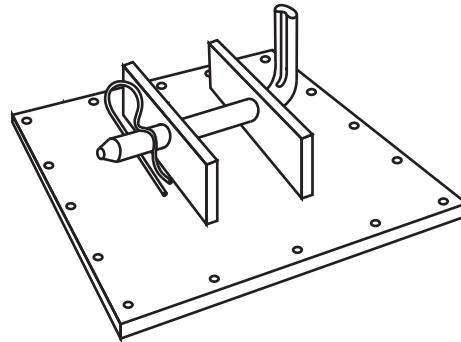
### TOP VIEW



New 5/8" Surface Spline detail more economical

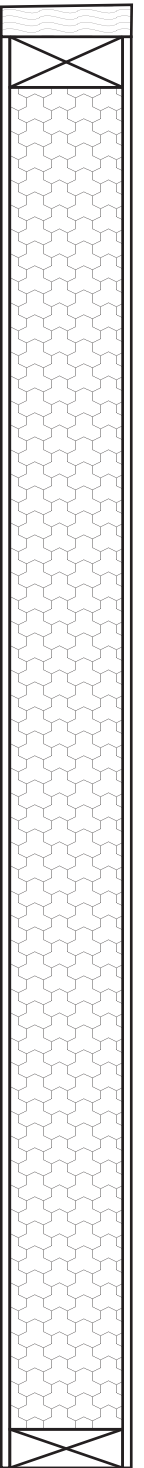
### NOW AVAILABLE

LIFTING PLATES to aid in installation of the larger panels

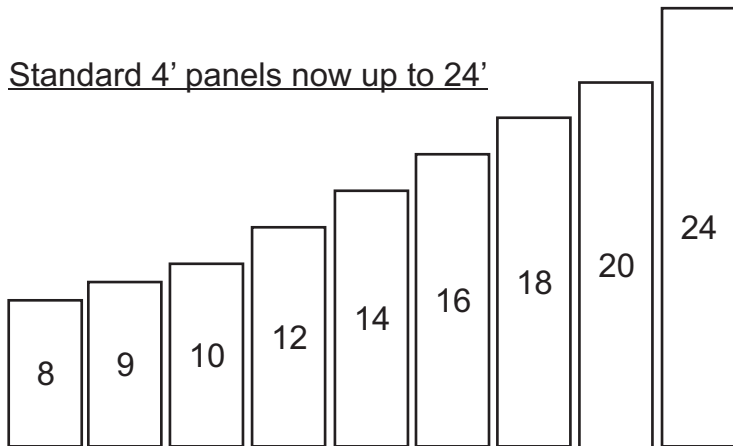


### SIDE VIEW

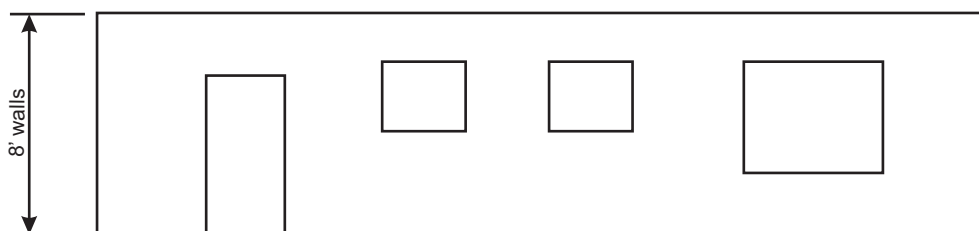
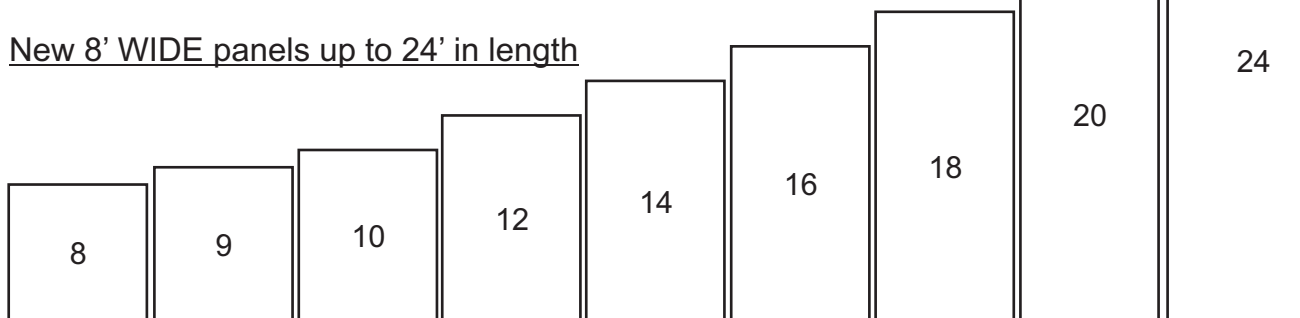
OSB Cap  
Recess for  
Top Plate



Standard 4' panels now up to 24'



New 8' WIDE panels up to 24' in length



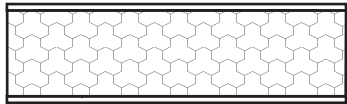
Precut CNC service available at an additional charge

Recess for Bottom Plate

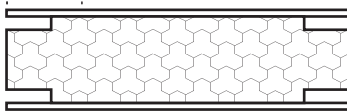
## Standard SIP Roof Panel Product Line

Available in 6.5", 8.25", 10.25" and 12.25" thicknesses

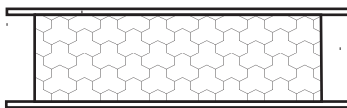
TOP VIEW  
CUSTOM SPLINE DETAILS



No Recess



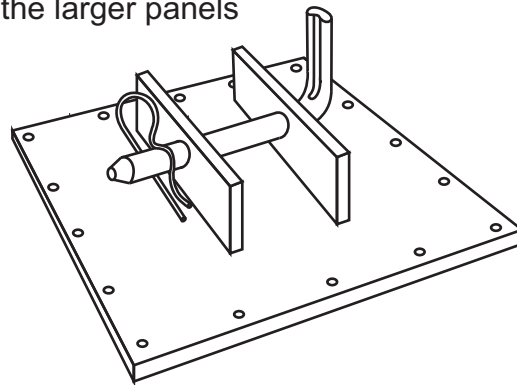
Surface Spline



Block Spline or  
Lumber Spline

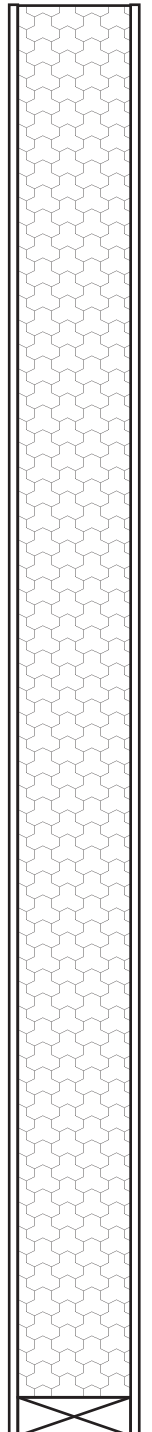
NOW AVAILABLE

LIFTING PLATES  
to aid in installation  
of the larger panels

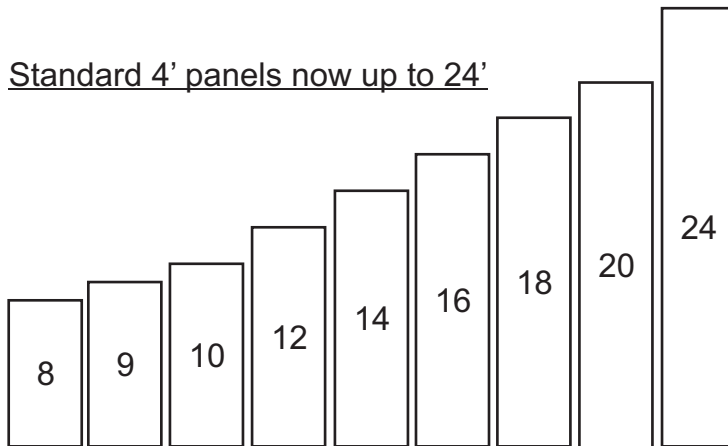


Option 1  
No Recess

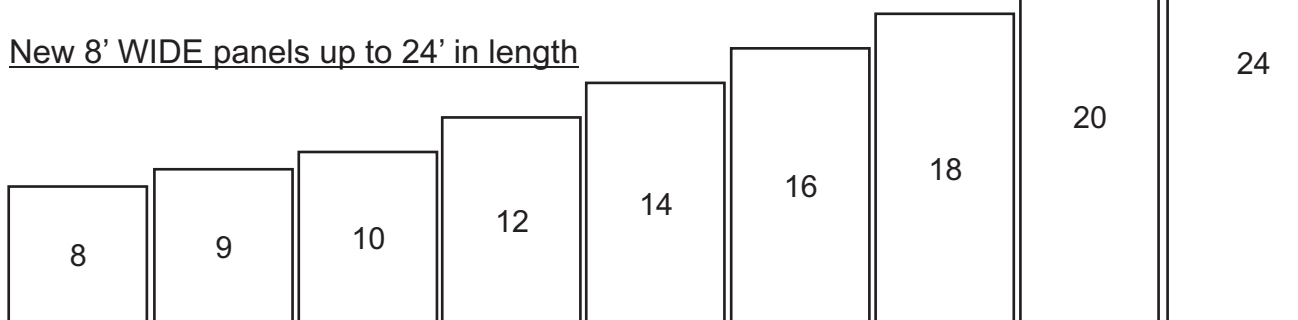
SIDE VIEW  
for ENDS of  
SIP panel



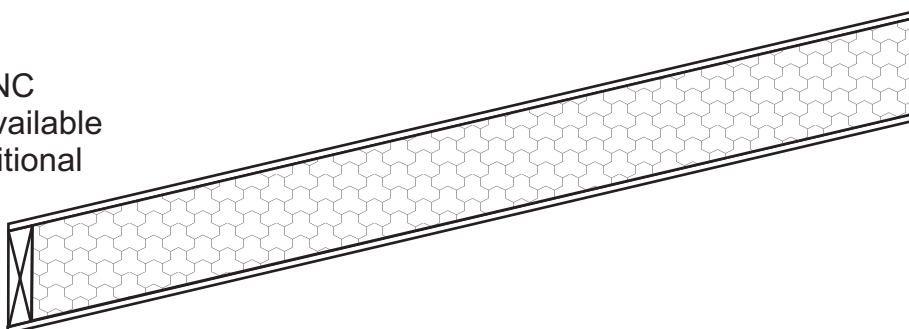
Standard 4' panels now up to 24'



New 8' WIDE panels up to 24' in length



Precut CNC  
service available  
at an additional  
charge



Option 2  
Recess for  
Block Spline  
or Lumber  
Spline

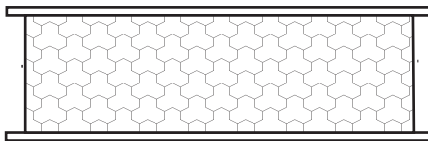




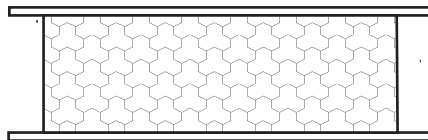
## Standard SIP Foundation/Frostwall Panel Product Line

Available in 6.5" (limited application), 8.25" and 10.25" thicknesses

TOP VIEW  
OPTIONAL RECESSES  
as required by design



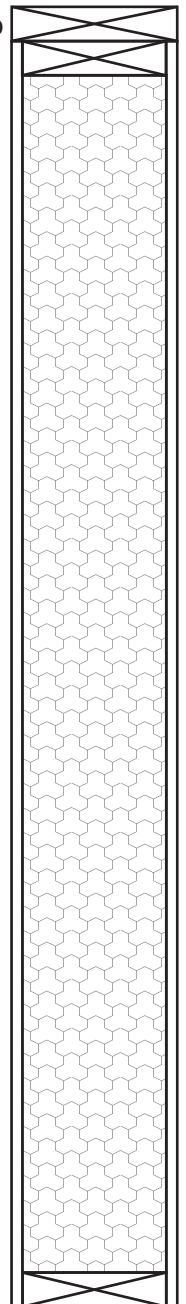
3/4" for SINGLE  
PWF Stud



1-1/2" ore more for  
MULTIPLE PWF Stud  
as required

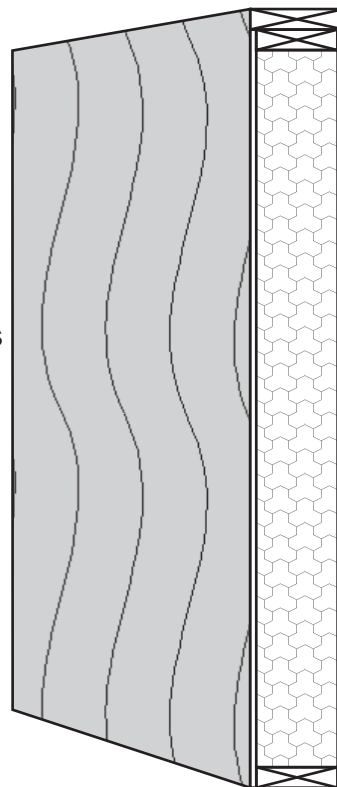
SIDE VIEW  
for ENDS of  
SIP panel

Optional OSB or  
Pressure Treated Cap  
Recess for PWF  
Lumber top plate



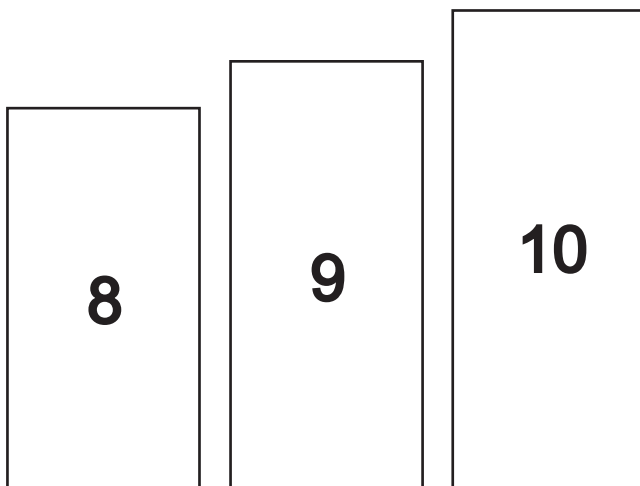
FOUNDATION PANEL  
- 5/8" PWF plywood one face  
- 5/8" OSB opposite face

FROSTWALL PANEL  
- 5/8" PWF plywood both faces



Recess for PWF  
Lumber bottom plate

Standard Sizes 4' wide x 8,9 and 10' height





## Structural Insulated Panel SIP R-Value

### Residential Occupancy insulation requirements in accordance with OBC- 2006

The following outlines the 2006 Ontario Building Code requirements for thermal insulation and the minimum size of Structural Insulated Panel - SIP needed to fulfill that requirement.

- 9.25.2.1 Required Thermal Resistance, references sections 12.2 and 12.3
- 12.2.1.1. (3) Minimum R-value must conform to table 12.3.2.1 for minimum thermal resistance of Insulation

#### **From OBC-2006 Table 12.3.2.1, Thermal Resistance of Insulation based on Degree Day Zones**

Description for: Building Element Exposed to the Exterior or to Unheated Space	ZONE 1	SIP Solution	SIP R Value	ZONE 2	SIP Solution	SIP R Value	ELEC Space Heat R-Value	SIP Solution	SIP R Value
	MIN R-Value	MIN EPS Size (in)		MIN R-Value	MIN EPS Size (in)			MIN EPS Size (in)	
	(1)			(2)			(3)		
Ceiling below <i>attic</i> or <i>roof</i> space	40.0	9-3/8"	42.50	40.0	9-3/8"	42.50	50.0	11-3/8"	52.00
Roof assembly without <i>attic</i> or <i>roof</i> space	28.0	7-3/8"	33.00	28.0	7-3/8"	33.00	28.0	7-3/8"	33.00
Wall other than <i>foundation</i> wall	19.0	5-5/8"	24.70	24.0	5-5/8"	24.70	29.0	7-3/8"	33.00
<i>Foundation</i> walls enclosing heated spaces	12.0	3-5/8"	15.20	12.0	3-5/8"	15.20	19.0	5-3/8"	24.70

**Notes:**

- (1) - Zone 1 defined as number of degree days less than 5000. Consult Table 1.2 in SB-1 "Supplementary Standard" from OBC-2006 for your specific location - Examples (Location/Degree Days): London 4150, Niagara Falls 3700, Toronto 4000, Barrie 4600, Kingston 4300, Ottawa 4600, Sudbury 5400, North Bay 5300, Timmins 6200
- (2) - Zone 2 similarly defined as above, where number of degree days for the location is 5000 or more
- (3) - Either Zone 1 or Zone 2, where Electric space heaters (e.g. baseboard heaters) are the main source of heating

#### **PorterSIPS SIP Structural Insulated Panel, Thermal resistance expressed as R-Value**

SIP Size	EPS Size	SIP- R Value*
4.5"	3.625"	15.2
6.5"	5.625"	24.7
8.25"	7.375"	33.0
10.25"	9.375"	42.5
12.25"	11.375"	52.0

\* R-Values for PorterSIPS are based on tested EPS R-values at temperatures of 40 and 75 degrees F (4.4 and 24 degrees C) plus 2-7/16" OSB skins are calculated based on the thicknesses of EPS listed in the tables above as follows: 15.2/13.9, 24.7/21.9, 33.0/28.3, 42.5/36.0, 52.0/47.3

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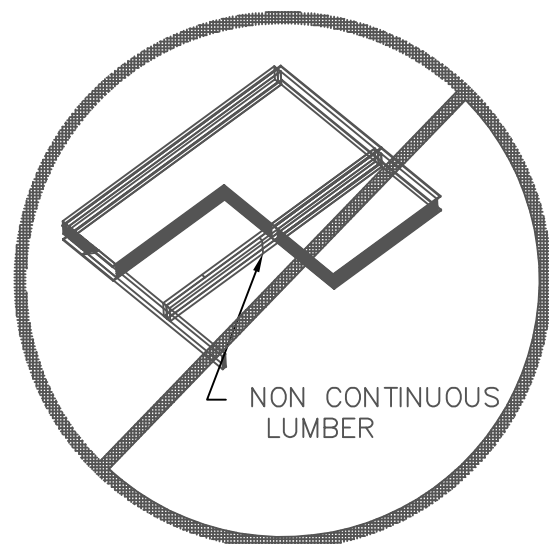
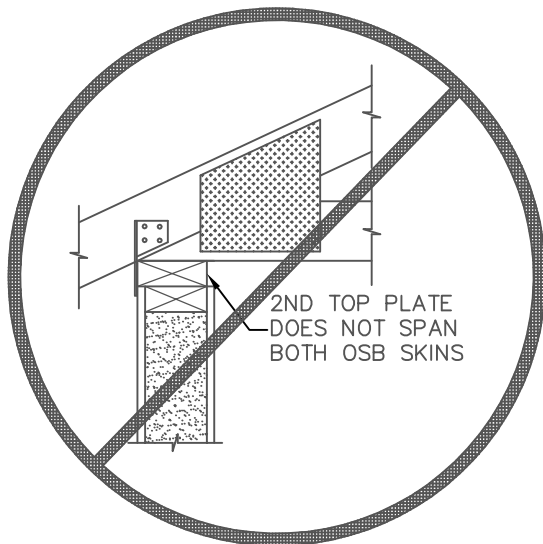
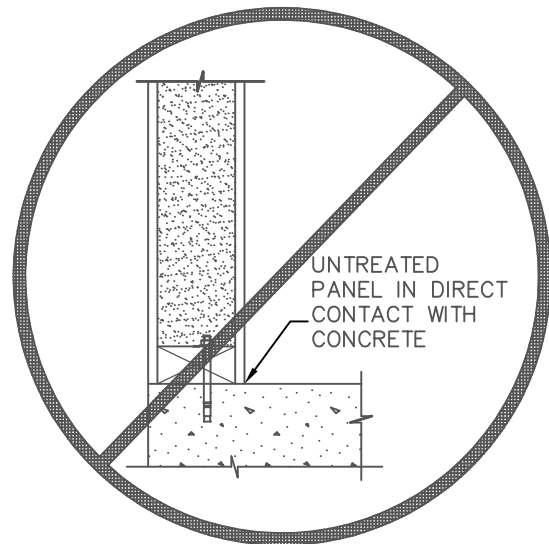
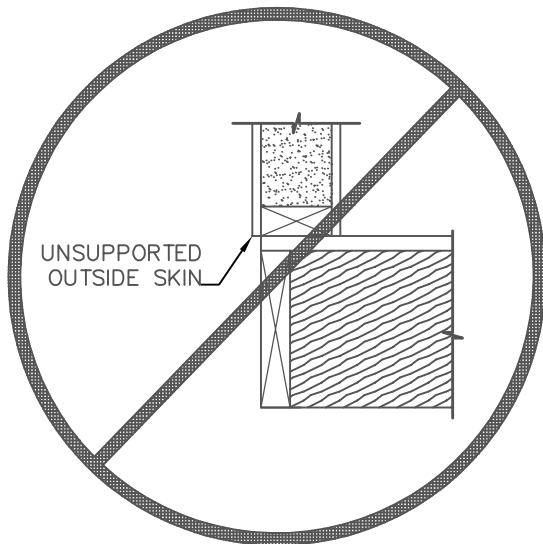
## Installation Details

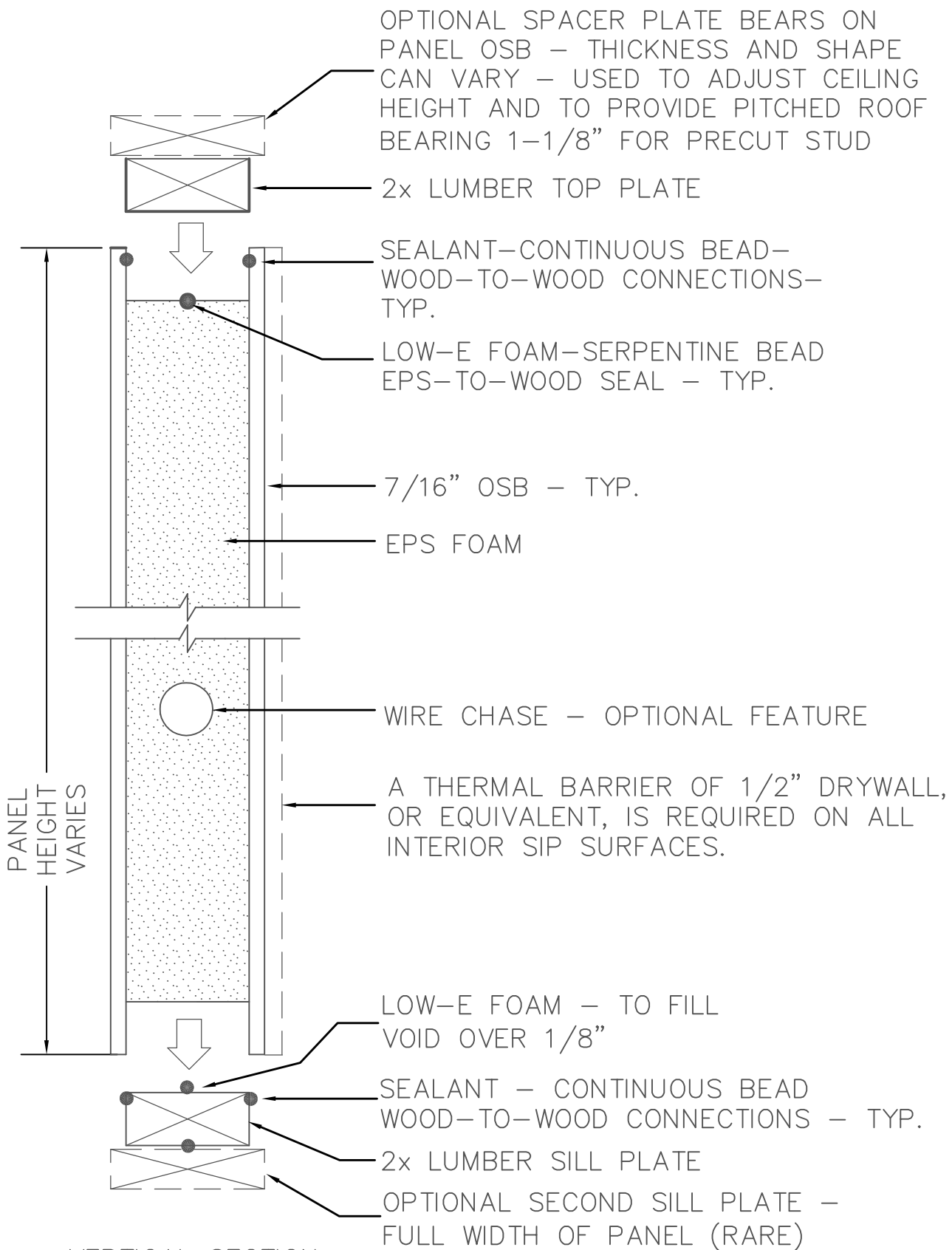


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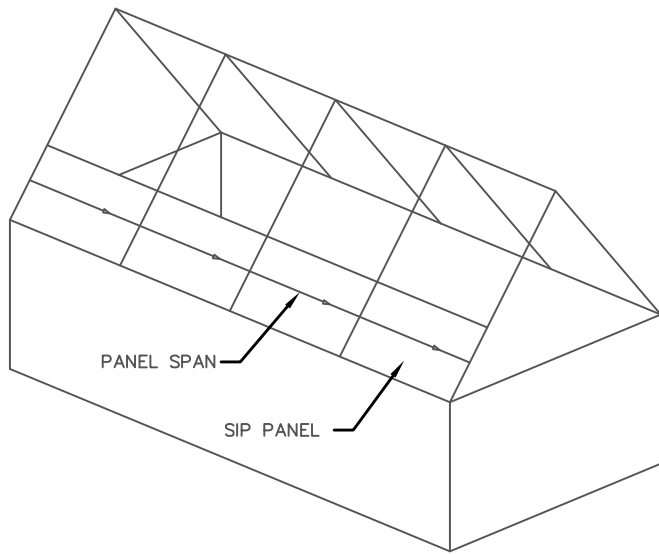
## SIP's Construction Tips and Warnings

- 1.) Handle SIPs with care.
- 2.) Provide adequate support for SIPs when storing them.  
Store SIPs lying flat and covered.
- 3.) Provide 1-1/2" diameter access holes in plating to align with electrical chases in SIPs where optional chase openings are provided.
- 4.) Hold sill plate back from edge of floor system 7/16" (5/8" for PWF) to allow full bearing of SIP OSB skins onto surface below.
- 5.) Use a **SEALANT** (Recommended: Tremco- Dymonic FC caulking) on WOOD-TO-WOOD connections, and **LOW-E FOAM** , low expansion polyurethane gun foam (Recommended: IPF Green) for WOOD-TO-EPS and EPS-TO-EPS connections.
- 6.) Provide level and square foundations or floors that support SIP walls.
- 7.) Do not put plumbing in SIPs without consulting panel manufacturer.
- 8.) Only cut small access slots in the skins parallel to the strength direction for electrical chases (eg. up down wiring in walls), **DO NOT CUT HORIZONTALLY** or perpendicular or you will destroy the strength of the SIP.
- 9.) Provide adequate bracing of panels during erection.
- 10.) Remove debris from plate area prior to panel placement to ensure flush bearing on the SIP skins.
- 11.) Do not install an untreated (non-PWF) SIP directly on concrete.
- 12.) Do not or drop SIPs on corners, avoid damaging SIPs on the jobsite.
- 13.) Do not put recessed lighting in SIPs.



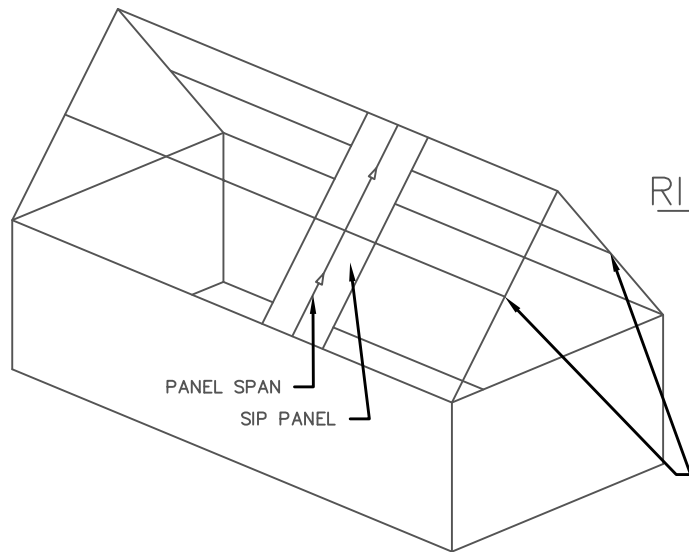


VERTICAL SECTION  
(WALL) PANEL



### RAFTER SYSTEM

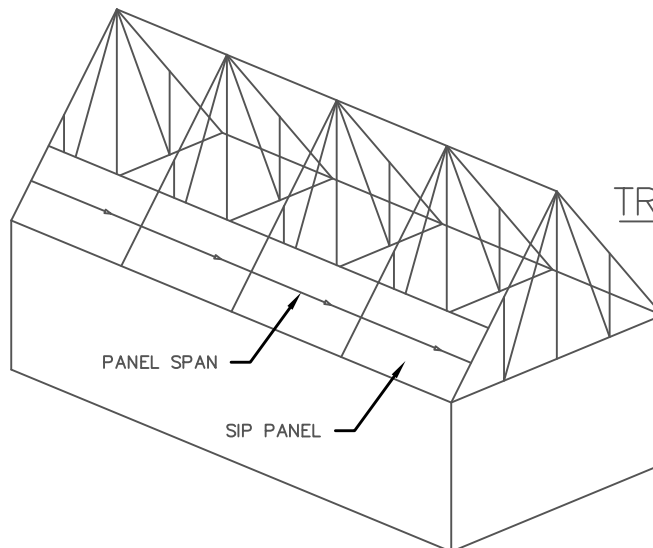
SIP'S SUPPORTED BY  
RAFTERS SPANNING FROM  
THE RIDGE BEAM TO THE  
EAVE WALLS.



### RIDGE BEAM SYSTEM

SIP'S SUPPORTED BY  
THE RIDGE BEAM AND  
THE EAVE WALLS.

MIDSPAN BEAMS  
MAY BE REQUIRED

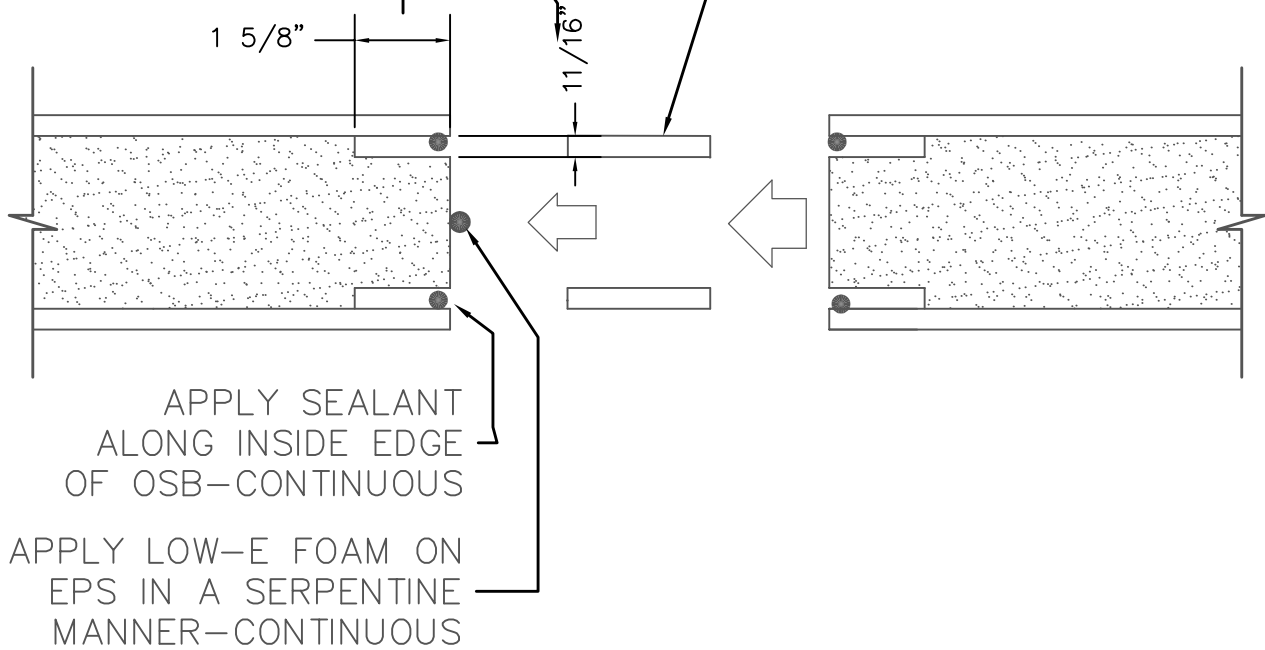


### TRUSS SYSTEM

SIP SUPPORTED  
BY ROOF TRUSSES.

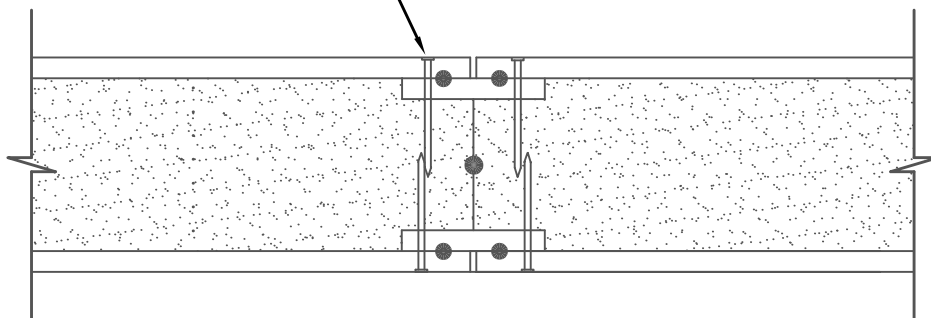
EPS REMOVED TO  
PROVIDE CLEARANCE  
FOR SPLINES - TYP.

OSB SURFACE SPLINE  
5/8" x 3", INSERT SMOOTH  
SIDE TOWARD EPS - TYP.



HORIZONTAL SECTION  
PANELS BEFORE ASSEMBLY

8d NAILS OR # 14  
1 1/2" STAPLES  
6" O.C. STAGGERED  
TYP. BOTH SIDES

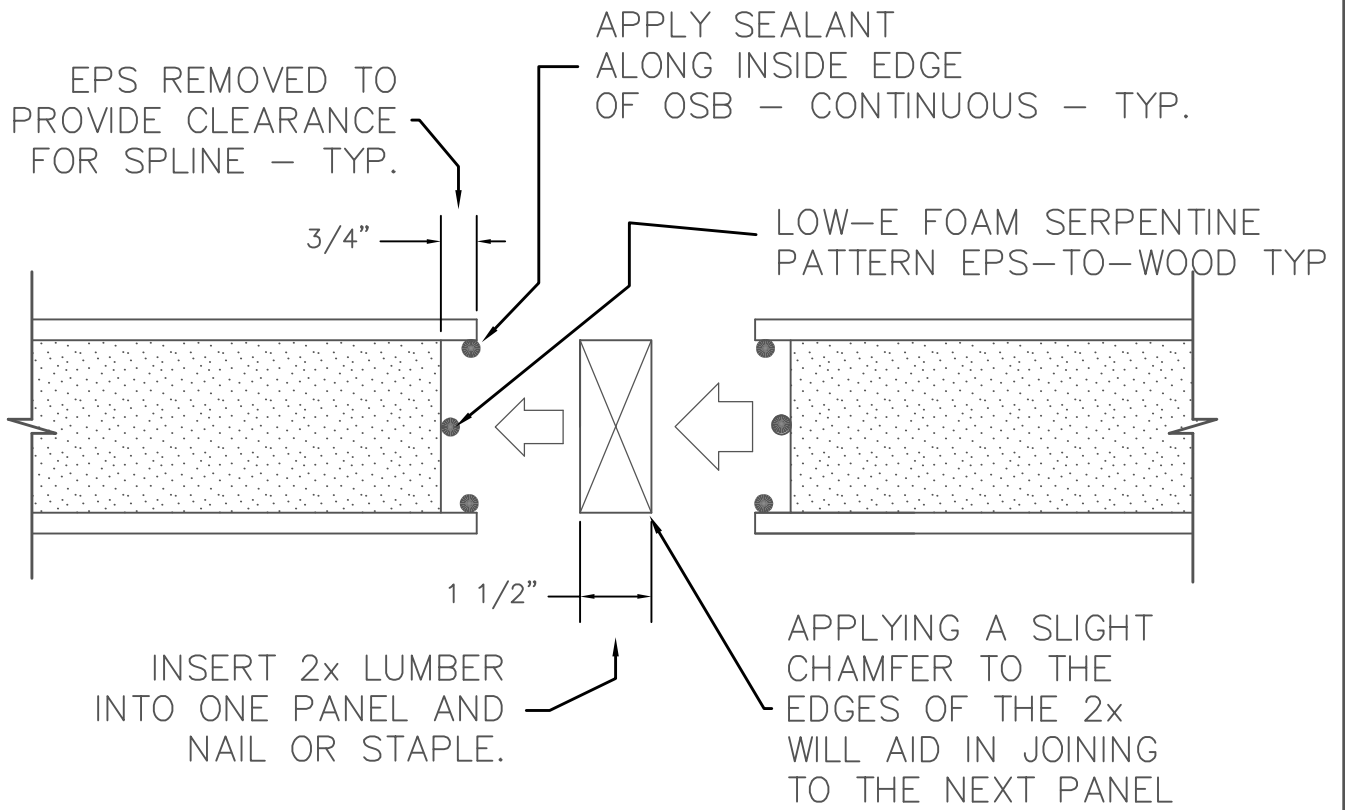


HORIZONTAL SECTION  
PANELS ASSEMBLED

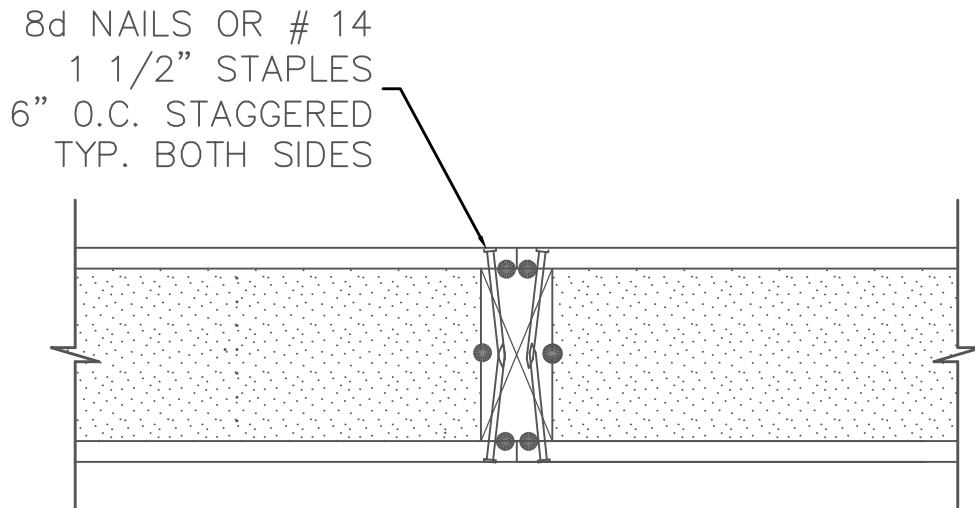
STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PANEL-TO-PANEL CONNECTION  
WITH SURFACE SPLINES





HORIZONTAL SECTION  
WALL OR ROOF PANELS BEFORE ASSEMBLY



HORIZONTAL SECTION  
WALL OR ROOF PANELS ASSEMBLED

STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

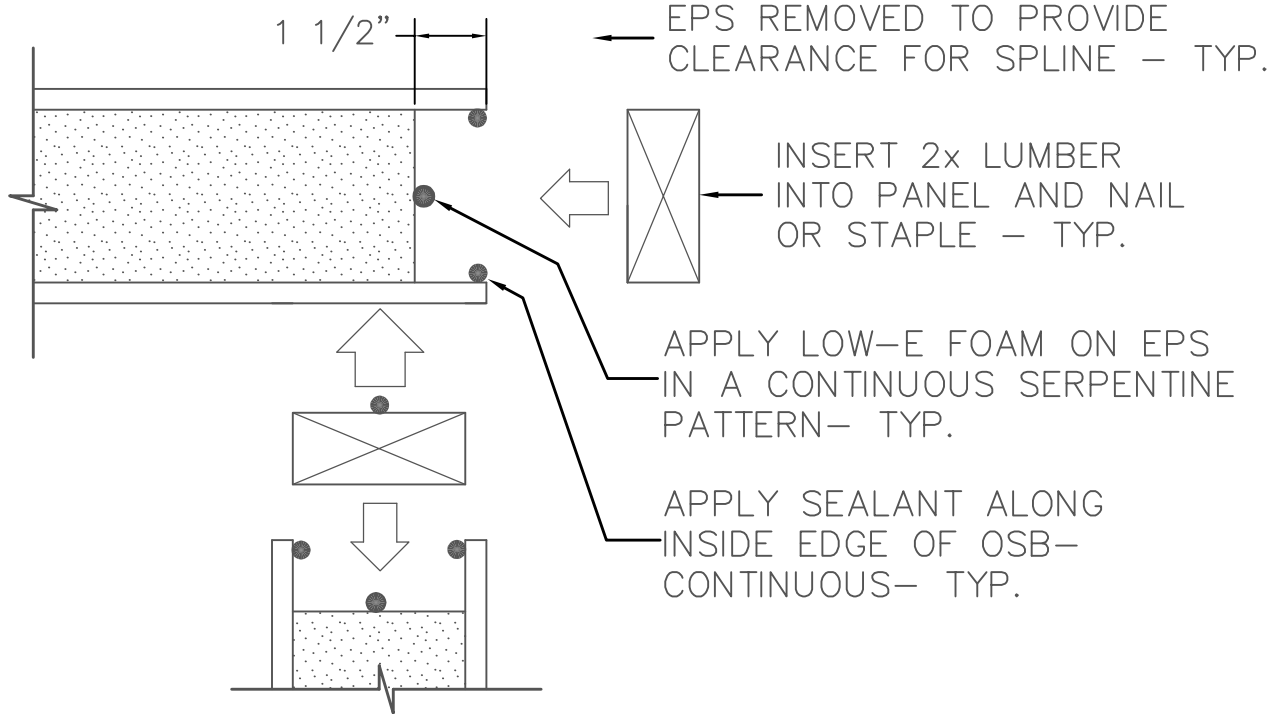
PANEL-TO-PANEL CONNECTION  
 WITH 2x LUMBER



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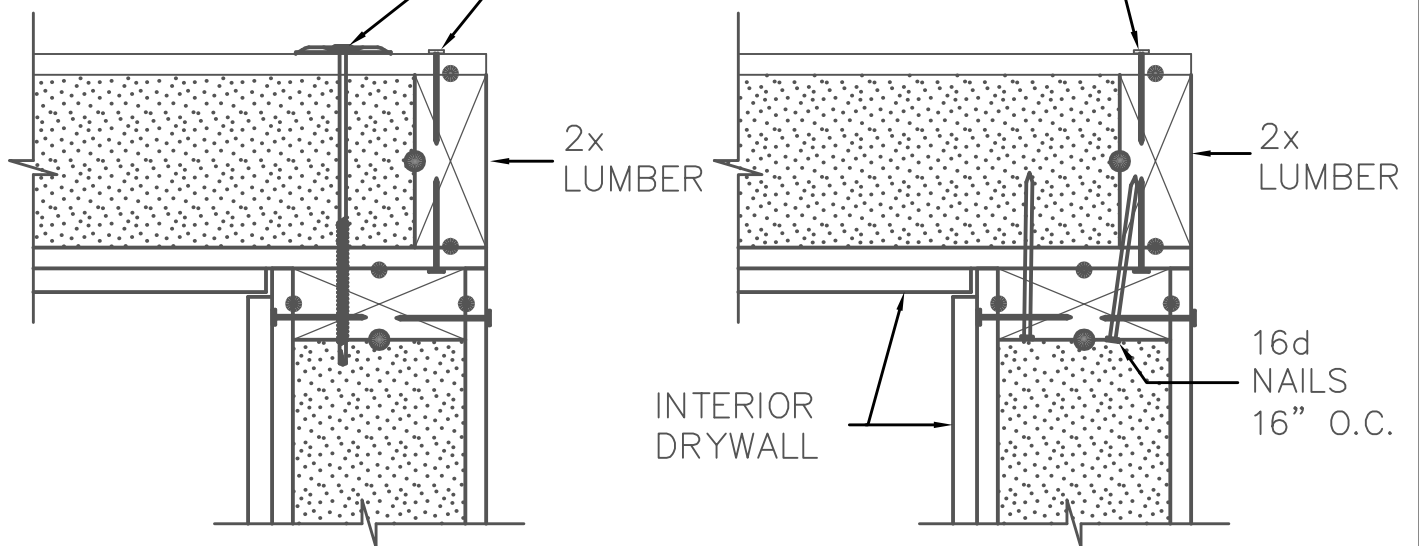
38-102



HORIZONTAL SECTION  
WALL PANELS BEFORE ASSEMBLY

# 14 PANEL SCREW  
1 1/2" LONGER THAN  
PANEL THICKNESS  
16" O.C.

8d NAILS OR # 14 1 1/2"  
STAPLES - 6" O.C. - TYP.



SCREW CONNECTION

NAIL CONNECTION

HORIZONTAL SECTION  
WALL PANELS ASSEMBLED

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

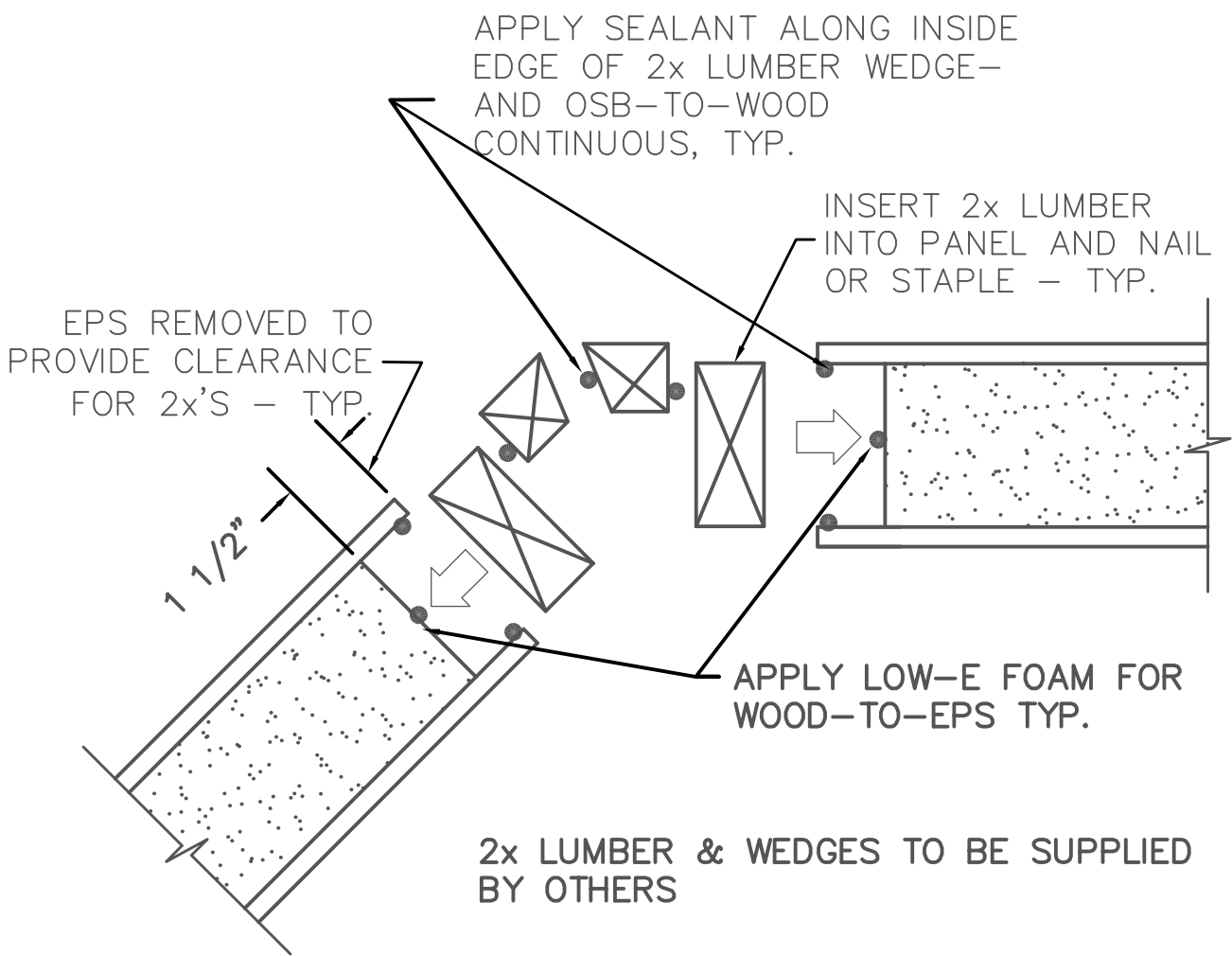
PANEL-TO-PANEL  
CORNER CONNECTION

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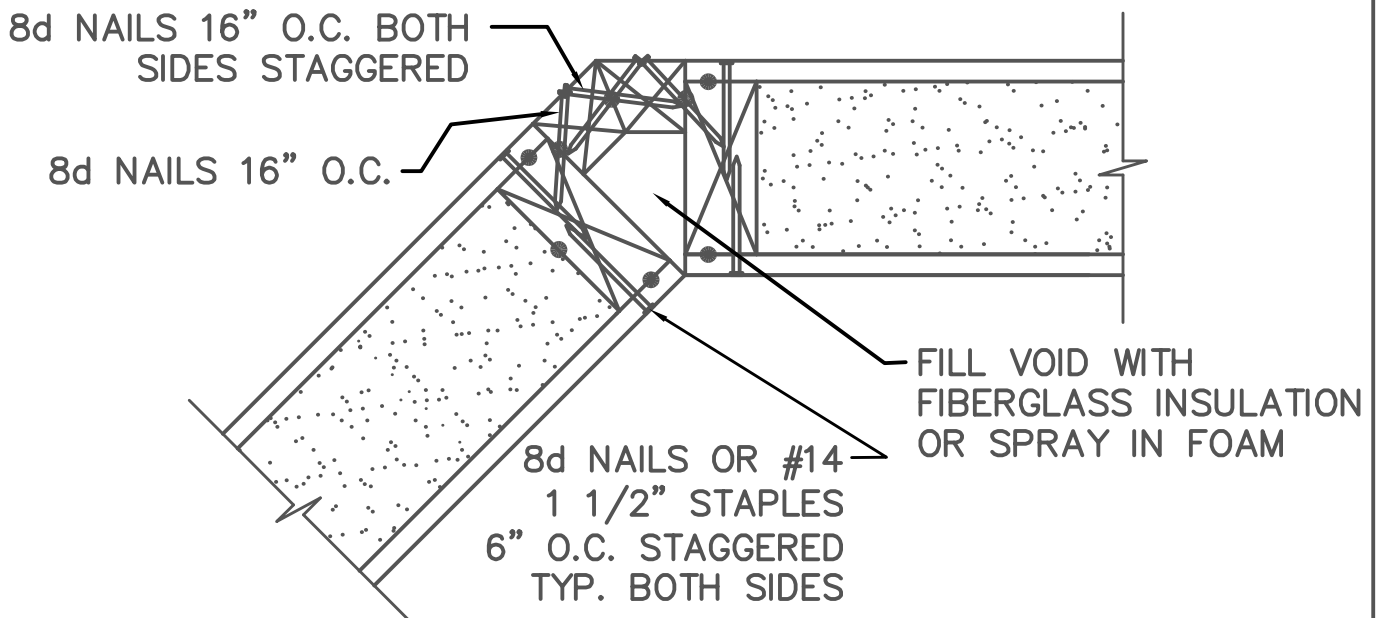
structural insulated panels

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38-103



HORIZONTAL SECTION — PANELS BEFORE ASSEMBLY



HORIZONTAL SECTION — PANELS ASSEMBLED

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PANEL—TO—PANEL CONNECTION  
BAY WINDOW



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38-105

EPS REMOVED TO PROVIDE CLEARANCE FOR SPLINES - TYP.

1-5/8"

INSERT INSUL-SPLINE INTO ONE PANEL, THEN SLIDE NEXT PANEL OVER SPLINE.

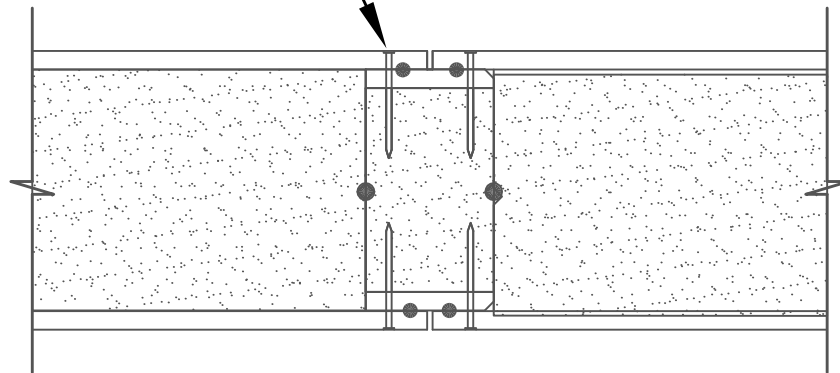
APPLY LOW-E FOAM ON EPS IN A SERPENTINE MANNER-CONTINUOUS

APPLY SEALANT ALONG INSIDE EDGE OF OSB-CONTINUOUS

CHAMFER SIDE OUT

HORIZONTAL SECTION  
PANELS BEFORE ASSEMBLY

8d NAILS OR # 14  
1 1/2" STAPLES  
6" O.C. STAGGERED  
TYP. BOTH SIDES



HORIZONTAL SECTION  
PANELS ASSEMBLED

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

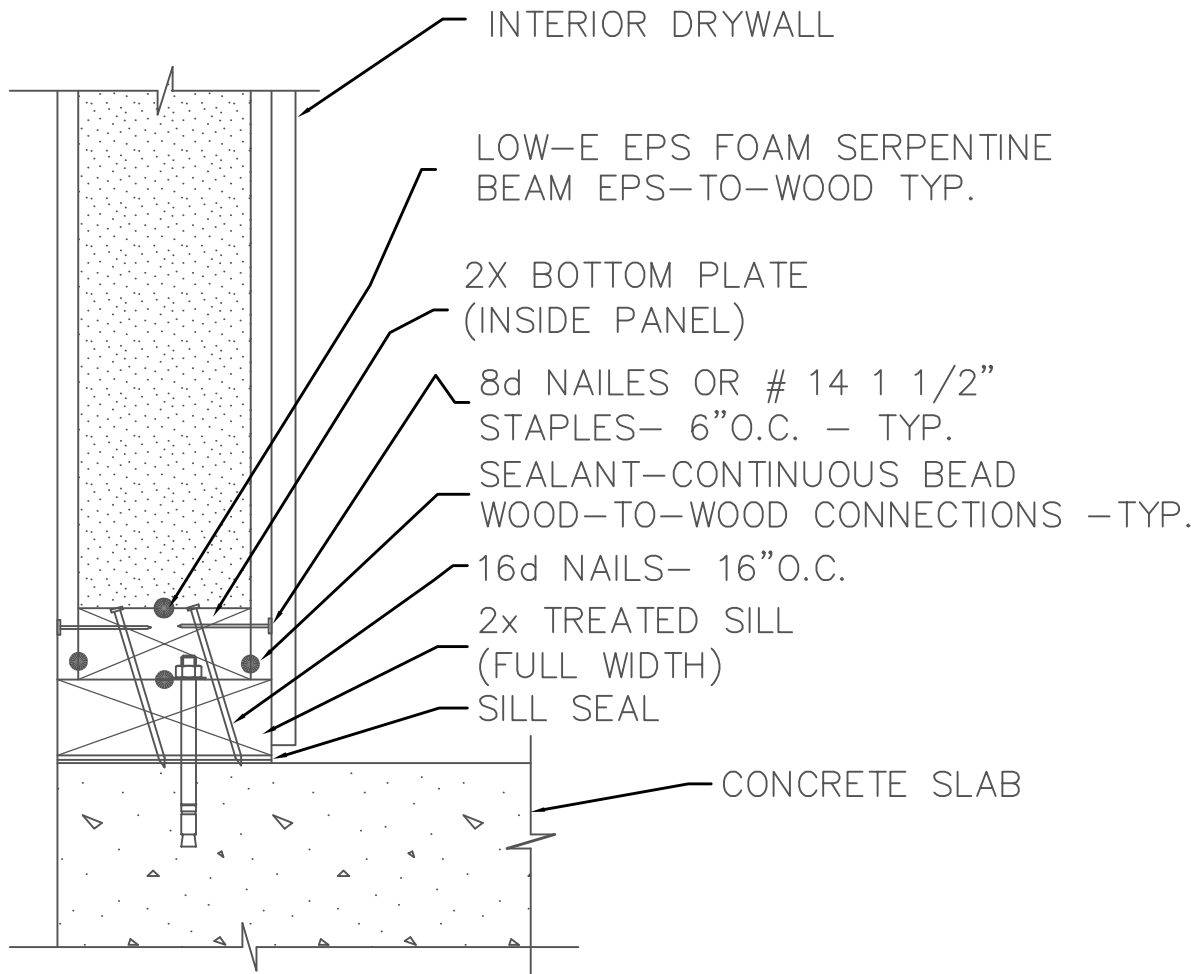
PANEL-TO-PANEL CONNECTION  
WITH INSUL-SPLINE

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38-106



NOTE: MAINTAIN A MINIMUM OF 8" FROM GRADE TO PANEL OSB

VERTICAL SECTION  
WALL TO FOUNDATION ASSEMBLY

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

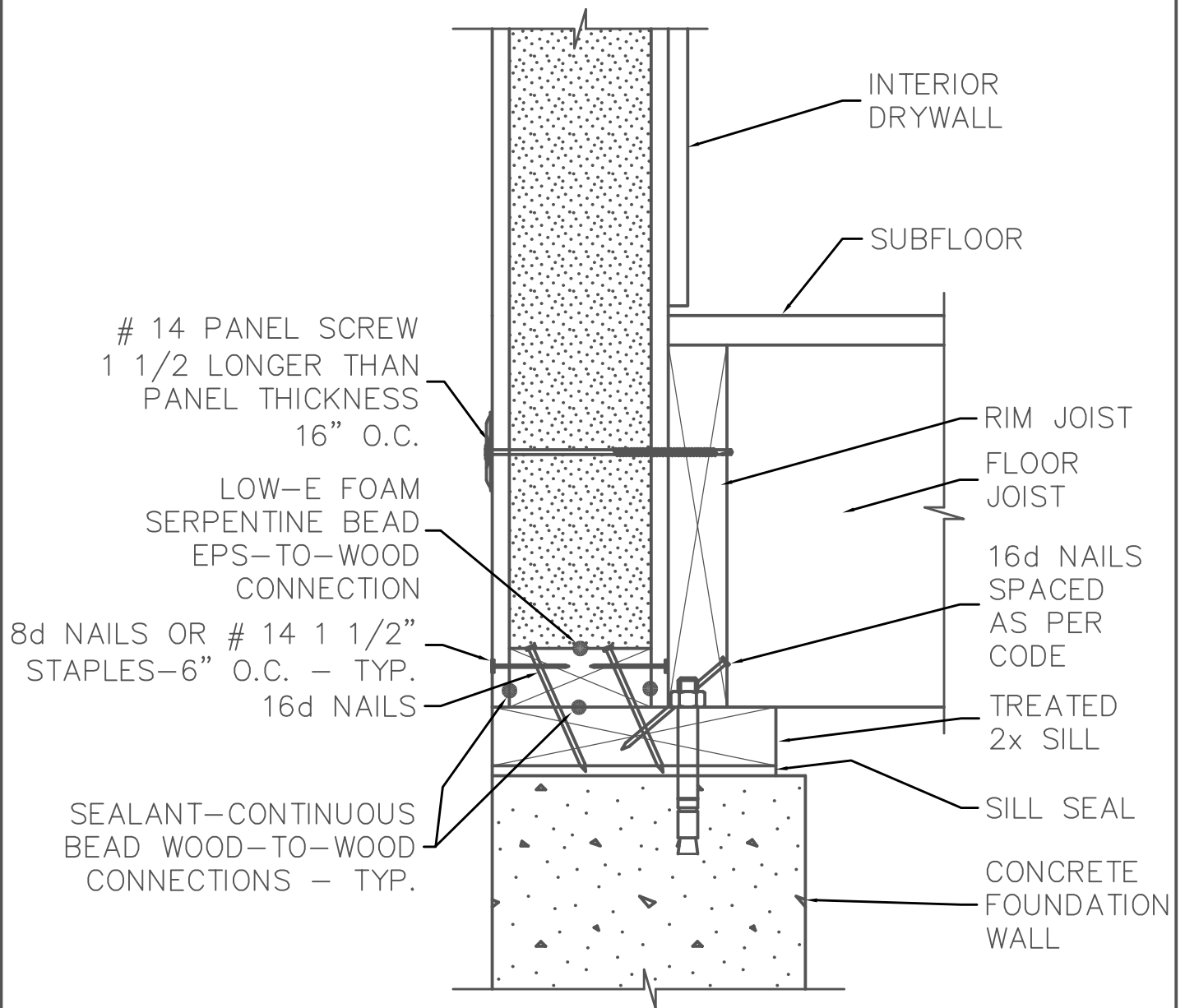
PANEL ON SLAB



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38-201



NOTE: MAINTAIN A MINIMUM OF 8" FROM GRADE TO UNTREATED PANEL

VERTICAL SECTION  
 WALL TO FOUNDATION ASSEMBLY

STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

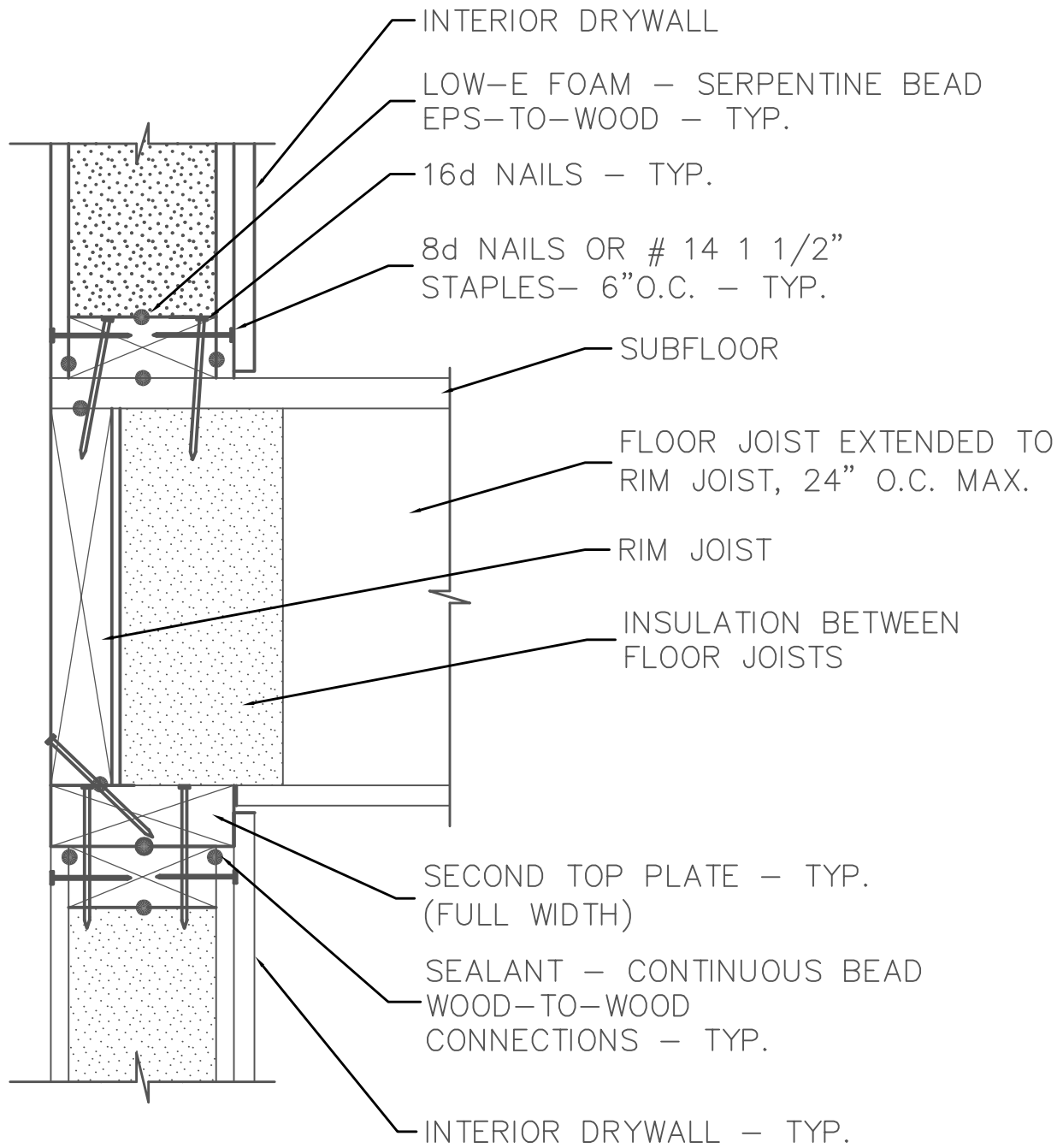
PANEL ON SILL PLATE  
 WITH RIM JOIST

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38-202



VERTICAL SECTION  
RIM JOIST BETWEEN WALL PANELS

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

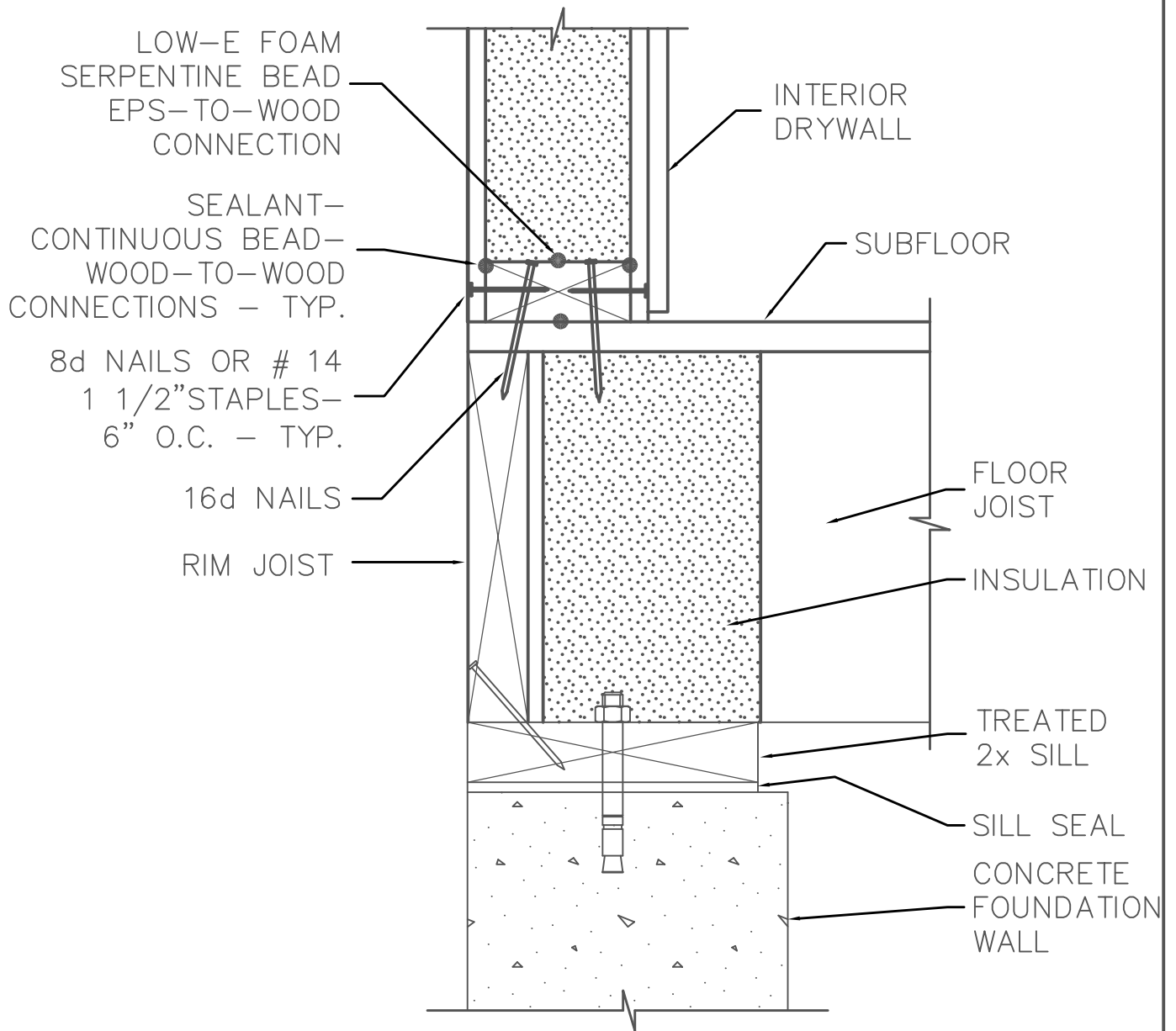
BEARING WALL TO FLOOR  
JOIST – MULTI-STORY



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38-203



VERTICAL SECTION  
RIM JOIST BETWEEN WALL PANEL AND FOUNDATION

STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

PANEL ON SUBFLOOR

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**38-204**



CONTINUOUS SIP WALL

INTERIOR DRYWALL

SUBFLOOR

LEDGER BOARD AS REQ'D BY SPECIFIC DESIGN

# 14 PANEL SCREW 1 1/2" LONGER THAN PANEL THICKNESS AS REQ'D BY SPECIFIC DESIGN

FLOOR JOIST

JOIST HANGER NAIL AS REQ'D

VERTICAL SECTION  
FLOOR JOIST HANGERED ON SIP WALL

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

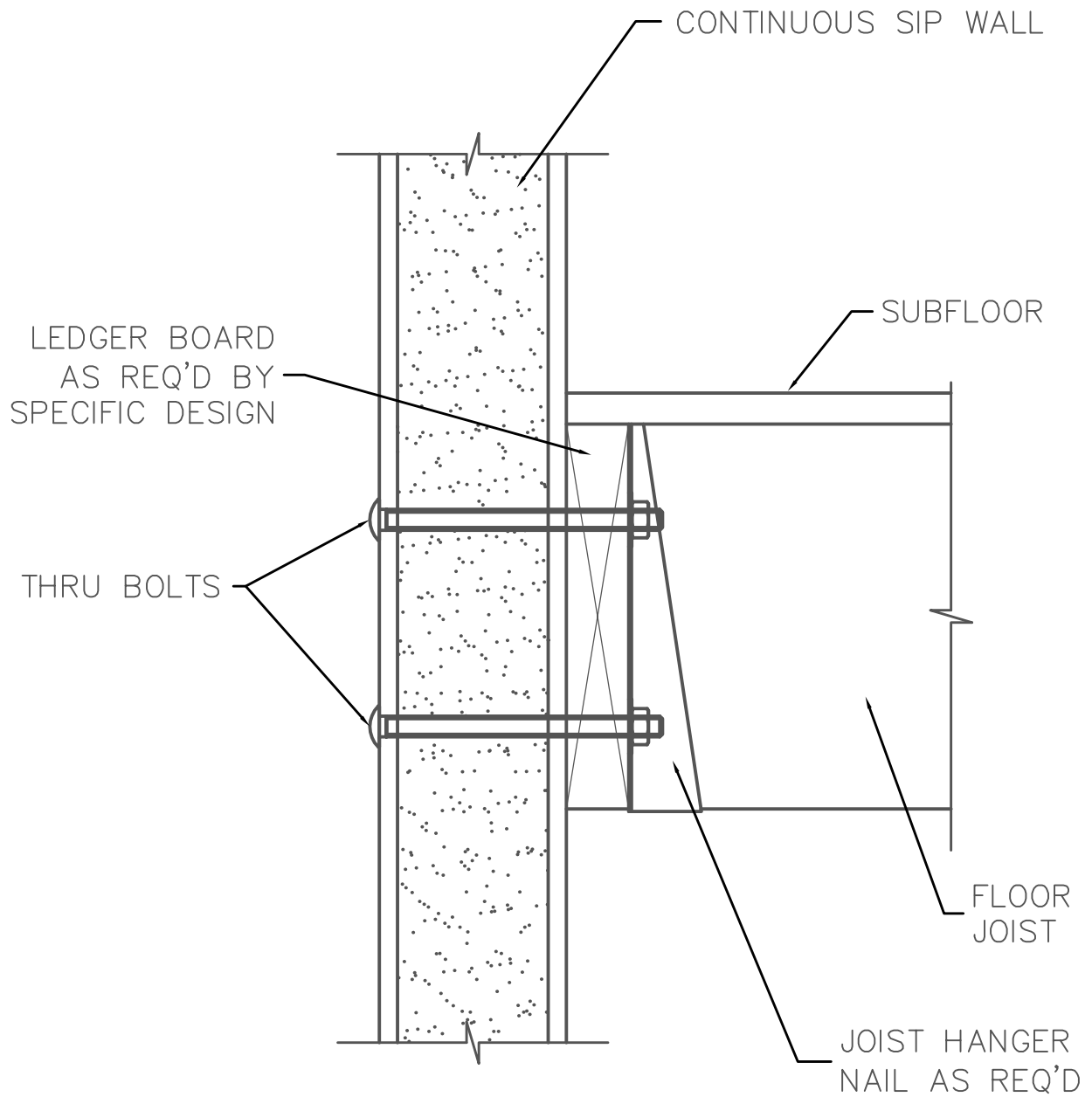
FLOOR JOIST HANGER  
& LEDGER BOARD



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38-205



VERTICAL SECTION  
FLOOR JOIST HANGERED ON SIP WALL

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

FLOOR JOIST HANGER  
& LEDGER BOARD

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**38-205A**

CONTINUOUS SIP WALL

INTERIOR DRYWALL

8d NAILS OR # 14 1 1/2" STAPLES- 6" O.C. - TYP.

# 14 PANEL SCREW 1 1/2" LONGER THAN PANEL THICKNESS @ 24" O.C.

# 14 PANEL SCREW 1 1/2" LONGER THAN PANEL THICKNESS AS REQ'D BY SPECIFIC DESIGN

SIP FLOOR PANEL

NOTE: INTERIOR FINISH NOT SHOWN

LEDGER BOARD AS REQ'D BY SPECIFIC DESIGN

VERTICAL SECTION FLOOR PANEL ON LEDGER BOARD

STRUCTURAL INSULATED PANEL INSTALLATION GUIDE

FLOOR PANEL & LEDGER BOARD

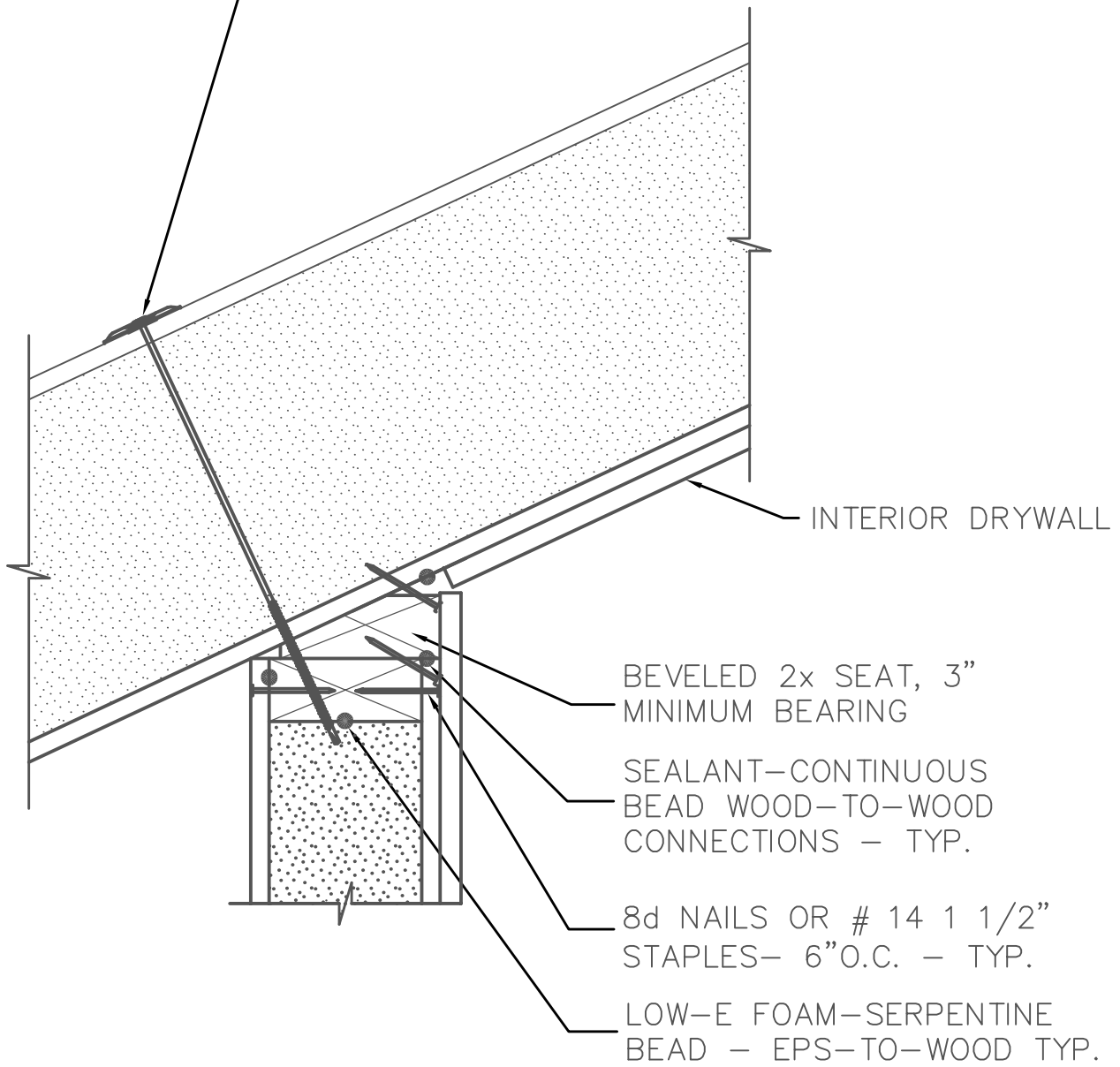


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38-206

# 14 PANEL SCREW 1 1/2"  
LONGER THAN PANEL THICKNESS  
SEE ENGINEERING DATA  
FOR SPACING REQUIREMENTS



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

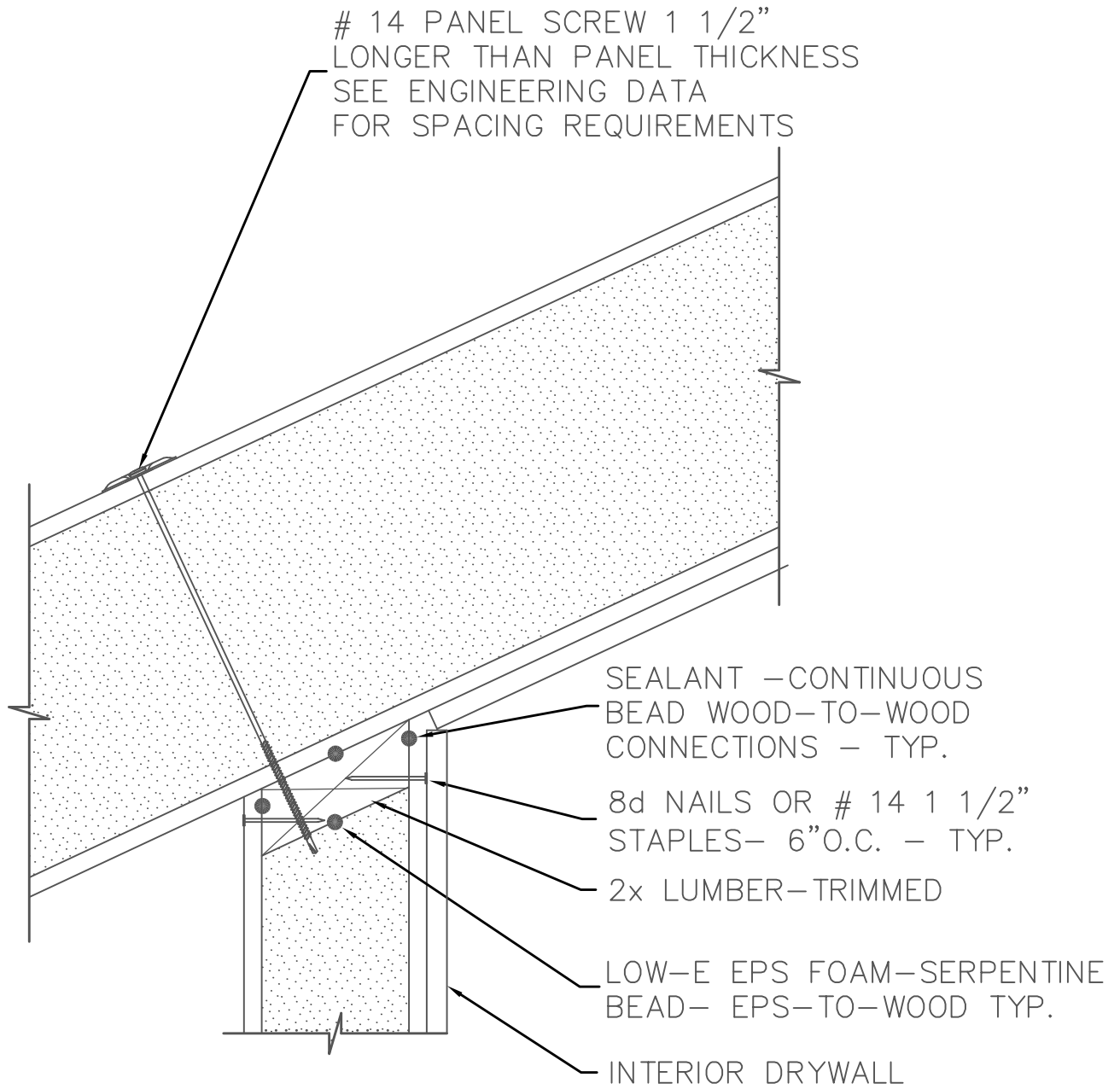
ROOF-TO-WALL CONNECTION  
PITCHED ROOF-BEVELED SEAT

**porterSIPS**<sup>TM</sup>

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**38-301**



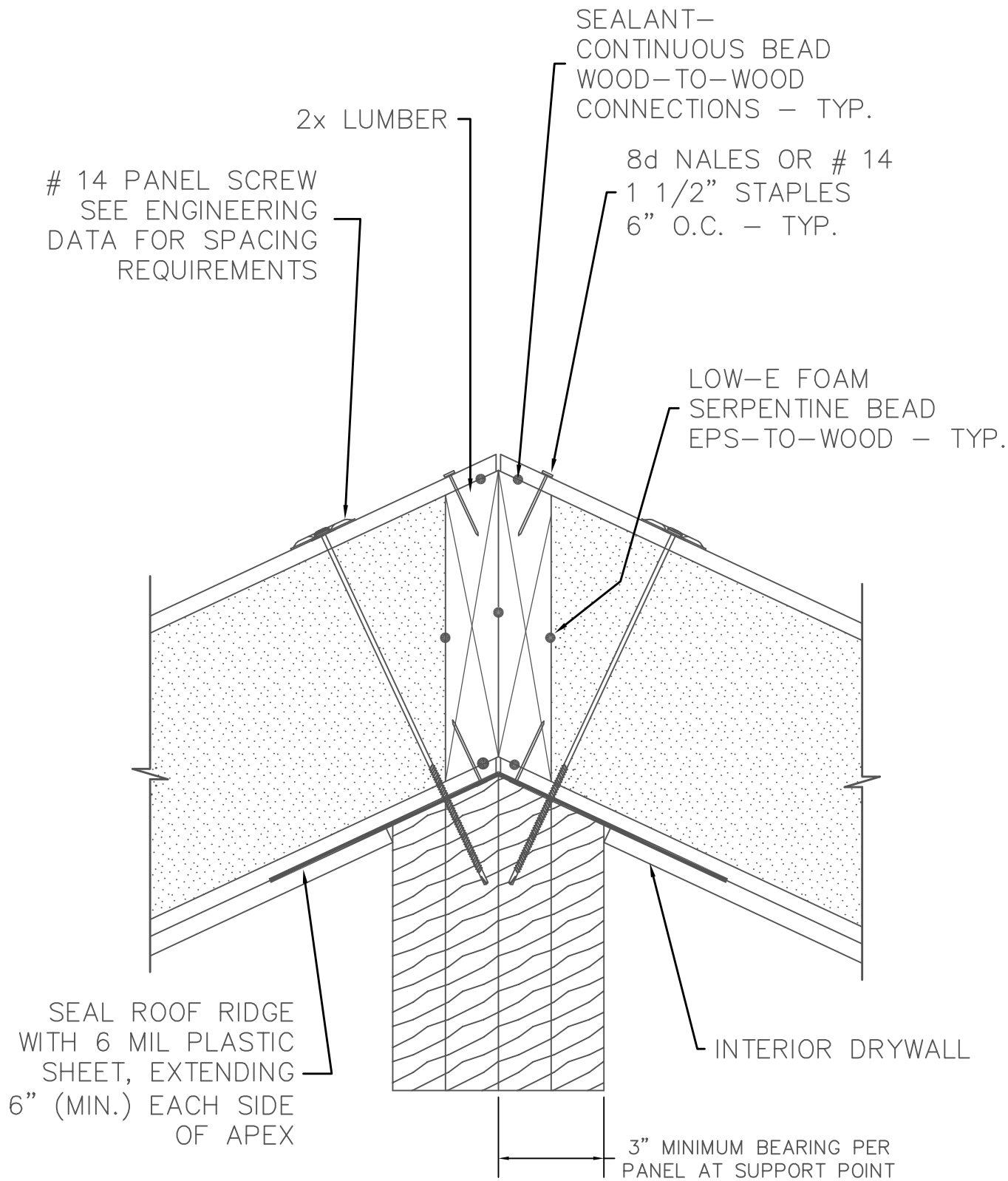
STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

ROOF-TO-WALL CONNECTION  
PITCHED ROOF-CANTED PLATE

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38-302



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

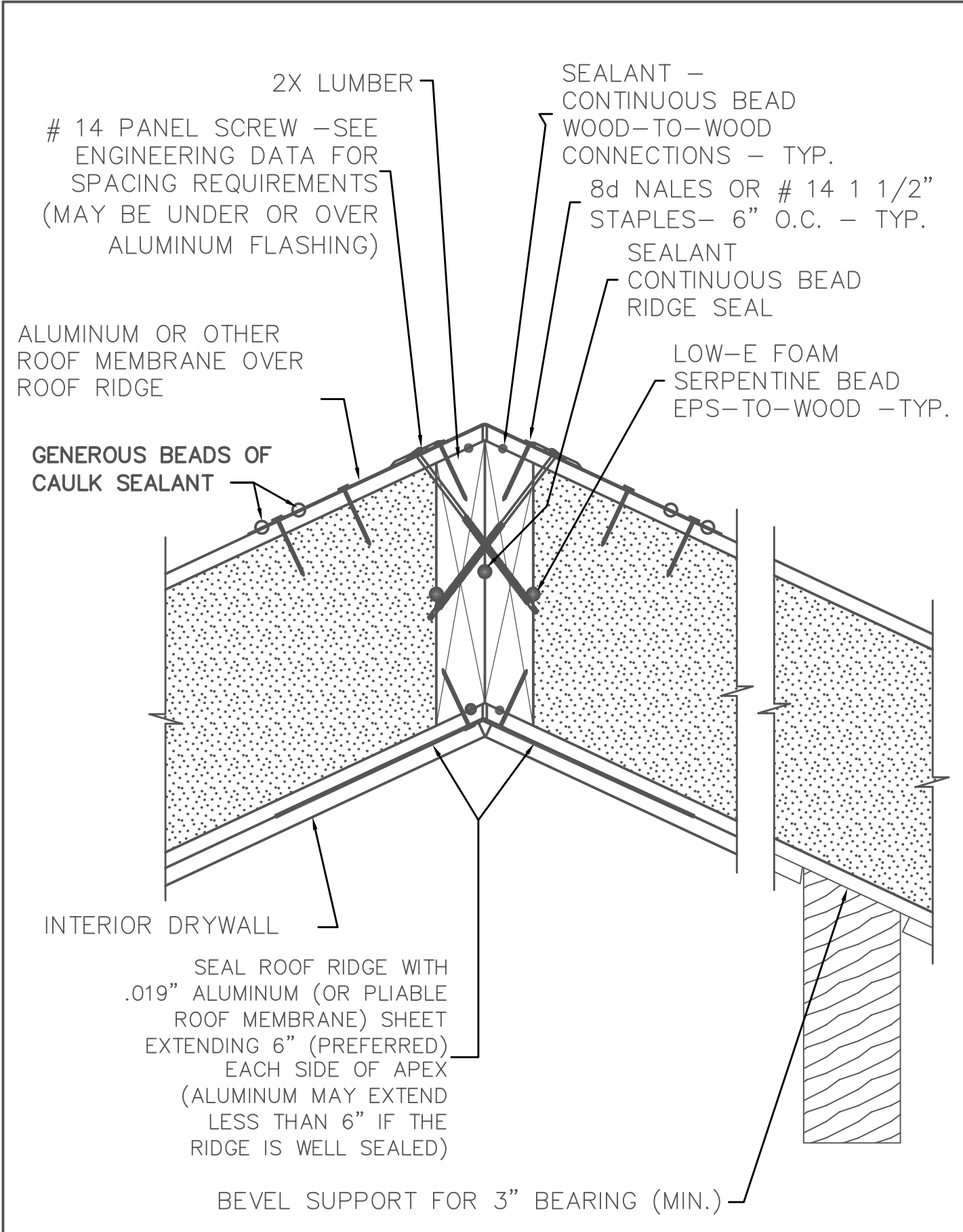
ROOF RIDGE CONNECTION  
WITH SOLID BLOCKING



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38-303



2X LUMBER

# 14 PANEL SCREW –SEE  
ENGINEERING DATA FOR  
SPACING REQUIREMENTS  
(MAY BE UNDER OR OVER  
ALUMINUM FLASHING)

SEALANT –  
CONTINUOUS BEAD  
WOOD-TO-WOOD  
CONNECTIONS – TYP.

8d NALES OR # 14 1 1/2”  
STAPLES– 6” O.C. – TYP.

ALUMINUM OR OTHER  
ROOF MEMBRANE OVER  
ROOF RIDGE

SEALANT  
CONTINUOUS BEAD  
RIDGE SEAL

LOW-E FOAM  
SERPENTINE BEAD  
EPS-TO-WOOD –TYP.

GENEROUS BEADS OF  
CAULK SEALANT

INTERIOR DRYWALL

SEAL ROOF RIDGE WITH  
.019” ALUMINUM (OR PLIABLE  
ROOF MEMBRANE) SHEET  
EXTENDING 6” (PREFERRED)  
EACH SIDE OF APEX  
(ALUMINUM MAY EXTEND  
LESS THAN 6” IF THE  
RIDGE IS WELL SEALED)

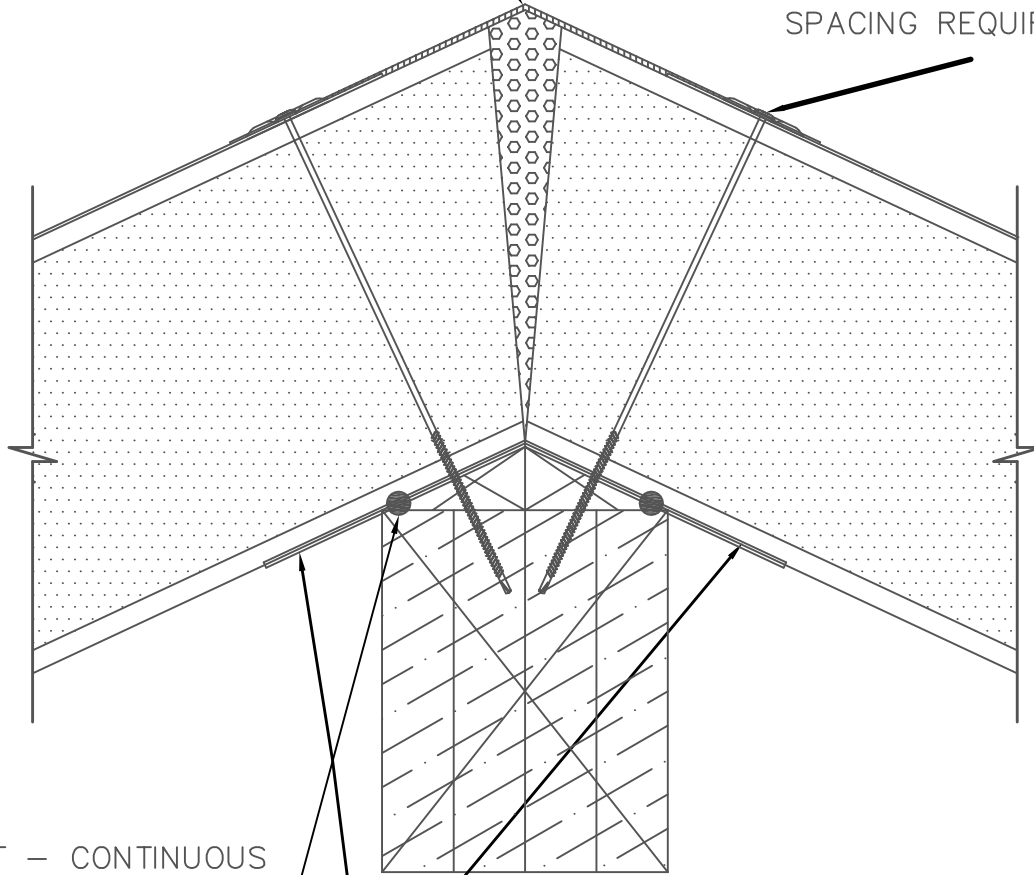
BEVEL SUPPORT FOR 3” BEARING (MIN.)

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

CANTILEVER ROOF RIDGE  
CONNECTION W/SOLID BLOCKING

FILL ALL GAPS WITH  
LOW-E EPS FOAM  
MEMBRANE RIDGE SEAL

FASTENERS -SEE  
ENGINEERING DATA FOR  
SPACING REQUIREMENTS



SEALANT - CONTINUOUS  
BEAD WOOD-TO-WOOD  
CONNECTIONS -TYP

SEAL ROOF RIDGE WITH  
PLIABLE ROOF MEMBRANE OR  
6 MIL POLY STRIP  
EXTENDING THE THICKNESS  
OF THE PANEL TO EACH  
SIDE OF THE APEX

3" MINIMUM BEARING  
AT EACH PANEL

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ROOF RIDGE CONNECTION  
WITHOUT SOLID BLOCKING

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38-305



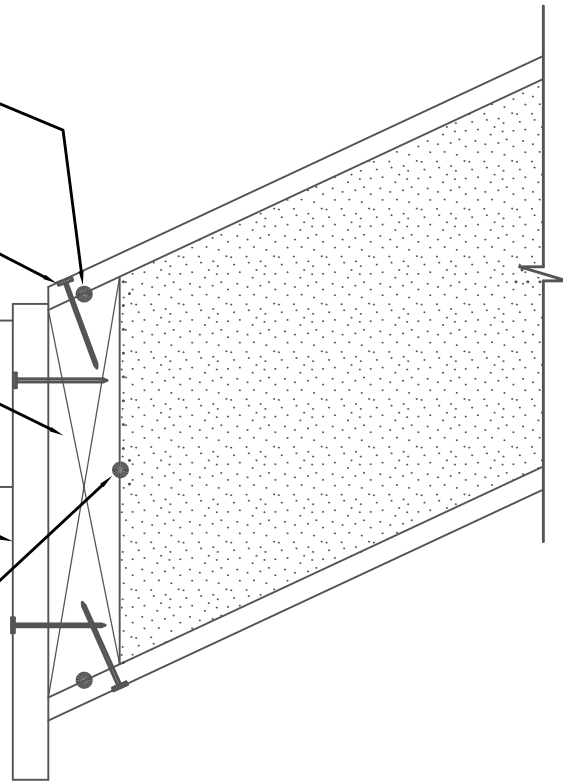
SEALANT—CONTINUOUS  
BEAD WOOD—TO—WOOD  
CONNECTIONS — TYP.

8d NAILS OR # 14 1 1/2"  
STAPLES— 6"O.C. — TYP.

2x END SPLINE  
(SUBFACIA)

FACIA

LOW—E FOAM—CONTINUOUS  
SERPENTINE  
BEAD— EPS—TO—WOOD — TYP.



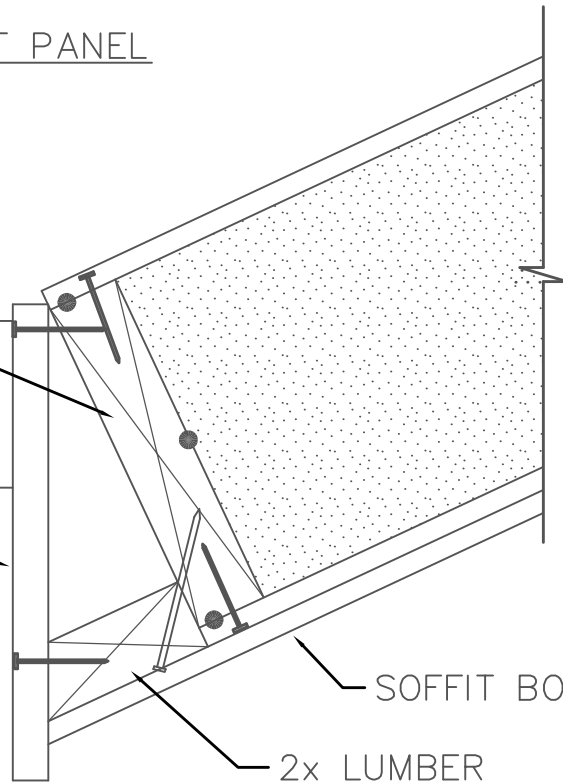
PLUMB CUT PANEL

2x END SPLINE

FACIA

SOFFIT BOARD

2x LUMBER



SQUARE CUT PANEL

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INSTALLATION GUIDE

ROOF EAVE  
PITCHED ROOF

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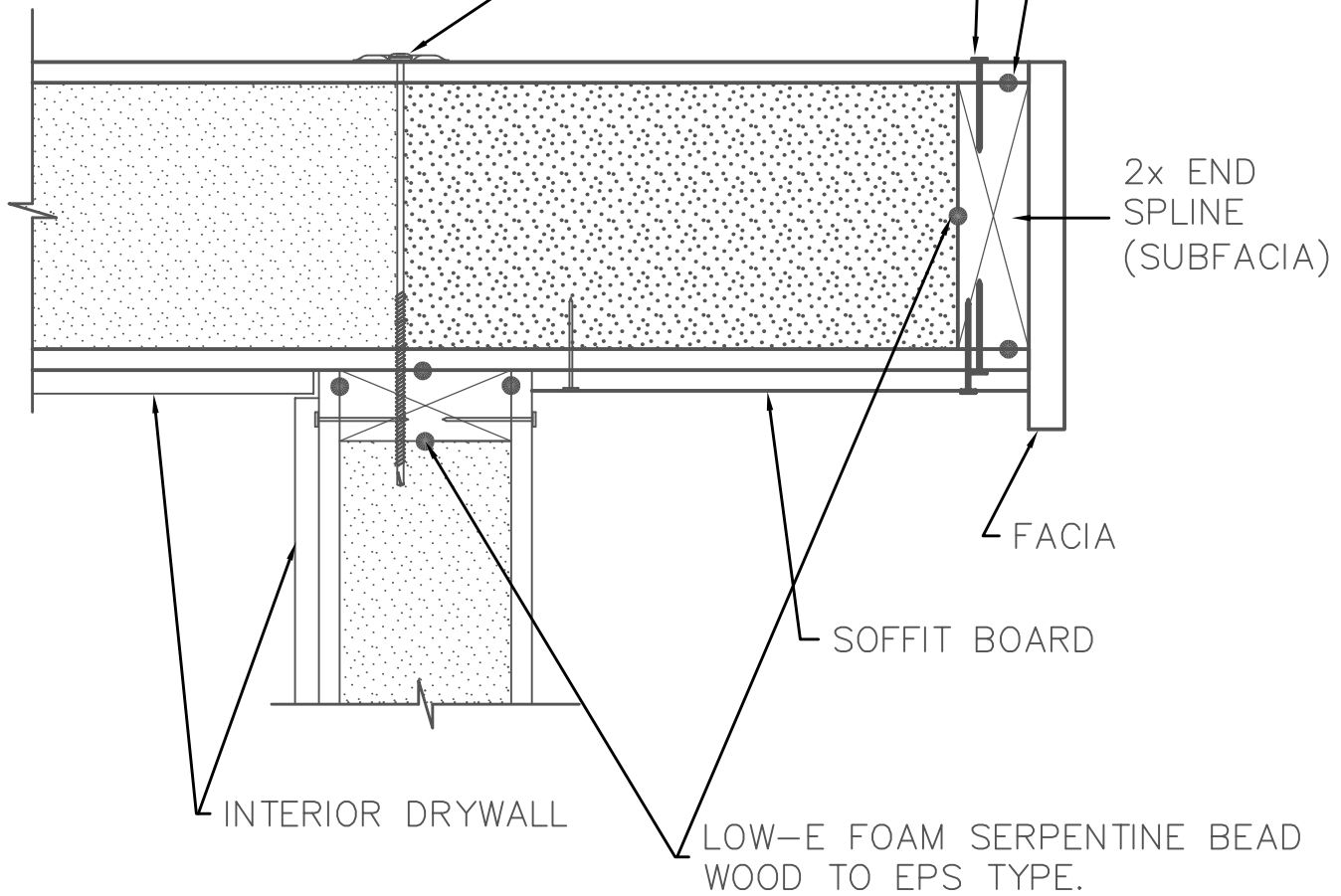
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38-307

SEALANT—CONTINUOUS BEAD  
WOOD—TO—WOOD CONNECTIONS — TYP.

8d NAILS OR # 14 1 1/2"  
STAPLES— 6"O.C.— TYP.

# 14 PANEL SCREW 1 1/2"  
LONGER THAN PANEL THICKNESS  
SEE ENGINEERING DATA FOR  
SPACING REQUIREMENTS



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

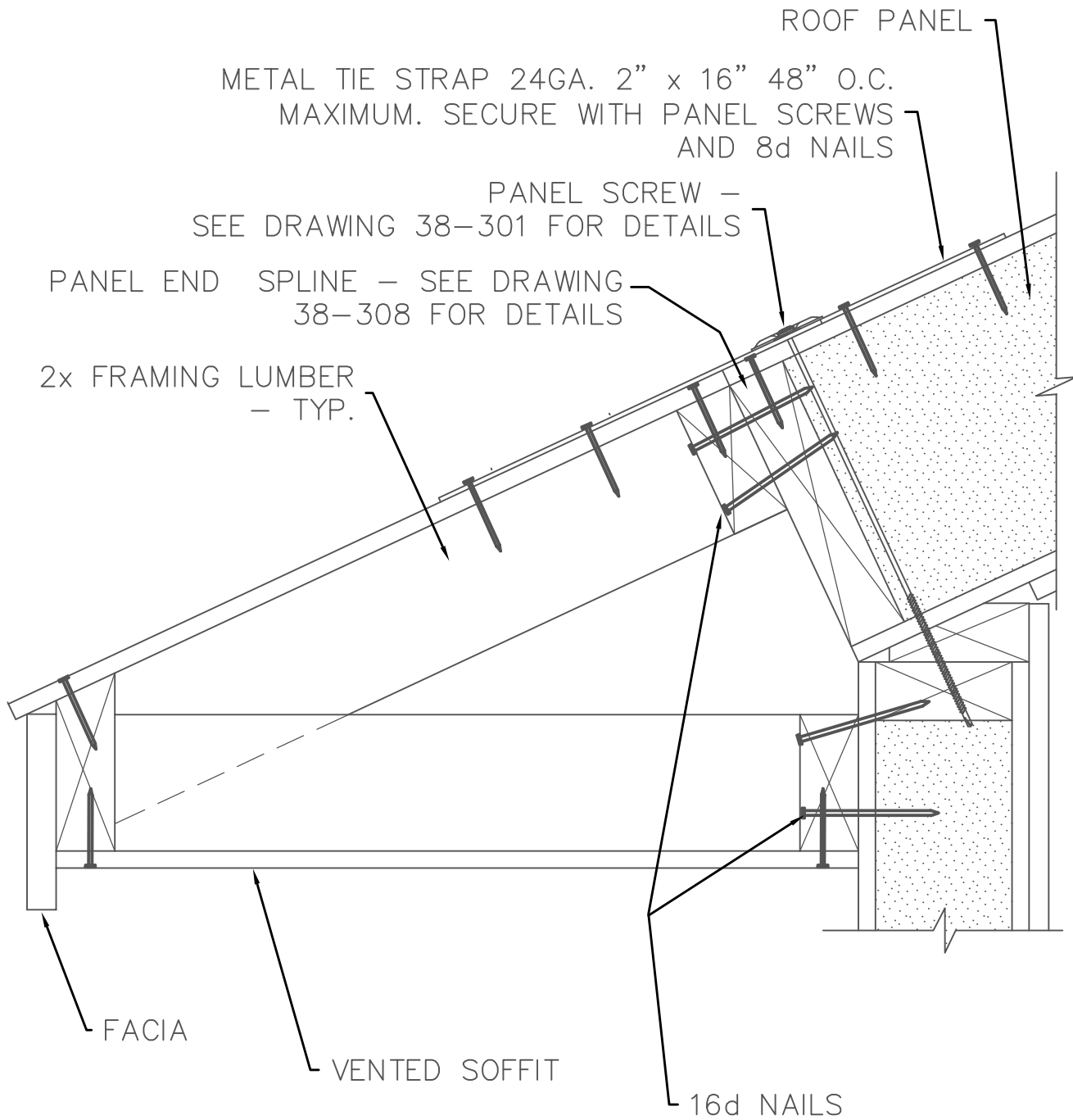
ROOF—TO—WALL CONNECTION  
GABLE END

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38-308



METAL TIE STRAP 24GA. 2" x 16" 48" O.C.  
 MAXIMUM. SECURE WITH PANEL SCREWS  
 AND 8d NAILS

PANEL SCREW –  
 SEE DRAWING 38-301 FOR DETAILS

PANEL END SPLINE – SEE DRAWING  
 38-308 FOR DETAILS

2x FRAMING LUMBER  
 – TYP.

FACIA

VENTED SOFFIT

16d NAILS

FOAM AND SEALANT NOT SHOWN

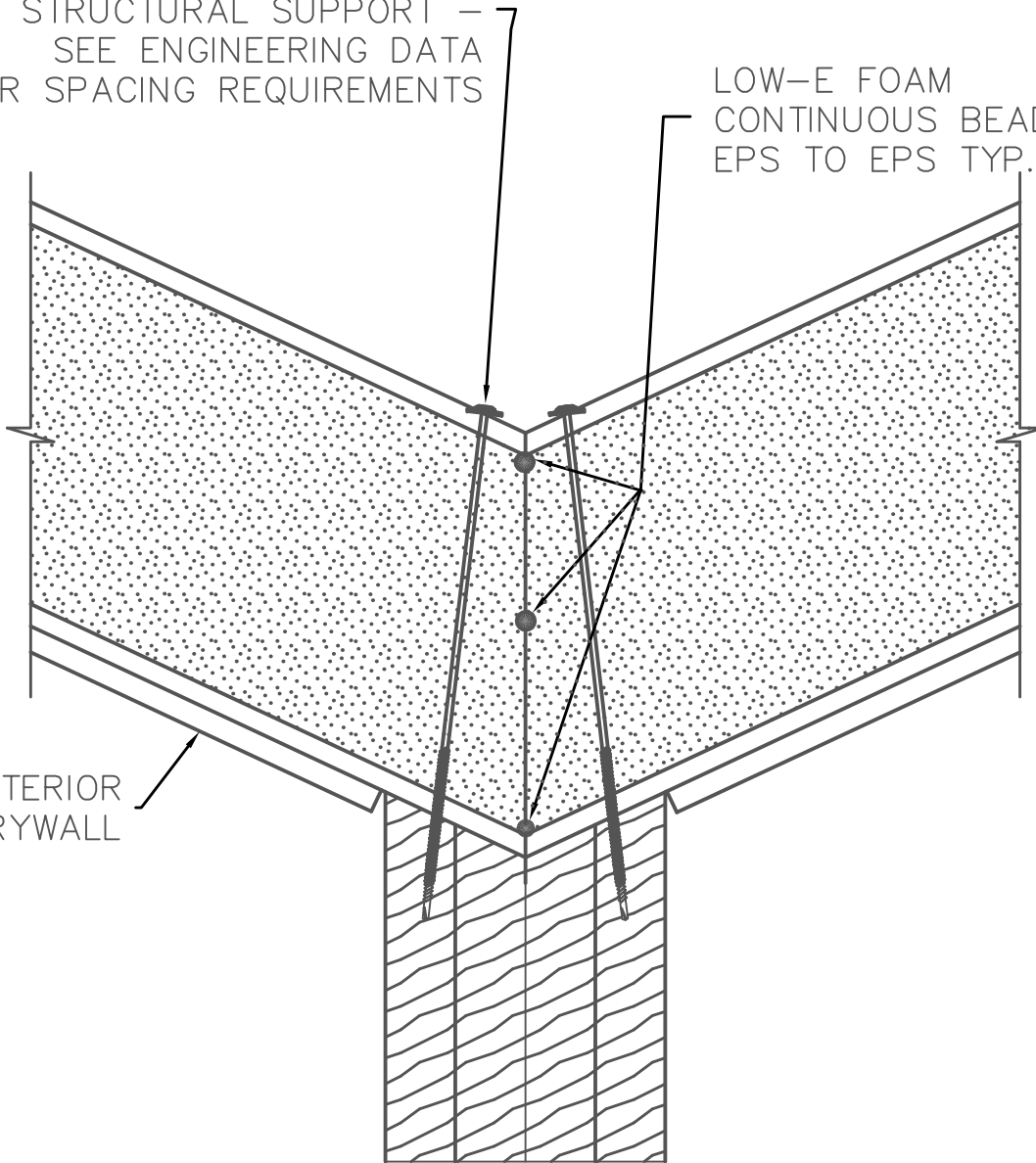
STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

FRAMED ROOF EAVE

# 14 PANEL SCREW – MINIMUM  
ENGAGEMENT OF 1 1/2" INTO  
STRUCTURAL SUPPORT –  
SEE ENGINEERING DATA  
FOR SPACING REQUIREMENTS

LOW-E FOAM  
CONTINUOUS BEAD  
EPS TO EPS TYP.

INTERIOR  
DRYWALL

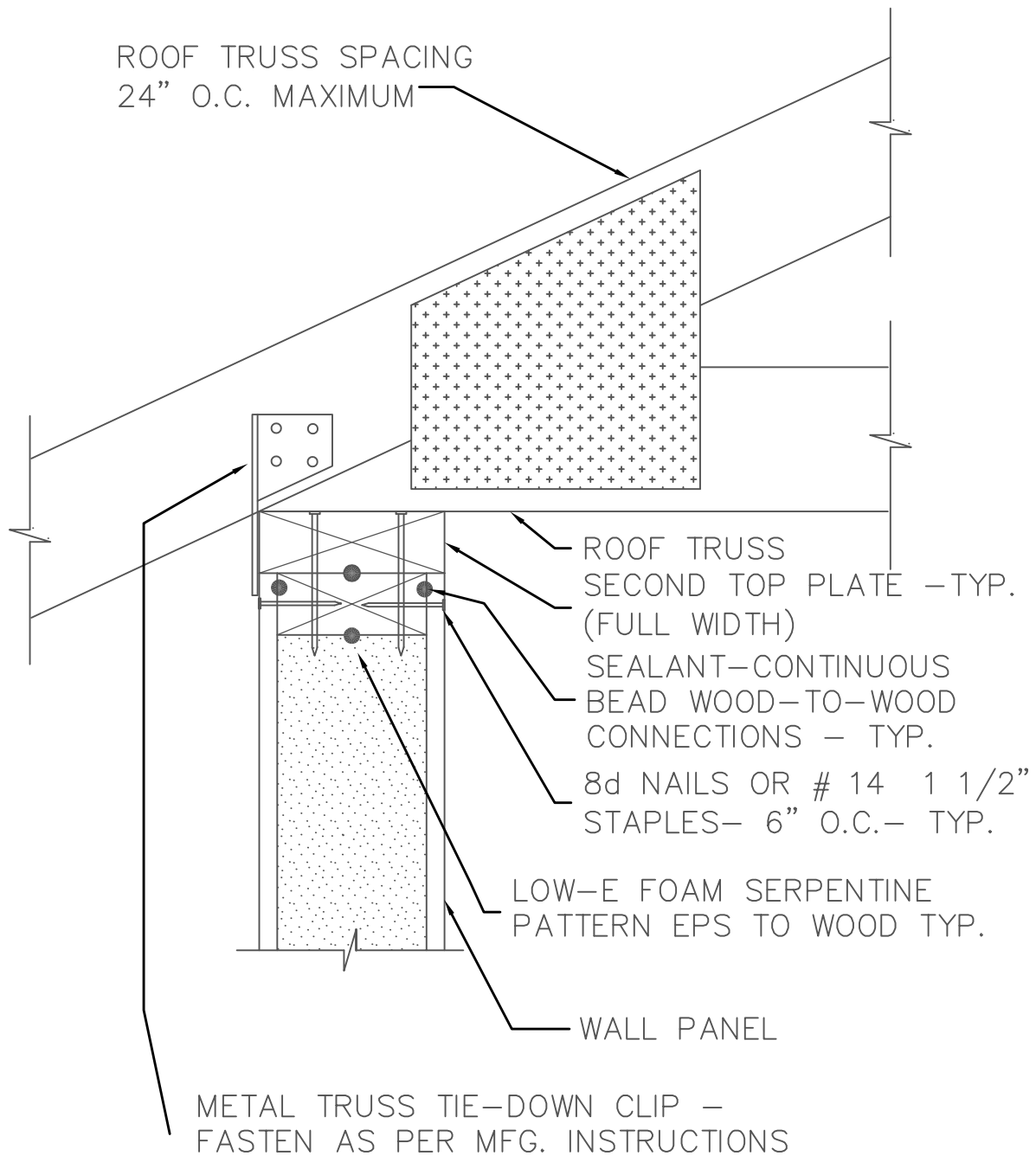


3" MINIMUM BEARING  
AT EACH PANEL

NOTE: FLASH VALLEY WELL,  
USING LONG SERVICE LIFE  
MATERIAL

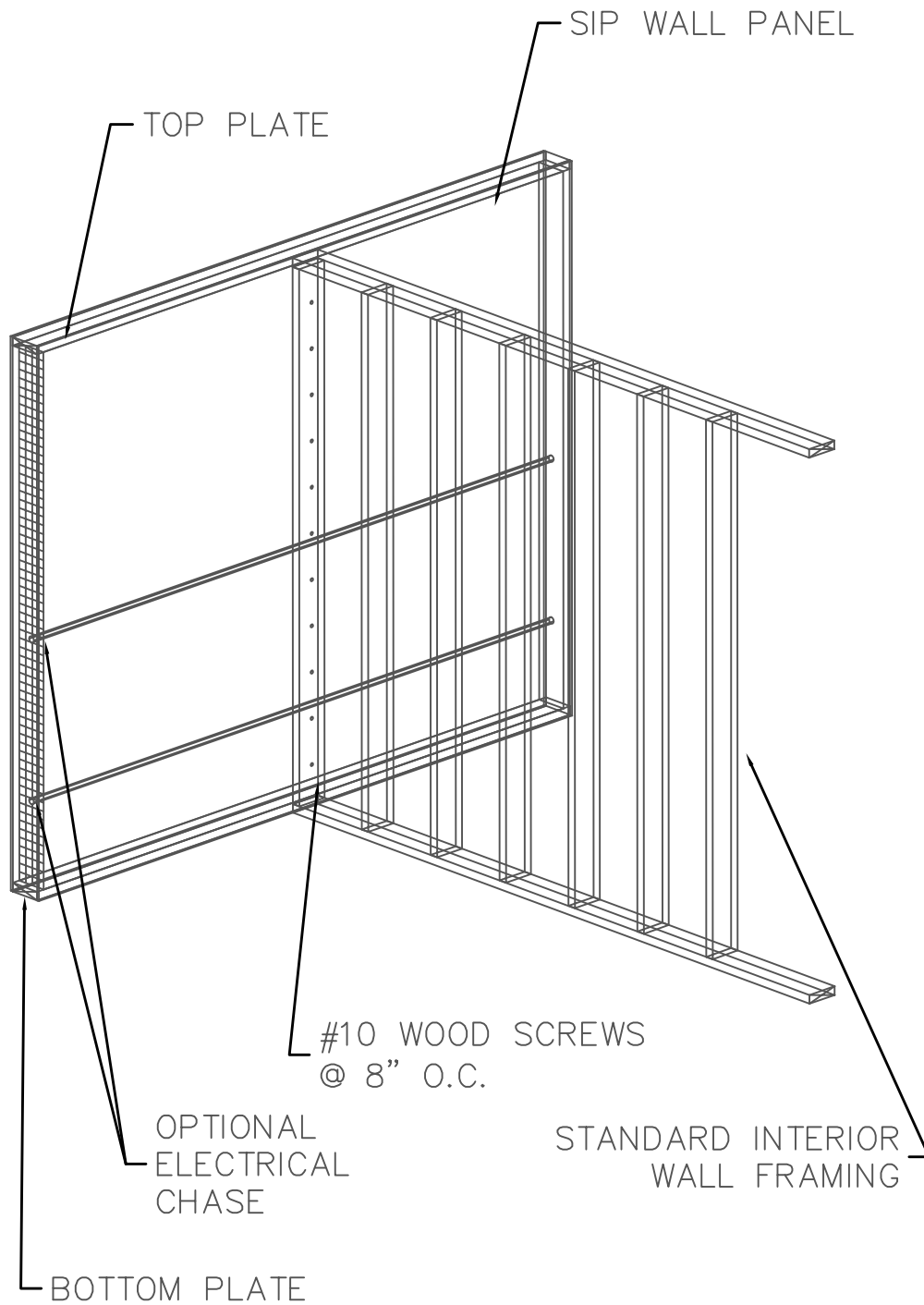
STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

ROOF VALLEY CONNECTION



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

ROOF TRUSS-TO-WALL  
CONNECTION

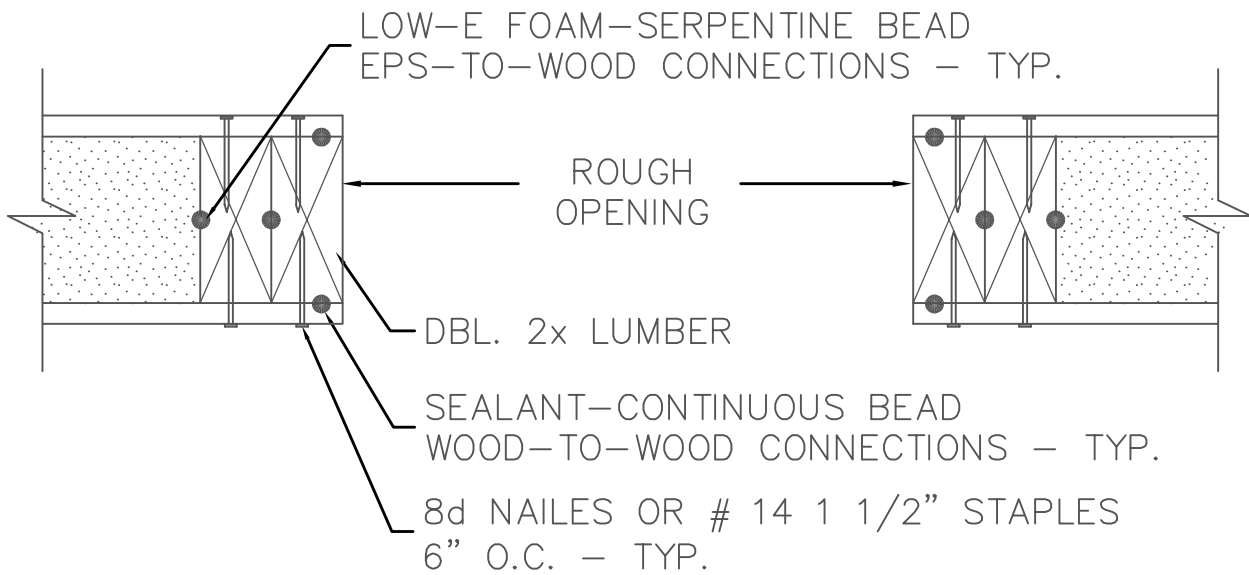
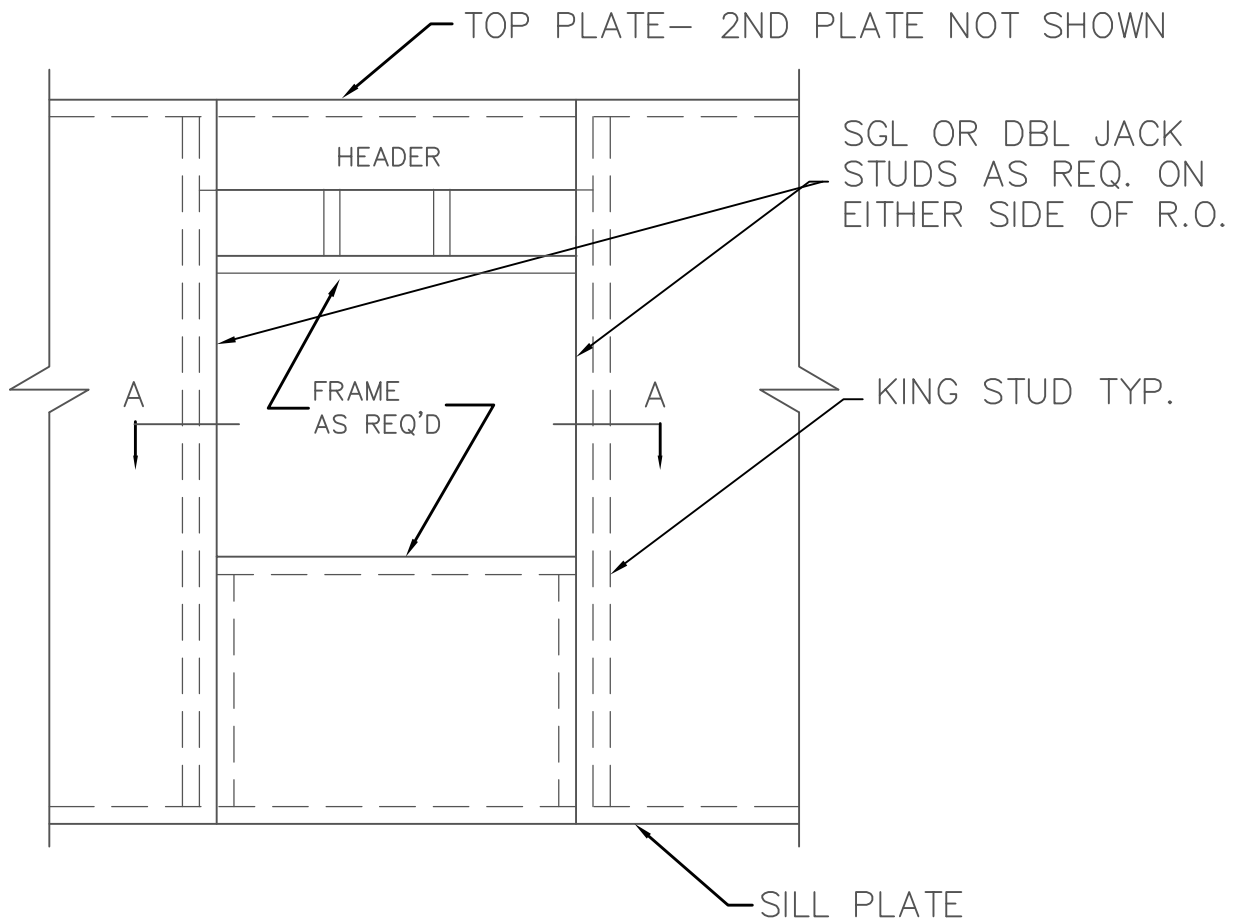


STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

ISOMETRIC OF INTERIOR  
WALL CONNECTION

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SECTION A-A DETAIL

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TYPICAL CONSTRUCTION OF ROUGH  
OPENING INCLUDING HEADER

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38-503

FILL WITH INSULATION  
RATED FOR APPLICATION

NOTE #1: THE OPENING  
SIZE, LOCATION, AND  
DESIGN ROOF LOADING  
MUST BE EVALUATED  
WHEN PENETRATING ROOF.  
MAXIMUM SIZE  
DETERMINED BY  
ENGINEERING REVIEW.

SEE NOTE # 1

2x LUMBER –  
FRAME AS SHOWN  
IN DRAWING  
38-503

3" MINIMUM  
CLEARANCE  
PANEL-TO-VENT  
OR AS REQUIRED  
BY LOCAL CODE

VENT STACK

INTERIOR DRYWALL

NOTE# 3- PROTECT PENETRATION  
AREA WITH TIGHT FITTING FLASHING  
OVER VENT STACK

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

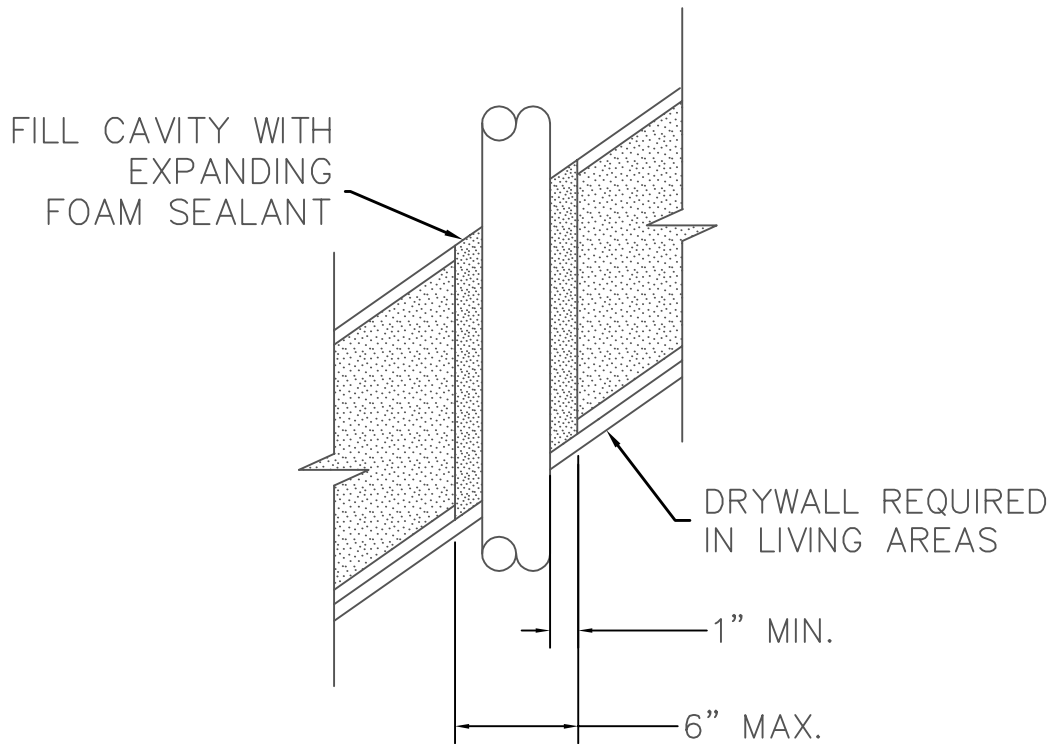
FRAMED ROOF PENETRATION

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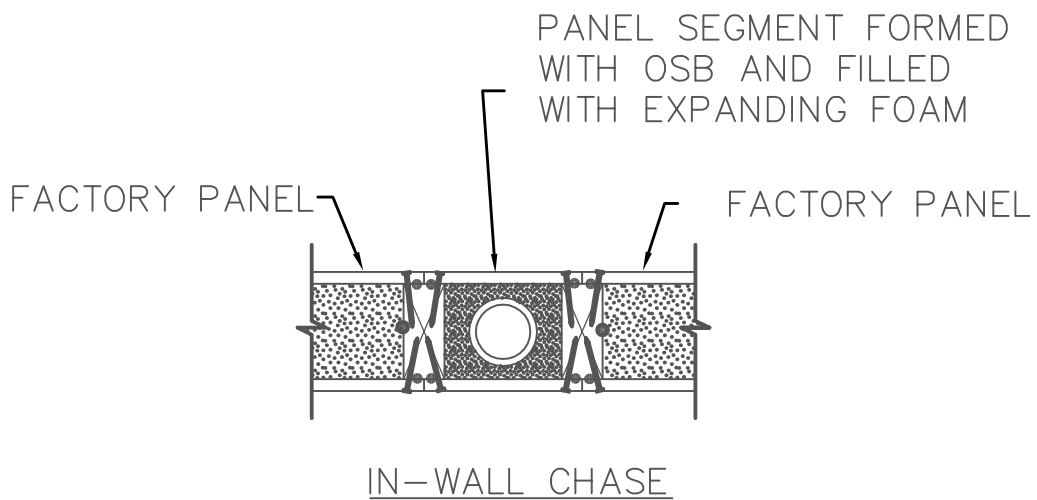
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38-504





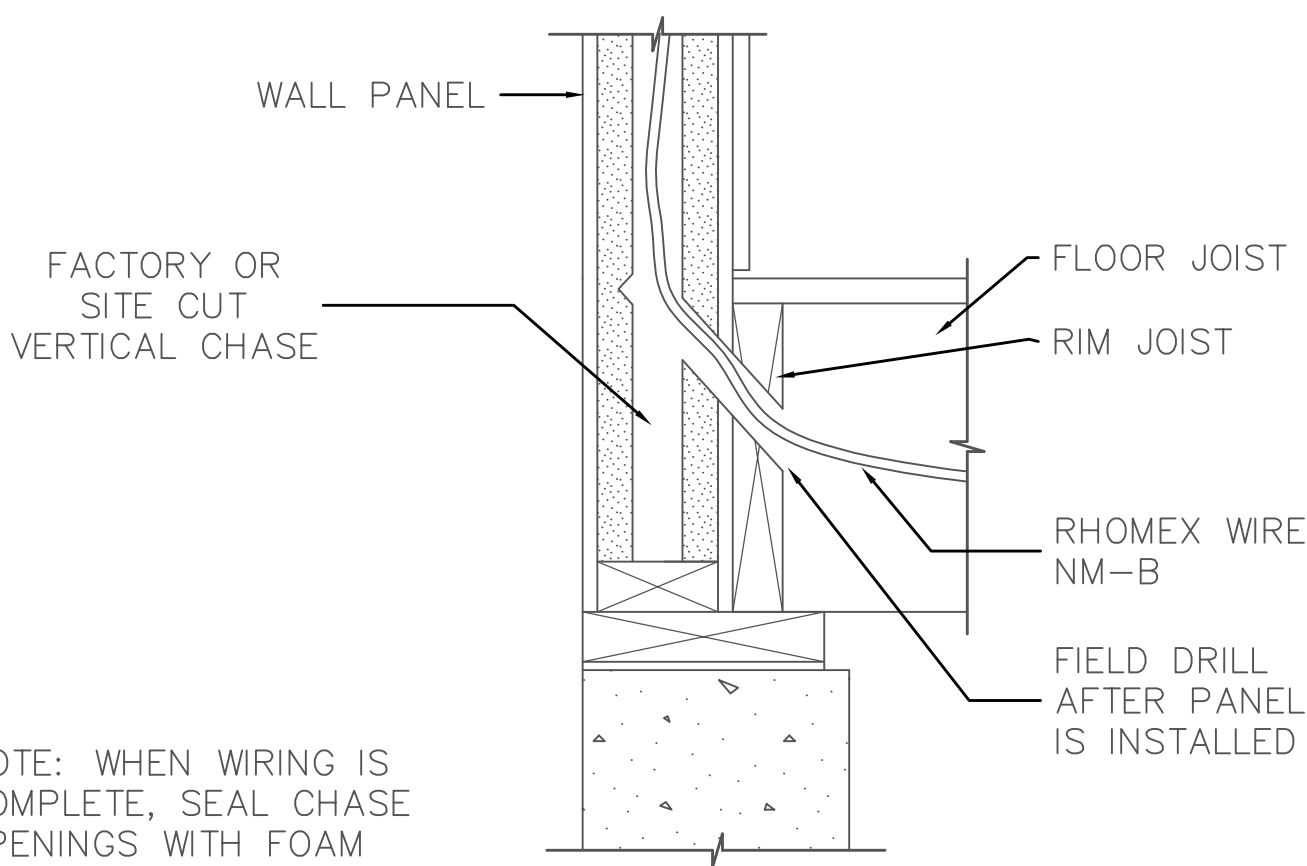
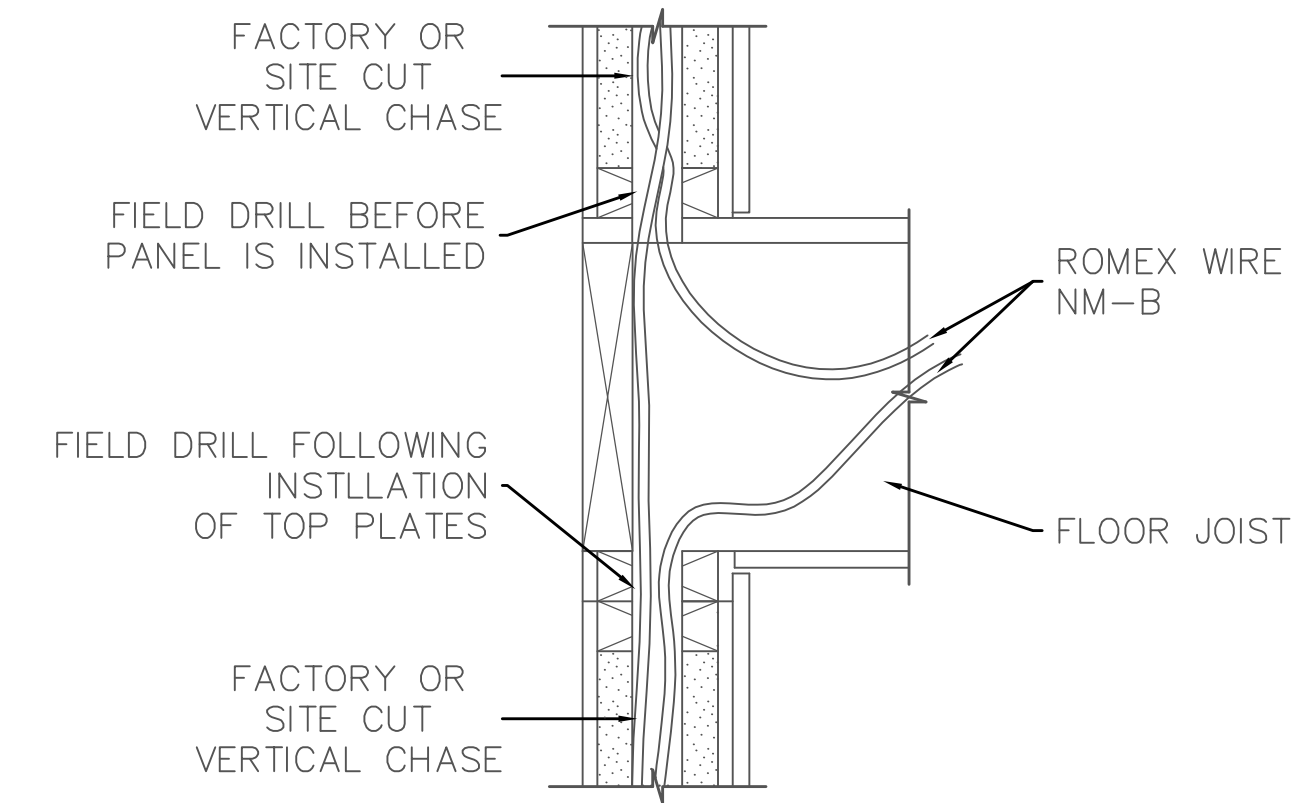
UNFRAMED PENETRATION



NOTE: THIS DETAIL IS FOR  
COLD VENTS ONLY

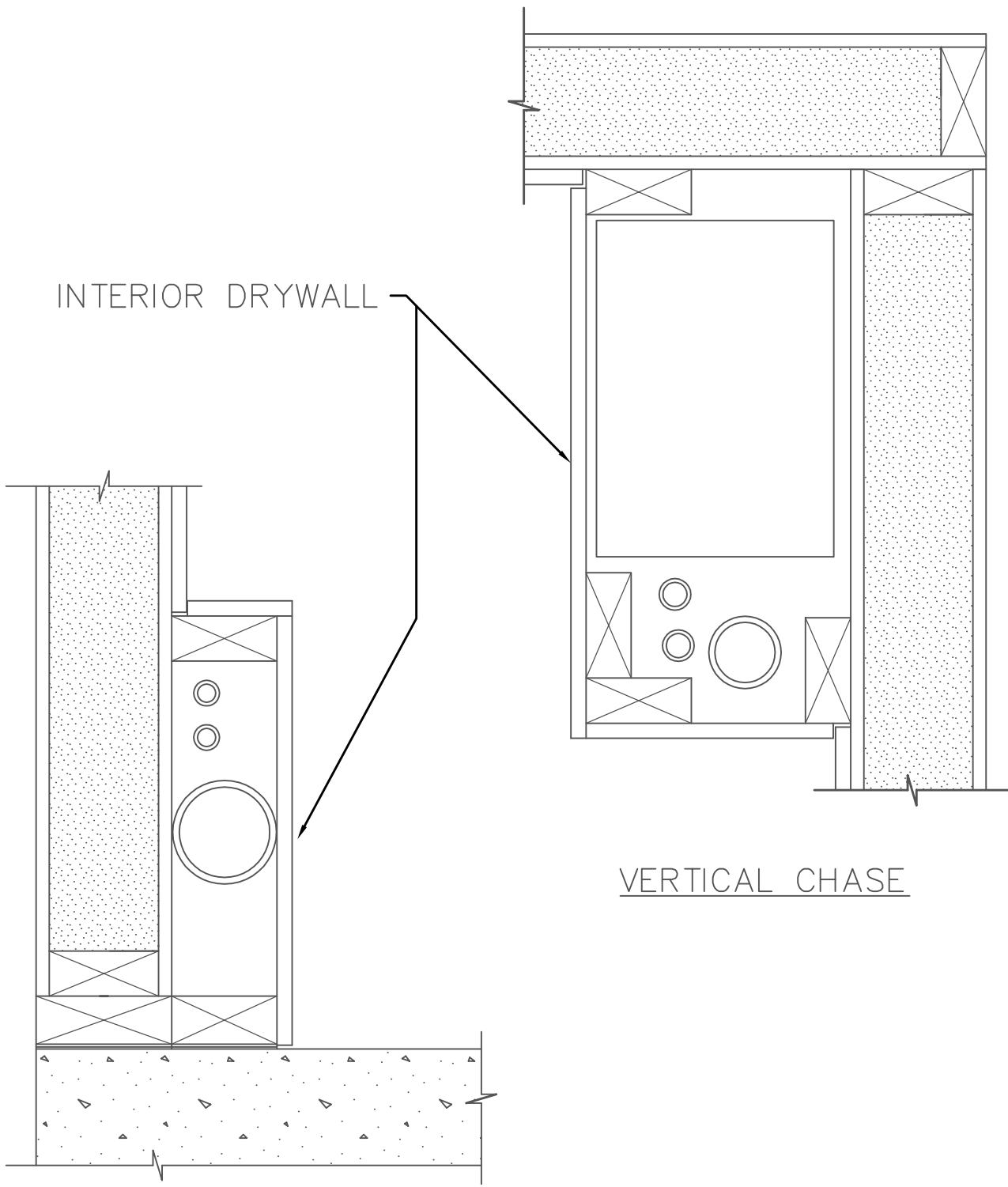
STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

IN-WALL CHASE AND  
UNFRAMED ROOF PENETRATION



NOTE: WHEN WIRING IS COMPLETE, SEAL CHASE OPENINGS WITH FOAM SEALANT

STRUCTURAL INSULATED PANEL INSTALLATION GUIDE      WIRING — WALL PANELS VERTICAL RUNS



INTERIOR DRYWALL

VERTICAL CHASE

HORIZONTAL CHASE



# Foundation and Frostwall

## GENERAL NOTES ON PWF SIP PANELS:

- Detailing and installation of the PWF SIP panels should be in accordance with: CAN/CSA-S406, Construction of Preserved Wood Foundations
- Design on panel and associated backfill height not covered in the tables should be carried out by an engineer qualified in the design of PWF systems
- The exterior plywood skin and lumber used in manufacture of PWF SIP panels must be in accordance to CAN/CSA-080.15
- Untreated wood may be used for exterior top plates more than 8" above the adjacent exterior grade, floor structures more than 12" above the granular drainage layer or interior ground level of a ventilated crawl space and interior columns separated from the concrete by a damp-proofing material
- Treated lumber should not be cut in a lengthwise direction, unless where ripping a wall cap to match the SIP width, where the cut side is installed on the interior side of the wall. Cross cutting and the cutting of plywood is permitted since these surfaces will readily absorb brushed on field preservative
- The cut surfaces should be treated with a copper naphthenate preservative prepared with a solvent conforming to CAN/CSA 080.201, usually available from building supply retailers
- All nails, staples and mechanical connectors must be corrosion resistant. Nails should be either hot dipped galvanized or stainless steel conforming to CSA-B111. Staples must be stainless steel and have a minimum diameter of 1/16" with a crown of a minimum 3/8" Type 304 or 315 steel (staples are not recommended)
- Framing anchors and straps in contact with treated materials must be hot dipped galvanized in accordance with ASTM A653M-96 or Zinc Iron Alloy coated by the hot dipped process. They must be used at the location of every joist where nailing alone will not transfer the loads, backfills exceeding 5'
- Caulking should be used anywhere a watertight seal is required, wood-to-wood connections in the SIPs and should be used to provide an air tight seal on the inside of the structure where suitable. Must be in accordance with CAN/CGSB-19.13, Sealing Compound, One Component, Elastomeric, Chemical Curing
- Low-E Gun Foam should be of a sealant type, low expansion conforming to ASTM E-2178-03 Air Barrier and CAN/ULC S102 Fire Retardant
- Protect SIPs from being damaged on site, particularly edges and corners
- Structural 2x lumber splines should be in accordance with CSA-0141, must be #2 grade or better, and bear the PWF stamp verifying treatment in accordance with CSA 0322
- Both inside corners and outside corners of the foundation wall system should have a plywood protection installed over the poly prior to backfill
- Footings and foundations should be carefully leveled to ensure full bearing of both exterior and interior skins onto the support below
- Unequal backfill heights may require further analysis due to the possible introduction of horizontal load differential
- Surcharge loads from driveways and garages may need to be considered beyond simply supporting the load on the soil beside any foundation wall. It may require a separate support structure beside the foundation wall to support the surcharge alone
- Brick veneer may be supported either on the SIP wall or on a separate framed wall. Care in detailing the flow of moisture is critical

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE



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38-900

PWF SIP PANEL OVERVIEW:

PWF foundation SIP panels are designed to carry the wall load from above while resisting soil pressure from the backfill. The horizontal load is transferred into the floor system, carried primarily by the floor sheathing diaphragm. It is important that all connections and fasteners be installed by the building code requirements and the details outlined in this guide.

Proper protection from moisture for any foundation system is extremely important, and even more so in a PWF foundation system. A continuous moisture barrier typically of 6 mil poly needs to be carefully applied and detailed to ensure good moisture protection. Mechanical fasteners such as nails or staple should NOT be used to fasten any moisture barrier to the wall as it will create penetrations in the barrier. A wood protection plate at grade level provides both a means of hanging the moisture barrier as well as addition protection for the wood where the both water and air exist.

Draining water away from the foundation system and basement floor should be detailed in a careful manner. Exterior moisture must be able to pass through the footing into the basement floor drainage layer into a sump pit where it can be pumped away from the structure as needed. For footings on undisturbed soil, drainage holes MUST be provided through the footing to allow water to pass through the footing into the drainage layer/sump system below the basement floor, otherwise water will pool against the foundation wall and cause leaking and/or damage to the structure. Where panels are installed on a footing resting on bedrock, special drainage systems incorporating proper drainage layers may need additional design considerations.

Joints in the panels, bottom edges, the heads of the limited fasteners that need to be used for corners, protection plate and corner protectors must all be sealed using an appropriate caulking material. This is a secondary means of moisture protection if the 6 mil poly becomes damaged during backfilling. It is recommended that two layers be considered.

Be sure to seal the base of the wall against the footing in the case where moisture does get in behind the barrier. Be sure that the barrier does not block the drainage layer which will stop the passage of moisture through the foundation into the drainage layer/sump system.

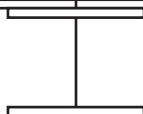
Extra care should be taken to ensure that all footing surfaces are flat. The vertical strength of the SIP panel is based on the continuous bearing along both the plywood/OSB skins of the panel. If the footing is not level, it may cause localized stress in the panel as well as moisture passageways beneath the bottom plate.

Dimple board is NOT a moisture barrier and should be avoided. It may serve as a means to protect the moisture barrier during backfill, but problems often occur fastening in the wall without mechanical fasteners. Further, the rolled material is difficult to lay flat against the wall and may create openings at the top which might promote the entrance of moisture inadvertently.

It is good practice to extend the Protection Plate further up the wall to tie into the flashing that is often installed at the bottom of the wall covering system This will add one more level of protection against moisture penetrating onto the PWF wall system.

With proper care in detailing and installation, the SIP PWF Foundation will provide a superior living space for years to come.

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE



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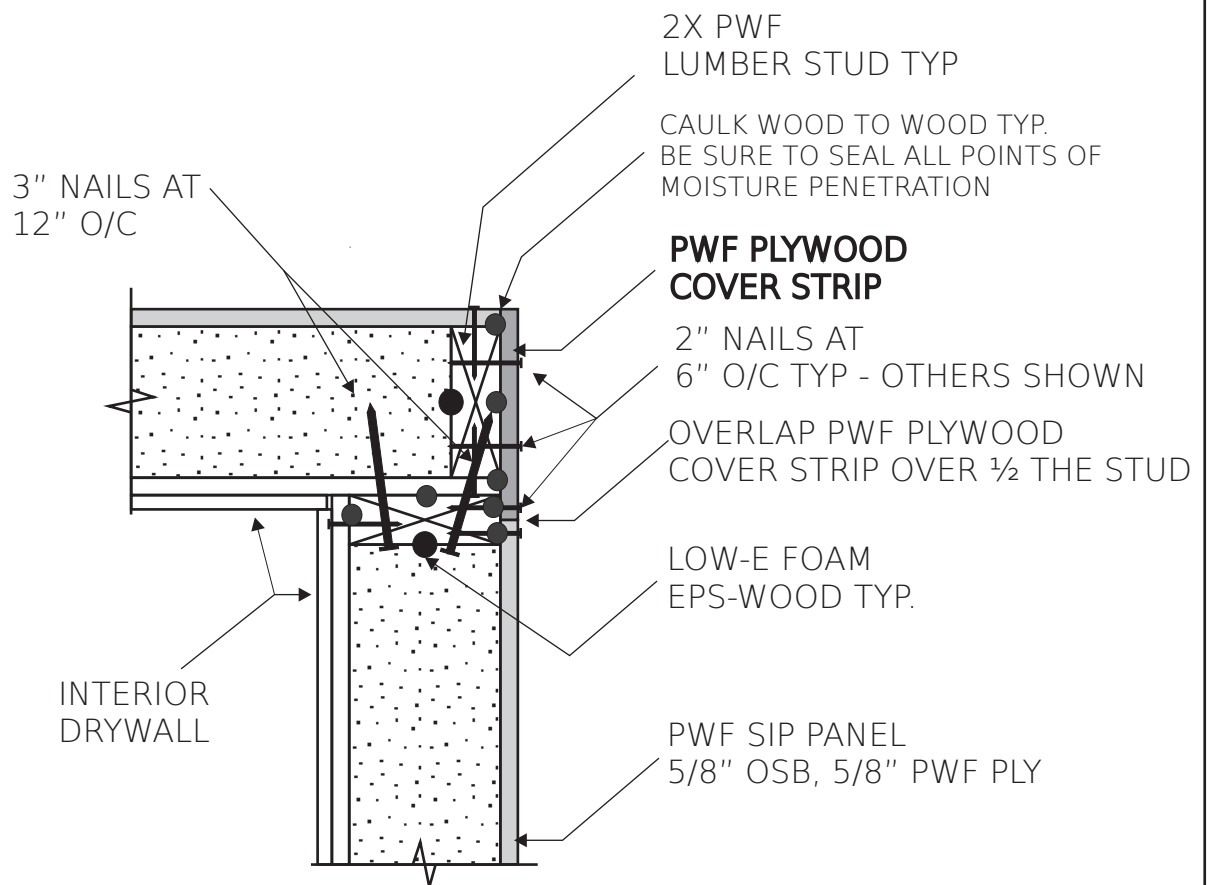
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38-900a

## STEP BY STEP CORNER INSTALLATION:

BE SURE TO USE CAULK AND LOW-E FOAM CORRECTLY DURING EACH STEP.

1. INSTALL 2X PWF STUD INTO THE WALL PANEL SHOWN (RIGHT SIDE, UPPER WALL IN THIS SKETCH), NAILING INTO THE SIDES ONLY FOR THIS STEP
2. ATTACH PWF STUD WHICH WILL BE RECEIVING THE OTHER WALL WITH TWO ROWS OF 3" NAILS AS SHOWN, ONE INTO THE STUD, ONE INTO THE PANEL
3. TRIM BACK 3/4" OF THE PWF PLYWOOD SKIN OF THE SECOND PANEL, TO ALLOW FOR OVERLAP OF THE COVER STRIP (DO NOT TRIM THE OSB SKIN)
4. INSTALL THE SECOND PANEL AS SHOWN
5. APPLY PWF PLYWOOD COVER STRIP



ALL NAILS CAN EITHER BE HOT DIPPED GALVANIZED OR STAINLESS STEEL CONFORMING TO CSA B111, "WIRE NAILS, SPIKES AND STAPLES"

### NOTES:

- PROTECTION FOR MOISTURE BARRIER AT CORNER IS ALSO REQUIRED AS PER CSA-S406, SEE DETAIL IN GUIDE
- INSIDE CORNER IS REVERSED AND DOES NOT REQUIRE PLYWOOD COVER STRIP SINCE IT IS ALREADY PROTECTED BY THE PWF SIP PANEL SKIN, BE SURE TO CAULK THE INSIDE CORNER JOINT WELL

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF PANEL-TO-PANEL  
CORNER CONNECTION



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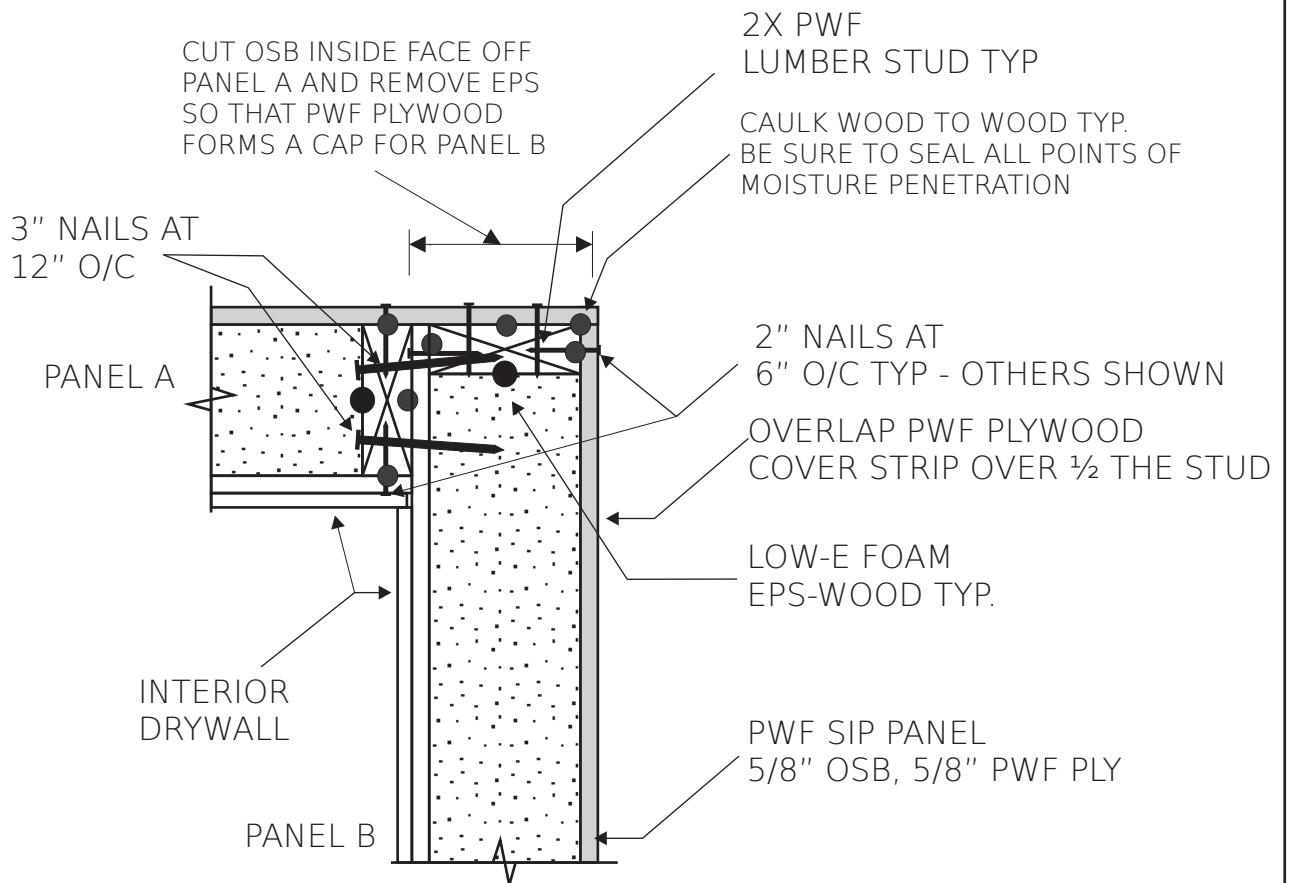
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38-901

STEP BY STEP CORNER INSTALLATION- OPTIONAL DETAIL, NO COVER STRIP REQ'D:

BE SURE TO USE CAULK AND LOW-E FOAM CORRECTLY DURING EACH STEP.

1. INSTALL PANEL B WITH PWF STUD INSERTED AT THE END, SET-BACK 5/8" FROM INTENDED LOCATION TO ALLOW FOR OVERLAP OF PLYWOOD SKIN FROM PANEL A. BE SURE TO USE SEALANT (CAULK) FOR WOOD TO WOOD CONNECTIONS AND LOW-E FOAM FOR EPS TO WOOD CONNECTIONS.
2. ATTACH PWF STUD TO SIDE OF PANEL B, WHICH WILL BE RECEIVING PANEL A, WITH TWO ROWS OF 3" NAILS AS SHOWN, ONE IN THE STUD, ONE IN PANEL B.
3. ATTACH PANEL A TO THE ATTACHED STUD, NAILING WITH 2" NAILS AT 6" O/C AS SHOWN. SEAL AND FOAM AS REQUIRED.



ALL NAILS CAN EITHER BE HOT DIPPED GALVANIZED OR STAINLESS STEEL CONFORMING TO CSA B111, "WIRE NAILS, SPIKES AND STAPLES"

NOTES:

- PROTECTION FOR MOISTURE BARRIER AT CORNER IS ALSO REQUIRED AS PER CSA-S406, SEE DETAIL IN GUIDE
- INSIDE CORNER IS REVERSED AND DOES NOT REQUIRE PLYWOOD COVER STRIP SINCE IT IS ALREADY PROTECTED BY THE PWF SIP PANEL SKIN, BE SURE TO CAULK THE INSIDE CORNER JOINT WELL

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF PANEL-TO-PANEL  
OPTIONAL-CORNER CONNECTION



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38-901a



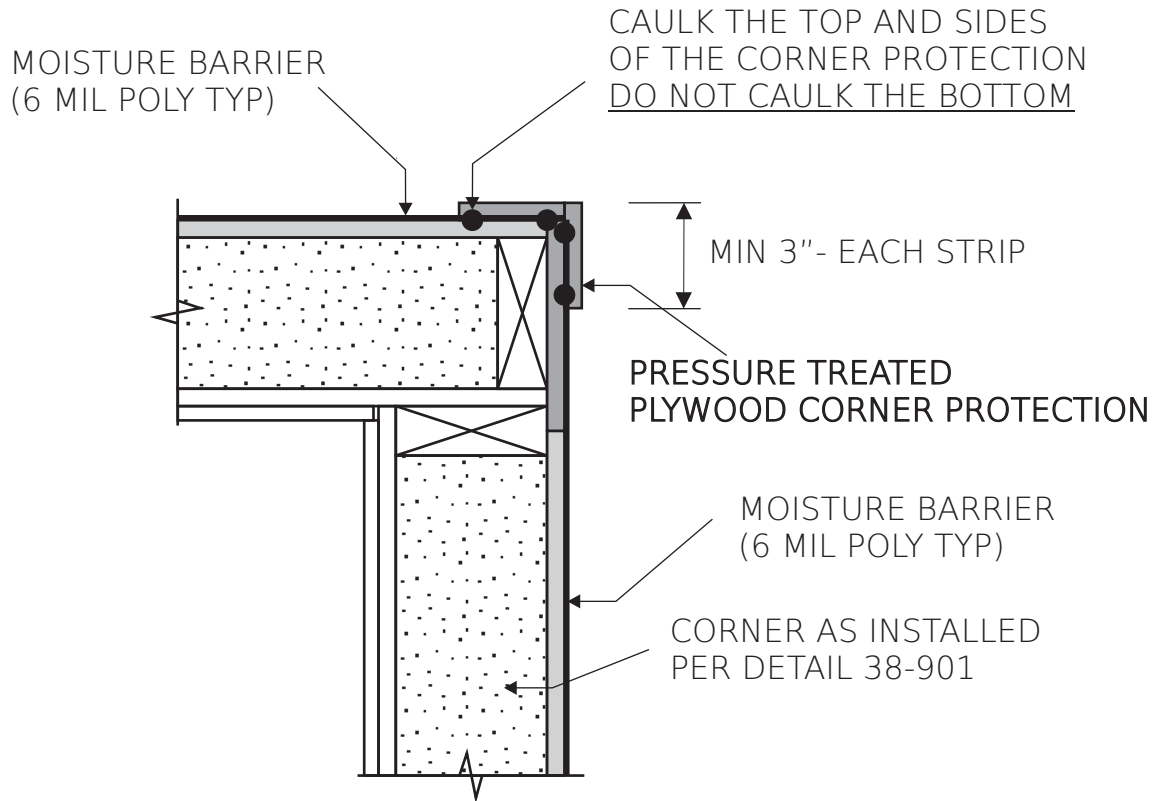
PWF SIP PANEL CORNER PROTECTION:

CSA-S406 REQUIRES THAT THE MOISTURE BARRIER BE PROTECTED AT BOTH INTERIOR AND EXTERIOR CORNERS FROM MECHANICAL DAMAGE THAT MIGHT OCCUR DURING BACKFILLING

USE TREATED PLYWOOD (NEED NOT BE PWF TREATED)

THE MOISTURE BARRIER SHOULD BE INSTALLED FIRST WITH THE COVER PLATE, WITH THE PROTECTION INSTALLED OVER

OUTSIDE CORNER SHOWN, INSIDE CORNER SIMILAR



NAIL WITH ONLY ONE 2" NAIL, 12" FROM THE TOP EDGE OF THE PROTECTOR AND SEAL THE HEAD WITH CAULKING. THIS DETAIL MINIMIZES ANY PENETRATIONS OF THE MOISTURE BARRIER, WHERE ONLY THE ONE NAIL IS USED.

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF CORNER PROTECTION

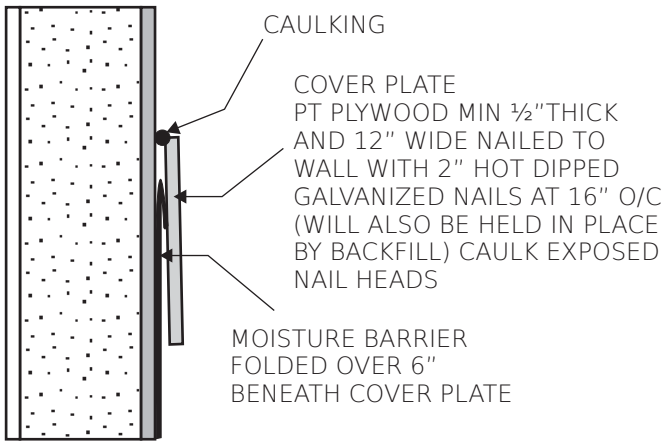


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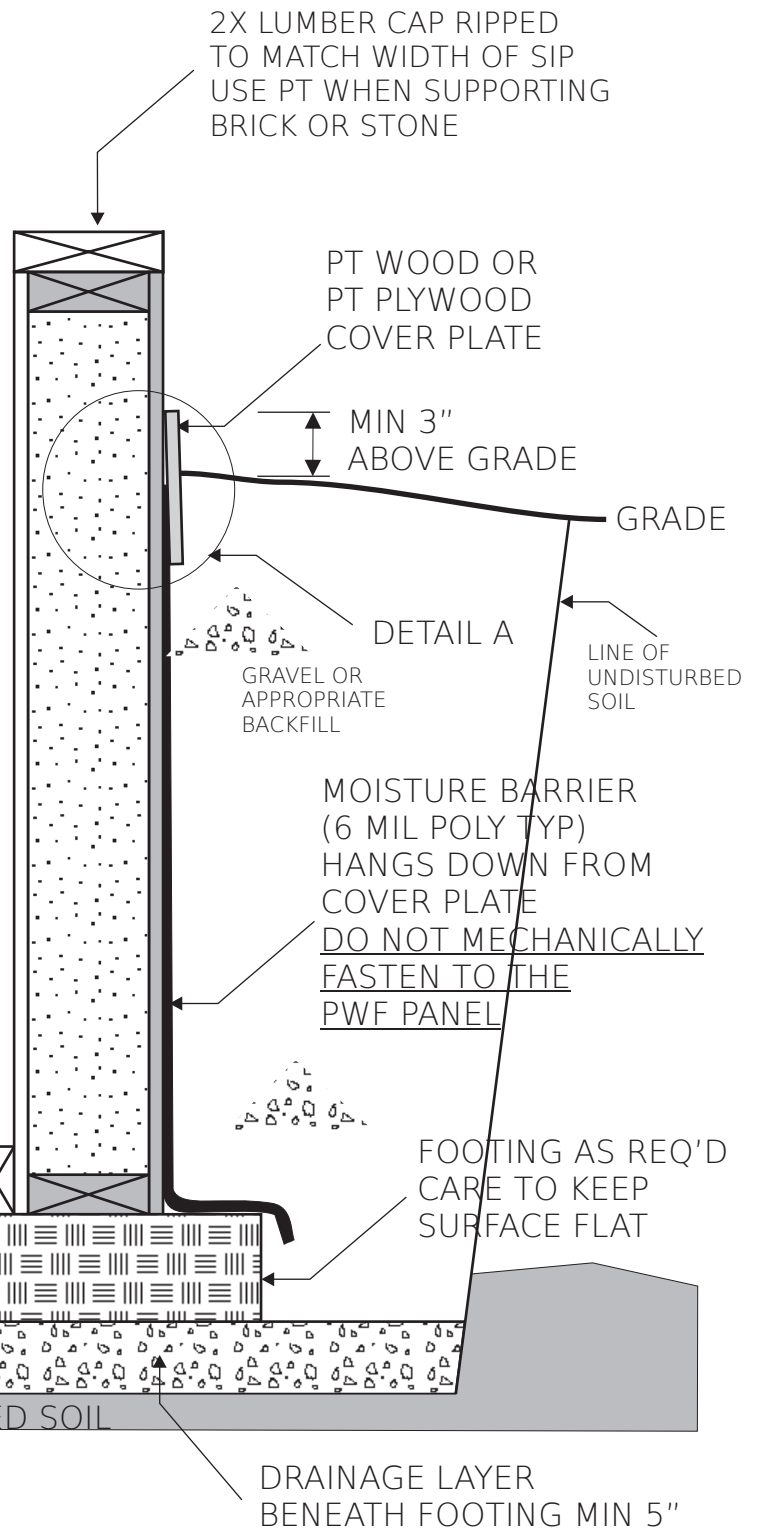
38-902

DETAIL A



NOTES OF CONNECTING MOISTURE BARRIER:

TOP EDGE IS SEALED TO THE PLYWOOD WALL  
ALONG IT'S LENGTH AND IS EMBEDDED IN  
RANDOMLY PLACED BEADS OF CAULKING THAN  
RUN VERTICALLY UP THE PLYWOOD. DO NOT USE  
HORIZONTAL BEAMS EXCEPT AT THE TOP OF THE  
MOISTURE BARRIER. THE BOTTOM SHOULD REST  
OVER THE FOOTING AND SHOULD NOT  
EXTEND INTO THE DRAINAGE LAYER



MOISTURE BARRIER  
(6 MIL POLY TYP) ALSO  
PROVIDES BOND  
BREAK SLAB TO  
FOOTING

DRAINAGE  
LAYER TO  
SUMP PIT

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WALL SECTION  
FOOTING ON DRAINAGE LAYER

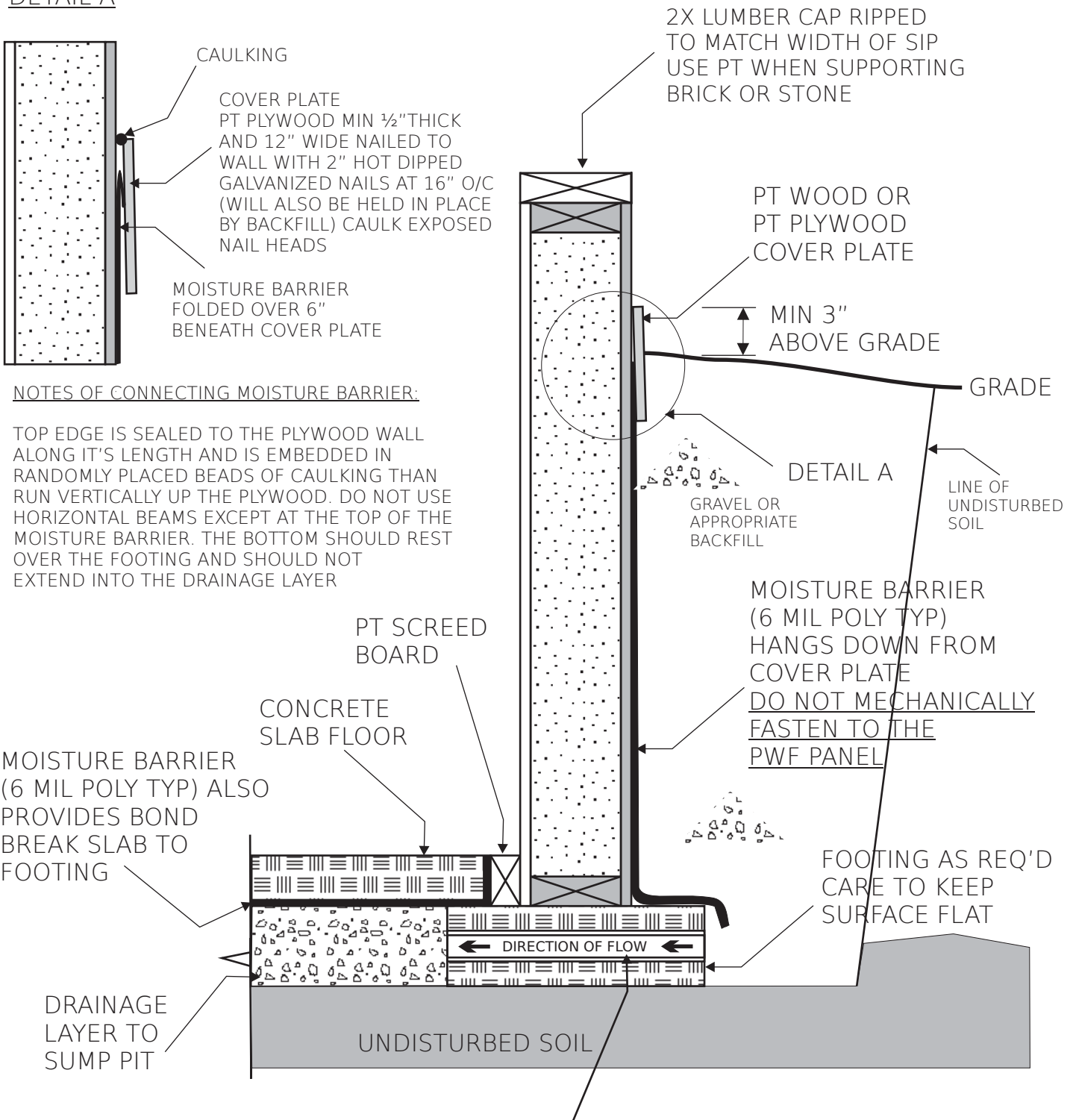


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**38-903**

DETAIL A



NOTES OF CONNECTING MOISTURE BARRIER:

TOP EDGE IS SEALED TO THE PLYWOOD WALL  
ALONG IT'S LENGTH AND IS EMBEDDED IN  
RANDOMLY PLACED BEADS OF CAULKING THAN  
RUN VERTICALLY UP THE PLYWOOD. DO NOT USE  
HORIZONTAL BEAMS EXCEPT AT THE TOP OF THE  
MOISTURE BARRIER. THE BOTTOM SHOULD REST  
OVER THE FOOTING AND SHOULD NOT  
EXTEND INTO THE DRAINAGE LAYER

WATER PASSAGES THROUGH FOOTING WITH A MIN OPENING OF  
4 SQ.IN. EACH SPACED AT 4' O/C OR LESS TO ALLOW WATER TO  
DRAIN INTO DRAINAGE LAYER AND SUMP PIT (EG. 2-1/4" ID PIPE)

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WALL SECTION  
FOOTING ON UNDISTURBED SOIL

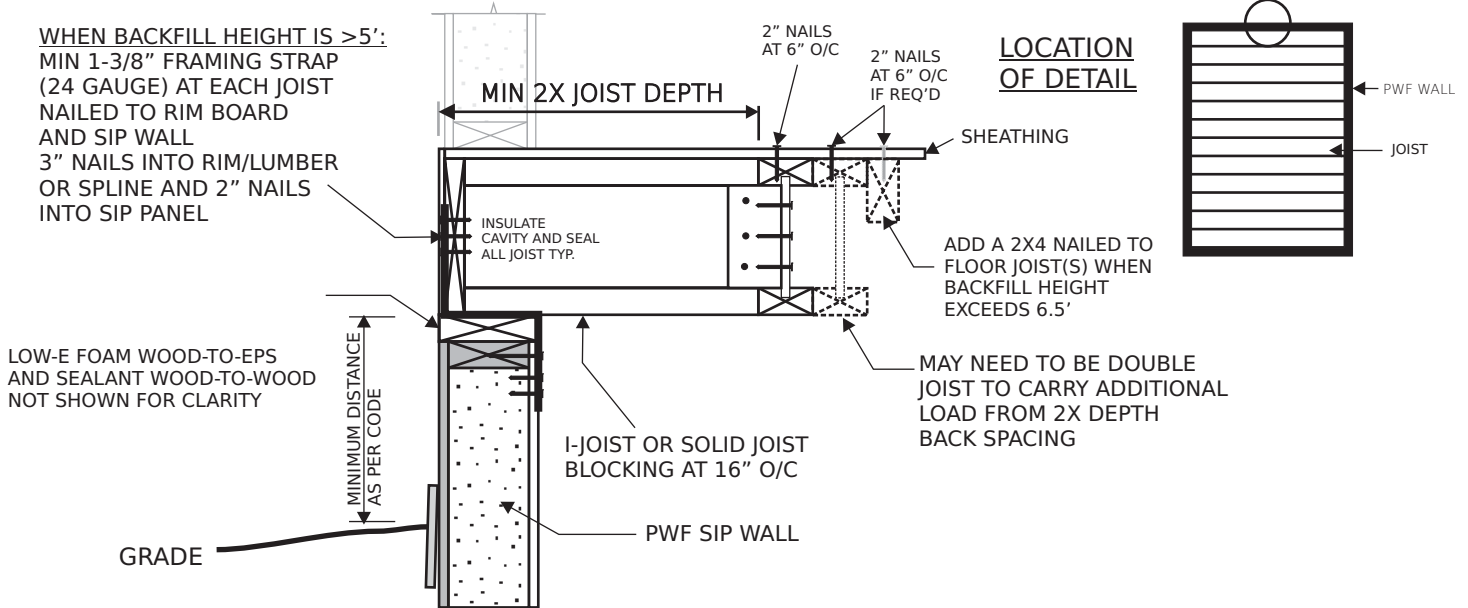
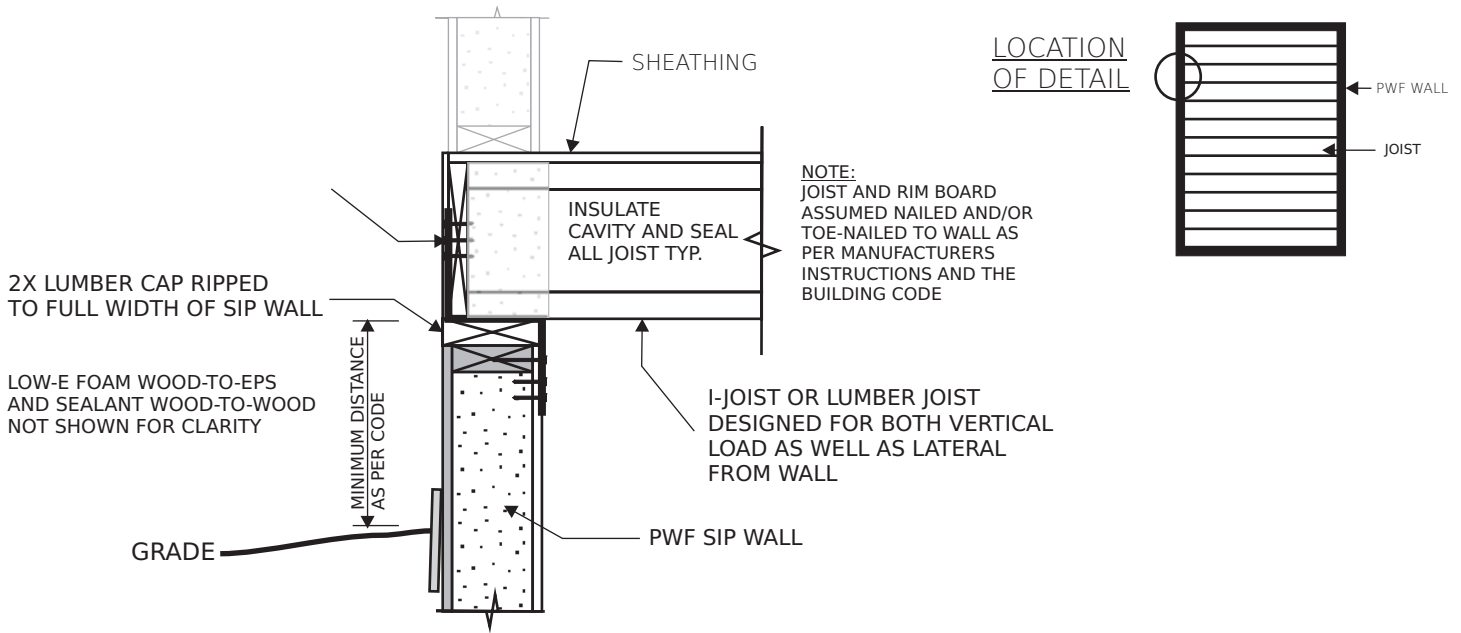


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**38-904**

# JOIST CONNECTION DETAILS FOR PLATFORM FRAMING



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INSTALLATION GUIDE

PWF SIP JOIST CONNECTION  
DETAILS- PLATFORM FRAMING

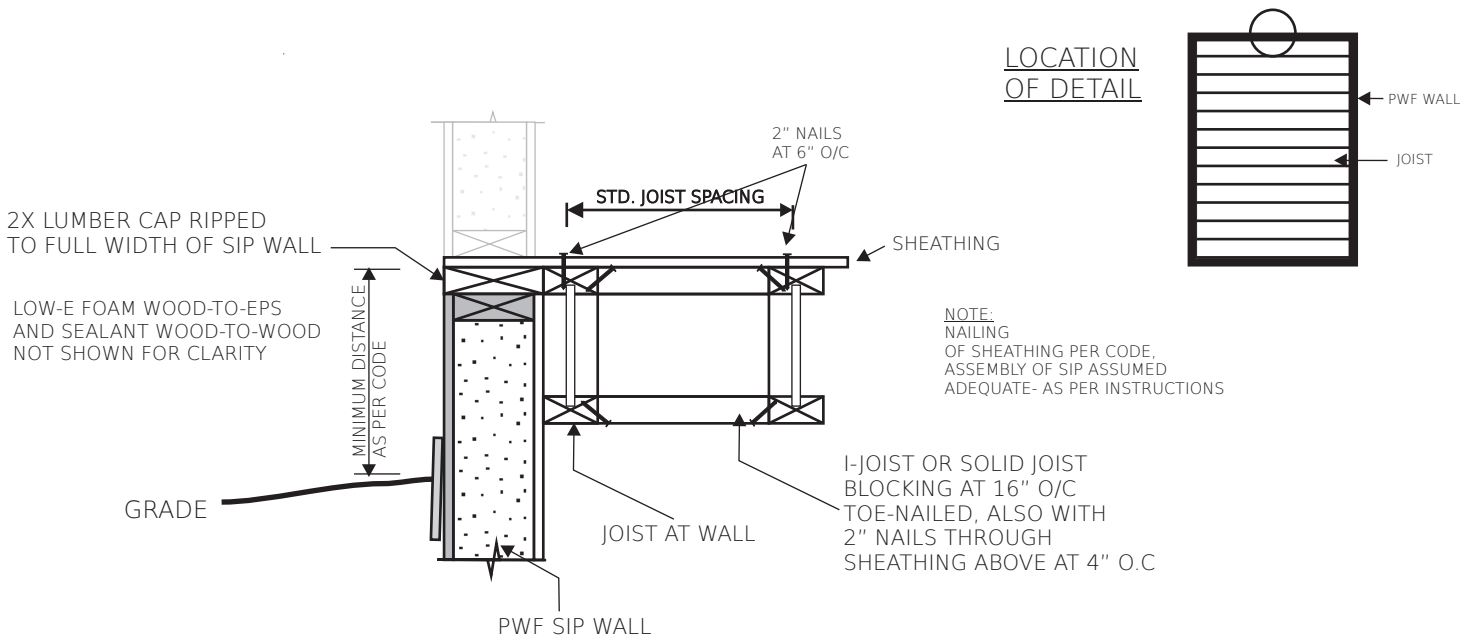
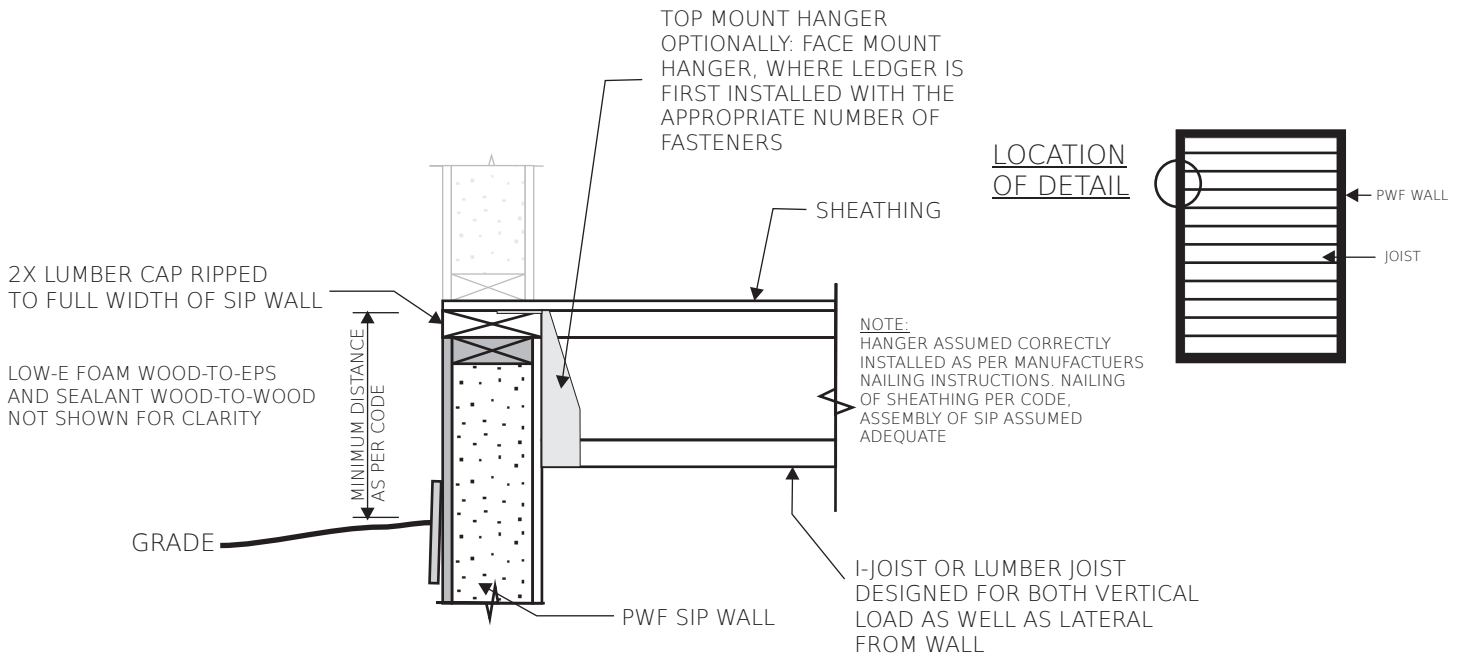
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38-905

# JOIST CONNECTION DETAILS FOR - FLOOR HUNG FROM SIP WALL



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PWF SIP JOIST CONNECTION  
DETAILS- HUNG FLOOR

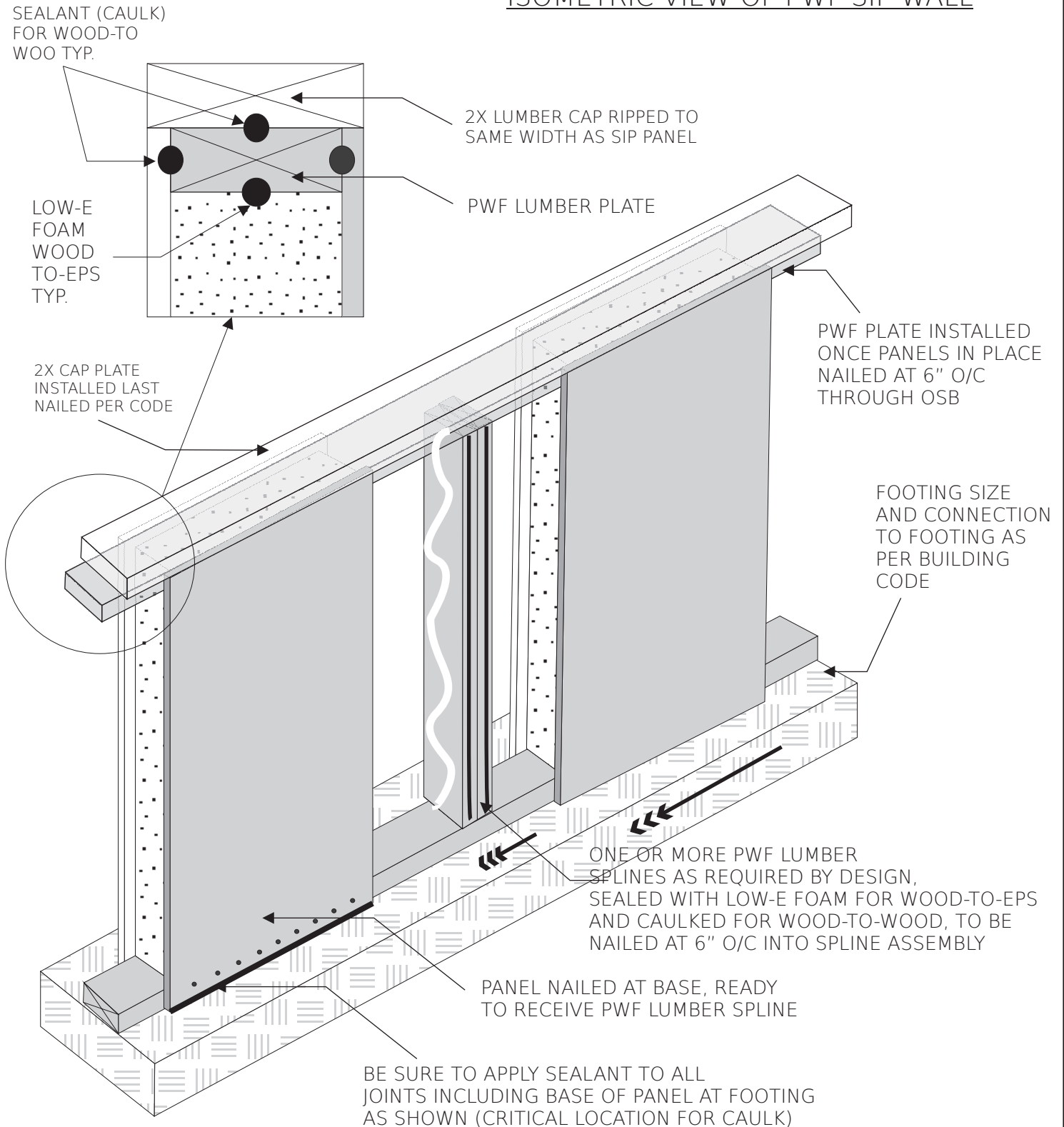


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38-906

# ISOMETRIC VIEW OF PWF SIP WALL



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INSTALLATION GUIDE



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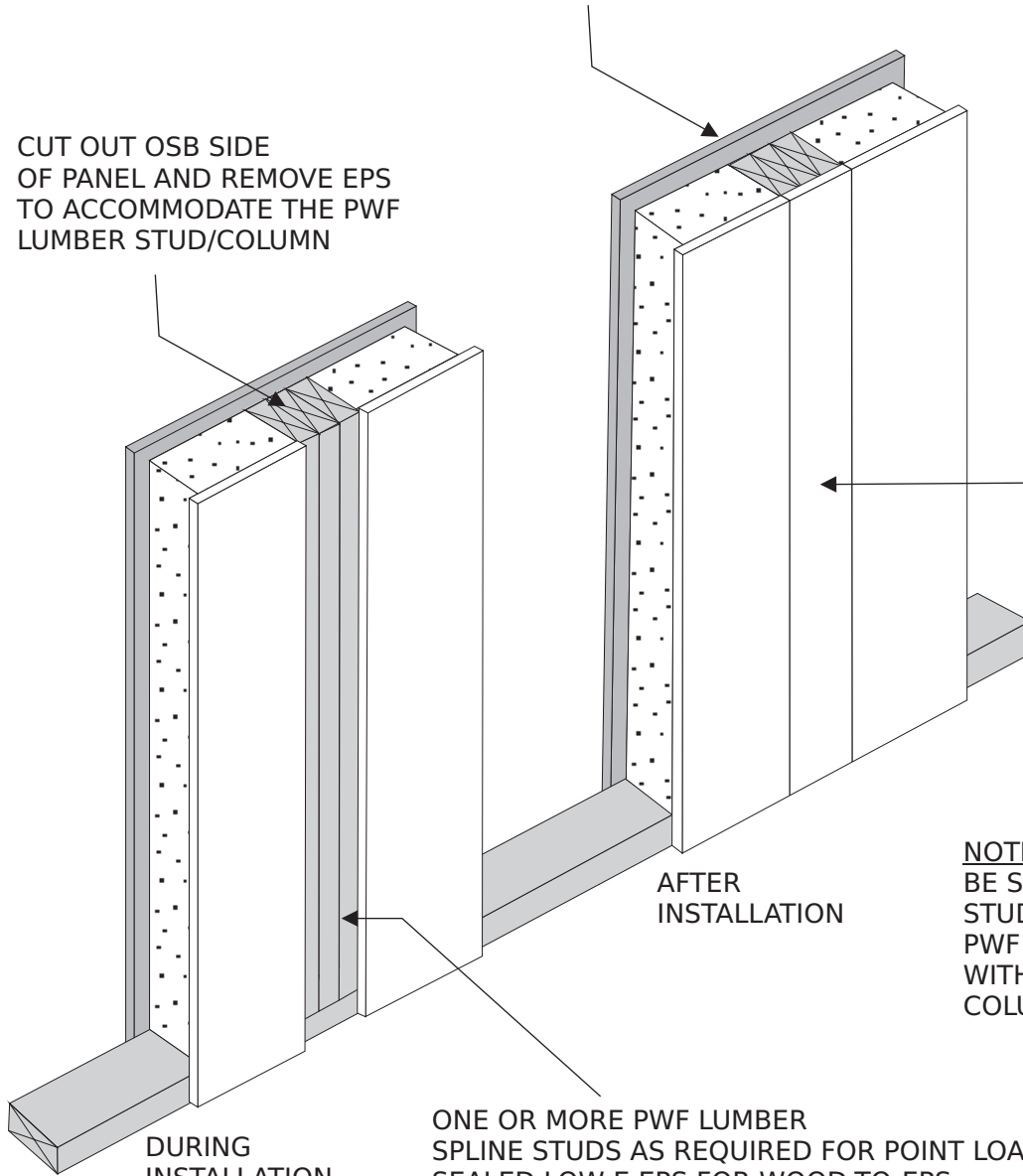
38-907

## POINT LOAD DETAIL- INSERTING A PWF STUD COLUMN INTO A PWF SIP PANEL

NAIL OPPOSITE FACE WITH  
2" CORROSION RESISTANT NAILS  
IN EACH STUD AS PER CODE

CUT OUT OSB SIDE  
OF PANEL AND REMOVE EPS  
TO ACCOMMODATE THE PWF  
LUMBER STUD/COLUMN

OPTIONAL:  
REPLACE 5/8" STRIP  
OF OSB. CAULK AND NAIL  
WITH TWO ROWS OF  
2" NAILS AT 12" O/C.  
OTHERWISE, SEAL ALL  
JOINTS/CORNERS AND  
SIMPLY COVER WHEN  
DRYWALL IS APPLIED.



NOTE:  
BE SURE TO SEAL BETWEEN EACH  
STUD WITH CAULKING, BETWEEN  
PWF PLYWOOD FACE AND COLUMN  
WITH CAULKING AND EPS CORE TO  
COLUMN WITH LOW-E FOAM

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

POINT LOAD  
IN PWF WALL

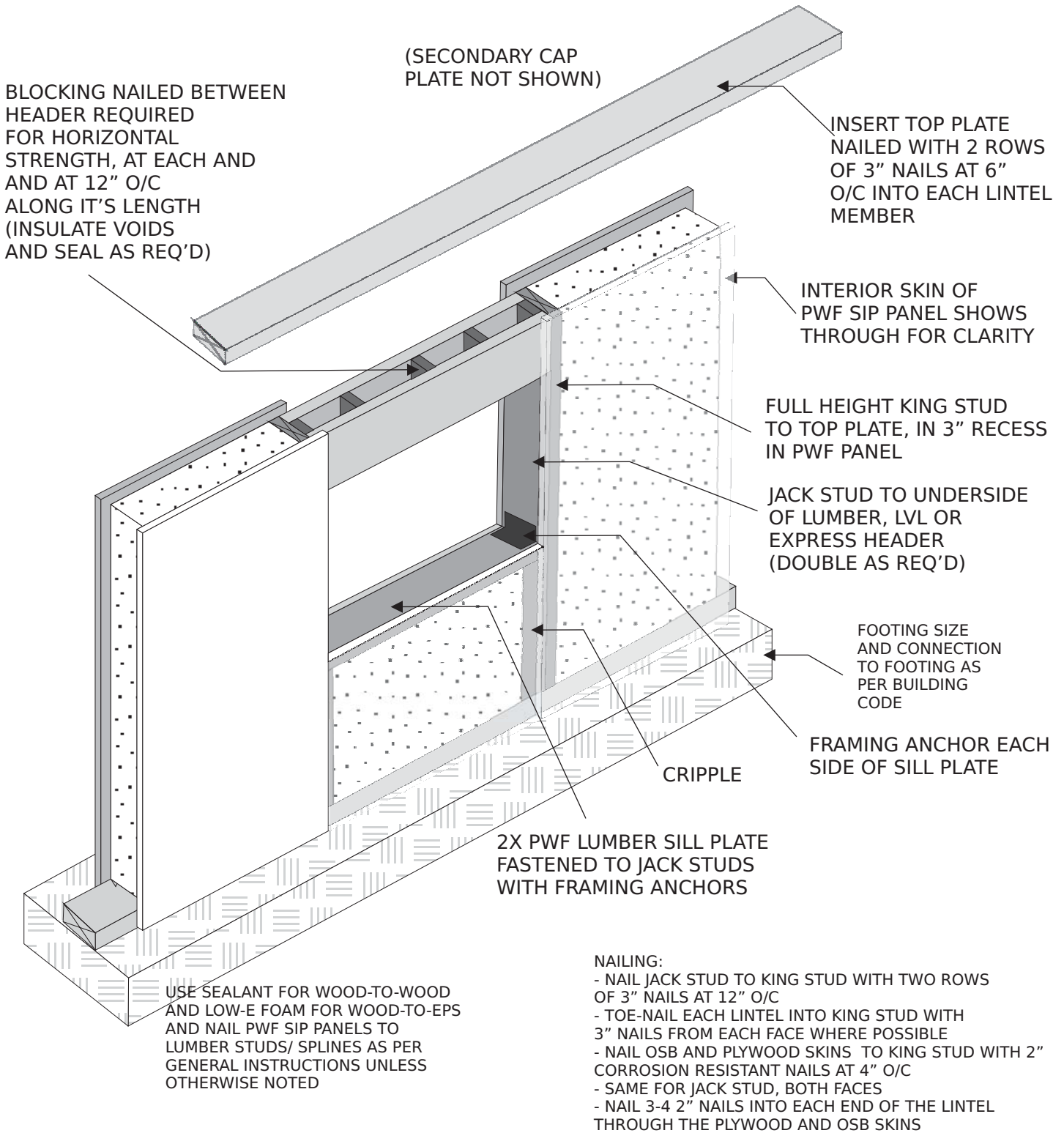


structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-908

# BASEMENT WINDOW OPENING BACKFILL 4' HIGH AND LESS



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WINDOW  
BACKFILL LESS THAN 4'



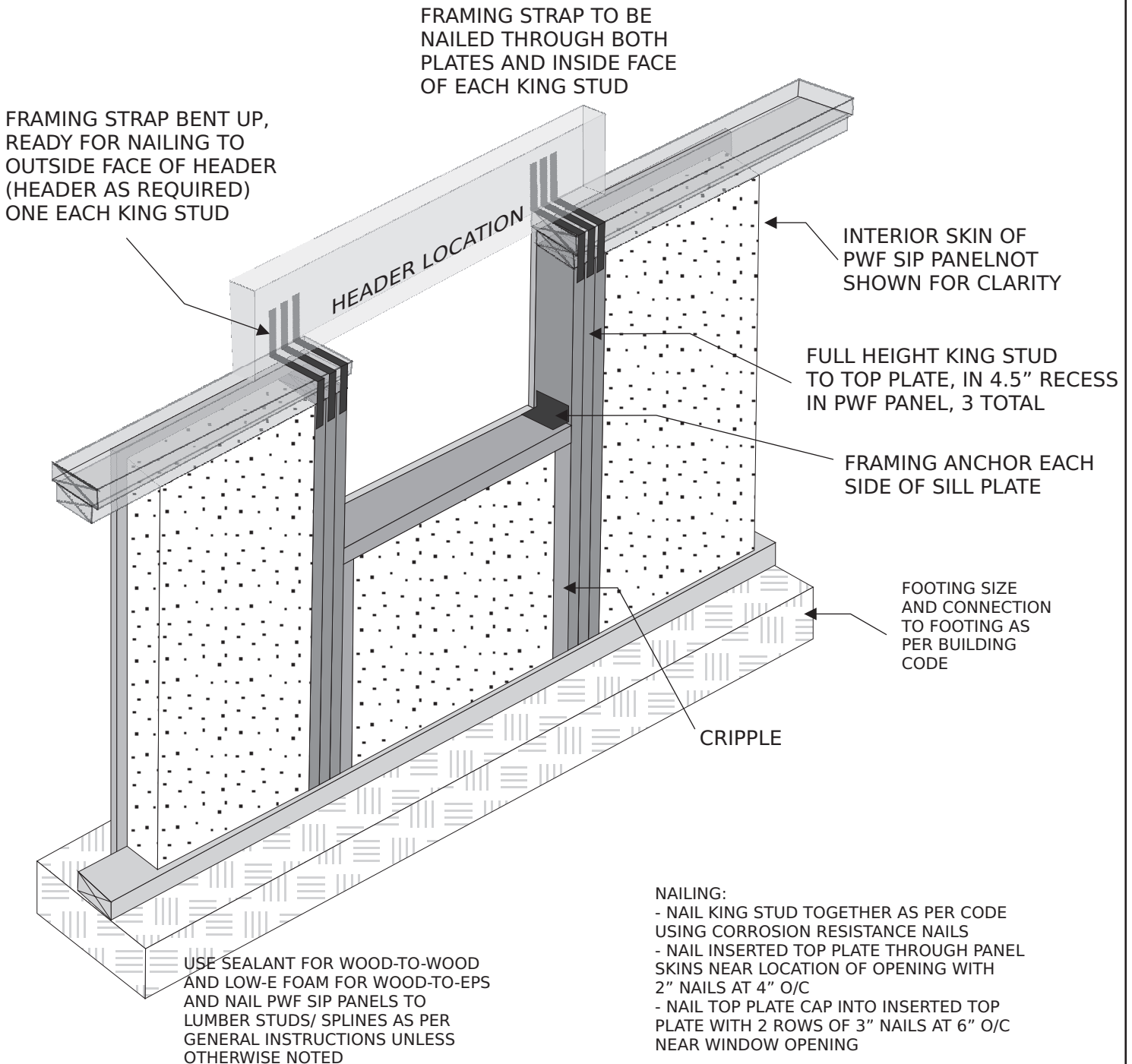
structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-909



**BASEMENT WINDOW OPENING**  
**MAXIMUM WIDTH 6'**  
**HEADER IN FLOOR**



STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

PWF SIP WINDOW  
 HEADER ABOVE 6' MAX



structural insulated panels

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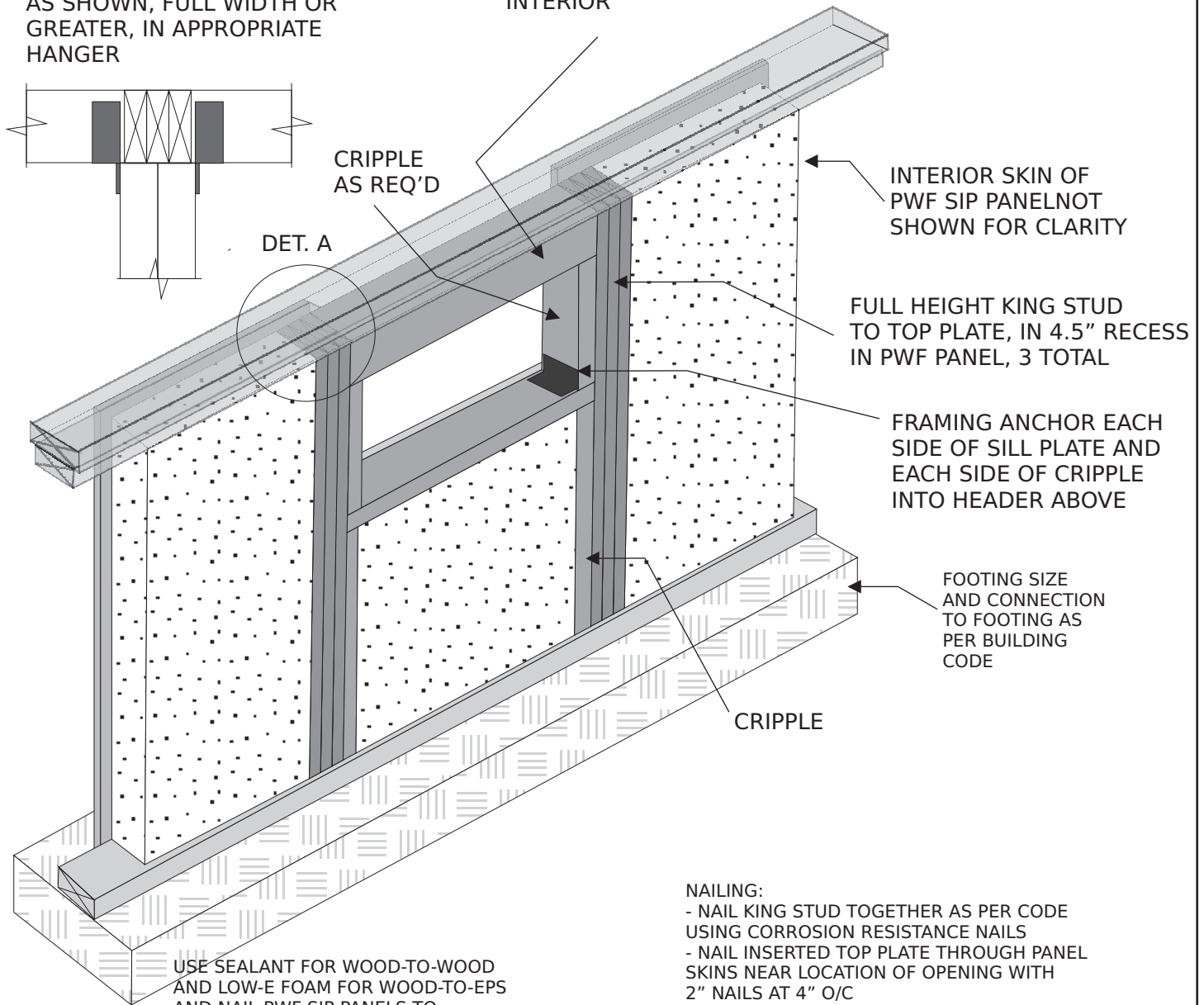
**38-910**

# BASEMENT WINDOW OPENING MAXIMUM WIDTH 6' HUNG FLOOR

## DETAIL A

- MULTIPLE JOIST FRAMED  
AT FACE OF TRIPLE KING STUD  
AS SHOWN, FULL WIDTH OR  
GREATER, IN APPROPRIATE  
HANGER

HEADER AS REQ'D  
JOISTS TO BE HUNG OFF  
INTERIOR



USE SEALANT FOR WOOD-TO-WOOD  
AND LOW-E FOAM FOR WOOD-TO-EPS  
AND NAIL PWF SIP PANELS TO  
LUMBER STUDS/ SPLINES AS PER  
GENERAL INSTRUCTIONS UNLESS  
OTHERWISE NOTED

NAILING:  
- NAIL KING STUD TOGETHER AS PER CODE  
USING CORROSION RESISTANCE NAILS  
- NAIL INSERTED TOP PLATE THROUGH PANEL  
SKINS NEAR LOCATION OF OPENING WITH  
2" NAILS AT 4" O/C  
- NAIL TOP PLATE CAP INTO INSERTED TOP  
PLATE WITH 2 ROWS OF 3" NAILS AT 6" O/C  
NEAR WINDOW OPENING

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WINDOW  
HEADER HUNG FLOOR 6' MAX



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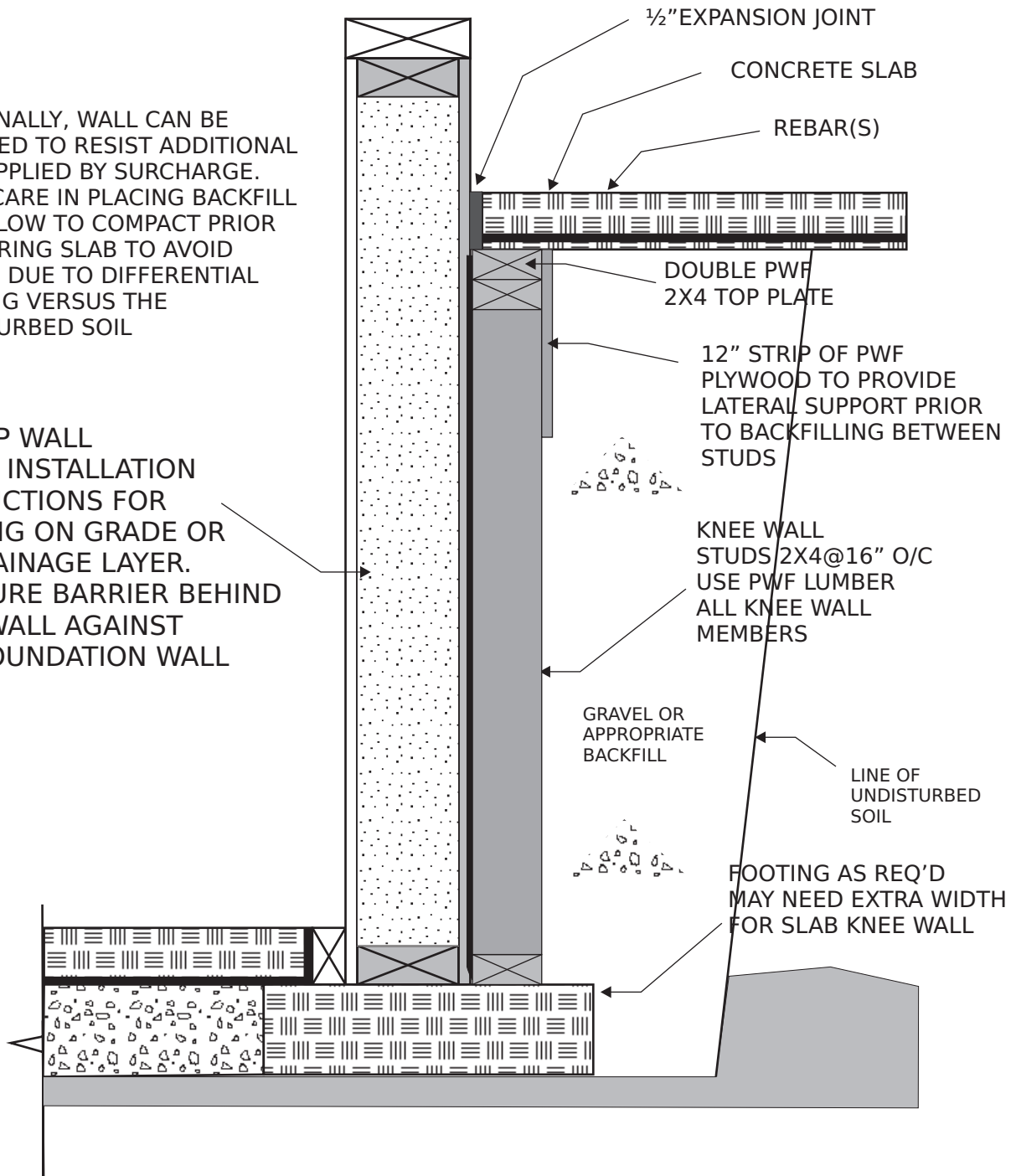
38-911

KNEE WALL SUPPORTING CONCRETE GARAGE FLOOR SLAB WHERE WALL NOT DESIGNED TO CARRY SURCHARGE LOAD

**NOTES:**

- OPTIONALLY, WALL CAN BE DESIGNED TO RESIST ADDITIONAL LOAD APPLIED BY SURCHARGE.
- TAKE CARE IN PLACING BACKFILL AND ALLOW TO COMPACT PRIOR TO POURING SLAB TO AVOID CRACKS DUE TO DIFFERENTIAL SETTLING VERSUS THE UNDISTURBED SOIL

PWF SIP WALL AS PER INSTALLATION INSTRUCTIONS FOR FOOTING ON GRADE OR ON DRAINAGE LAYER. MOISTURE BARRIER BEHIND KNEE WALL AGAINST PWF FOUNDATION WALL



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WALL SECTION  
WITH KNEE WALL FOR SLAB



structural insulated panels

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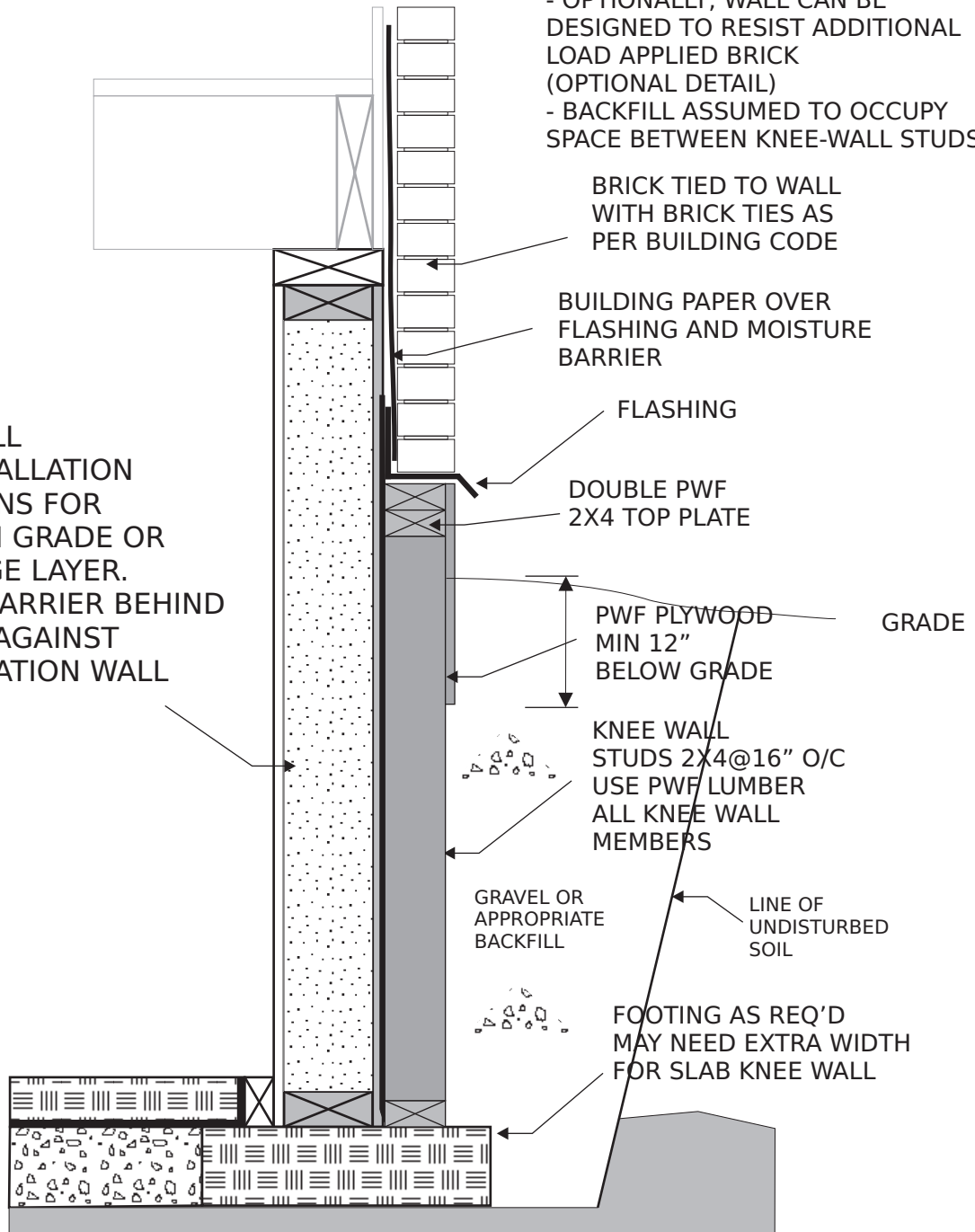
38-912

**KNEE WALL SUPPORTING BRICK VENEER**  
**(OPTION TO SUPPORTING ON PWF SIP WALL)**

**NOTES:**

- OPTIONALLY, WALL CAN BE DESIGNED TO RESIST ADDITIONAL LOAD APPLIED BRICK (OPTIONAL DETAIL)
- BACKFILL ASSUMED TO OCCUPY SPACE BETWEEN KNEE-WALL STUDS

PWF SIP WALL  
 AS PER INSTALLATION  
 INSTRUCTIONS FOR  
 FOOTING ON GRADE OR  
 ON DRAINAGE LAYER.  
 MOISTURE BARRIER BEHIND  
 KNEE WALL AGAINST  
 PWF FOUNDATION WALL



STRUCTURAL INSULATED PANEL  
 INSTALLATION GUIDE

PWF SIP WALL SECTION  
 KNEE WALL FOR BRICK VENEER

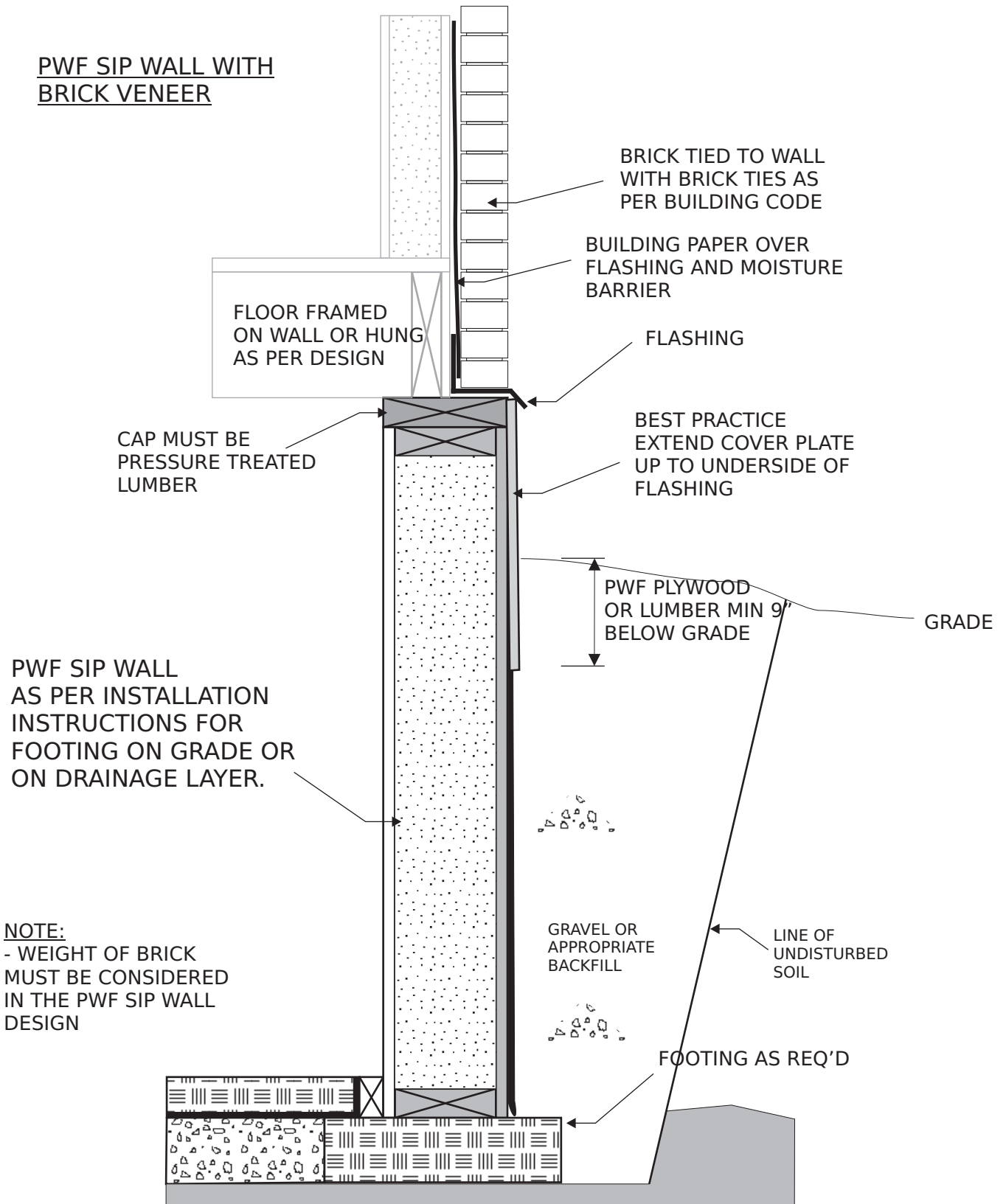


structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-913

PWF SIP WALL WITH  
BRICK VENEER



NOTE:  
- WEIGHT OF BRICK  
MUST BE CONSIDERED  
IN THE PWF SIP WALL  
DESIGN

STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP WALL SECTION  
BRICK VENEER

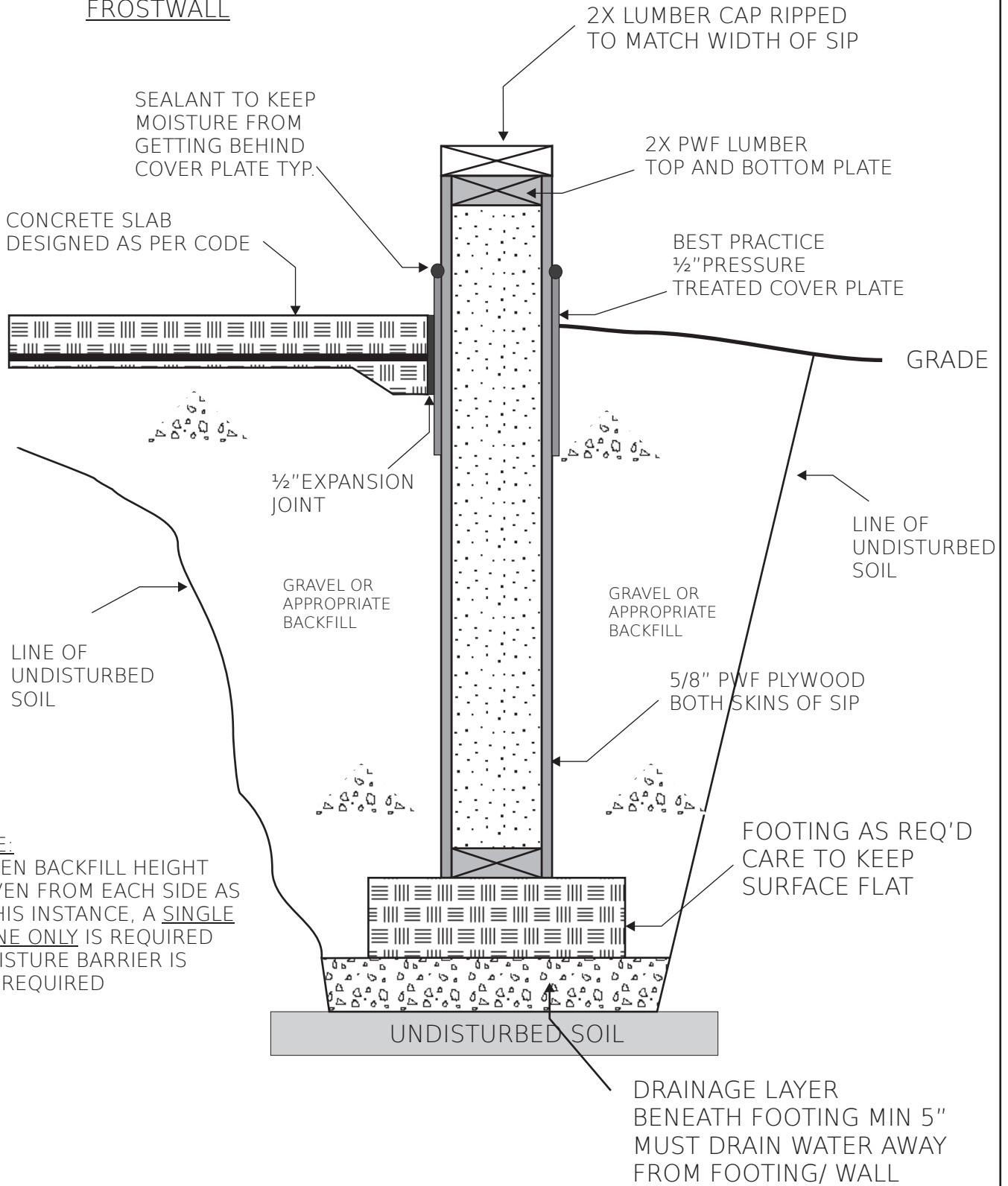


structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-914

PWF SIP GARAGE FROSTWALL



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP FROSTWALL  
GARAGE WALL

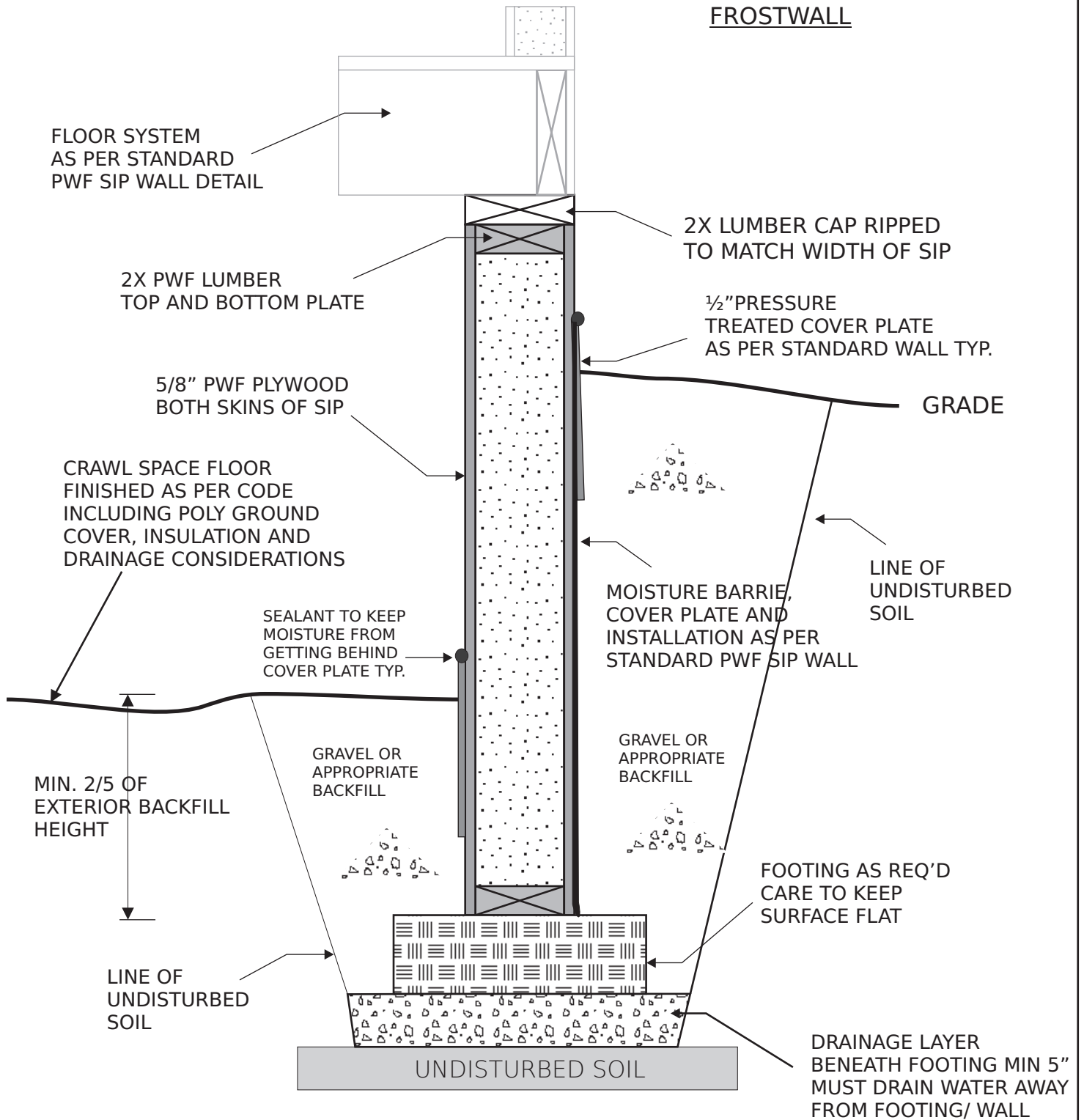


structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-915

PWF SIP CRAWL SPACE  
FROSTWALL



STRUCTURAL INSULATED PANEL  
INSTALLATION GUIDE

PWF SIP FROSTWALL  
CRAWL SPACE



structural insulated panels

PHOENIX BUILDING COMPONENTS 106 Saunders Road, Barrie 705-733-3843

38-916



# Code Report



**PRODUCT:** PorterCorp Structural Insulated Panels  
**DIVISION:** Wood and Plastics (06)  
**SECTION:** Structural Panels (06 12 16)

**Report Holder**  
PorterCorp  
4240 North 136<sup>th</sup> Ave,  
Holland, MI 46424

**Manufacturing Locations**  
PorterCorp  
4240 North 136<sup>th</sup> Ave,  
Holland, MI 46424

#### 1. SUBJECT

*PorterCorp Wall and Roof Structural Insulated Panels.  
Wall and Roof Panels 8-ft to 24ft, 4-5/8-in to 12-3/8-in thick*

#### 2. SCOPE

NTA, Inc. has evaluated the above product(s) for compliance with the applicable sections of the following codes:

- 2006 International Building Code (IBC)
- 2006 International Residential Code (IRC)

NTA, Inc. has evaluated the following properties of the above product(s):

- Structural performance under axial, transverse, and racking loads.
- Surface burning characteristics and self-ignition temperature.

#### 3. USES

**3.1. General.** *PorterCorp Structural Insulated Panels* are used as structural insulated roof, and wall panels capable of resisting transverse, racking, and axial compressive loads.

**3.2. Construction Types.** *PorterCorp Structural Insulated Panels* shall be considered combustible building elements when determining the Type of Construction in accordance with 2006 IBC Chapter 6.<sup>(NACU1)</sup>

**3.3. Fire Resistive Assemblies.** *PorterCorp Structural Insulated Panels* shall not be used as part of a fire-rated assembly unless suitable evidence and details are submitted and approved by the authority having jurisdiction.<sup>(ACU15)</sup>

#### 4. DESCRIPTION

**4.1. General.** *PorterCorp Structural Insulated Panels* are factory-assembled, engineered-wood-faced, structural insulated panels (SIP) with an expanded polystyrene (EPS) foam core. The panels are intended for use as load-bearing or non-load bearing wall and roof panels. Panels are available in 4-5/8-inch through 12-3/8-inch overall thicknesses. The panels are custom made to the specifications for each use and are assembled under factory-controlled conditions. The maximum panel size is 8-ft wide and up to 24-ft in length.

##### 4.2. Materials

**4.2.1. Facing.** The facing consists of two single-ply oriented strand board (OSB) facings a minimum of 7/16-inch thick conforming to APA PRN-610 and DOC PS 2-04, Exposure 1, Rated Sheathing with a span index of 24/16. Panels may be manufactured with the facing strength axis oriented in either direction with respect to the direction of SIP panel bending provided the appropriate strength values are used.

**4.2.2. Core.** The core material is 1.0 pcf density expanded polystyrene (EPS) foam (0.95 pcf minimum). The foam core has a flame spread rating not exceeding 75 and a smoke-developed rating not exceeding 450 when tested in accordance with ASTM E84.

**4.2.3. Adhesive.** Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination process in accordance with the in-plant quality control manual.

**4.2.4. Material Sources.** The facing, core and adhesive used in the construction of *PorterCorp Structural Insulated Panels* shall be composed only of materials from approved sources as identified in Table 8.

**4.2.5. Splines.** *PorterCorp Structural Insulated Panels* are interconnected with surface splines, block splines, dimensional lumber splines, or engineered structural splines (Figure 1).

**4.2.5.1. Surface Splines.** Surface splines (Figure 1) consist of 3-inch wide by 7/16-in thick or thicker, OSB. At each panel joint, one surface spline is inserted into

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each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.

**4.2.5.2. Block Splines.** Block splines (Figure 1) are manufactured in the same manner as the overall SIP panel except with an overall thickness that is 1-inch less than the overall thickness of the panel to be joined.

**4.2.5.3. Dimensional Lumber Splines.** Dimensional lumber splines (Figure 1) consist of one or more plies of dimensional lumber.

**4.2.5.4 Structural Splines.** Structural splines consist of one or more plies of dimensional lumber or an engineered wood product.

## 5. DESIGN

**5.1. Overall Structural System.** The scope of this report is limited to the evaluation of the SIP panel component. Panel connections and other details related to incorporation of the panel into the overall structural system of a building are beyond the scope of this report.<sup>(NACU3)</sup>

**5.2. Design Approval.** Where required by the authority having jurisdiction, structures using *PorterCorp Structural Insulated Panels* shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details, and connector details, shall be submitted to the code official when application is made for a permit. The individual preparing such documents shall possess the necessary qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken. Approved construction documents shall be available at all times on the jobsite during installation.<sup>(NACU4)</sup>

**5.3. Design Loads.** Design loads to be resisted by the SIP panels shall be as required under the applicable building code. Loads on the panels shall not exceed the loads noted in this report.

**5.4. Allowable Loads.** Allowable axial, transverse, and racking loads may be calculated using the panel properties provided in Tables 1 and 2, or may be selected from Tables 4 through 7. Panel height and span are limited as provided in Table 3. Unless otherwise noted, all properties and allowable loads apply to panels joined with surface or block splines. Allowable loads for reinforced panel capacities shall be designed by a registered professional. Calculations demonstrating that the loads applied are less than the

allowable loads described in this report shall be submitted to the code official for approval.<sup>(NACU5)</sup> For loading conditions not specifically addressed herein structural members designed in accordance with accepted engineering practice shall be provided to meet applicable code requirements.

**5.5. Concentrated Loads.** Axial loads shall be applied to the SIP panel through continuous members such as structural insulated panels or repetitive members spaced at regular intervals of 24-inches on center, or less. Such members shall be fastened to a rim board or similar member to distribute the load to the SIP panel. For other loading conditions, such as concentrated loads, reinforcement shall be provided. This reinforcement shall be designed in accordance with accepted engineering practice.<sup>(ACU13)</sup>

**5.6. Eccentric and Side Loads.** Axial loads shall be applied concentrically to the top of the SIP panel. Loads shall not be applied eccentrically or through framing attached to one side of the panel (such as balloon framing) except where additional engineering documentation is provided.<sup>(ACU14)</sup>

**5.7. Openings.** Openings in panels shall be reinforced with wood or steel designed in accordance with accepted engineering practice to resist all loads applied to the opening as required by the adopted code. Details for door and window openings shall be provided to clarify the manner of supporting axial, transverse and/or racking shear loads at openings. Such details shall be shown on approved design documents and subject to approval by the local authority having jurisdiction.<sup>(ACU8)</sup>

**5.8. In-Plane Shear Design.** Shear walls utilizing block or surface splines shall be sized to resist all code required wind and seismic loads without exceeding the allowable loads provided in Table 7. The maximum panel height-to-width ratio shall be 2:1.<sup>(ACU18)</sup> Shearwall chords, holdowns, and connections to transfer shear forces between the wall and surrounding structure shall be designed in accordance with accepted engineering practice. Allowable strengths for shear walls with structural splines along each panel edge shall be designed in accordance with accepted engineering practice and subject to the limitations for wood sheathed shear walls.

**5.8.1. Seismic Design.** Use of panels as shear walls (racking shear) is limited to structures in Seismic Design Categories A, B and C.<sup>(NACU3)</sup> Where SIP panels are used to resist seismic forces the following factors shall be used for design: Response Modification

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Coefficient,  $R = 2.0$ ; System Overstrength Factor,  $\Omega_0 = 2.5$ ; Deflection Amplification Factor,  $C_d = 2.0$ .<sup>(ACU17)</sup>

**5.9. Combined Loads.** Panels subjected to any combination of transverse, axial or in plane shear loads shall be analyzed utilizing a straight line interaction in accordance with *NTA IM14 TIP 01 SIP Design Guide*.

## 6. INSTALLATION

**6.1. General.** *PorterCorp Structural Insulated Panels* shall be fabricated, identified and erected in accordance with this report, the approved construction documents and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report shall govern. Approved construction documents shall be available at all times on the jobsite during installation.<sup>(NACU7)</sup>

**6.2. Splines.** *PorterCorp Structural Insulated Panels* are interconnected at the panel edges through the use of a spline. The spline type may be of any configuration listed in Section 4.2.4, as required by the specific design. The spline shall be secured in place with not less than 0.131-in. x 2-1/2-in. nails, 6-in. on-center, or an approved equivalent fastener. All joints shall be sealed in accordance with the SIP manufacturer's installation instructions. Alternate spline connections may be required for panels subjected to in-plane racking forces. Such panels shall be interconnected exactly as required in Table 7, or as directed by the designer.

**6.3. Plates.** The top and bottom plates of the panels shall be dimensional or engineered lumber sized to match the core thickness of the panel. The plates shall be secured using not less than 0.131-in. x 2-1/2-in. nails spaced 6-inches on center, on both sides, or an approved equivalent fastener.

A second plate composed of 1-1/8-in. minimum thickness dimensional or engineered lumber with a specific gravity of 0.42 that is cut to the full thickness of the panel shall be secured to the first top plate using 0.133-in. x 3-in. nails or an approved equivalent fastener.

**6.4. Cutting and Notching.** No field cutting or routing of the panels shall be permitted except as shown on approved drawings.<sup>(NACU6)</sup>

**6.5. Protection from Decay.** SIPs that rest on exterior foundation walls shall not be located within 8-inches from exposed earth. SIPs supported by concrete or masonry that is in direct contact with earth shall be

protected from the concrete or masonry by a moisture barrier.<sup>(ACU6)</sup>

**6.6. Protection from Termites.** In areas subject to damage from termites, SIP panels shall be protected from termites using an approved method. Panels shall not be installed below grade or in contact with earth.<sup>(ACU7)</sup>

**6.7. Heat-Producing Fixtures.** Heat-producing fixtures shall not be installed in the panels unless protected by a method approved by the code official or documented in test reports. This limitation shall not be interpreted to prohibit heat-producing elements with suitable protection.<sup>(NACU9)</sup>

**6.8. Plumbing Installation.** Plumbing and waste lines may extend at right angles through the wall panels but are not permitted vertically within the core. Lines shall not interrupt splines or panel plates unless approved by the local authority having jurisdiction.<sup>(NACU2)</sup>

## 6.9. Voids and Holes

**6.9.1 Voids in Core.** In lieu of openings designed in accordance with section 5.7 the following are permitted. Voids may be provided in the panel core during fabrication at predetermined locations only. Voids parallel to the panel span shall be limited to a single 1-inch maximum (outside diameter) hole. Such voids shall be spaced a minimum of 4-feet on center, measured perpendicular to the panel span. Two 1/2-inch diameter holes may be substituted for the single 1-inch hole provided they are maintained parallel and within 2-inches of each other.<sup>(ACU12)</sup>

Voids perpendicular to the panel span (parallel to the support) shall be limited to a single 1-inch maximum (outside diameter) hole placed not closer than 16-inches from the support. Additional voids in the same direction shall be spaced not less than 28-inches on center.

**6.9.2 Holes in Panels.** Holes may be placed in panels during fabrication at predetermined locations only. Holes shall be limited to 4-inches x 4-inches square. The minimum distance between holes shall not be less than 4-feet on center measured perpendicular to the panel span and 24-inches on center measured parallel to the panel span. Not more than three holes shall be provided in a single line of holes parallel to the panel span. The holes may intersect voids permitted elsewhere in this report.<sup>(ACU16)</sup>

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**6.10. Panel Cladding**

**6.10.1 Roof Covering.** The roof covering, underlayment and flashing shall comply with the applicable code(s). All roofing materials must be installed in accordance with the manufacturer's installation instructions. The use of roof coverings requiring the application of heat during installation shall be reviewed and approved by a registered design professional.

**6.10.2 Exterior Wall Covering.** Panels shall be covered on the exterior by a water-resistive barrier as required by the applicable code. The water-resistive barrier shall be attached with flashing in such a manner as to provide a continuous water-resistive barrier behind the exterior wall veneer.<sup>(ACU10)</sup> The exterior facing of the SIP wall shall be covered with weather protection as required by the adopted building code or other approved materials.<sup>(ACU11)</sup>

**6.10.3 Interior Wall Covering.** The SIP panel foam plastic core shall be separated from the interior of the building by an approved thermal barrier of 0.5-inch gypsum wallboard or equivalent thermal barrier where required by 2006 IBC 2603.<sup>(ACU9)</sup>

**8.4.** Follow-up quality assurance audits of the production facility(ies).

**8.5.** Follow-up testing in accordance with NTA, Inc. *Inspection Method 14.0* (IM14).

Evaluation evidence and data are on file with NTA, Inc. NTA, Inc. is accredited by the International Accreditation Service (IAS) as follows:

*ISO17020 Inspection Agency (AA-682)*

*ISO17025 Testing Laboratory (TL-259)*

*ISO Guide 65 Product Certification Agency (PCA-102)*

The scope of accreditation related to testing, inspection or product certification pertain only to the test methods and/or standard referenced therein. Design parameters and the application of building code requirements, such as special inspection, have not been reviewed by IAS and are not covered in the accreditation. Product evaluations are performed under the direct supervision of Professional Engineers licensed in all jurisdictions within the United States as required by the building code and state engineering board rules.

**7. CONDITIONS OF USE**

*PorterCorp Structural Insulated Panels* as described in this report comply with the codes listed in Section 2.0, subject to the following conditions:

**7.1.** Installation complies with this report and the approved construction documents.

**7.2.** This report applies only to the panel thicknesses specifically listed herein.<sup>(ACU2)</sup>

**7.3.** In use panel heights/spans shall not exceed the values listed herein. Extrapolation beyond the values listed herein is not permitted.<sup>(ACU3)</sup>

**7.4.** The panels are manufactured in the production facility(ies) noted in this report.<sup>(NACU8)</sup>

**8. EVIDENCE SUBMITTED**

NTA, Inc. has examined the following evidence to evaluate this product:

**8.1.** Review of plant quality assurance manual

**8.2.** Plant certification inspection of manufacturer's production facilities, test procedures, frequency and quality control sampling methods, test equipment and equipment calibration procedures, test records, dates and causes of failures when applicable.

**8.3.** Licensed Qualification Data from NTA Listing SIPA120908-10

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**9. FINDINGS**

All panels are manufactured under an in-plant Quality Assurance program to insure that the production quality meets or exceeds the requirements of the codes noted herein and the criteria as established by NTA, Inc. Furthermore, panels must comply with the conditions of this report.

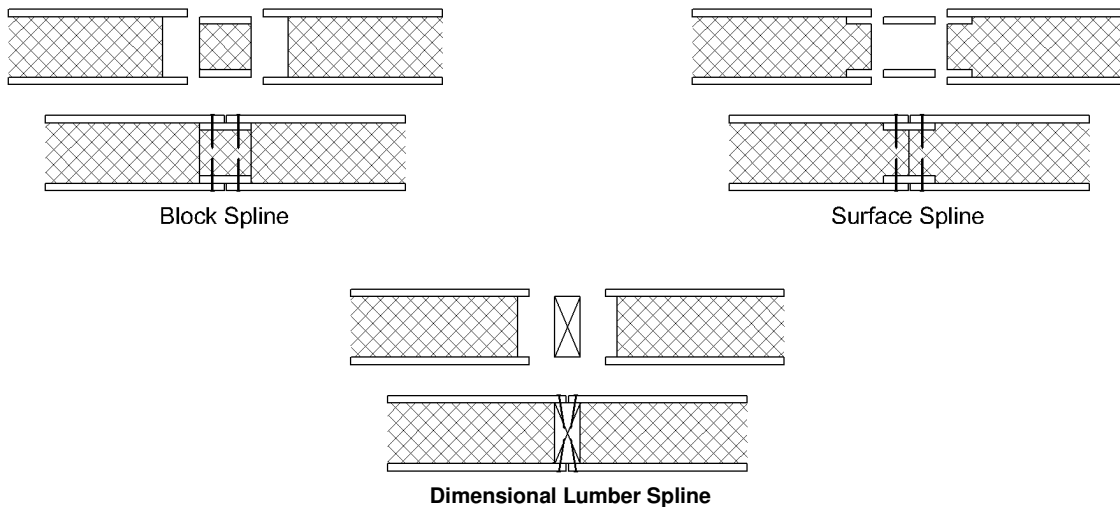
*This report expires one year from the issue date noted below.*

- b) NTA's Listing No. PSC121907-22;
- c) in-plant quality assurance stamp;
- d) identifier for production facility;
- e) project or batch number.

**10. IDENTIFICATION**

Each eligible panel shall be permanently marked to provide the following information:

- a) The NTA, Inc. listing mark, shown below;



**Figure 1: SIP Spline Types**

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**Table 1: Basic Properties<sup>1,2</sup>**

Property	Weak-Axis Bending	Strong-Axis Bending
Allowable Tensile Stress, $F_t$ (psi)	245	495
Allowable Compressive Stress, $F_c$ (psi)	355	575
Elastic Modulus (Bending), $E_b$ (psi)	771000	760000
Shear Modulus, $G$ (psi)	300	440
Allowable Core Shear Stress, $F_v$ (psi)	6.4	6.4
Reference Depth, $h_o$ (in.)	4.625	4.625
Shear Depth Factor Exponent, $m$	0.86	0.86

<sup>1</sup> All properties are based on a minimum panel width of 24-inches.

<sup>2</sup> Refer to *NTA IM14 TIP 01 SIP Design Guide* for details on engineered design using basic panel properties.

**Table 2: Section Properties**

Panel Thickness, $h$ (in.)	Core Thickness, $c$ (in.)	Dead Weight, $w_d$ (psf)	Facing Area, $A_f$ (in. <sup>2</sup> /ft)	Shear Area, $A_v$ (in. <sup>2</sup> /ft)	Moment of Inertia, $I$ (in. <sup>4</sup> /ft)	Section Modulus, $S$ (in. <sup>3</sup> /ft)	Radius of Gyration, $r$ (in.)	Centroid-to-Facing Dist., $y_c$ (in.)
4.63	3.75	3.17	10.50	50.25	46.03	19.90	2.09	2.31
6.50	5.63	3.33	10.50	72.75	96.48	29.69	3.03	3.25
8.25	7.38	3.47	10.50	93.75	160.22	38.84	3.91	4.13
10.25	9.38	3.64	10.50	117.75	252.75	49.32	--	--
12.25	11.38	3.81	10.50	141.75	366.28	59.80	--	--

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**Table 3: Allowable Uniform Transverse Loads<sup>4</sup>**

Panel Length (ft)	4-5/8-inch Thick SIP			6-1/2-inch Thick SIP		
	Deflection Limit <sup>2</sup>			Deflection Limit <sup>2</sup>		
	L/180	L/240	L/360	L/180	L/240	L/360
<b>8 WAB<sup>3</sup></b>	50.8	44.6	29.7	75.8	71.0	47.3
<b>8</b>	76.4	57.3	38.2	104.8	94.0	62.7
<b>10</b>	50.4	37.8	25.2	80.6	64.5	43.0
<b>12</b>	34.6	26.0	17.3	61.0	45.8	30.5
<b>14</b>	24.6	18.4	12.3	44.5	33.4	22.3
<b>16</b>	--	--	--	33.2	24.9	16.6
<b>18</b>	--	--	--	25.3	19.0	12.7

See Table 4 for notes.

**Table 4: Allowable Uniform Transverse Loads (continued)<sup>4</sup>**

Panel Length (ft)	8-1/4-inch Thick SIP			10-1/4-inch Thick SIP			12-1/4-inch Thick SIP		
	Deflection Limit <sup>2</sup>			Deflection Limit <sup>2</sup>			Deflection Limit <sup>2</sup>		
	L/180	L/240	L/360	L/180	L/240	L/360	L/180	L/240	L/360
<b>8 WAB<sup>3</sup></b>	99.1	96.2	64.1	125.9	125.4	83.6	139.6	139.6	103.2
<b>8</b>	115.4	115.4	86.5	127.4	127.4	114.3	139.6	139.6	139.6
<b>10</b>	87.9	87.9	60.8	95.7	95.7	82.0	103.4	103.4	103.4
<b>12</b>	70.9	66.2	44.1	76.6	76.6	60.6	82.1	82.1	77.8
<b>14</b>	59.5	49.2	32.8	63.9	63.9	45.9	68.1	68.1	59.7
<b>16</b>	49.8	37.4	24.9	54.8	53.0	35.3	58.1	58.1	46.6
<b>18</b>	38.5	28.9	19.2	48.0	41.5	27.7	50.7	50.7	36.9
<b>20</b>	30.2	22.7	15.1	40.7	33.0	22.0	45.0	44.3	29.6

<sup>1</sup> Table values assume a simply supported panel with 1.5-inches of continuous bearing on facing at supports ( $C_v = 1.0$ ) with splines at bearing locations. Values do not include the dead weight of the panel.  $C_v=0.4$  Shall be used where no bearing is provided.

<sup>2</sup> Deflection limit shall be selected by building designer based on the serviceability requirements of the structure and the requirements of adopted building code. Deflection values based on loads of short duration only and do not consider effects of creep.

<sup>3</sup> Tabulated values are based on the strong-axis of the facing material oriented parallel to the span direction. WAB indicates weak-axis bending of the facing material (i.e. the facing material weak-axis is parallel to the span direction).

<sup>4</sup> Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.

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**Table 5: Allowable Axial Loads (plf)<sup>1,2,3,4,6</sup>**

Lateral Brace Spacing (ft)	Panel Thickness		
	4-5/8-inches	6-1/2-inches	8-1/4-inches
8 WAB <sup>5</sup>	2420	2580	2650
8	3700	4080	4230
10	3370	3930	4140
12	2990	3730	4020
14	--	3500	3890
16	--	3240	3720
18	--	2960	3540
20	--	--	3340

1. Permanent loads, such as dead load, shall not exceed 0.50 times the tabulated load.
2. All values are for normal duration and may not be increased for other durations.
3. Axial loads shall be applied concentrically to the top of the panel through repetitive members spaced not more than 24-inches on center. Such members shall be fastened to a rim board or similar member to distribute along the top of the SIP panel.
4. The ends of both facings must bear on the supporting foundation or structure to achieve the tabulated axial loads.
5. Tabulated values are based on the strong-axis of the facing material oriented parallel to the span direction. WAB indicates weak-axis bending of the facing material (i.e. the facing material weak-axis is parallel to the span direction).

**Table 6: Allowable In-Plane Shear Strength (Pounds per Foot) for SIP Shear Walls (Wind and Seismic Loads in Seismic Design Categories A, B and C)<sup>1,2</sup>**

Spline Type <sup>3</sup>	Nominal SIP Thickness (in.)	Minimum Facing Connections <sup>2,4</sup>			Shear Strength (plf)
		Chord <sup>2</sup>	Plate <sup>2</sup>	Spline <sup>3</sup>	
Block or Surface Spline	4.625	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	380
	6.625	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	380
	8.375	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	0.131"x 2-1/2" nails, 6" oc	400

- Maximum shear wall dimension ratio shall not exceed 2:1 (height : width) for resisting wind or seismic loads.
- <sup>2</sup> Chords, holdowns, and connection to other structural elements must be designed by a registered design professional in accordance with accepted engineering practice.
  - <sup>3</sup> Spline type at interior panel-to-panel joints only, solid chord members are required at each end of each shearwall segment.
  - <sup>4</sup> Required connections must be made on each side of the panel. Dimensional or engineered lumber shall have an equivalent specific gravity of 0.42 or greater.

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**Table 7: Approved Material Sources<sup>1</sup>**

<b>Facing</b>	<b>Core</b>	<b>Adhesive</b>
Ainsworth Lumber Co. Ltd. Suite 3194 Bentall 4 1055 Dunsmuir Street Vancouver BC, Canada V7X 1L3: Bemidji, MN (Mill 353) Barwick, Ontario (Mill 498)	Falcon Foam, A Division of Atlas Roofing 8240 Byron Center SW Byron Center, MI 49315: Falcon Foam Expanded Polystyrene Insulation Boards (Type I)	Rohm & Haas Chemicals LLC 2531 Technology Drive Elgin, IL 60124: Mor-Ad™ M-640, Mor-Ad™ M-642 Mor-Ad™ M-6575
Tolko Industries Ltd 3203 30 <sup>th</sup> Avenue Vernon BC, Canada V1T 6M1: High Prairie, AB (Mill 450) Meadow Lake, SK (Mill 492)	AFM Corporation 211 S River Ridge Circle, #102A Burnsville, MN 55337: Foam-Control EPS Boards (Type I)	Ashland Specialty Chemical Company 5200 Blazer Parkway Dublin, OH 43017: ISOSET® EPI WD3-A322 with ISOSETCX47 ISOSET® EPI WD3-A320 with ISOSETCX47
	OPCO, Inc. P.O. Box 101 Latrobe, PA 15650 EPS Boards (Type I)	
	Powerfoam Insulation 550 Murray Street/Highway 287 Midlothian, TX 76065 EPS Boards (Type I)	
	Iowa EPS Products, Inc. 5554 N.E. 18 <sup>th</sup> Street Des Moines, Iowa 50313 EPS Boards (Type I)	

<sup>1</sup> Panels may be composed of any combination of approved materials. Contact NTA, Inc. for details on identification and labeling of source material.

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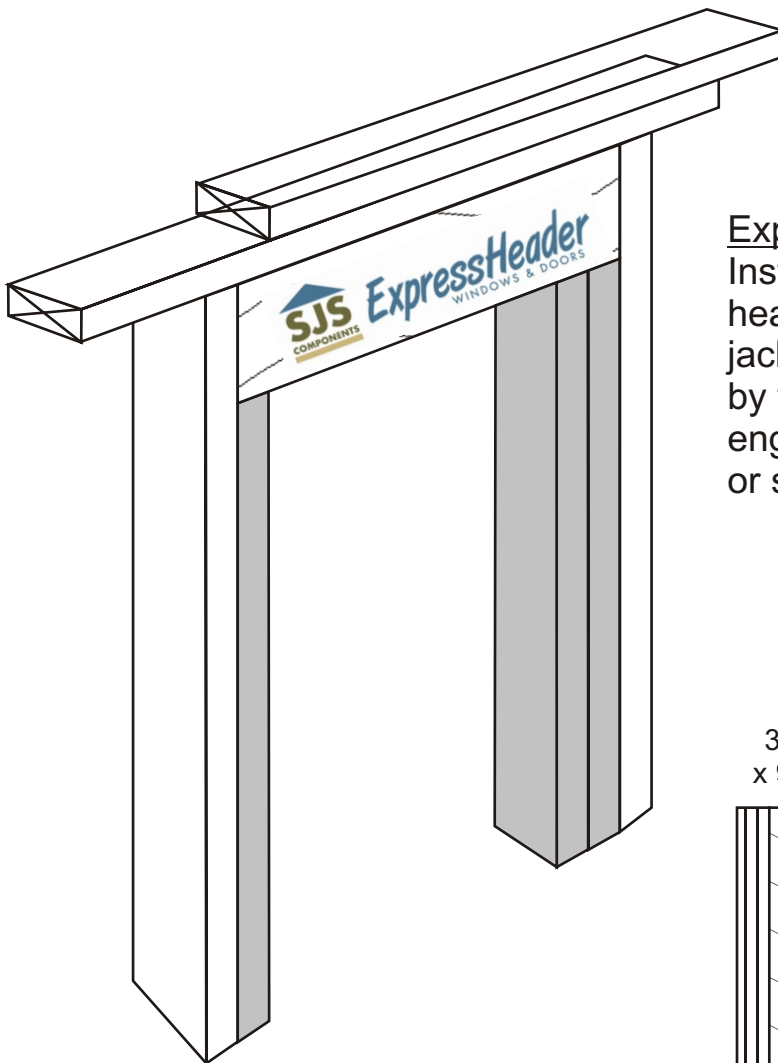
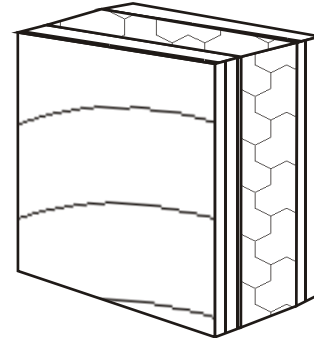


## Accessories

## ExpressHeader- Insulated Header

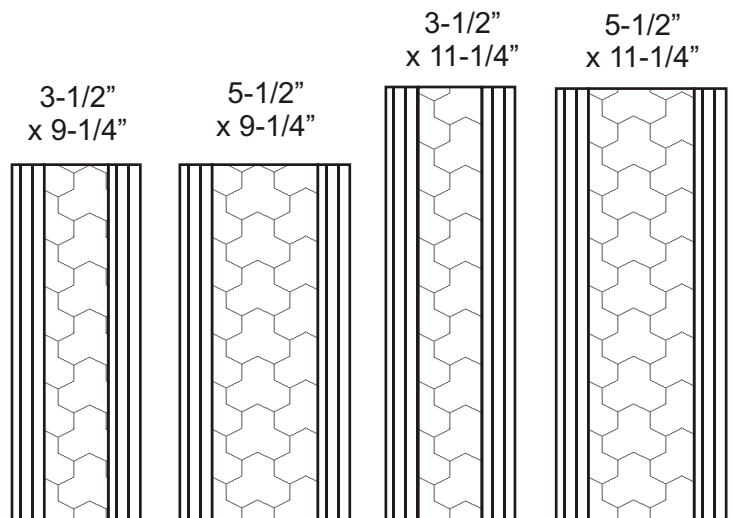
Great for both SIP Panel walls and standard applications

1-1/4" 2250-1.5E LVL Skins  
2" or 4" Type 1 EPS Core  
Minimum\* R-rating is  
**R-8 for 3-1/2", R-16 for 5-1/2"**



ExpressHeader  
Installs like a standard header. Using one or two jack studs as determined by the applied load and engineered design tables or structural analysis.

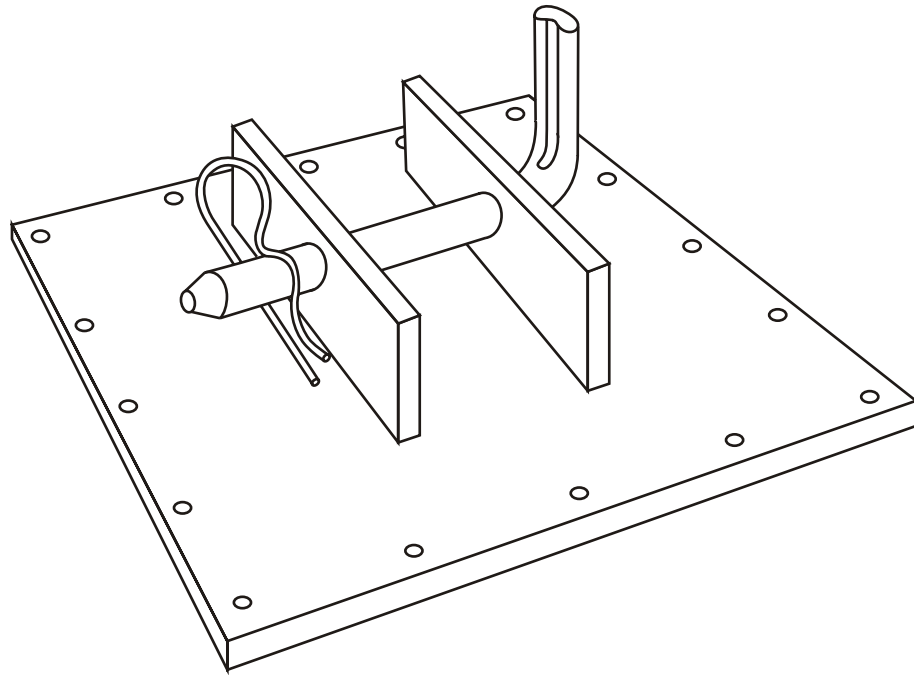
### SIZES AVAILABLE



\*Based on calculations from ASHRAE for EPS and CWC for wood

## SIP Panel Lifting Plates

1/4" Steel Construction- 16 pre-drilled holes for # 10 screws



### SCREW CAPACITY CALCULATION:

REF: APA TT-051B				REF: NDS 11.2-2				LIFT PLATE
OSB THICK	ULT PULL (LBS)	FACTOR SAFETY 6 (LBS)	NORMAL DURATION INC 10% (LBS)	OSB THICK	#10 SCREW DIAM (IN)	SPEC GRAV OSB (LOW)	DESIGN PULL CAPACITY (LBS)	USE LOWEST (LBS)
7/16"	241	40.1	44.1	7/16"	0.19	0.45	48.0	44.1

### PLATE CAPACITY CALCULATION:

MAX WIDTH (FT)	MAX LENGTH (FT)	WEIGHT 12.25" (PSF)	MAX PANEL WEIGHT	PLATES PER PANEL	SCREWS PER PLATE	#10 SCREW CAPACITY	LIFTING CAPACITY	
							TOTAL FOR PLATE	TOTAL FOR TWO
8	24	3.81	731.52	2	16	44.1	705.6	1411.2

### NOTES:

- SCREWS ARE TO BE #10 WITH THREADS EXTENDING TO HEAD TO ENSURE FULL EMBEDMENT IN OSB
- SCREW LENGTH MUST ENSURE FULL PENETRATION OF 7/16" OSB SKIN
- ALL HOLES TO BE FILLED PRIOR TO LIFTING THE PANEL
- LIFT PLATES MUST BE USED IN PAIRS FOR LARGE PANELS
- DESIGNED FOR A FACTOR OF SAFETY MORE THAN 10, BASED ON THE WEIGHT OF THE HEAVIEST PANEL
- MUST ENSURE A MINIMUM FACTOR OF SAFETY OF 6 WHEN USING THE PLATES

# SIP Fasteners

For Structural Insulated Panel and Nail Base Construction



## APPLICATION

TRUFAST SIP Fasteners are specifically engineered for attaching structural insulated panels (sips) and nail base panels to wood and metal framing. Featuring a large, pancake head style with a 6-lobe drive, TRUFAST SIP Fasteners drive quickly and smoothly, and draw panels securely without the need of a washer. And only TRUFAST offers three fastener styles for use in wood, corrugated steel, and steel members without pre-drilling! Contact your panel manufacturer or distributor and ask to test drive a TRUFAST SIP Fastener, and see why they're the #1 fastener in the SIP industry.

## PRODUCT FEATURES

- Case hardened and tempered for easy installation and long term durability.
- Large diameter, low profile pancake head provides excellent pull-through resistance without the need for a washer while eliminating "telegraphing" on shingles, metal panels and other roof surface materials.
- 6-Lobe internal drive offers excellent bit engagement during installation, especially in high torque applications.
- Widest selection of fastener lengths in the industry for proper sizing to panel thickness.
- Choice of 3 thread/point styles for job-matched performance in either wood or steel substrates.



**SIPTP**  
Thread Point  
for Wood & Timber  
Applications



**SIPLD**  
Light Duty -  
Drill Point for  
Corrugated Steel  
Deck & Wood  
Applications



**SIPHD**  
Heavy Duty -  
Drill Point for  
Thick Steel Member  
Applications

## PRODUCT SPECIFICATIONS

Material: Case hardened and tempered carbon steel  
Head Style/Drive: Pancake Head with T-30 Internal Drive  
Head Diameter: 0.625"

Nominal Shank Diameter: SIPTP and SIPLD: 0.190"  
SIPHD: 0.212"

Thread Length: SIPTP\* and SIPLD: 2.750"  
SIPHD: 3.875"

*\* 3" and longer fasteners; 2" and 2-1/2" fasteners are full thread*

Overall Lengths: SIPTP: 2" thru 18"

SIPLD: 3" thru 18"

SIPHD: 6" thru 13-3/4"

Point: SIPTP: Gimlet Thread

SIPLD: #2 (0.135" dia.) Drill Point

SIPHD: #4 (0.225" dia.) Drill Point

Coating: Epoxy e-coat (black)

*Passes more than 15 cycles (Kesternich) in accordance with DIN 50012*



Distributed in Ontario by Phoenix Building Components

ALTENLOH, BRINCK & CO Group



# SIP Fasteners

For Structural Insulated Panel and Nail Base Construction

## PRODUCT SELECTION

Length in. (mm)	SIPTP Part #	SIPLD Part #	Pkg. Qty.
2 (51)	SIPTP-2000	NA	500/Pail
2-1/2 (64)	SIPTP-2500	NA	500/Pail
3 (76)	SIPTP-3000	SIPLD-3000	500/Pail
3-1/2 (89)	SIPTP-3500	SIPLD-3500	500/Pail
4 (102)	SIPTP-4000	SIPLD-4000	500/Pail
4-1/2 (114)	SIPTP-4500	SIPLD-4500	500/Pail
5 (127)	SIPTP-5000	SIPLD-5000	500/Pail
5-1/2 (140)	SIPTP-5500	SIPLD-5500	500/Pail
6 (152)	SIPTP-6000	SIPLD-6000	500/Pail
6-1/2 (165)	SIPTP-6500	SIPLD-6500	500/Pail
7 (178)	SIPTP-7000	SIPLD-7000	500/Pail
7-1/2 (191)	SIPTP-7500	SIPLD-7500	500/Pail
8 (203)	SIPTP-8000	SIPLD-8000	500/Pail
8-1/2 (216)	NA	SIPLD-8500	250/Pail
9 (229)	SIPTP-9000	SIPLD-9000	250/Pail
10 (254)	SIPTP-10000	SIPLD-10000	250/Pail
11 (279)	SIPTP-11000	SIPLD-11000	250/Pail
12 (305)	SIPTP-12000	SIPLD-12000	250/Pail
13 (330)	SIPTP-13000	SIPLD-13000	250/Box
14 (356)	SIPTP-14000	SIPLD-14000	250/Box
15 (381)	SIPTP-15000	SIPLD-15000	250/Box
16 (406)	SIPTP-16000	SIPLD-16000	250/Box
18 (483)	SIPTP-18000	SIPLD-18000	250/Box

NOTE: Two T-30 Driver Bits included in each package

Length in. (mm)	SIPHD Part #	Pkg. Qty.
6 (152)	SIPHD-6000	500/Pail
8 (203)	SIPHD-8000	250/Pail
9-3/4 (248)	SIPHD-9750	250/Pail
11-3/4 (298)	SIPHD-11750	250/Pail
13-3/4 (349)	SIPHD-13750	250/Box

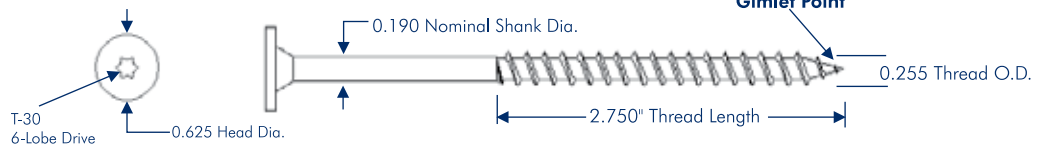
NOTE: Two T-30 Driver Bits included in each package



NOTE: All tests were conducted by an independent testing laboratory. Test results are offered only as a guide and are not guaranteed in any way by TRUFAST, LLC. \*Head Pull-Thru\*, \*Withdrawal\*, and \*Lateral Load\* data reflect average ultimate values.

## FASTENER DIMENSIONS

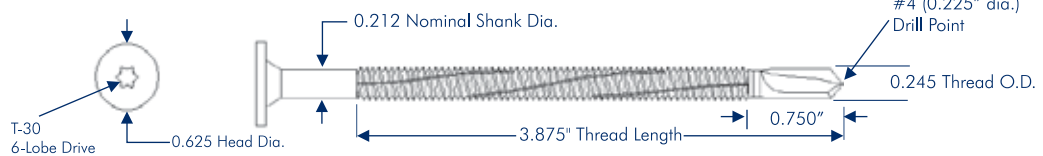
### SIPTP THREAD POINT



### SIPLD LIGHT DUTY DRILL POINT



### SIPHD HEAVY DUTY DRILL POINT



## PERFORMANCE DATA

Fastener	Tensile Strength	Shear Strength	Head Pull-Thru Values	
			7/16" OSB	SIP Panel
SIPTP	3380 lbf.	2900 lbf.	545 lbf.	630 lbf.
SIPLD	3380 lbf.	2900 lbf.	545 lbf.	630 lbf.
SIPHD	6000 lbf.	3400 lbf.	545 lbf.	630 lbf.

## Withdrawal Values in Wood\*

Specific Gravity 0.67 0.55 0.50 0.46 0.43 0.36 0.31

SIPTP & SIPLD: 1429 1173 1067 981 917 768 661

\*Values are in lb/in. of thread penetration

## Withdrawal Values in Steel

Type B Corrugated	22 ga	20 ga	18 ga		
SIPLD:	510 lbf	645 lbf	920 lbf		
Structural Steel	16 ga	13 ga	12 ga	3/16"	1/4"
SIPHD:	770 lbf	1130 lbf	1690 lbf	3100 lbf	4500 lbf

## Lateral Load Resistance

Fastener	Main Member	Side Member	Load (lbf.)
SIPTP	SPF 2x4	SIP Panel	943
SIPLD	22 ga. Corrugated Steel	Nail Base	411
SIPLD	7/16" OSB	Nail Base	112
SIPHD	1/8" Structural Steel	SIP Panel	929



TRUFAST, LLC  
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Fax: 419-636-1784  
Email: sales@trufast.com  
www.trufast.com

Distributed in Ontario by Phoenix Building Components

ALTENLOH, BRINCK & CO Group





## Dymonic® FC

### Fast Curing, Low Modulus, Silane End-Capped, Polyurethane Hybrid Sealant

#### Product Description

Dymonic® FC is a low modulus, one-component, moisture-cure, polyurethane hybrid sealant. Formulated with proprietary silane end-capped polymer technology, Dymonic FC provides the best performance characteristics of polyurethane and silicone sealants.

#### Basic Uses

Dymonic FC is a durable, flexible, sealant that offers excellent performance in moving joints and exhibits tenacious adhesion once fully cured. Typical applications for Dymonic FC include expansion and control joints, precast concrete panel joints, perimeter caulking (windows, door, panels), EIFS, aluminum, masonry & vinyl siding.

#### Features and Benefits

Dymonic FC is fast curing with a skin time of 60 minutes and a tack-free time of 3-4 hours to significantly reduce dirt pickup. It will not green crack due to early movement and has an exceptional movement capability of +/- 35%. Dymonic FC is also low VOC, paintable and will not crack or craze under UV exposure.

#### Colors

Almond, Beige, Black, Anodized Aluminum, Aluminum Stone, Buff, Dark Bronze, Gray, Limestone, Off White, Redwood Tan, Stone, White, Natural Clay, Bronze and Ivory.

#### Packaging

10.1 oz (300 ml) cartridges; 20 oz (600 ml) sausages; 2 (7.6 L), 3 (11.4 L) and 5 (19 L) gallon pails.

#### Coverage Rates

308 linear feet of joint per gallon for a 1/4" X 1/4" joint. For specific coverage rates that include joint size, and usage efficiencies, visit our website usage calculator at [www.tremcosealants.com](http://www.tremcosealants.com).

#### Applicable Standards

Dymonic FC meets or exceeds the requirements of the following specifications

- ASTM C 920 Type S, Grade NS, Class 35, Use NT, M, A, and O
- U.S. Federal Specification TT-S-00230C, Class A, Type II
- CAN/CGSB-19.13-M87

#### Fire-rated Systems

FF-D-1063, FW-D-1059, HW-D-1054, WW-D-1054.

#### Joint Design

Dymonic may be used in any vertical or horizontal joint designed in accordance with accepted architectural/engineering practices. Joint width should be 4 times anticipated movement, but not less than 1/4" (6.4mm).

#### Joint Backing

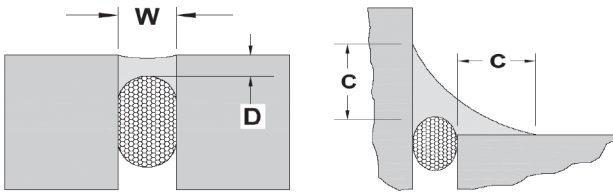
Closed cell or reticulated polyethylene backer rod is recommended as joint backing to control sealant depth and to ensure intimate contact of sealant with joint walls when tooling. Where depth of joint will prevent the use of backer rod, an adhesive backed polyethylene tape (bond breaker tape) should be used to prevent three-sided adhesion. All backing should be dry at time of sealant application.

### TYPICAL PHYSICAL PROPERTIES

Rheological Properties (ASTM C 639):	non-sag (NS), 0" of sag in channel
Extrusion Rate (ASTM C 1183):	93.1 ml/min.
Hardness Properties (ASTM C 661):	25
Weight Loss (ASTM C 1246):	Pass
Skin Time (no applicable test method)	1 hour
Tack Free Time (ASTM C 679):	3-4 hours
Stain & Color Change (ASTM C 510):	No visible color change/No stain
Adhesion-in-Peel (ASTM C 794):	Aluminum 20-25 pli (89-112N) Concrete 18-22 pli (80-98N) No Adhesion Loss
Effects of Accelerated Aging (ASTM C 793):	Pass
Movement Capability:	+/- 35%

## Sealant Dimensions

W = Sealant width, D = Sealant depth, C = Contact area.



**EXPANSION JOINTS** - The minimum width and depth of any sealant application should be 1/4" by 1/4" (6mm by 6mm).

The depth (D) of sealant may be equal to the width (W) of joints that are less than 1/2" wide. For joints ranging from 1/2" to 1" (13mm to 25mm) wide, the sealant depth should be approximately one-half of the joint width.

The maximum depth (D) of any sealant application should be 1/2" (13mm). For joints that are wider than 1" (25mm) contact Tremco's Technical Service Department, or your local Tremco field representative.

**WINDOW PERIMETERS** – For fillet beads, or angle beads around windows and doors, the sealant should exhibit a minimum surface contact area (C) of 1/4" onto each substrate.

## Surface Preparations

Surfaces must be sound, clean, and dry. All release agents, existing waterproofing, dust, loose mortar, laitance, paints, or other finishes must be removed. This can be accomplished with a thorough wire brushing, grinding, sandblasting, or solvent washing, depending on the contamination.

Tremco recommends that surface temperatures be 40°F (5°C) or above at the time the sealant is applied. If sealant must be applied in temperatures below 40°F, please refer to the Tremco Guide for Applying Sealants in Cold Weather that can be found on our website at [www.tremcosealants.com](http://www.tremcosealants.com).

## Priming

Where deemed necessary, use Tremco Primer #1 or TREMPRIME Silicone Porous Primer for porous surfaces, and TREMPRIME Non-Porous Primer for metals or plastics. Dymonic FC typically adheres to common construction substrates without primers; however, Tremco always recommends that a mock-up or field adhesion test be performed on the actual materials being used on the job to verify the need for a primer. A description of the field adhesion test can be found in appendix X1 of ASTM C 1193, Standard Guide for Use of Joint Sealants.

## Application

Dymonic FC is easy to apply with conventional caulking equipment. Ensure that the backer rod is friction fitted properly and any primers have been applied. Fill the joint completely with a proper width-to-depth ratio and tool to insure intimate contact of sealant with joint walls. Dry tooling is always preferred, although xylene can be used in limited amounts to slick the spatula if needed.

For a cleaner finish, mask the sides of the joint with tape prior to filling.

## Cure Time

Dymonic FC generally cures at a rate of 3/32" per day at 75°F (24°C) and 50% relative humidity. Dymonic FC will skin in 1 hour and be tack free in 3-4 hours. The cure time will increase as temperatures and/or humidity decrease. A good rule of thumb is one additional day for every 10°F decrease in temperature.

## Clean up

Excess sealant and smears adjacent to the joint interface can be carefully removed with xylene or mineral spirits before the sealant cures. Any utensils used for tooling can also be cleaned with xylene or mineral spirits.

## Limitations

- Do not apply over damp or contaminated surfaces.
- Use with adequate ventilation.
- Do not use under polyurethane deck coatings unless the sealant is fully cured.
- Always utilize the accompanying MSDS for information on Personal Protective Equipment (PPE), and health Hazards.

## Warranty

Tremco warrants its sealants to be free of defects in materials, but makes no warranty as to appearance or color. Since methods of application and on-site conditions are beyond our control and can affect performance, Tremco makes no other warranty, expressed or implied including warranties of MERCHANTABILITY and FITNESS FOR A PARTICULAR PURPOSE, with respect to Tremco sealants. Tremco's sole obligation shall be, at its option, to replace or refund the purchase of the quantity of Tremco sealant proven to be defective and Tremco shall not be liable for any loss or damage.







A DIVISION OF SOPREMA INC  
 1675 HAGGERTY  
 DRUMMONDVILLE, QC.  
 Telephone: (819) 478-8163  
 Fax: (819) 478-5422

<b>TECHNICAL DATA SHEET</b> <b>040604CAN1E</b>
Cancels and replaces 030828CAN11E

# RED ZONE

## Air / Water barrier membrane

**Description:** RESISTO RED ZONE is a self-adhesive membrane composed of elastomeric bitumen and a polyethylene woven complex surface. The self-adhesive underface is covered with a silicone release paper.  
 The RED ZONE waterproofing membranes allow the realization of many jobs, such as:

- Waterproofing details around windows, doors and any other openings.
- Crack repairing, joint waterproofing, etc.
- Air and vapour barrier.

**Properties:**

Properties	Standards	RED-ZONE
Thickness (mm)	-	1.0
Top face	-	Polyethylene Woven Complex
Underface	-	Silicone release paper
Tensile strength, MD/XD (kN/m)	ASTM D5147	11.3 / 15.4 (64 / 88 lb/in.)
Ultimate elongation, MD/XD (%)	ASTM D5147	40 / 25
Static puncture (%)	ASTM D5602	400 (90 lb)
Tear resistance, MD/XD (N)	ASTM D5601	375 / 400 (84 / 90 lb)
Cold temperature flexibility (°C)	ASTM D1970	-35
Lap adhesion (N/m)	ASTM D1876	2 000
Peel resistance (N/m)	ASTM D903	2 800
Water absorption (%)	ASTM D5147	0.1 max
Water Vapour Permeance (ng/Pa.s.m <sup>2</sup> )	ASTM E96 (Procedure B)	0.90 (0.016 perm)
Air Permeability (L/sec.m <sup>2</sup> )	ASTM E283 (75 Pa)	< 0.0003
Resistance to gust wind load	ASTM E330 (3000 Pa – 10 s)	No delamination or variation in the air permeability
Resistance to sustained wind load	ASTM E330 (100 Pa – 1 h)	No delamination or variation in the air permeability

(All values are nominal)

**Application conditions:** Available in regular grade for applications at temperatures above 10 °C and "Winter" grade for applications at temperatures between -10 °C and 10 °C.  
 Apply to dry and clean surface, free of oil, grease or residue.  
 The use of a primer may be recommended in certain conditions.

**Packaging:** Presented in 50 ft rolls, in a box. Available widths:  
 4" (10 cm) ? 6" (15 cm) ? 9" (23 cm) ? 12" (30 cm) ? 18" (46 cm) ? 36" (91 cm)

**General instructions:**

1. Brush and dry the surface.
2. Use a sample to test the adhesion of the surface. In more difficult applications, requiring perfect waterproofing or when applied in widths greater than 18" (46 cm), it is mandatory to use the RESISTO EXTERIOR PRIMER to obtain maximum adherence to the substrate.
3. Cut and carefully position the membrane on the surface to be covered.
4. Peel the protective sheet back 10-cm and apply the membrane.
5. Continue peeling the protective sheet back by rolling it around an appropriate item. Press down the membrane to increase adhesion.

**Limitations:** RED ZONE is not intended to be left exposed. In applications where the membrane must remain exposed, use the RESISTO MULTIPURPOSE WATERPROOFING TAPE. It can be applied on most surfaces with joints, cracks, stable openings, etc.



**NOTE:** SOPREMA INC. may modify the composition and/or utilisation of its products without prior notice. Consequently orders will be filled according to the latest specification.