

UNDERWRITERS LABORATORIES INC.

NORTHBOOK, IL. MELVILLE, NY. SANTA CLARA, CA. RESEARCH TRIANGLE PARK, NC
an independent, not-for profit organization testing for public safety

CERTIFICATE PII-1
 Mfrs. Ref. No. R 14313

The manufacturer whose name appears below is qualified under the Classification Service of Underwriters Laboratories Inc., as furnishing FOAMED PLASTIC in the form of POLYSTYRENE BOARDS CLASSIFIED AS SHOWN BELOW. This manufacturer is therefore authorized to issue this certificate for the bulk shipment of material described below as its representation that such material is manufactured in compliance with the requirements established by Underwriters Laboratories Inc., for this class product.

Material: Premier Building Systems Panel Core-Type 1 EPS
 Project:



Manufactured by : Insulfoam Plant ID: I41, I61, I65
 a plant of Insulfoam LLC

NOTE: To determine that panels received are Classified, make sure each panel is marked: See Cert. PII - 1

| | |
|---|---|
| <p>1) UNDERWRITERS LABORATORIES INC. CLASSIFIED 84Z2 FOAMED PLASTICS SURFACE BURNING CHARACTERISTICS</p> <p>FLAME SPREAD $\frac{1}{2}$ - 5in. Max. Thick +</p> <p>FLAME SPREAD 20 # SMOKE DEVELOPED 150-300#</p> <p>+ - Installed in a thickness, or stored in an effective, as indicated, for a density of .70 to 3.30 lb/ft³.</p> <p># - Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated flame spread index of 180 and smoke developed index of over 500.</p> | <p>2) FOAMED PLASTIC FOR ROOFING SYSTEMS AS TO EXTERNAL FIRE EXPOSURE ONLY. SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY</p> |
| <p>5) POLYSTYRENE THERMAL INSULATION, RIGID CELLULAR TYPE I, TYPE VIII, TYPE II, TYPE IX, TYPE XIV AND TYPE XV CLASSIFIED IN ACCORDANCE WITH ASTM 578</p> | <p>3) FOAMED PLASTIC FOR ROOFING SYSTEMS AS TO UPLIFT RESISTANCE. SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY.</p> <p>4) FOAMED PLASTIC AS ROOF DECK CONSTRUCTION MATERIAL WITH RESISTANCE TO AN INTERNAL FIRE EXPOSURE ONLY. FOR USE IN CONSTRUCTION NO(s). 219, 237, 458 SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY</p> |

Manufacturer's statement: "These numerical flame spread and smoke ratings are not intended to reflect hazards presented by this material under actual fire conditions."

09-168840-DFS 02cc 2
 SF-07891-BO

UNDERWRITERS LABORATORIES INC.

NORTHBROOK, IL, MELVILLE, NY, SANTA CLARA, CA, RESEARCH TRIANGLE PARK, NC
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CERTIFICATE PII -3
Mfrs. Ref. No. R 14340

The manufacturer whose name appears below is qualified under the Classification Service of Underwriters Laboratories Inc., as furnishing BUILDING UNITS in the form of BUILDING PANELS CLASSIFIED AS SHOWN BELOW. This manufacturer is therefore authorized to issue this certificate for the bulk shipment of material described below as its representation that such material is manufactured in compliance with the requirements established by Underwriters Laboratories Inc., for this class of product.

Material: **Premier Structural Panel**

Manufactured by : **Premier Building Systems** Plant ID: 31

NOTE: To determine that panels received are Classified, make sure each panel is marked: See Cert. PII - 3



UNDERWRITERS LABORATORIES INC.
CLASSIFIED BUILDING UNITS
FIRE RESISTANCE CLASSIFICATIONS
SEE UL FIRE RESISTANCE DIRECTORY
ALSO

UNDERWRITERS LABORATORIES INC.
CLASSIFIED BUILDING UNITS
SURFACE BURNING CHARACTERISTICS
(88Z4)

| | Core Material Values at 5in Max # <u>Thickness</u> | Finished Product + | | |
|-----------------|--|------------------------------|-------------------------------|--------------------------------|
| | | <u>Interior Surface*</u> | <u>Interior Surface**</u> | <u>Exterior Surface***</u> |
| Flame Spread | 20## | 5 | 10 | 130-160 |
| Smoke Developed | 150-300## | 10-35 | 0 | 95-190 |

- + Panels may bear Certificate Marking up to a maximum thickness of 12 7/8 in.
- # Core material tested in thicknesses up to 5 in.
- ## Flame spread and smoke developed recorded while material remained in the original test position. Ignition of molten residue on the furnace floor resulted in flame travel equivalent to calculated spread index of 180 and smoke developed index of over 500.
- * Tested as applied with Premier Fire-Gard® coating.
- ** Tested as faced with 1/2 in. gypsum wallboard
- *** Tested as faced with 3/8 in. cedar plywood, mechanically installed such that plywood joints are offset from panel joints.

Manufacturer's statement: "These numerical flame spread and smoke ratings are not intended to reflect hazards presented by this material under actual fire conditions."



the standard in safety

Underwriters
Laboratories

File R14340

Vol 1QA

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FOLLOW-UP SERVICE PROCEDURE
(TYPE R)

PRODUCTS VERIFIED TO ICC EVALUATION SERVICE, INC. AC10 REQUIREMENTS
(QVBH)

Manufacturer: SEE ADDENDUM FOR MANUFACTURING LOCATIONS

Applicant: INSULFOAM L L C, DBA PREMIER BUILDING
(100226-848) SYSTEMS
SUITE 120
6004 N WESTGATE BLVD
TACOMA WA 98406

Listee: SAME AS APPLICANT
(100226-848)

This Procedure authorizes the above manufacturer to use the marking specified by Underwriters Laboratories Inc. (UL), or any authorized licensee of UL, only on products covered by this Procedure, in accordance with the applicable UL Services Agreement.

The prescribed Mark or Marking shall be used only at the above manufacturing location on such products which comply with this Procedure and any other applicable requirements.

The Procedure contains information for the use of the above named Manufacturer and representatives of Underwriters Laboratories Inc. and is not to be used for any other purpose. It is lent to the Manufacturer with the understanding that it is not to be copied, either wholly or in part, and that it will be returned to Underwriters Laboratories Inc. (UL) or any authorized licensee of UL, upon request.

This PROCEDURE, and any subsequent revision, is the property of Underwriters Laboratories Inc. (UL) and the authorized licensee of UL and is not transferable.

Underwriters Laboratories Inc.

Stephen Hewson
Senior Vice President
Global Follow-Up Service Operations

William R. Carney
Director
North American Certification Program

ICC-ES Evaluation Report

ESR-1788

Reissued January 1, 2009

This report is subject to re-examination in one year.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 A Subsidiary of the International Code Council®**DIVISION: 07—THERMAL AND MOISTURE PROTECTION**

Section: 07210—Building Insulation

Section: 07280—Water-resistive Barrier

REPORT HOLDER:

INSULFOAM LLC
6004 NORTH WESTGATE BOULEVARD, SUITE 120
TACOMA, WASHINGTON 98406
(952) 447-5213
www.insulfoam.com

EVALUATION SUBJECT:**INSULFOAM EXPANDED POLYSTYRENE (EPS) AND R-TECH™ INSULATION BOARDS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Surface-burning characteristics
- Attic and crawl space installation
- Thermal performance (R-values)
- Water-resistive barrier (R-TECH Board)

2.0 USES

Insulfoam Expanded Polystyrene (EPS) and R-TECH™ insulation boards are EPS foam plastic boards used as nonstructural thermal insulation in wall cavities or ceiling assemblies, door cavities, roofs and as exterior perimeter insulation around concrete slab edges, on foundation walls or under flat concrete slab on grade construction, except in areas where the probability of termite exposure is "very heavy" as defined in IBC Section 2603.8 and IRC Section R320.5 The insulation may be used on the outside faces of exterior walls of Type V-B (IBC) or Type V-N (UBC) construction, or structures constructed in accordance with the IRC. The insulation boards may be used on walls in attics and crawl spaces with no covering applied to the attic or crawl space side of the foam plastic, when the boards are installed in accordance with Section 4.2. The R-TECH boards may be used as an alternative to the water-resistive barriers specified in the IBC, IRC and UBC, when installed as set forth in Section 4.3.

3.0 DESCRIPTION**3.1 EPS Board:**

Insulfoam EPS board is available with flat faces and square edges in various lengths and widths and in thicknesses up to 6 inches (152 mm). The foam plastic boards are Type I, II, VIII or IX boards complying with ASTM C 578, and having densities and thermal resistance values as shown in Table 1. The foam plastic boards have a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1).

3.2 EIFS Grade (IEG) EPS Board:

IEG board is available with flat faces and square edges in various lengths and widths and in thicknesses up to 4 inches (102 mm). The foam plastic board is a Type I board complying with ASTM C 578. The board has a minimum density of 0.90 pcf (14.4 kg/m³) and is used as a component of exterior insulation and finish systems (EIFS). The foam plastic board has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1). The foam plastic IEG board has more restrictive requirements than the EPS board for conditioning, product dimensions, marking and packaging.

3.3 R-TECH™ Board:

R-TECH™ board is available with flat faces and square edges in various lengths and widths, and in thicknesses up to 5 inches (127 mm). The foam plastic boards are Type I, II, VIII or IX boards complying with ASTM C 578. The boards have densities and thermal resistance values as shown in Table 1. The foam plastic boards consist of an EPS core with the faces laminated with polyethylene and polypropylene films. The foam plastic boards are manufactured in a fanfold or standard configuration. An optional reflective metalized film facer is also available. The foam plastic boards have a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1).

3.4 R-TECH™ One-Coat Stucco Board:

R-TECH™ One-Coat Stucco Boards are available with flat faces or with nominally 1/2-inch-wide-by-1/4-inch-deep (12.7 by 6.35 mm) channels spaced a maximum of 12 inches (305 mm) on center on the back face of the board, with nominally 1.5-mil-thick (0.38 mm) plastic facers laminated to both sides of the board. The boards are produced in a 1-inch (25.4 mm) thickness and in the following configurations:

- Two or 4 feet wide by 8 feet long (610 or 1219 mm by 2438 mm) with either $\frac{1}{2}$ -by- $\frac{1}{2}$ -inch (12.7 by 12.7 mm) shiplap joints or tongue-and-groove joints on the long edges
- Forty-nine inches wide by 8 to 10 feet long (1245 mm by 2438 to 3048 mm) with shiplap joints on the long edges
- Four feet wide by 8 to 10 feet long (1219 mm by 2438 to 3048 mm) with square edges

See Figure 2 for additional details on the board edges. The foam plastic boards are Type I boards, complying with ASTM C 578, and have a nominal density of 1 pcf (16 kg/m³). The foam plastic boards have a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1).

3.5 R-TECH™ Gable-Guard:

R-TECH™ Gable-Guard board is available with flat faces and square edges in 4-foot (1219 mm) widths and 8-foot (2438 mm), 10-foot (3048 mm) and 12-foot (3658 mm) lengths, and with a nominal thickness of $\frac{1}{2}$ inch (12.7 mm). The foam plastic boards are Type I boards complying with ASTM C 578. The boards have a nominal density of 1 pcf (16 kg/m³) and a nominal 1.5-mil (0.38 mm) polymeric facer laminated to both sides of the board, and a thermal resistance value as shown in Table 1. The foam plastic boards have a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E 84 (UBC Standard 8-1).

3.6 Poly-Guard 136 Tape:

Poly-Guard 136 tape must be used with the R-TECH™ One-Coat Stucco Board when the board is used as an alternative water-resistive barrier as described in Section 4.3. The tape consists of a polyethylene backing with a rubber-based adhesive, and has a nominal thickness of 9.0 mils (0.23 mm) and a width of 2 inches (51 mm). The tape is supplied in 36-yard (32 918 mm) rolls.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of Insulfoam EPS™ and R-TECH™ insulation boards must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

Except as described in Section 4.2, the interior of the building must be separated from the insulation boards with an approved thermal barrier as required by IBC Section 2603.4, IRC Section R314 or UBC Section 2602.4. The use of the insulation boards in areas of "very heavy" termite infestation probability must comply with IBC Section 2603.8 or IRC Section R320.5 when boards are used in structures regulated by the IRC. A vapor retarder must be installed, in accordance with IBC Section 1403.2 or IRC Section R318, as applicable. A vapor barrier may be required by the code official for installations in jurisdictions adopting the UBC. The insulation board may be applied to exterior faces of walls to a maximum thickness of $1\frac{1}{2}$ inches (38 mm), except insulation board thicknesses greater than $1\frac{1}{2}$ inches (38 mm) may be permitted if such installation is recognized in a current ICC-ES evaluation report on a wall covering. The attachment of finish materials over the insulation board must allow for a minimum 1-inch (25.4 mm) penetration of the fasteners into wood framing. Sheathing or a wall covering over the insulation must be structurally adequate to resist horizontal forces perpendicular to the wall. All walls must be braced in

accordance with IBC Section 2308.9.3, IRC Section R602.10.3, or UBC Section 2320.11.3 or 2320.11.4, as applicable.

Insulation boards must not be used as a nailing base for exterior siding materials. All nailing must be made through the insulation into the wall framing or structural sheathing as required by the siding manufacturer's instructions or the applicable code.

Use of insulation boards as roof insulation must be limited to installations recognized in a current ICC-ES evaluation report for the roof covering system.

4.2 Special Uses:

4.2.1 Attics and Crawl Spaces without Heat-producing Appliances: Insulfoam EPS™, R-TECH™ and R-TECH™ Gable Guard insulation boards may be used in attics and crawl spaces without a covering being applied to the interior side of the foam plastic, provided all of the following conditions are met:

- Entry to the attic or crawl space is only to service utilities, and heat-producing appliances are not permitted.
- There are no interconnected attic basement areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Attic ventilation is provided that complies with IBC Section 1203.2, IRC Section R806 or UBC Section 1505.
- Under-floor ventilation is provided that complies with IBC Section 1203.3, IRC Section R408.1 or UBC Section 2306.7, as applicable.
- Insulfoam EPS™ or R-TECH™ insulation boards are limited to maximum nominal density of 1 pcf (16 kg/m³) and maximum thickness of 3 inches (76 mm), or maximum nominal density of 2 pcf (32 kg/m³) and maximum thickness of 2 inches (51 mm).
- Insulfoam EPS™, R-TECH™ One Coat Stucco Board and R-TECH™ Gable-Guard (attics only) insulation boards are limited to those manufactured from BASF Corporation Styropor BF and BFL (ER-3401), NOVA Chemical Corporation Dylite® M77 (ESR-1798), and Flint Hills Resources, LP Gradé 54 (ESR-1634) beads; and are labeled as indicated in Section 7.0 and Figure 1.

4.2.2 Attics with Heat-producing Appliances: Where attics contain heat-producing appliances, Insulfoam EPS™, R-TECH™, R-TECH One Coat Stucco Board and R-TECH™ Gable Guard insulation boards may be used without a covering being applied to the interior side of the foam plastic, provided all of the following conditions are met:

- There are no interconnected attic areas.
- Air in the attic is not circulated to other parts of the building.
- Attic ventilation is provided that complies with IBC Section 1203.2, IRC Section R806 or UBC Section 1505.
- Where the heat-producing appliances are gas-fired, combustion air must be provided that complies, as applicable, with Sections 701 and 703.1 of the 2006 *International Mechanical Code*® and the 1997 *ICBO Uniform Mechanical Code*, or Section M1703 of the IRC.
- Insulfoam EPS™ insulation boards have a maximum nominal density of 1.5 pcf (24 kg/m³) and a maximum thickness of 1 inch (25.4 mm).

- f. Insulfoam EPS™, R-TECH™, R-TECH One Coat Stucco Board and R-TECH™ Gable Guard insulation boards used in attic spaces that contain heat-producing appliances are limited to those manufactured from BASF Corporation Styropor BF and BFL (ER-3401), NOVA Chemical Corporation Dylite® M77 (ESR-1798), and Flint Hills Resources, LP Grade 54 (ESR-1634) beads and are labeled as indicated in Section 7.0 and Figure 1.

4.3 Water-resistive Barrier:

4.3.1 General: When installed in accordance with this section, the R-TECH™ One-Coat Stucco Boards may be used as an alternative to Type I felt complying with ASTM D 226 or Grade A, B or C building paper as specified in UBC Standard 14-1. The boards must be covered with exterior plaster complying with IBC Section 2512, IRC Section R703.6, or UBC Section 2508, or with one of the cementitious exterior wall coatings noted in Section 4.4 of this report.

The 2- or 4-foot-wide (610 and 1219 mm) R-TECH™ boards with tongue-and-groove joints on the long edges must be oriented horizontally, with the tongues facing upward. The 2- or 4-foot-wide (610 and 1219 mm) boards with shiplap joints, and the 48- or 49-inch-wide (1219 mm and 1245 mm) boards with square edges, must be oriented vertically. Shiplap joints must occur over framing and must overlap a minimum of 1/2 inch (12.7 mm).

The R-TECH™ One-Coat Stucco Boards must be installed directly to framing and fastened to exterior framing spaced a maximum of 24 inches (610 mm) on center, except where further limited by the requirements for the wall covering. Fasteners used to attach the boards to framing must be minimum 6d ring-shank nails and 15/16-inch-diameter (23.8 mm) plastic washers, or equivalent, spaced at 12 inches (305 mm) on center, or 1-inch-wide-crown (25.4 mm), 1 3/4-inch-long (45 mm), No. 16 gage staples spaced at 6 inches (152 mm) on center. Joints between boards, and corners created with the board, must be taped with Poly-Guard 136 polyethylene tape centered over the joint. R-TECH™ One Coat Stucco Boards must be installed with a weep screed. See Figure 3 for installation details. R-TECH™ One Coat Stucco Board used as a water-resistive barrier requires the use of self-adhering flashing, complying with the ICC-ES Acceptance Criteria for Flashing Materials (AC148), around penetrations as shown in Figure 4.

For exterior plaster complying with IBC Section 2512, IRC Section R703.6 or UBC Section 2508, the length of the fasteners used to attach the lath must be proportionally increased based on the thickness of the R-TECH™ One Coat Stucco Board. The increase in fastener length is to maintain penetration into framing that is equivalent to that of fasteners attaching the lath without insulation.

4.3.2 Penetrations: Flashing of flange-type window penetrations when R-TECH™ One Coat Stucco Board is used as a water-resistive barrier must be accompanied by installation of flashing complying with AC148, completely covering the framing sill and extending a minimum of 6 inches (51 mm) up the sides of the opening and approximately 1 1/2 inches (38 mm) beyond the face of the foam board at the front of the window opening. The flashing must be flush with the inside edge of the framing members on the inside of the wall. The flashing extending outside of the R-TECH™ One Coat Stucco Board must be folded over the front face of the foam board. The flashing material must then be cut over the channels in the foam board and gently pushed down into the channels to allow for drainage. See Figure 4 for details.

Flashing of pipe penetrations must be accomplished by sealing around the pipe with flashing complying with AC148. Flashing of other penetrating items must be in accordance with the wall covering manufacturer's published installation instructions.

4.4 Cementitious Exterior Wall Coatings:

R-TECH™ One Coat Stucco Board and R-TECH™ Gable-Gard may be used with cementitious exterior wall coatings when installed in accordance with this section (Section 4.4).

When used with a cementitious exterior wall coating recognized in an ICC-ES evaluation report, the R-TECH™ One Coat Stucco Boards are an alternative to 1-inch-thick (25.4 mm), 1.5 pcf density (24 kg/m³), EPS foam plastic insulation specified in the ICC-ES evaluation report on the coating. When installed in accordance with Section 4.3 of this report, the R-TECH™ One-Coat Stucco Boards may be used as an alternative to Type I felt complying with ASTM D 226 or Grade A, B or C building paper as specified in UBC Standard 14-1. R-TECH™ One Coat Stucco Boards used in conjunction with stucco systems where the R-TECH™ One Coat Stucco Board is not the water-resistive barrier, are not required to be taped.

When used with ICC-ES-recognized cementitious exterior wall coatings, the R-TECH™ Gable-Guard installed on attic wall framing is an alternative to 1-inch-thick (25.4 mm), 1.5 pcf density (24 kg/m³), EPS foam plastic insulation specified in the ICC-ES evaluation report on the coating. The R-TECH™ Gable-Guard must be installed, with a water-resistive barrier, directly to open framing with blocked insulation board joints, or must be installed over solid sheathing. Conditions in the evaluation report for the foam plastic insulation as part of the coating system, such as orientation, tongue-and-groove edges, square edges and taping, must be observed. Acceptable coating manufacturers and their respective evaluation reports are as follows:

| | |
|------------------------------------|--------------------------|
| Parex La Habra | ESR-2828 |
| Incide Technologies, Inc. | ESR-2099 |
| E-Z Wall Pre-Mix Co., Inc. | ER-5146 |
| Highland Products, Inc. | ER-3878 |
| Magna Wall, Inc. | ER-4776 |
| Omega Products International, Inc. | ESR-1194 |
| The QUIKRETE Companies | ESR-1240 |
| San-Kote, Inc. | ESR-2729 |
| Superwall Manufacturing, Inc. | ESR-2214 |
| UltraKote Products, Inc. | ESR-1471 |

5.0 CONDITIONS OF USE

The Insulfoam EPS boards described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's published installation instructions and this report, this report must govern.
- 5.2 The insulation board must be covered with an approved exterior wall covering, including a water-resistive barrier complying with IBC Section 1404.2, IRC Section R703.2, or UBC Section 1402.1, as applicable.

- 5.3 The exterior wall covering spanning between wall framing members must provide the necessary structural resistance to wind and seismic forces.
- 5.4 Insulation boards must not be used as a nailing base for exterior siding materials. All nailing must be made through the insulation into the wall framing or structural sheathing as required by the siding manufacturer's instructions or the applicable code.
- 5.5 Except as noted in Section 4.2 of this report, the insulation boards must be separated from the interior of the building with a thermal barrier complying with IBC Section 2603.4, IRC Section R314.4 or UBC Section 2602.4, as applicable.
- 5.6 Use of the foam plastic insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with IBC Section 2603.8 or IRC Section R320.5.
- 5.7 In jurisdictions adopting the UBC, use of R-Tech One-Coat Stucco Boards as an alternative to Grade A, B or C weather-resistive barriers must be as described in Sections 4.3 and 4.4.
- 5.8 For buildings in which the R-Tech One-Coat Stucco Board is used as a water-resistive barrier, all plans must be accompanied by drawings, consistent with the illustrations in this report, that include the following:
 - a. Installation at all openings, corners and insulation board terminations.
 - b. Location, configuration and method of sealing of joints between boards and at corners.
 - c. Typical cross section, showing all components of the wall.
 - d. Typical wall pipe and window penetrations.
- 5.9 Insulfoam insulation boards are produced at the locations listed in Table 2 of this report, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

6.0 EVIDENCE SUBMITTED

- 6.1 Manufacturer's published installation instructions and descriptive literature.
- 6.2 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated May 2008.
- 6.3 Data in accordance with the ICC-ES Acceptance Criteria for Water-resistive Barriers (AC38), dated June 2004.
- 6.4 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels Used as Weather-resistive Barriers (AC71), dated February 2003 (editorially revised June 2008).
- 6.5 Data in accordance with Section 3.1.7 of the ICC-ES Acceptance Criteria for Cementitious Exterior Wall Coatings (AC11), dated June 2007 (editorially revised April 2008).
- 6.6 Report containing results of testing performed in accordance with ASTM C 578.
- 6.7 Report containing results of comparative crawl space fire tests.
- 6.8 Report containing results of testing performed in accordance with UL 1715 (UBC Standard 26-3).
- 6.9 A quality control manual.

7.0 IDENTIFICATION

The insulation board packaging must bear a label with the Insulfoam name; the manufacturing facility location; the date of manufacture; the evaluation report number (ESR-1788); the density; the name of the inspection agency (Underwriters Laboratories Inc.); the flame-spread index (75 or less); and the smoke-developed index (450 or less).

The Poly-Guard 136 polyethylene tape is identified with the product name.

TABLE 1—DENSITIES AND R-VALUES FOR BOARDS

| EPS TYPE | NOMINAL DENSITY (pcf) | MINIMUM DENSITY (pcf) | R-VALUE PER INCH OF THICKNESS AT 75°F (ft ² -hr-°F/Btu) |
|----------|-----------------------|-----------------------|--|
| I | 1 | 0.9 | 3.6 |
| VIII | 1.25 | 1.15 | 3.8 |
| II | 1.5 | 1.35 | 4.0 |
| IX | 2 | 1.8 | 4.2 |

For SI: 1 inch = 25.4 mm, 1 pcf = 16.018 kg/m³, 1 ft²-hr-°F/Btu = 0.176 m²-K/W.

TABLE 2—MANUFACTURING LOCATIONS

| LOCATIONS OF PREMIER INDUSTRIES, INC./dba INSULFOAM | LOCATION NUMBERS FOR PRODUCT IDENTIFICATION |
|--|---|
| Insulfoam 628 Western Drive Anchorage, Alaska 99501 | I-62 |
| Insulfoam 3401 West Cocopah Street Phoenix, Arizona 85009 | I-65 |
| Insulfoam 5635 Schaefer Avenue Chino, California 91710 | I-64 |
| Insulfoam 1155 Business Park Dr., Bldg. A Dixon, California 95620 | I-63 |
| Insulfoam 12601 East 33 rd Avenue—Unit 114 Aurora, Colorado 80011 | I-42 |
| Insulfoam 1057 Sunburst Lane Mead, Nebraska 68041 | I-41 |
| Insulfoam 4500 South Frontage Road Lakeland, Florida 33815 | I-46 |
| Insulfoam 1820 South 4370 W Salt Lake City, Utah 84104 | I-43 |
| Insulfoam 19041 80 th Avenue South South Kent, Washington 98032 | I-61 |

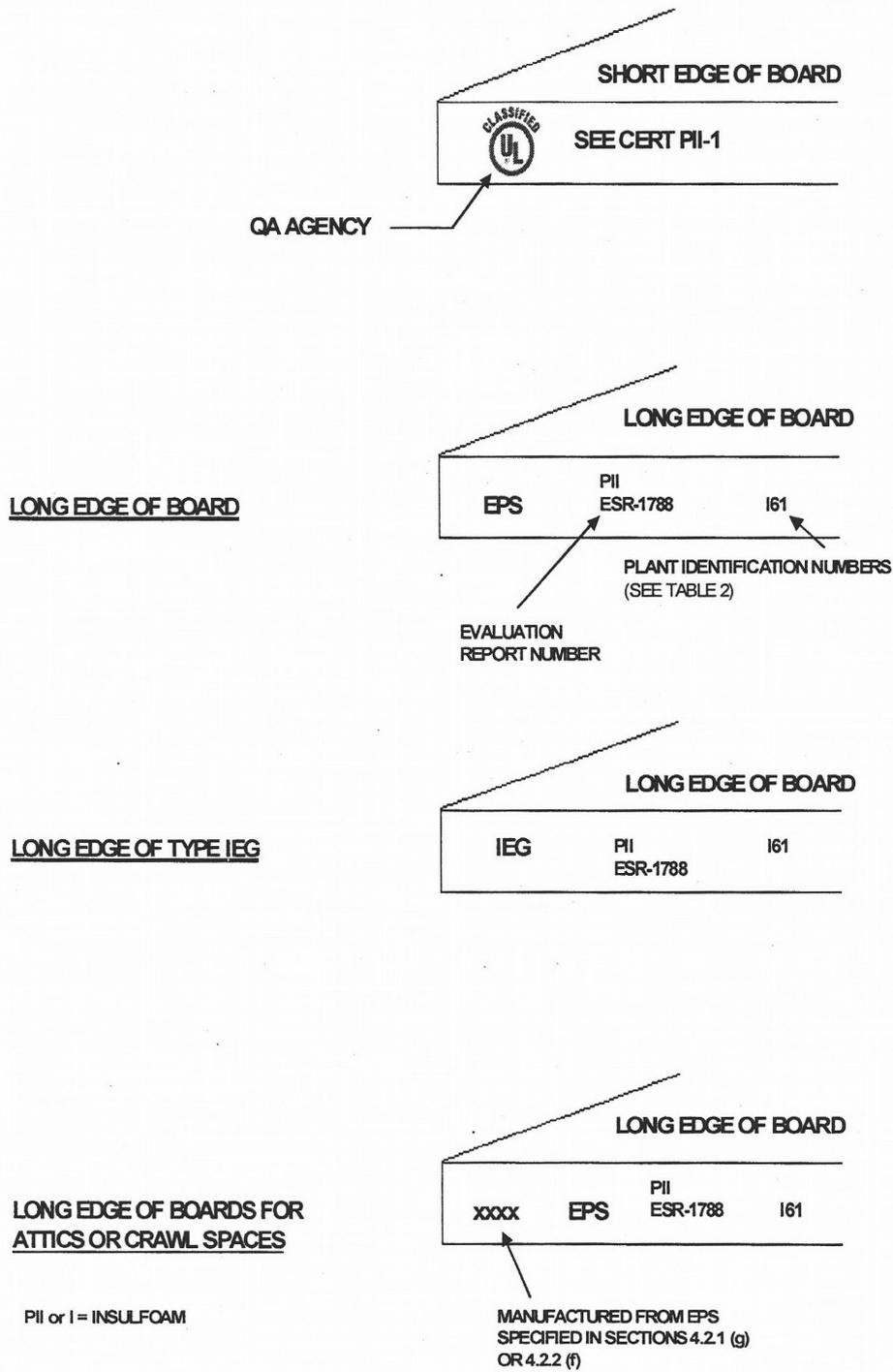


FIGURE 1—MARKINGS

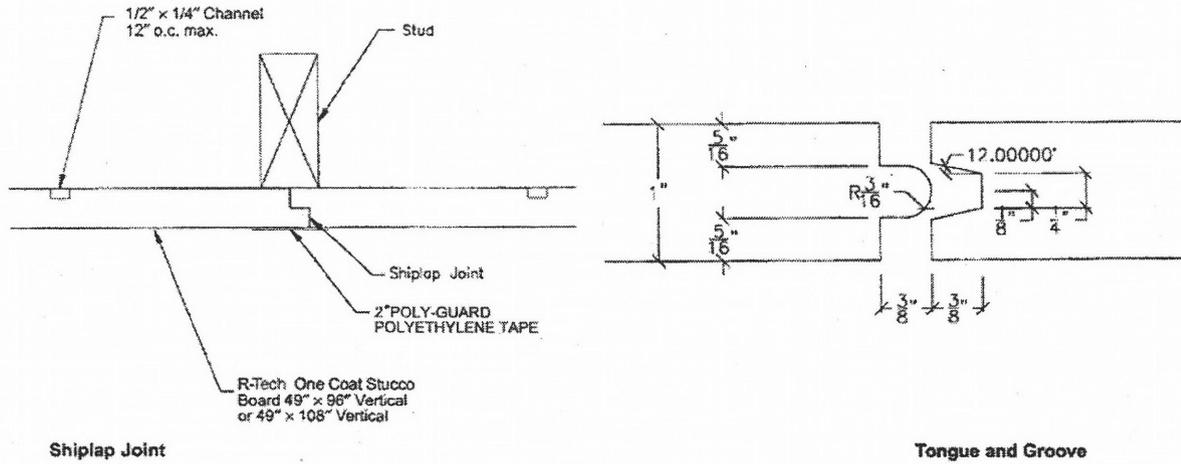


FIGURE 2—R-TECH EDGE DETAILS

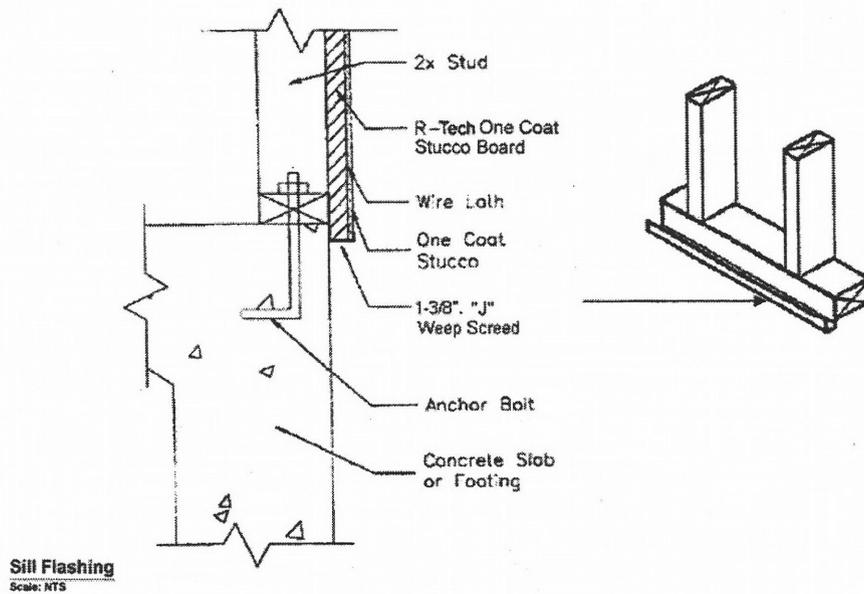


FIGURE 3—INSTALLATION DETAILS FOR R-TECH ONE COAT STUCCO BOARD INSULATION USED AS A WEATHER-RESISTIVE BARRIER

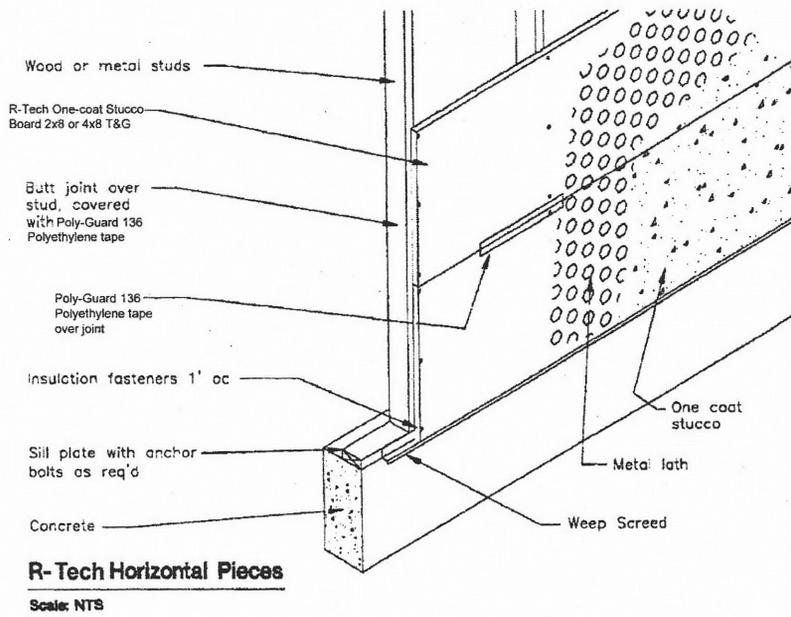
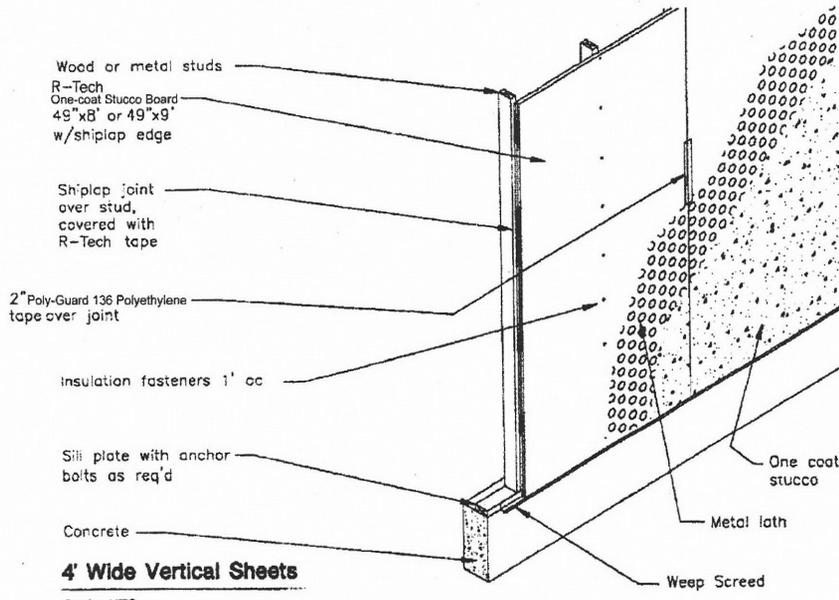


FIGURE 3—INSTALLATION DETAILS FOR R-TECH ONE COAT STUCCO BOARD INSULATION USED AS A WEATHER-RESISTIVE BARRIER (Continued)

Typical Window Flashing Detail

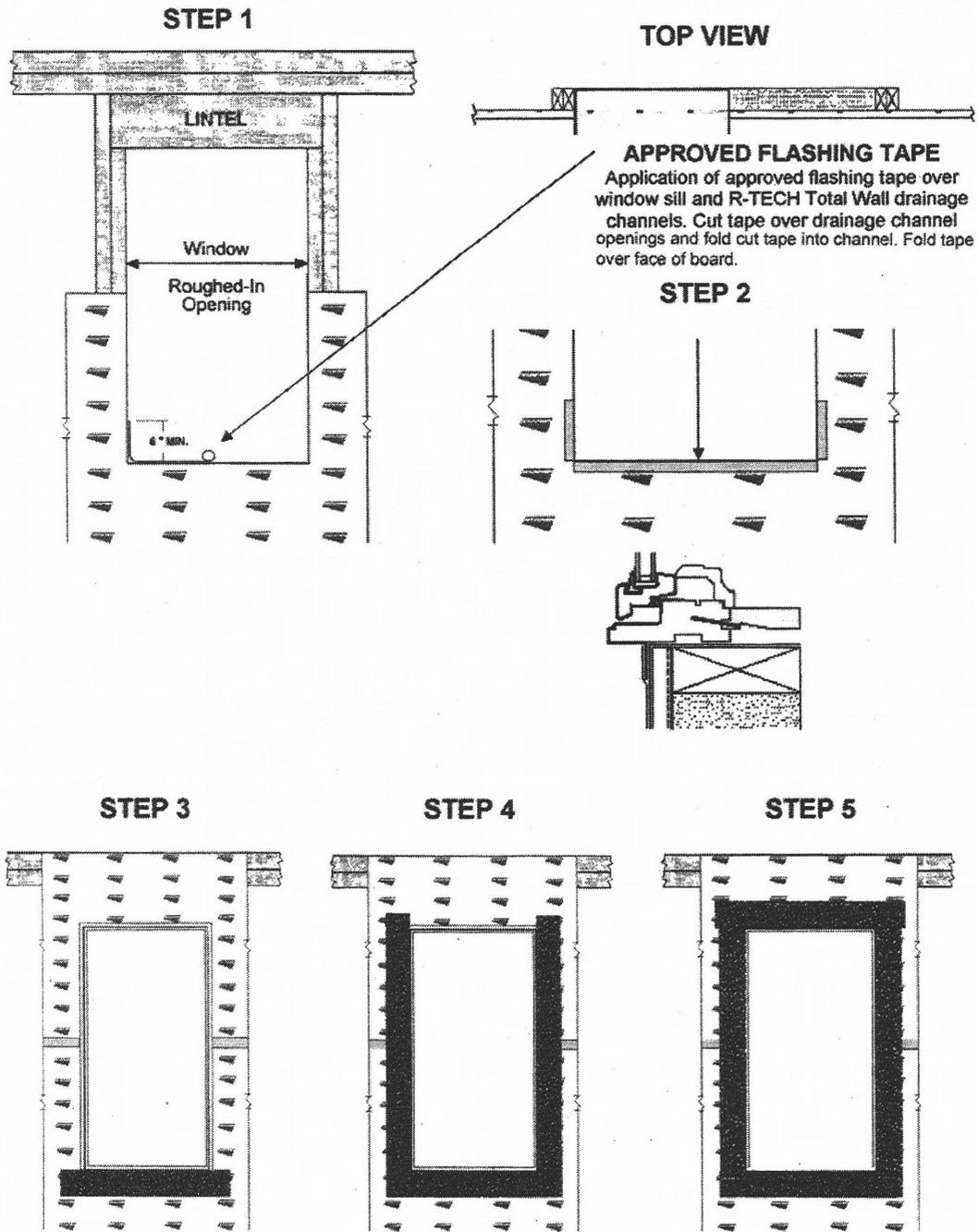


FIGURE 4—INSTALLATION DETAILS FOR R-TECH ONE-COAT STUCCO BOARD INSULATION USED AS A WEATHER-RESISTIVE BARRIER

Typical Window Flashing

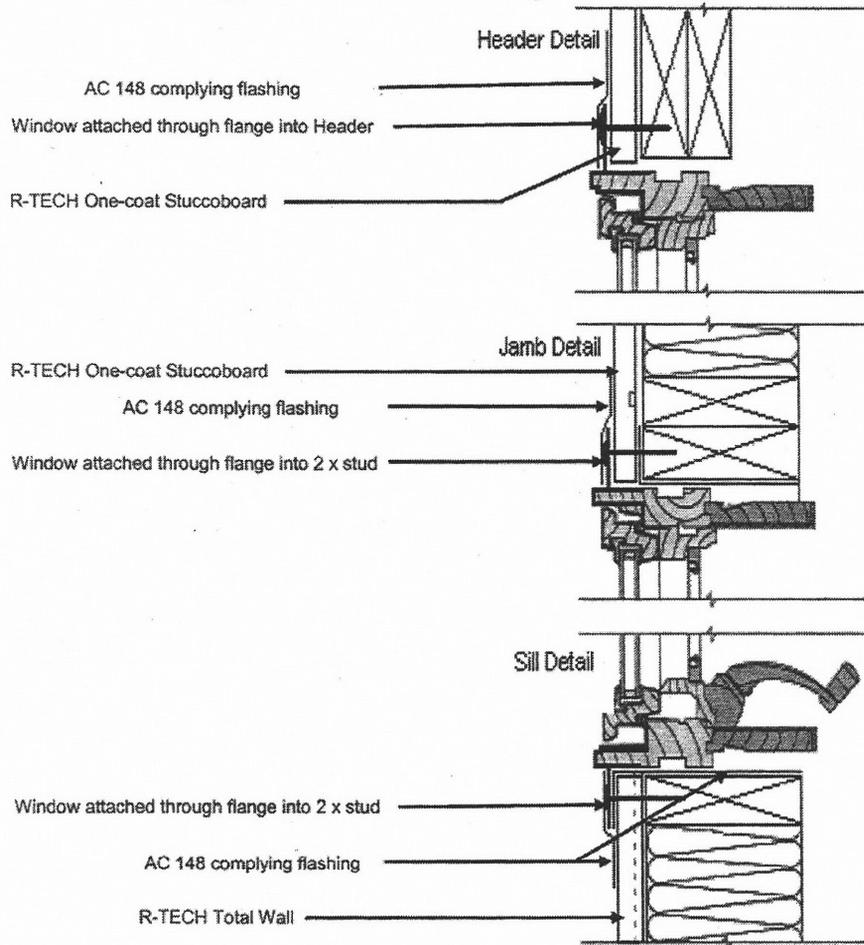


FIGURE 4—INSTALLATION DETAILS FOR R-TECH ONE-COAT STUCCO BOARD INSULATION USED AS A WEATHER-RESISTIVE BARRIER (Continued)

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DIVISION: 06—WOOD AND PLASTICS
Section: 06120—Structural Panels

REPORT HOLDER:

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EVALUATION SUBJECT:

**PREMIER STRUCTURAL SANDWICH PANELS: TYPE S,
TYPE I and TYPE L**

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- BOCA® *National Building Code*/1999 (BNBC)
- 1999 *Standard Building Code*® (SBC)
- 1997 *Uniform Building Code*™ (UBC)

Properties evaluated:

- Structural
- Fire-resistance

2.0 USES

Premier Structural Sandwich Panels are used as roof and floor and load-bearing and nonload-bearing wall panels of Type V construction. When installed in accordance with Section 4.2.5, 4.2.6 or 4.2.7, the panels may be used as components of one-hour fire-resistance rated assemblies.

When panels are installed under the IRC, an engineered design is required in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 General:

Premier Structural Sandwich Panels are factory-assembled, laminated, sandwich panels produced at locations listed in Table 1 of this report. The panels consist of expanded polystyrene (EPS) cores with wood-based structural-use sheathing facings. The panels are manufactured in Type S, Type I and Type L panel configurations as shown in Figures 1, 2, and 3, respectively. Type S panels are produced in widths ranging from 4 feet (1219 mm) to 8 feet (2438 mm) and lengths ranging from 8 feet (2438 mm) to 24 feet (7315 mm).

Type I and Type L panels are produced in maximum 4 foot (1219 mm) widths and lengths up to 24 feet (7315 mm).

3.1.1 Type S Panel: The core for the Type S panel is recessed along the panel sides to receive nominal 3-inch-wide (76 mm) OSB splines and recessed on the ends to receive solid sawn dimensional lumber sized to match the core thickness. See Figure 1 and Tables 2, 5 and 7.

3.1.2 Type I Panel: The Type I panel is recessed along the panel's sides to receive I-joint splines and recessed on the ends to receive nominal 2-by solid sawn lumber sized to match the core thickness. See Figure 2 and Table 3.

3.1.3 Type L Panel: The Type L panel is recessed along the panel sides and ends to receive nominal 2-by solid sawn dimensional lumber sized to match the core thickness. See Figure 3 and Tables 4, 6 and 7.

3.2 Materials:

3.2.1 Core: The core material is Insulfoam Type I expanded polystyrene (EPS) foam plastic (ESR-1788) with a nominal thickness ranging from 3½ inches (89 mm) to 11¼ inches (285 mm). The EPS is a Type I expanded polystyrene with a nominal density of 1 pcf (16 kg/m³) complying with ASTM C 578. The EPS has a flame spread index of not more than 75 and a smoked developed index of not more than 450 when tested in accordance with ASTM E 84.

3.2.2 Facing: Panel facing material is 7/16, 1/2, 5/8 or 3/4-inch (11.1, 12.7, 15.9 or 19.1 mm) thick Exposure 1, oriented strand board (OSB) with span ratings of 24/16, 32/16, 40/20, and 48/24, respectively, and complying with the performance-rated panel requirements specified in United States Voluntary Product Standard PS-2 (UBC Standard 23-3). The OSB is supplied by manufacturers listed in the approved quality control documentation.

3.2.3 Adhesive: The adhesive is a Type II, Class 2 laminating adhesive as specified in the approved quality control documentation, complying with the ICC-ES Acceptance Criteria for Sandwich Panel Adhesives (AC05).

3.2.4 Splines: The splines for the Type S panels are nominal 3-inch-wide-by-7/16-inch-thick (76 by 11 mm) OSB as described in Section 3.2.2.

Splines for Type I panels must be Superior Wood Systems I-joists with 3-inch-wide (76 mm) by 1½-inch thick (38 mm) 2100f-1.8E MSR wood flanges and 7/16-inch-thick (11.1 mm) OSB webs, sized in depth to match the core thickness.

The splines for Type L panels must be nominal 2-by dimensional lumber sized in depth to match the core thickness. Splines must be a minimum of No. 2 hem-fir with a specific gravity of 0.43. See Figures 1, 2 and 3.

3.2.5 Horizontal Diaphragm Fasteners: When the panels are used in horizontal diaphragms, the fasteners used to attach the panels to underlying supports, must be Premier

*Corrected October 2008

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Building Systems (PBS) proprietary screws. The screws are steel screws with a 0.635-inch (16.13 mm) head diameter, 0.19-inch (4.83 mm) nominal shank diameter, 0.245-inch (6.22 mm) minimum thread diameter and various lengths.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable transverse, uniform axial, axial point, header, shearwall and diaphragm loads are as shown in Tables 2 through 11. Unless noted otherwise, the allowable transverse loads are uniform loads for panels installed under simply supported single span conditions. Where loading conditions result in the panels resisting combined stresses, the sum of the ratios of actual loads over allowable loads must be less than 1.0.

4.2 Installation:

4.2.1 General: The panels must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the installation instructions must be available at all times on the jobsite during installation.

The panels must be connected to each other along their edges with field-installed OSB splines, I-joist splines or dimensional lumber splines. Unless noted otherwise in this report, OSB facings must be attached to the splines with 8d box nails, or equivalent, spaced at 6 inches (152 mm) on center.

Top and bottom plates installed into the recessed core of the wall panels are dimensional lumber, sized to match the core thickness, and fastened to both panel facings with 8d box nails, or equivalent, spaced at 6 inches (152 mm) on center. Unless noted otherwise in this report, an EPS-compatible sealant is applied along butting EPS core surfaces and any dimensional lumber surfaces, and along the bottom of the panel base plate before panel placement. Typical installation details are in Figures 4 through 14. Structural calculations must be prepared to substantiate the details for the specific installation and loading conditions.

The wall panels used as bearing walls must be installed in a manner such that both panel facings of the wall panels are in contact, and sufficiently supported by the underlying structure; and the axial loads are uniformly and concentrically applied to the full thickness of the panels, including panel facings.

Sill plates must be preservative-treated for decay resistance where required by IBC Section 2304.11.2.3, IRC Section R319, BNBC Section 2311.4.3, SBC Section 2304.4.1 and UBC Section 2306.4, as applicable.

4.2.2 Wall Openings: The allowable gravity loads for the sandwich panels used as headers over wall openings are noted in Tables 8 and 9 of this report. Headers must have minimum $7/16$ -inch-thick (11.1 mm) facings and $3 1/2$ -inch-thick (89 mm) cores. Joints are permitted, provided the 2-by dimensional lumber top and bottom plates are continuous and connected to the facings with 8d common or box nails spaced 6 inches (152 mm) on center, or equivalent. Minimum bearing at supports is $1 1/2$ inches (38 mm), and both OSB facings must be supported. The minimum width of the panel between openings is 12 inches (305 mm). For other conditions, conventional framing techniques with headers must be designed and installed to the satisfaction of the code official.

4.2.3 Horizontal Diaphragm: See Table 11 and Figure 15 for the installation of Premier sandwich panels combined with wood-framing to form a horizontal diaphragm. Table 11 and Figure 15 also include types of fasteners and fastener spacing.

4.2.4 Thermal Barrier:

4.2.4.1 Wall, Roof and Floor: One-half-inch-thick (12.7 mm), regular gypsum wallboard complying with ASTM C36 or C1396 must be installed on the interior surface of wall and roof panels and the bottom side of floor panels having occupied space below the floor panel. The wallboard must be fastened to the face of the panels with 5d wallboard nails, or minimum $1 1/4$ -inch-long (31.7 mm), No. 6 Type S or Type W drywall screws spaced in accordance with ASTM C 840 for use under the IBC, Table R702.3.5 of the IRC, or Table 25-G of the UBC using 16-inch-on-center (406.4 mm) framing spacing guidelines.

4.2.4.2 Floor Panels: An approved thermal barrier is required on the top surface of floor panels. See the footnotes in Tables 2, 3 and 4.

4.2.5 Panel Cladding:

4.2.5.1 Roof Covering: The roof covering must comply with Chapter 15 of the IBC, BNBC, SBC or UBC, or IRC Section R901, as applicable. Roofs with hot-asphalt or hot-coal tar pitch are prohibited. Underlayment and flashing must be installed in accordance with the applicable code.

4.2.5.2 Exterior Wall Covering: The exterior face of wall panels are required to be covered with a wall covering, complying with the applicable code or recognized in a current ICC-ES evaluation report. A water-resistive barrier must be installed over the panels in accordance with IBC Section 1404.2, IRC Section R703.2, BNBC Section 1406.3.6, and UBC Section 1402, as applicable, prior to application of the wall covering. Where portland cement plaster is used, compliance with IBC Sections 2510 and 2512, IRC Section R703.6.3 or UBC Section 2506.4, as applicable, is necessary. All exterior panel joints must be sealed with a compatible acrylic latex caulk.

4.2.6 One Hour Fire-resistance-rated Limited Loadbearing Wall:

4.2.6.1 General: Walls constructed with the Premier Building System Type S panels, with minimum $7/16$ -inch-thick (11 mm) OSB facings and a $3 1/2$ -inch-thick (92 mm) polystyrene foam plastic core, covered with two layers of $5/8$ -inch-thick (15.9 mm) gypsum wallboard on both faces, are one hour fire-resistance-rated limited loadbearing walls when installed in accordance with this section of this report. The maximum allowable axial load is 61 percent of the allowable axial load noted in Table 5 for Type S panels with a $3 5/8$ -inch thick (92 mm) core, but not to exceed 1,833 pounds/foot (26.7 kN/m).

4.2.6.2 Splines: Nominal 4-inch-wide (102 mm) by $7/16$ -inch-thick (11 mm) OSB splines must be installed between vertical joints, in precut channels in the core of the panels, beneath both panel facings. The splines must be secured to the OSB facings of the panels with an adhesive (APA AFG-01) and $1 5/8$ -inch-long (41 mm) Type S steel screws spaced 6 inches (152 mm) on center along the edges of each adjoining panel face.

4.2.6.3 End Plates: Nominal 2-by No. 2 Douglas fir-larch lumber with a depth to match the panels' core thickness must be installed at the top and bottom of panels in precut channels. The end plates must be secured to the OSB facer of the panels, with caulk complying with ASTM C 834 on the face in contact with the polystyrene core, and 8d box nails spaced 8 inches (203 mm) on center along the edge of both faces of the panels.

4.2.6.4 Gypsum Board: National Gypsum Co. Type FSW gypsum wallboard, $5/8$ -inch thick (16 mm) by 4-foot-wide (1219 mm), must be applied vertically in two layers to both sides of the wall panels. The first layer must be installed with $1 5/8$ -inch-

long (41 mm) No. 6 Type S steel screws spaced 24 inches (610 mm) on center vertically and 16 inches (406 mm) on center horizontally. The vertical joints of the first gypsum board layer must be offset a minimum of 16 inches (406 mm) from the vertical spline joints of the sandwich panels. The second layer must be installed with 2-inch-long (51 mm) No. 6 Type S screws spaced 12 inches (305 mm) on center vertically and offset 12 inches (305 mm) from the first layer screws, and 16 inches (406 mm) on center horizontally, offset 8 inches (203 mm) from first layer screws. The second layer joints must be offset a minimum of 16 inches (406 mm) from the first layer joints. The joints of the second layer of wallboard must be covered with joint tape and joint compound in accordance with ASTM C 840 or GA-216. Screw heads on the second layer of wallboard must be covered with joint compound in accordance with ASTM C 840 or GA-216. Where the panels are used as exterior walls, the gypsum board must be gypsum sheathing.

4.2.7 One-Hour-Fire-resistance-rated Limited Loadbearing Wall: Walls constructed with the Type L panels with a 5 $\frac{1}{2}$ -inch-thick (140 mm) EPS core laminated between two sheets of $\frac{7}{16}$ inch (11 mm) OSB covered with one layer of gypsum wallboard on both panel faces are one-hour fire-resistance-rated, limited loadbearing walls when installed in accordance with this section of this report. The maximum allowable axial load is 37 percent of the allowable axial load noted in Table 6 for Type L panels with a 5 $\frac{1}{2}$ -inch-thick (140 mm) core, or 2,200 plf (32 kN/m), whichever is less.

The EPS core must be recessed 1 $\frac{1}{2}$ inches (38 mm) in from the edges of the OSB facers on the bottom and along both sides, and 3 inches along the top, to allow for the installation of nominal 2-by-6 wood splines (No. 2 Hem-Fir minimum), bottom plate and double top plate.

Double 2-by-6 nominal wood splines must be installed into the recesses in the vertical edges of the panels. The double splines must be assembled using two nominal 2-by-6 wood splines nailed together with 16d coated sinker nails spaced at 24 inches (610 mm) on center, staggered along the stud length. The double splines must be installed in the recesses between the adjoining panels and secured to the OSB with 6d common nails spaced at 6 inches (152 mm) on center, after caulking the surfaces to be in contact with the EPS core with mastic. The single-bottom plate must be installed into the recess along the bottom edge of the wall assembly and secured to the OSB with 6d common nails spaced at 6 inches (152 mm) on center and to each wood spline with two 16d coated sinker nails, after caulking the surfaces to be in contact with the EPS core with mastic. The first top plate must be installed into the recess along the top of the wall assembly and secured to each wood spline with two 16d coated sinker nails, after caulking the surfaces to be in contact with the EPS core with mastic. The second top plate must be installed over the first and secured to the OSB with 6d common nails spaced at 6 inches (152 mm) on center and to the first top plate with 16d coated sinker nails spaced at 16 inches (406 mm) on center staggered along the top plate length.

A single layer of Temple Inland's Type TG-C, $\frac{5}{8}$ inch (16 mm) thick, gypsum wallboard must be installed onto both faces of the wall. The wallboard must be secured to the OSB panel facers with 6d phosphate coated, cupped-head-drywall nails, 1 $\frac{5}{8}$ inches (41 mm) long, spaced 8 inches (203 mm) on center along the wall perimeter, 12 inches (305 mm) on center vertically and 16 inches (406 mm) on center horizontally. The joints must be treated and taped, and the screw heads must be covered with joint compound, in accordance with ASTM C 840 or GA-216. Where the panels are used as exterior walls, the exterior gypsum board must be gypsum sheathing.

4.2.8 One Hour Fire-resistance-rated Floor-Ceiling Assembly:

Premier Type S panels with 7 $\frac{1}{4}$ -inch-thick (184 mm) EPS cores laminated between two sheets of $\frac{7}{16}$ -inch-thick (11 mm) OSB installed in accordance with this section of this report are a one-hour, fire-resistance-rated floor-ceiling assembly.

Panels must be connected at the edge joints by inserting 3 $\frac{1}{2}$ -inch-wide (89 mm) OSB splines into the prerouted slots in the EPS and fastening to the OSB facers of the panels with 1 $\frac{1}{8}$ inch-long (29 mm) drywall screws spaced 6 inches (152 mm) on center.

The bottom side of the panel must be covered with a base layer of $\frac{5}{8}$ -inch-thick (16 mm) Type X gypsum wallboard complying with ASTM C 36 or C 1396 applied with the joints parallel to the spline joints offset by 24 inches (610 mm), with 1 $\frac{1}{4}$ -inch-long (32 mm) Type S drywall screws spaced 12 inches (305 mm) on center in rows 24 inches (610 mm), on center. A face layer of $\frac{5}{8}$ -inch-thick (16 mm) Type X gypsum wallboard must be applied at right angles to the base layer with 2-inch-long (51 mm) Type S drywall screws spaced 12 inches (305 mm) on center in rows spaced 16 inches (406 mm) on center. The joints of the face layer of gypsum board must be treated and taped, and the screw heads must be covered with joint compound, in accordance with ASTM C 840 or GA-216.

The maximum allowable superimposed load is 40 psf (1915 Pa) and the maximum allowable span is 12 feet (3658 mm).

5.0 CONDITIONS OF USE

The Premier Structural Sandwich Panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The panels must be fabricated, identified and installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2 Design loads to be resisted by the panels must be determined in accordance with the applicable code, and must be equal to, or less than, the values given in Tables 2 through 11 of this report.
- 5.3 All construction documents specifying the building panels described in this report must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official verifying compliance with this report and applicable codes. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.4 All floor-to-wall and roof-to-wall details must be designed such that gravity loads are applied to the wall panels as a uniform concentric axial load over the entire wall panel thickness.
- 5.5 Connection and attachments of the panel are outside the scope of this report and must be addressed in the design calculations and details.
- 5.6 When used as shear walls under the IBC or IRC, the panels are recognized for use in Seismic Design Categories A, B and C.
- 5.7 The foam plastic insulation of the panels must be separated from the interior of the building with a thermal barrier, installed in accordance with Section 4.2.3 of this report.

- 5.10 Use of the floor panels is limited to residential occupancies.
- 5.11 Use of the panels is limited to Type V construction.
- 5.12 For structures regulated under the IBC and IRC, use of the foam plastic in areas subject to damage from termites must be in accordance with IBC Section 2603.8 and IRC Section R320.5.
- 5.13 For structures regulated under the SBC, the panels must not be placed within 6 inches (152 mm) of earth where the hazard of termite damage is very heavy, in accordance with SBC Figure 2304.1.4, without an approved method of protecting the foam plastic and structure from subterranean termite damage.
- 5.14 The panels shall be installed such that the panel facings are protected against decay and termites in accordance with IBC Sections 2304.11.2.2 and 2304.11.2.6, IRC Sections R319 and R320, BNBC Section 2311.4.2, SBC Section 2304 and UBC Section 2306.8, as applicable.
- 5.15 The panels and their attachments must be subject to inspection by the code official prior to covering with an approved water resistive barrier or roof covering.
- 5.16 For installations of the roof panels, justification must be submitted to the code official demonstrating that the panels with the roof covering comply as a Class A, B, or C roof assembly, as required by IBC Section 2603.6, UBC Section 2602.5.3, or SBC Section 2603.7, as applicable, with the classification complying with the minimum classification requirements for the building.

5.17 The panels are produced in Fife, WA; Phoenix, AZ; and Cottonwood, MN under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC Acceptance Criteria for Sandwich Panels (AC04), dated June 2007 (editorially revised April 2008).
- 6.2 Reports of tests conducted in accordance with ASTM E119.
- 6.3 Report of a room corner fire test in accordance with UL 1715 or UBC Standard 26-3.
- 6.4 Report of a diaphragm load test.
- 6.5 Reports of header load tests.

7.0 IDENTIFICATION

The panels must have a label containing the name and address of Premier Building Systems, the product panel number, the plant identification number (see Table 1), the thickness and density of the panel core, the evaluation report number (ESR-1882) and the label of the inspection agency (Underwriters Laboratories, Inc.). The I-joint splines are labeled with the company name of Superior Wood Systems and the name of the inspection agency (PFS Corporation).

TABLE 1—MANUFACTURING LOCATIONS

| LOCATIONS OF PREMIER INDUSTRIES, INC / d.b.a. | LOCATION NUMBERS FOR PRODUCT IDENTIFICATION |
|---|---|
| Premier Building Systems 4609 70th Ave. E Fife, Washington 98424 | PB-31 |
| Premier Building Systems 3434 West Papago Street Phoenix, Arizona 85009-6733 | PB-32 |
| Extreme Panel Technologies, Inc. 475 East 4th Street North Cottonwood, MN 56229 | EPT-01 |

TABLE 2—TYPE S PANELS^{1,2,3}
MAXIMUM ALLOWABLE TRANSVERSE LOADS(psf)

| PANEL CORE THICKNESS (inches) | DEFLECTION | PANEL SPAN | | | | | | | | |
|-------------------------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 8 ft | 10 ft | 12 ft | 14 ft | 16 ft | 18 ft | 20 ft | 22 ft | 24 ft |
| 3 1/2 ⁴ | L/360 | 38 | 28 | 21 | 16 | 10 | --- | --- | --- | --- |
| | L/240 | 54 | 43 | 32 | 24 | 16 | --- | --- | --- | --- |
| | L/180 | 61* | 57 | 45 | 34 | 21 | --- | --- | --- | --- |
| 5 1/2 ⁵ | L/360 | 49 | 38 | 30 | 24 | 18 | 14 | 11 | --- | --- |
| | L/240 | 78 | 57 | 45 | 32 | 28 | 22 | 16 | --- | --- |
| | L/180 | 80* | 60* | 46* | 40* | 34* | 29 | 21 | --- | --- |
| 7 1/4 ⁶ | L/360 | 59 | 75 | 41 | 34 | 26 | 20 | 15 | 13 | 11 |
| | L/240 | 84 | 75* | 60 | 50 | 39 | 31 | 23 | 19 | 18 |
| | L/180 | 85* | 75* | 69* | 60* | 50* | 41 | 31 | 27 | 24 |
| 9 1/4 ⁷ | L/360 | 78 | 64 | 53 | 41 | 33 | 27 | 22 | 20 | 17 |
| | L/240 | 86* | 65* | 57* | 51* | 46* | 41 | 34 | 29 | 25 |
| | L/180 | 86* | 65* | 57* | 51* | 46* | 42 | 39* | 37* | 34 |
| 11 1/4 ⁷ | L/360 | 94* | 75 | 51 | 49 | 47 | 38 | 28 | 24 | 21 |
| | L/240 | 94* | 76* | 59* | 55* | 51* | 45* | 39* | 36 | 31 |
| | L/180 | 94* | 76* | 59* | 55* | 51* | 45* | 39* | 36* | 33* |

For SI: 1 inch = 25.4 mm, 1 psf = 47.9 Pa, 1 foot = 304.8 mm.

¹Floor panels must have a minimum 3/4 inch thick top skin or a minimum 7/16 inch thick top skin overlaid with minimum 7/16 inch thick finish flooring perpendicular to the panels.

²The panels must be continuously supported at each end of the panel span with continuous supports providing a 1 1/2-inch minimum bearing length.

³Allowable loads with an asterisk, *, indicates a capacity based on the average peak test load divided by 3.

⁴3 1/2-inch thick core panels must be limited to a maximum span of 10 feet when used in roof applications.

⁵5 1/2-inch thick core panels must be limited to a maximum span of 12 feet when used in roof applications.

⁶7 1/4-inch thick core panels must be limited to a maximum span of 14 feet when used in roof applications.

⁷9 1/4-inch and 11 1/4-inch thick core panels must be limited to a maximum span of 16 feet when used in roof applications.

TABLE 3—TYPE I PANELS^{1,2,3}
MAXIMUM ALLOWABLE TRANSVERSE LOADS (psf)

| PANEL CORE THICKNESS (inches) | DEFLECTION | PANEL SPAN | | | | | | | | | |
|-------------------------------|------------|-------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 4 ft ⁴ | 8 ft | 10 ft | 12 ft | 14 ft | 16 ft | 18 ft | 20 ft | 22 ft | 24 ft |
| 7 1/4 ⁵ | L/360 | 122 | 134 | 92 | 60 | 48 | 40 | 29 | 21 | --- | --- |
| | L/240 | 318* | 148* | 107* | 90 | 70 | 58 | 42 | 31 | --- | --- |
| | L/180 | 318* | 148* | 107* | 92* | 85 | 77 | 48 | 40 | --- | --- |
| 9 1/4 ⁶ | L/360 | 185 | 164* | 124* | 71 | 66 | 60 | 48 | 34 | 29 | 24 |
| | L/240 | 318* | 164* | 124* | 107* | 96* | 84* | 70 | 49 | 43 | 36 |
| | L/180 | 318* | 164* | 124* | 107* | 96* | 84* | 76* | 69 | 56 | 47 |
| 11 1/4 ⁶ | L/360 | 244 | 143* | 103* | 84 | 83 | 77* | 61 | 42 | 37 | 32 |
| | L/240 | 318* | 143* | 103* | 93* | 85* | 77* | 68* | 59* | 54* | 47 |
| | L/180 | 318* | 143* | 103* | 93* | 85* | 77* | 68* | 59* | 54* | 49* |

For SI: 1 inch = 25.4 mm, 1 psf = 47.9 Pa, 1 foot = 304.8 mm.

¹Floor panels must have a minimum 3/4 inch thick top skin or a minimum 7/16 inch thick top skin overlaid with minimum 7/16 inch thick finish flooring perpendicular to the panels.

²The panels must be supported at each end of the panel span with continuous supports providing a 1 1/2-inch minimum bearing length.

³Allowable loads with an asterisk, *, indicates a capacity based on the average peak test load divided by 3.

⁴Panels spanning 4 feet must be a minimum of 8 feet long spanning a minimum of two 4 foot spans. No single span conditions shall be permitted.

⁵7 1/4-inch thick core panels must be limited to a maximum span of 16 feet when used in roof applications.

⁶9 1/4-inch and 11 1/4-inch thick core panels must be limited to a maximum span of 20 feet when used in roof applications.

TABLE 4—TYPE L PANELS^{1,2,3}
MAXIMUM ALLOWABLE TRANSVERSE LOADS (psf)

| PANEL CORE THICKNESS (inches) | DEFLECTION | PANEL SPAN | | | | | | | | | |
|-------------------------------|------------|-------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 4 ft ⁴ | 8 ft | 10 ft | 12 ft | 14 ft | 16 ft | 18 ft | 20 ft | 22 ft | 24 ft |
| 3 1/2 ⁵ | L/360 | 98 | 45 | 32 | 24 | 16 | 11 | --- | --- | --- | --- |
| | L/240 | 215 | 67 | 47 | 34 | 24 | 16 | --- | --- | --- | --- |
| | L/180 | 298* | 90 | 61 | 44 | 34 | 22 | --- | --- | --- | --- |
| 5 1/2 ⁶ | L/360 | 241 | 128 | 57 | 41 | 33 | 25 | 20 | 15 | --- | --- |
| | L/240 | 288* | 182* | 86 | 60 | 49 | 37 | 29 | 22 | --- | --- |
| | L/180 | 288* | 182* | 112* | 79 | 65 | 49 | 39 | 29 | --- | --- |
| 7 1/4 ⁷ | L/360 | 241 | 168 | 80 | 65 | 54 | 42 | 33 | 24 | --- | --- |
| | L/240 | 288* | 188* | 126 | 99 | 81 | 61 | 49 | 34 | --- | --- |
| | L/180 | 288* | 188* | 133* | 117* | 105 | 80 | 62 | 44 | --- | --- |
| 9 1/4 ⁸ | L/360 | 274 | 188* | 116 | 100 | 80 | 62 | 47 | 35 | 32 | 28 |
| | L/240 | 326* | 188* | 147* | 134* | 120 | 92 | 70 | 52 | 46 | 41 |
| | L/180 | 326* | 188* | 147* | 134* | 121* | 108* | 93 | 68 | 61 | 53 |
| 11 1/4 ⁸ | L/360 | 327* | 188* | 167* | 140 | 116 | 90 | 75 | 57 | 47 | 36 |
| | L/240 | 327* | 188* | 167* | 153* | 132* | 110* | 97* | 83* | 69 | 53 |
| | L/180 | 327* | 188* | 167* | 153* | 132* | 110* | 97* | 83* | 83* | 70 |

For SI: 1 inch = 25.4 mm, 1 psf = 47.9 Pa, 1 foot = 304.8 mm.

¹Floor panels must have a minimum 3/4 inch thick top skin or a minimum 7/16 inch thick top skin overlaid with minimum 7/16 inch thick finish flooring perpendicular to the panels.

²The panels must be supported at each end of the panel span with continuous supports providing a 1 1/2-inch minimum bearing length.

³Allowable loads with an asterisk, *, indicates a capacity based on the average peak test load divided by 3.

⁴Panels spanning 4 feet shall be a minimum of 8 feet long spanning a minimum of two 4 foot spans. No single span conditions must be permitted.

⁵3 1/2-inch thick core panels must be limited to a maximum span of 10 feet when used in roof applications.

⁶5 1/2-inch thick core panels must be limited to a maximum span of 14 feet when used in roof applications.

⁷7 1/4-inch thick core panels must be limited to a maximum span of 18 feet when used in roof applications.

⁸9 1/4 and 11 1/4-inch thick core panels shall be limited to a maximum span of 20 feet when used in roof applications.

TABLE 5—TYPE S PANELS
MAXIMUM ALLOWABLE AXIAL LOADS (plf)¹

| PANEL CORE THICKNESS (inches) | PANEL SPAN | | | | | |
|-------------------------------|------------|-------|-------|-------|-------|-------|
| | 8 ft | 10 ft | 12 ft | 16 ft | 20 ft | 24 ft |
| 3 1/2 | 3500 | 2555 | 2450 | 2120 | --- | --- |
| 5 1/2 | 4250 | 4040 | 3375 | 3920 | 2815 | --- |
| 7 1/4 | 4915 | 4325 | 4475 | 4195 | 3495 | 3065 |
| 9 1/4 | 4200 | 4200 | 4200 | 4200 | 3389 | 3247 |
| 11 1/4 | 3890 | 3890 | 3890 | 3890 | 3890 | 3333 |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 foot = 304.8 mm.

¹For the allowable axial load on the fire-resistance-rated assembly, see Section 4.2.6.

TABLE 6—TYPE L PANELS
MAXIMUM ALLOWABLE AXIAL LOADS (plf)¹

| PANEL CORE THICKNESS (inches) | PANEL SPAN | | | | | |
|-------------------------------|------------|-------|-------|-------|-------|-------|
| | 8 ft | 10 ft | 12 ft | 16 ft | 20 ft | 24 ft |
| 3 1/2 | 4725 | 3905 | 3095 | 2350 | --- | --- |
| 5 1/2 | 5850 | 5890 | 4280 | 4310 | 2933 | --- |
| 7 1/4 | 6850 | 6110 | 5555 | 5180 | 4835 | 4080 |
| 9 1/4 | 5470 | 5470 | 5470 | 5470 | 5470 | 4250 |
| 11 1/4 | 4500 | 4333 | 4167 | 3750 | 3750 | 3333 |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 foot = 304.8 mm.

¹For the allowable axial load on fire-resistance-rated assembly, see Section 4.2.7.

**TABLE 7—TYPE S AND L PREMIER WALL PANELS
MAXIMUM ALLOWABLE AXIAL POINT LOADS (lbs)**

| | 1½ inch Minimum Bearing Width | 3 inch Minimum Bearing Width |
|-----------------------------------|-------------------------------|------------------------------|
| Standard Detail | 2040 | 2450 |
| Additional Cap Plate ¹ | 4030 | 4680 |

For SI: 1 inch = 25.4 mm, 1 lb. = 4.45 N.

¹See Figure 14 of this report.

TABLE 8—CONTINUOUS HEADER WITHOUT SPLINES MAXIMUM ALLOWABLE LOADS (plf)

| HEADER DEPTH (inches) | DEFLECTION | HEADER SPAN | | | |
|-----------------------|------------|-------------|------|------|-------|
| | | 4 ft | 6 ft | 8 ft | 10 ft |
| 12 | $L/360$ | 740 | 385 | 229 | 142 |
| | $L/240$ | 740 | 385 | 229 | 142 |
| | $L/180$ | 740 | 385 | 229 | 142 |
| 18 | $L/360$ | 798 | 574 | 385 | 311 |
| | $L/240$ | 798 | 574 | 385 | 311 |
| | $L/180$ | 798 | 574 | 385 | 311 |
| 24 | $L/360$ | 886 | 629 | 429 | 361 |
| | $L/240$ | 886 | 629 | 429 | 361 |
| | $L/180$ | 886 | 629 | 429 | 361 |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 foot = 304.8 mm.

TABLE 9—HEADER WITH OSB SPLINES MAXIMUM ALLOWABLE LOADS (plf)

| HEADER DEPTH (inches) | DEFLECTION | HEADER SPAN | | | |
|-----------------------|------------|-------------|------|------|-------|
| | | 4 ft | 6 ft | 8 ft | 10 ft |
| 12 | $L/360$ | 345 | 245 | 156 | 99 |
| | $L/240$ | 450 | 295 | 190 | 125 |
| | $L/180$ | 630 | 382 | 236 | 153 |
| 18 | $L/360$ | 705 | 388 | 255 | 235 |
| | $L/240$ | 750 | 482 | 302 | 281 |
| | $L/180$ | 750 | 482 | 302 | 281 |
| 24 | $L/360$ | 700 | 555 | 368 | 350 |
| | $L/240$ | 895 | 555 | 368 | 350 |
| | $L/180$ | 895 | 555 | 368 | 350 |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 foot = 304.8 mm.

**TABLE 10—PREMIER WALL PANELS^{1,2}
MAXIMUM ALLOWABLE SHEAR WALL LOADS**

| PANEL TYPE | MINIMUM OSB FACE THICKNESS | ATTACHMENTS | | | | RACKING SHEAR (plf) |
|------------|----------------------------|-------------|----------|-----------------------|----------|---------------------|
| | | 2x Framing | | Splines | | |
| | | Fasteners | Spacing | Fasteners | Spacing | |
| L or S | $7/16$ inch | 8d box nail | 6 inches | 8d nail | 6 inches | 300 |
| S | $7/16$ inch | 8d box nail | 4 inches | #6 Screw ³ | 4 inches | 600 ⁴ |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

¹Framing lumber must be a minimum of Douglas fir-larch having a minimum specific gravity of 0.50.

²The maximum panel height-to-width ratio shall be 1:1.

³Screws are #6 x 1¼ inch Type W drywall screws.

⁴Two top plates are required with fasteners attaching the OSB to both plates.

TABLE 11—PREMIER PANELS¹
MAXIMUM ALLOWABLE DIAPHRAGM LOADS

| MINIMUM OSB FACE THICKNESS (inches) | ATTACHMENTS | | | | | | SHEAR (plf) |
|--|----------------------------------|-----------|--------------------------------------|------------------------|--|----------|------------------|
| | Diaphragm Perimeter ² | | Panel Joints - Top Only ³ | | Panel Joints - Top & Bottom ⁴ | | |
| | Fasteners | Spacing | Fasteners | Spacing | Fasteners | Spacing | |
| $\frac{7}{16}$ | PBS Screw ⁵ | 12 inches | 8d nail | 3 inches | 8d nail | 6 inches | 435 ⁶ |
| $\frac{7}{16}$ | PBS Screw ⁵ | 3 inches | 8d nail | 2 inches | 8d nail | 4 inches | 540 ⁷ |
| $\frac{7}{16}$ | PBS Screw ⁵ | 2 inches | 8d nail | 1 $\frac{1}{2}$ inches | 8d nail | 3 inches | 750 ⁸ |

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

¹The maximum panel length-to-width ratio shall be 4½:1.

²See Figure 15 of this report.

³See Figure 16 of this report.

⁴See Figure 17 of this report.

⁵See description of PBS screw in Section 3.2.5. The screws must have a minimum penetration of 2-inches into panel supports having a minimum specific gravity of 0.43.

⁶The deflection of the 36 foot span for the diaphragm at 425 plf was 0.41 inch.

⁷The deflection of the 36 foot span for the diaphragm at 510 plf was 0.37 inch.

⁸The deflection of the 36 foot span for the diaphragm at 750 plf was 0.37 inch.

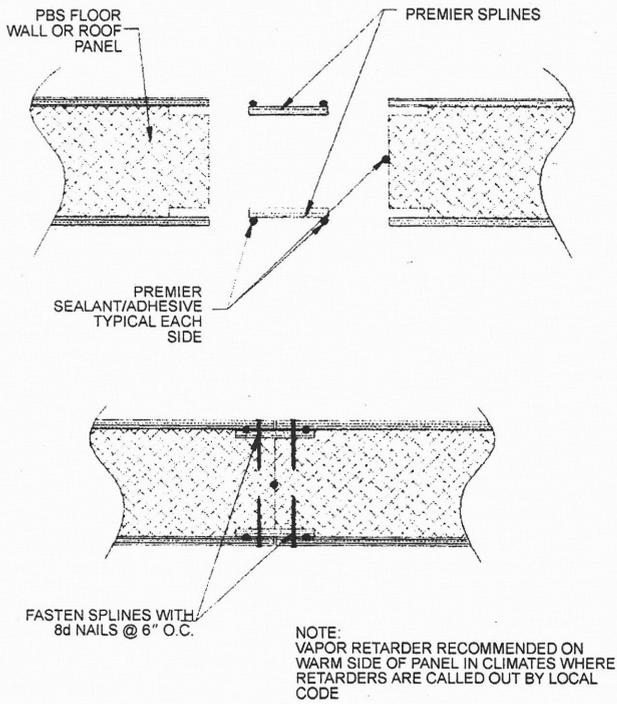


FIGURE 1

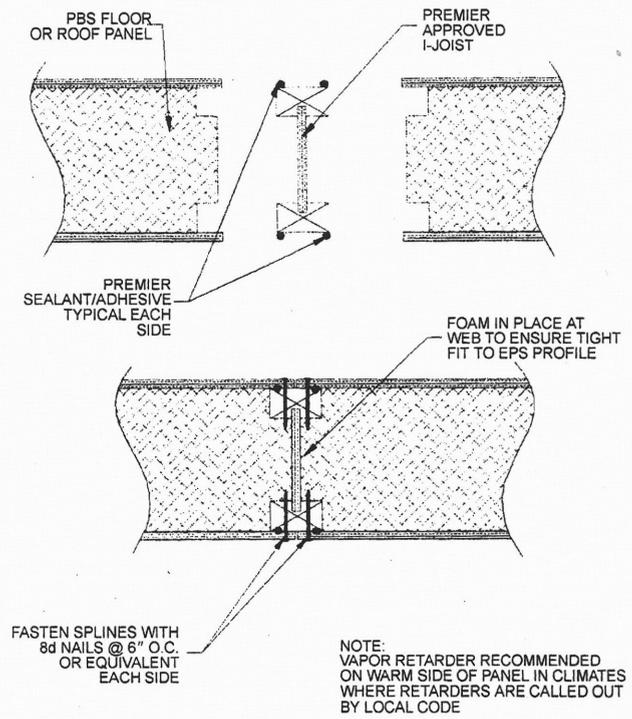


FIGURE 2

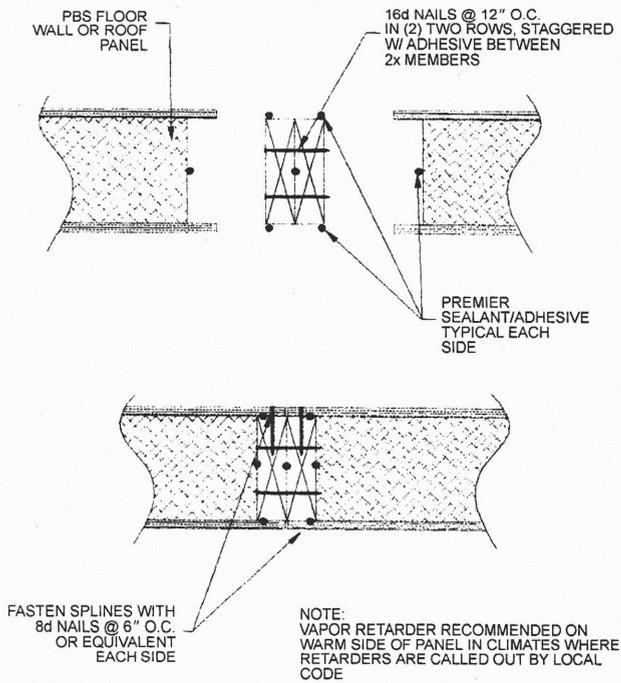


FIGURE 3

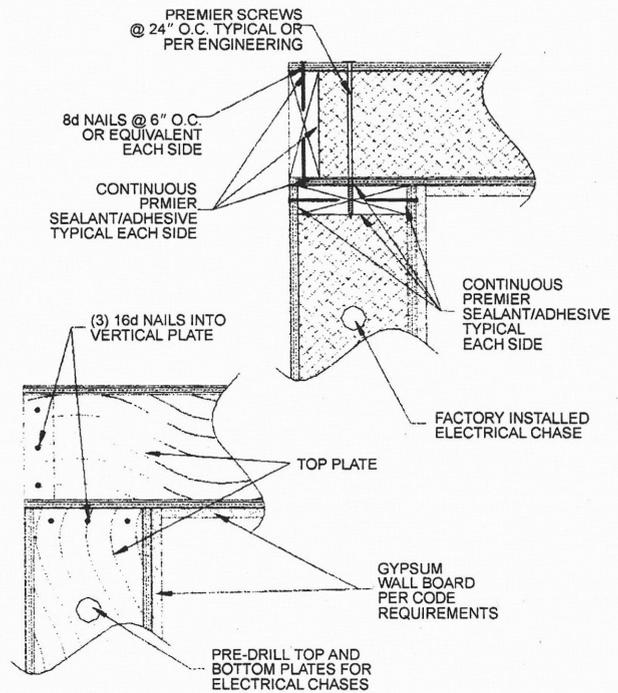


FIGURE 4

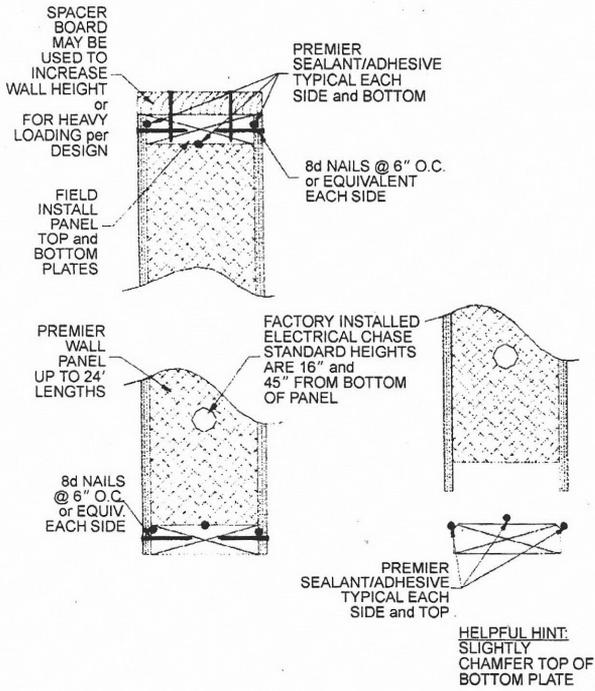


FIGURE 5

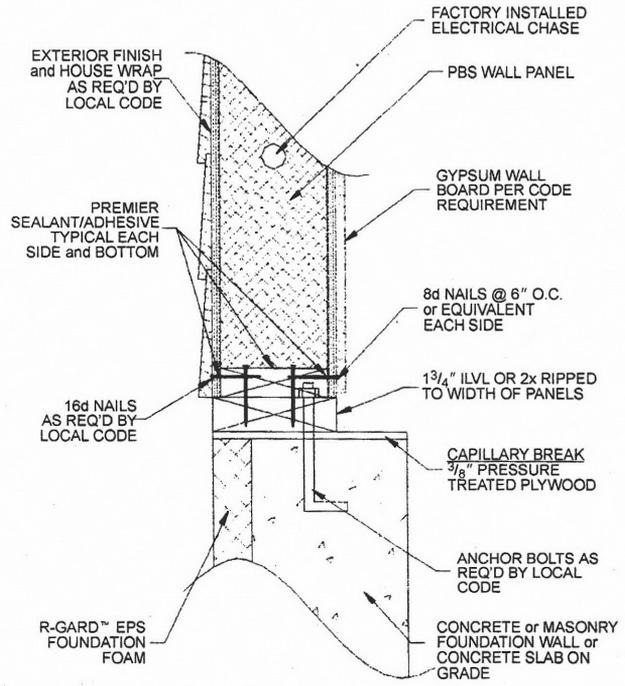


FIGURE 6

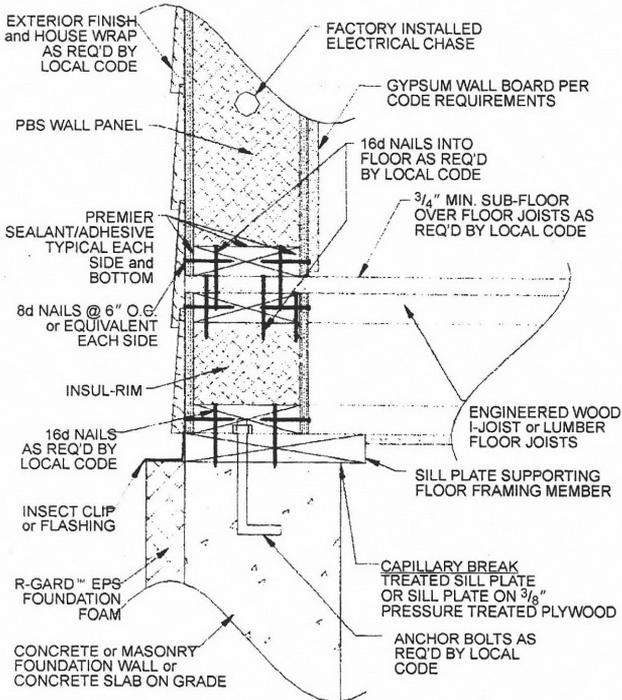


FIGURE 7

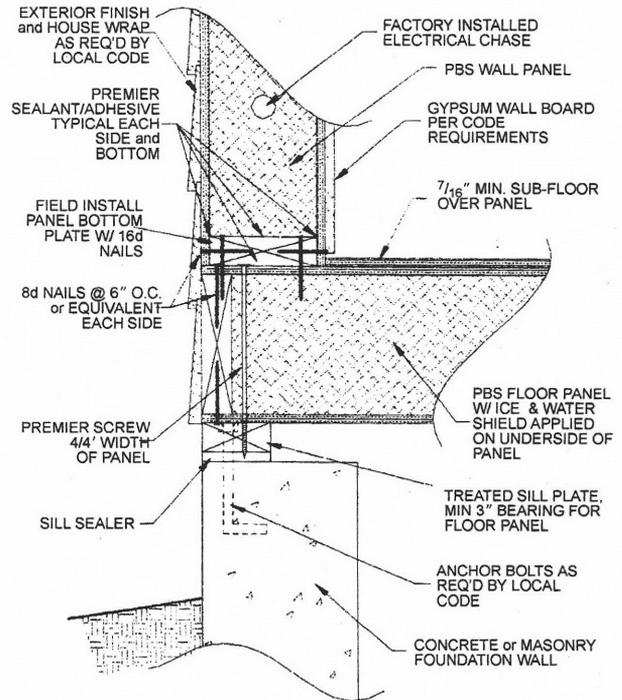


FIGURE 8

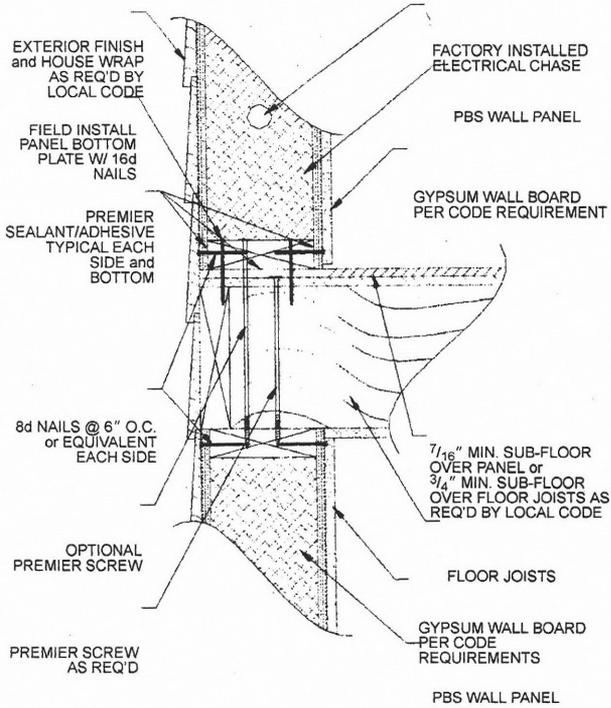


FIGURE 9

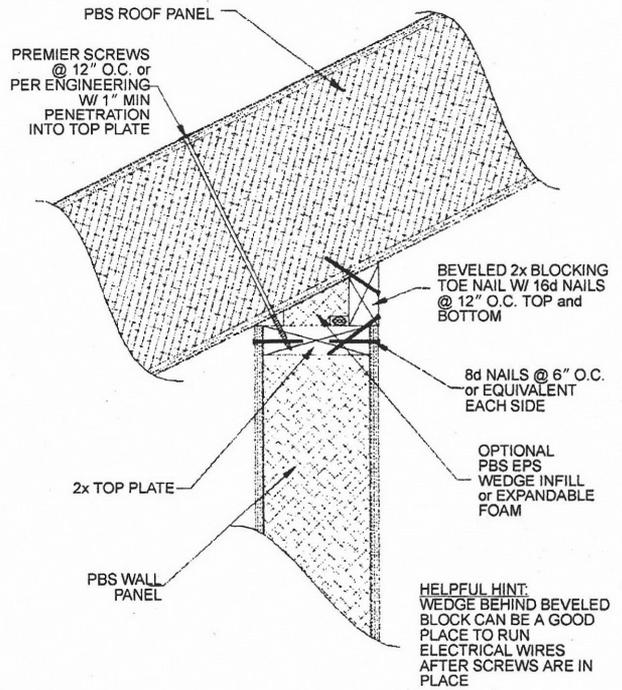


FIGURE 10

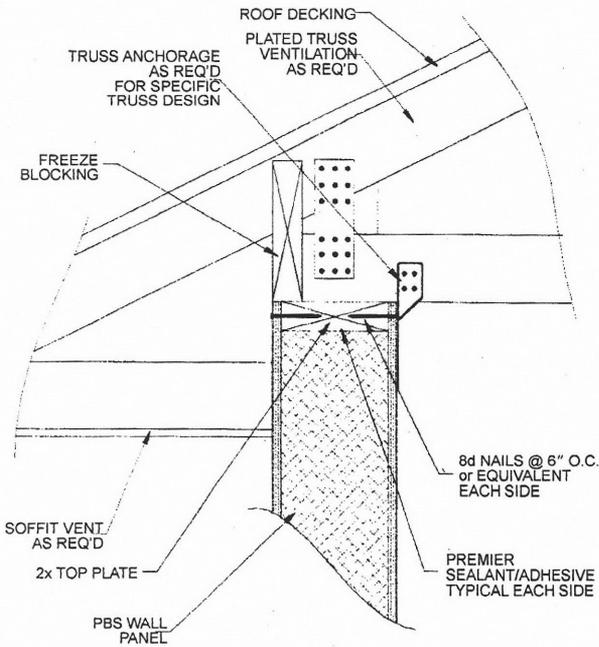


FIGURE 11

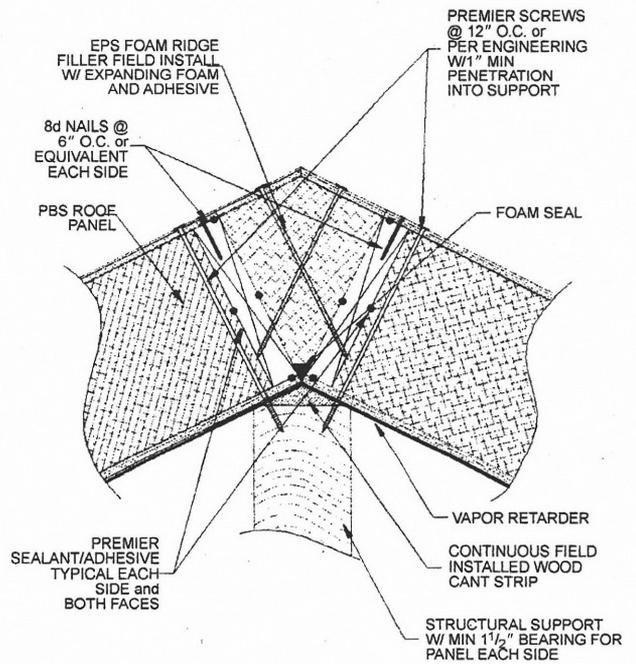


FIGURE 12

SEE LOAD DESIGN CHARTS FOR ALLOWABLE HEADER LOADS

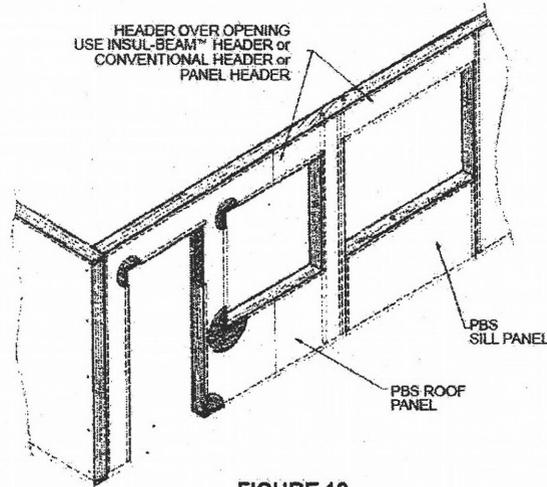


FIGURE 13

Premier Cap Plate - standard 2x lumber, 1 1/8" OSB or 1 1/8" OSL (Rimboard), which has been ripped to the overall width of the wall panel so that the OSB skins of the panel are covered by the ripped material

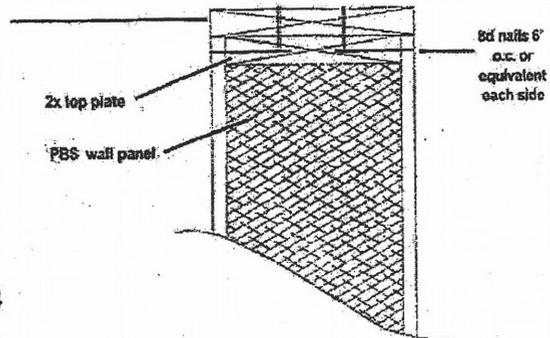


FIGURE 14

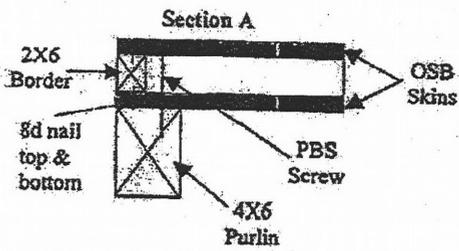


FIGURE 15

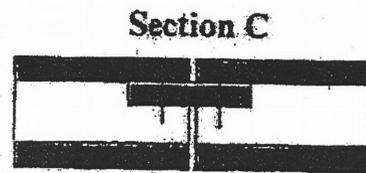


FIGURE 16

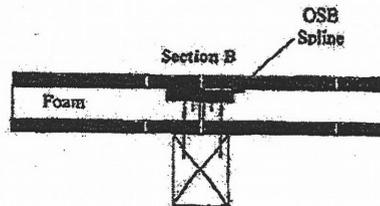


FIGURE 17