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Installation Manual FLOOR SIPs



Thermapan
Structural
Insulated
Panels

FLOOR SIPs Installation Manual

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FLOOR SIPs

Installation Manual

1. General Requirements

1.1 Scope

The basic design and construction requirements for the Thermapan Structural Insulated Panel (SIP) floor systems are set forth in this specification. Criteria for materials, environmental control, design loads, and structural design are included. Where requirements are based on internationally recognized standards and specifications, these standards and specifications are referenced without elaboration.

Installers shall reference engineering design package for fastening arrangements.

2. Materials

2.1 Floor SIP (See Detail FL-1)

The Thermapan SIP is composed of an expanded polystyrene (EPS) foam core laminated between two layers of oriented strand board (OSB) with a structural adhesive.

2.2 Framing Lumber shall be DOC PS 20 or NLGA No.2 or better.

2.3 Wire nails, ring nails, spikes and staples shall conform to CSA B111 or ANSI B11.1.

2.4 Wood screws shall conform to ANSI/ASME B18.6.1.

2.5 SIP screws shall conform to ICC-AC233.

2.6 Caulking Compounds shall conform to CAN/CGSB 19.13 or ASTM C 920.

2.7 Polyethylene Sheeting shall conform to CAN/CGSB-37.2, CAN/CGSB-37.16, or ASTM D 4397.

2.8 Low expansion foam seal shall conform to AAMA 812-04.

2.9 Structural adhesive shall conform to CAN/CGSB 71GP26, APA AFG-01 or ASTM D3498.

3. Decay and Termite Protection

3.1 The minimum vertical clearance between structural wood elements and the finished ground level is not to be less than 150 mm (6").

3.2 In localities where termites are known to occur, clearance between the exposed exterior osb skin of the floor SIP and the finished ground level directly below shall be not less than 450 mm (18").

4. Interior Finish

- 4.1** A plywood underlay may be required for hardwood and ceramic tile finishes.

5. Electrical Wiring

- 5.1** It is recommended to fasten wiring to the exterior OSB layer and drill access through to interior layer.
- 5.2** Exposed wire shall conform to local building code.

6. Plumbing

- 6.1** Vertical plumbing penetrations 6" in diameter or less can be cut out of the floor SIP.

FLOOR SIPs

Specifications and Design Tables

Panel Specifications

Exterior Side	7/16" OSB
Interior Side	7/16" OSB
Length	8', 9', 10', 12', 14', 16'
Width	4'
Thickness	6.5", 8.25", 10.25", 12.25"
R-Value	R29, R38, R48, R58
Vapor Resistance	2.6 ng/Pam ² s - Type 1
Air Resistance	Yes

Floor Panel Fastening Table

SIP Screw Spacing inches (mm)	Resistance - Lateral/Shear lbs/foot (KN/m)	Resistance - Withdrawal/Pullout lbs/foot (KN/m)
16 (400)	158 (2.3)	98 (1.4)
12 (300)	210 (3.1)	130 (1.9)
10 (250)	252 (3.7)	156 (2.3)
8 (200)	315 (4.6)	195 (2.8)
6 (150)	420 (6.1)	260 (3.8)

1. Based on 20 lb/sq ft uplift. Consult your local code otherwise.
2. Dead load of 8 lb/sq ft.
3. Minimum 1-1/2" fastener penetration into support.
4. SIP Screw Maximum Loads (Factored): 210 lb Lateral (shear), 130 lb Withdrawal (pullout)

Floor Span Table (Vibration Controlled)

Panel Thickness	Lumber Spline	Maximum Span L/360	Maximum Span L/480
6.5"	2x6	12'-0"	8'-0"
8.25"	2x8	13'-9"	12'-0"
10.25"	2x10	15'-4"	14'-0"
12.25"	2x12	16'-0"	16'-0"

Uniform 40 psf live load and 10 psf dead load (Standard Term)
 Total factored load = 73 psf
 Spans shown are clear distances between supports (1½" minimum end bearing).

Maximum Load for Panel Spans: Floor Span vs. Maximum Load (lb/sq ft)

Span (ft)	Panel Thickness			
	6.5"	8.25"	10.25"	12.25"
8	140	160	170	185
10	120	140	160	175
12	100	125	145	165
14	80	100	135	155
16			108	125

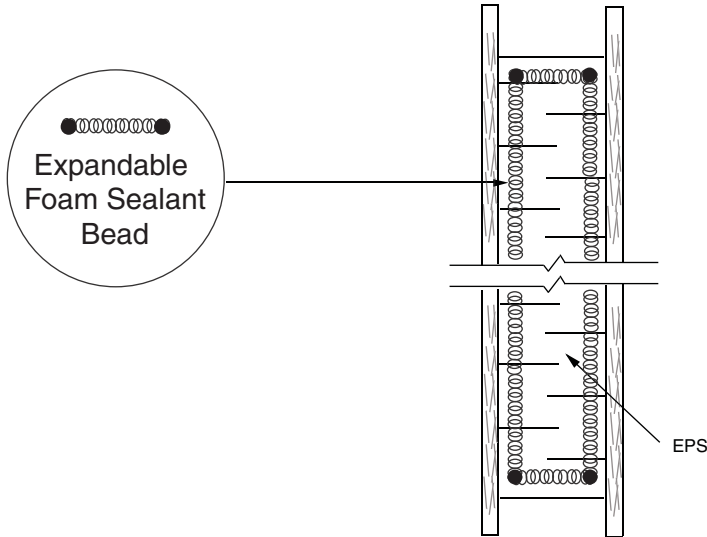
Maximum loads are factored live plus dead loads (LSD).

AIR BARRIER

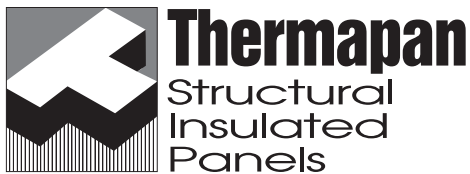
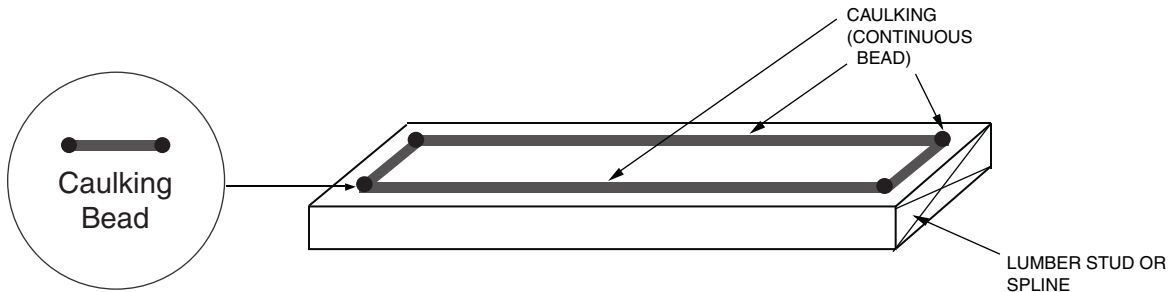
RECOMMENDED DETAILS FOR AIR BARRIER SEALANTS

All sealants, FOAM (A) or CAULKING (B), should be applied onto the SIP in a continuous rectangular pattern along the outer most edge of the area to be sealed.

(A) A low expansion EXPANDABLE FOAM SEALANT should conform to the AAMA 812-04 standard. Apply a 1/2 inch or a 12.5 mm diameter of a *continuous* bead of expandable foam sealant onto the SIP:



(B) A CAULKING SEALANT should conform to ASTM C920-02 and/or CAN/CGSB 19.13-M. Apply a 3/8 inch or a 10 mm diameter *continuous* bead of caulking onto the lumber spline:



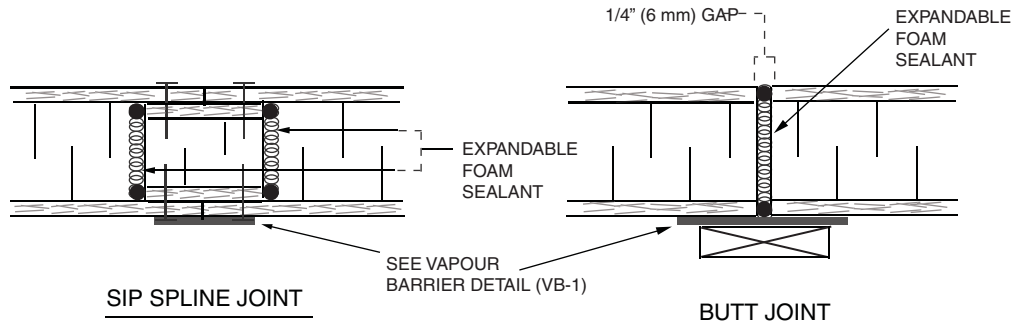
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1-877-443-WALL (9255)

TITLE	AIR BARRIER DETAILS FOR AIR BARRIER SEALANTS		PROJECT
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DATE	REVISION	DWG. No.	
NOVEMBER 2010	1	AB-1	

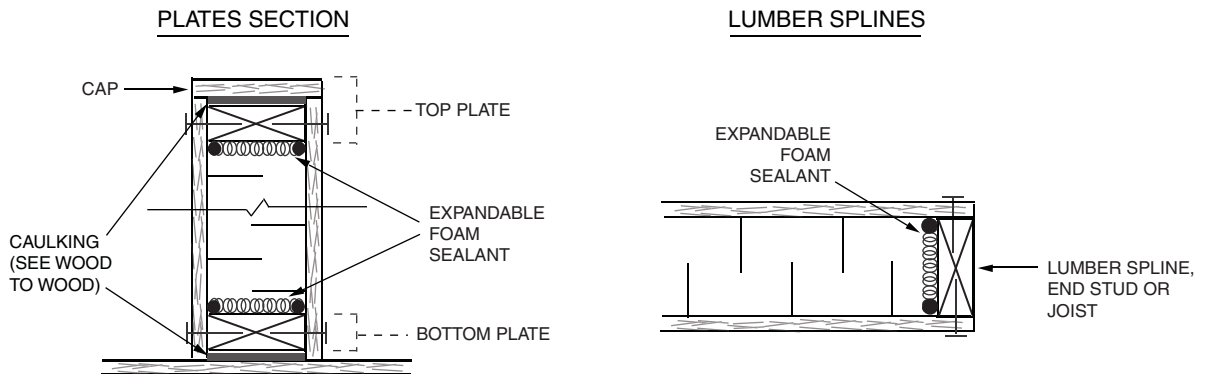
AIR BARRIER

RECOMMENDED DETAILS FOR SEALING SIP CONNECTIONS

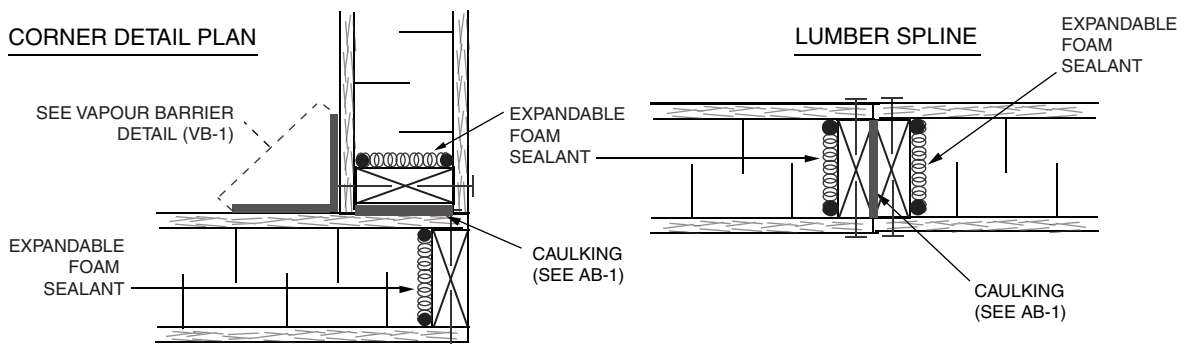
(1) Foam to Foam: Use a low expansion foam sealant.



(2) Foam to Wood: Use a low expansion foam sealant.



(3) Wood to Wood: Use caulking and a low expansion foam sealant.

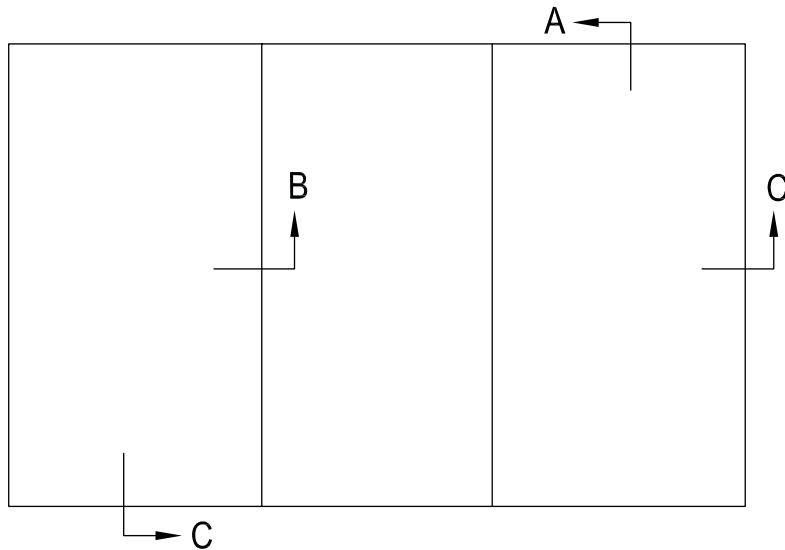


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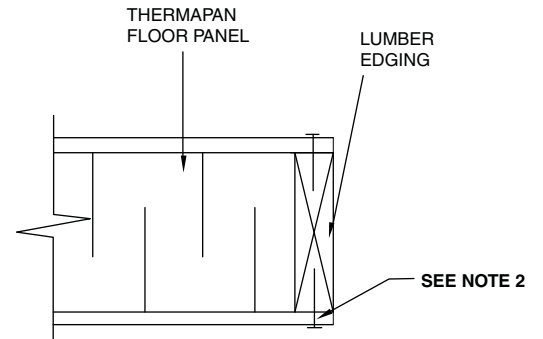
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AIR BARRIER DETAILS FOR SEALING SIP CONNECTIONS			
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DATE	REVISION	DWG. No.	
MAY 2009		AB-2	



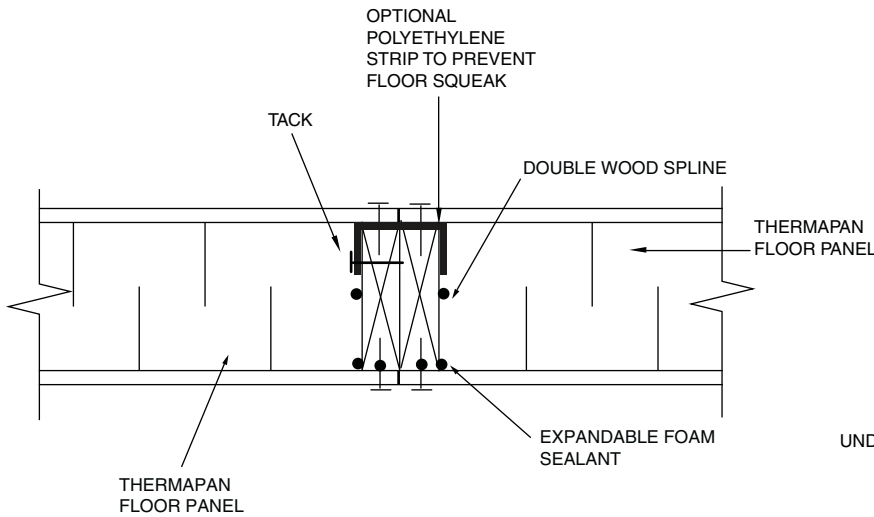
SECTION



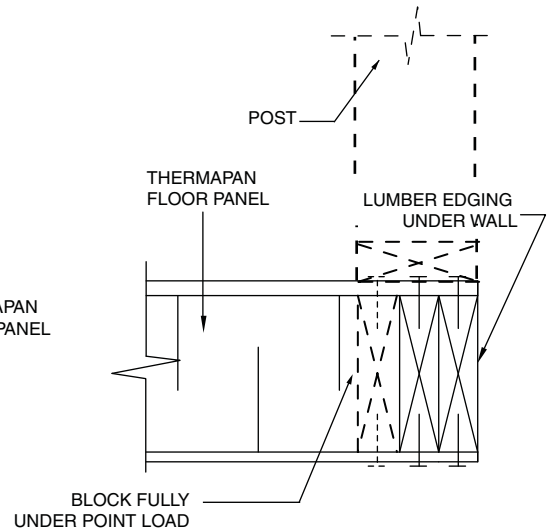
PANEL FLOOR PLAN



FLOOR SECTION "A"

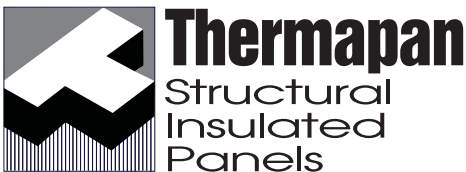


FLOOR SECTION "B"



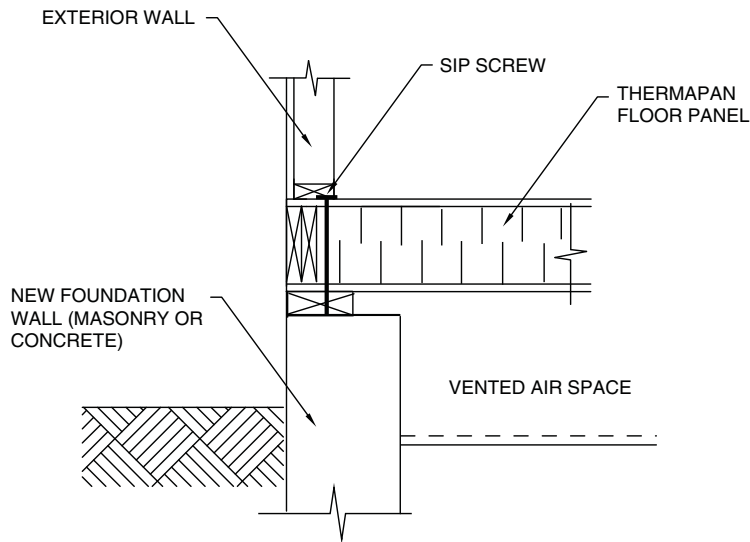
FLOOR SECTION "C"

NOTE: REFER TO AIR BARRIER DETAILS (AB-1 & AB-2).
 NOTE 2 (SECTIONS A & C): SEE DRAWING FL-2 FOR FASTENING AND SUPPORT DETAILS.

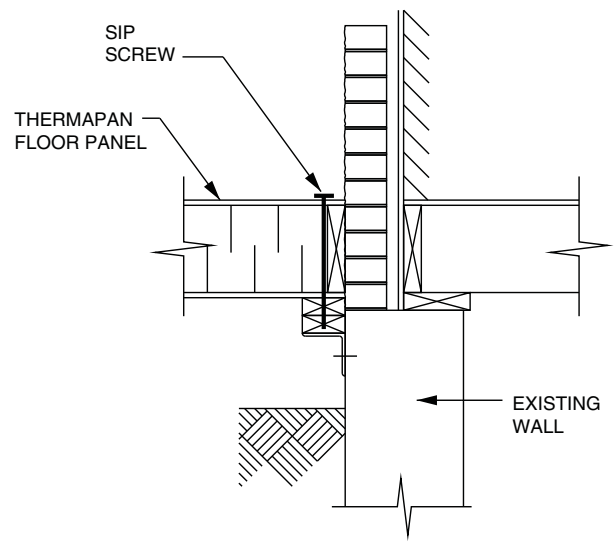


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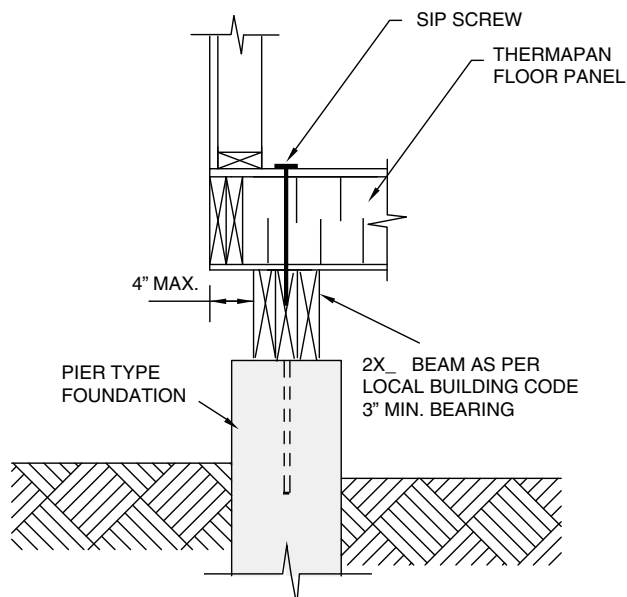
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FLOOR PANEL DETAILS		
REFERENCE	SCALE	
	N.T.S.	
DATE	REVISION	DWG. No.
FEBRUARY 2012	9	FL-1



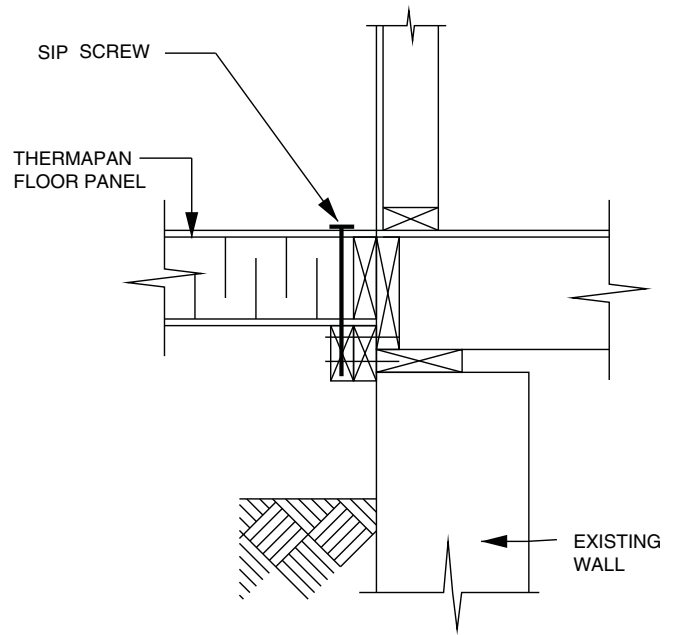
DETAIL F1
FOUNDATION WALL



DETAIL F3
NEW FLOOR TO EXISTING WALL

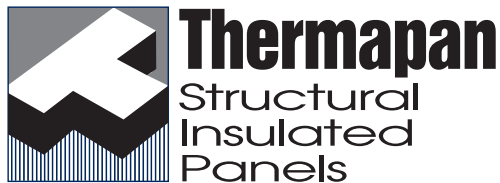


DETAIL F2
PIER



DETAIL F4
NEW FLOOR TO EXISTING WALL

NOTE: REFERENCE FLOOR PANEL FASTENING TABLE ON PAGE 5 OF THIS INSTALLATION MANUAL OR PAGE 6 OF THE THERMAPAN DESIGN HANDBOOK



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TITLE		PROJECT	
<p align="center">FLOOR PANEL CONNECTIONS (TO FOUNDATION OR EXISTING WALLS)</p>			
		REFERENCE	SCALE
DATE	REVISION	N.T.S.	
NOVEMBER 2011	2	DWG. No.	FL-2