



## LISTING INFORMATION OF Energy Panel Structures - Structural Insulated Panels (SIPs)

SPEC ID: 32840

Energy Panel Structures, Inc.  
Industrial Park  
P.O. Box 238  
Graettinger, IA 51342

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Structural Insulated Panels are factory-assembled, engineered-wood-faced, structural insulated panels (SIPs) with an expanded polystyrene (EPS) foam core. The panels are intended for use as load-bearing or non-load bearing wall and roof panels. 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 20 ft. in length.

## RATINGS

ASTM E119 / CAN/ULC S101	Fire-Resistance Rating	Design Number
6-1/2 in. SIP Wall Assembly	1-hour rating	EPS/CWP 60-02
4-1/2, 6-1/2 or 8-1/4 in. SIP Wall Assembly	1-hour rating	EPS/CWP 60-01
SIP Wood Roof/Ceiling Assembly	1-hour rating	EPS/CRP 60-01
SIP Steel Roof/Ceiling Assembly	1-hour rating	EPS/CRP 60-02

<u>Attribute</u>	<u>Value</u>
Criteria	CAN / ULC S101 (2007)
Criteria	ASTM E119 (2012)
CSI Code	06 12 00 Structural Panels
Fire Resistance	1 Hour Fire Rating
Intertek Services	Certification
Listed or Inspected	LISTED
Listing Section	BUILDING PANELS
Report Number	ITSCERT001-001

# EPS/CRP 60-01

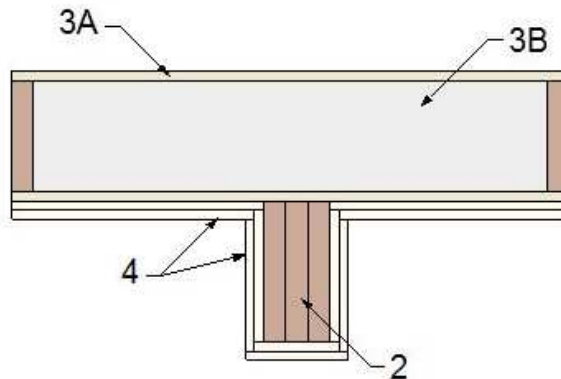
Division 7 - Thermal and Moisture Protection  
 07 40 00 Roofing and Siding Panels  
 07 41 43 Composite Roof Panels

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**Design Number: EPS / CRP 60-01**  
**ROOF-CEILING SYSTEMS**  
**Energy Panel Structures, Inc.**  
**Energy Panel Structures 4½ to 10½ in. Structural Insulated Panels**  
**ASTM E 119 – 2012 Edition**  
**CAN/ULC S 101 – 2007 Edition**  
**Rating – 1 Hour**  
**Superimposed Load: 40 PSF**

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**ITEM 1**

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| <p>1. <b>CEILING ASSEMBLY:</b> Construct a ceiling assembly using elements described in Items 2 through 5.</p> <p>2. <b>WOOD BEAMS/JOIST:</b> Use minimum 4-1/2 in. wide x 9-1/2 in. deep engineered wood beam/joist spaced in accordance with manufacturer's design specifications and building code requirements.</p> <p>3. <b>CERTIFIED COMPANIES:</b> Energy Panel Structures, Inc.</p> <p><b>CERTIFIED PRODUCT:</b> Energy Panel Structures Structural Insulated Panels</p> <p><b>ROOF PANELS:</b> Install Energy Panel Structures Structural Insulated Panels consisting of the following elements:</p> | <p>A. <b>FACING:</b> Nominal 7/16 in. thick OSB skins factory bonded to interior and exterior sides of EPS foam core (Item 3B) conforming and identified as meeting DOC PS 2-04, Exposure 1, Rated Sheathing with a span index of 24/16 and/or CAN/CSA O325.0, Exterior Grade Sheathing with a span index of 1R24/2F16.</p> <p>B. <b>CORE:</b> Use ASTM C578 compliant and Listed Type I EPS (min. 0.9 pcf) with a flame spread rating not exceeding 75 and smoke-developed rating not exceeding 450 per ASTM E84 and/or CAN/ULC S701 compliant and Listed Type 1 EPS with a flame spread rating not exceeding 500 per CAN/ULC S102.2.</p> |
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Date Revised: August 7, 2013



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- C. ADHESIVE (Not Shown): Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination procedure in accordance with the in-plant quality system documentation.
- D. SPLINE (Not Shown): Structural Insulated Panels are interconnected with surface splines or block splines.
- Surface splines typically consist of 3 in. wide by 7/16 in. thick OSB. At each panel joint, one surface spline is inserted into each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.
- Block splines are manufactured in the same manner as the SIP except with an overall thickness that is 1 in. less than the overall thickness of the panel to be joined.
4. GYPSUM BOARD: Apply two (2) layers of 5/8 in. thick, Type X gypsum board to the interior side of the ceiling assembly (Item 1) oriented with the long dimension oriented perpendicular to the wood beams (Item 2). Secure the base layer using 1-1/4 in. long, bugle head self-drilling screws spaced nominally 8 in. on center (oc) around the perimeter and 12 in. oc in the field. Secure the second layer using 2 in. long bugle head self-drilling screws spaced nominally 8 in. oc around the perimeter and 12 in. oc in the field. Stagger joints of base layer and second layer.
- A. JOINT TAPE AND COMPOUND – (Not Shown) Apply a level 2 finish of vinyl or casein, dry or premixed joint compound applied in two coats to all exposed fastener heads and gypsum board joints. Embed minimum 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board (Item 3).
5. ROOF COVERING (Not Shown): Use a Class A, B, or C hot mopped or cold applied roof covering, or use a ballasted, adhered or mechanically attached single ply roofing membrane.

Date Revised: August 7, 2013



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# EPS/CRP 60-02

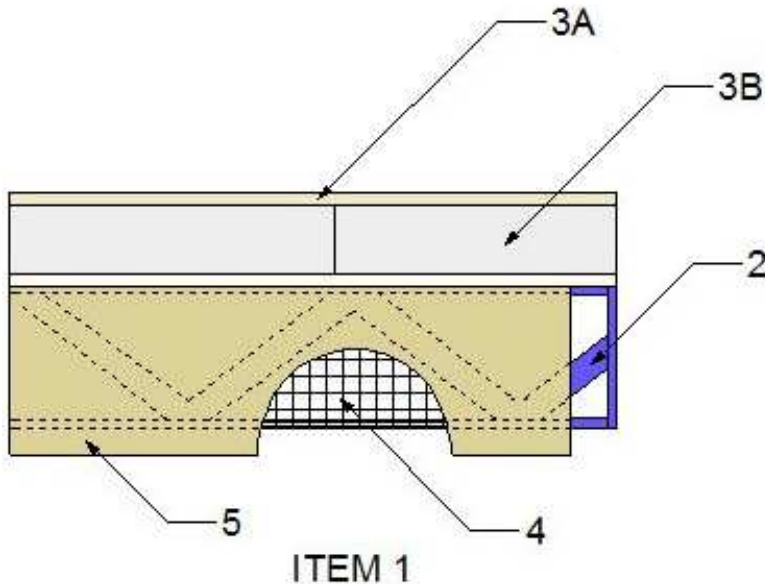
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**Design Number: EPS/CRP 60-02**  
**ROOF-CEILING SYSTEMS**  
**Energy Panel Structures, Inc.**  
**Energy Panel Structures 4½ to 10½ in. Structural Insulated Panels**  
**ASTM E 119 – 2012 Edition**  
**CAN/ULC S 101 – 2007 Edition**  
**Rating – 1 Hour**  
**Superimposed Load: 42.13 PSF**

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1. CEILING ASSEMBLY: Construct ceiling assembly using the elements described in Items 2 through 6.
2. STEEL JOIST: Use minimum Type 10K1 open-web steel joist constructed and spaced in accordance with manufacturer's design specifications and building code requirements.
3. CERTIFIED COMPANIES: Energy Panel Structures, Inc.

CERTIFIED PRODUCT: Energy Panel Structures Structural Insulated Panels

ROOF PANELS: Install Energy Panel Structures Structural Insulated Panels consisting of the following elements:

- A. FACING: Nominal 7/16 in. thick OSB skins factory bonded to interior and exterior sides of EPS foam core (Item 3A) conforming and identified as meeting DOC PS 2-04, Exposure 1, Rated Sheathing with a span index of 24/16 and/or CAN/CSA

Date Created: June 26, 2013



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O325.0, Exterior Grade Sheathing with a span index of 1R24/2F16.

- B. CORE: Use ASTM C578 compliant and Listed Type I EPS (min. 0.9 pcf) with a flame spread rating not exceeding 75 and smoke-developed rating not exceeding 450 per ASTM E84 and/or CAN/ULC S701 compliant and Listed Type 1 EPS with a flame spread rating not exceeding 500 per CAN/ULC S102.2.
- C. ADHESIVE (Not Shown): Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination procedure in accordance with the in-plant quality system documentation.
- D. SPLINE (Not Shown): Structural Insulated Panels are interconnected with surface splines or block splines.

Surface splines typically consist of 3 in. wide by 7/16 in. thick OSB. At each panel joint, one surface spline is inserted into each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.

Block splines are manufactured in the same manner as the SIP except with an overall thickness that is 1 in. less than the overall thickness of the panel to be joined.

- 4. METAL LATH: Install 3/8 in. expanded galvanized steel mesh weighing 3.4 lb/yd. to cover the exposed side of the steel joist (Item 2). Secure the lath using No. 20 SWG steel tie wire at the mid-point of alternate web members. Install the lath on the bottom of the roof panels (Item 3) using 1-1/2 in. deep x 15/16 in. wide C-pint staples spaced 7 in. on center (oc).
- 5. SPRAY APPLIED FIBER: Apply to the wetted surfaces of steel joist and panels, a minimum 11 pcf dry density Listed

spray applied fiber (CAFECO BLAZE-SHIELD Type DC-F) to the metal lath (Item 6). Apply at a minimum thickness of 2-1/4 in. to all mesh surfaces. Please reference the CAFECO BLAZE-SHIELD Type DC-F Code Evaluation Report for more details.

- 6. ROOF COVERING (Not Shown): Use a Class A, B, or C hot mopped or cold applied roof covering, or use a ballasted, adhered or mechanically attached single ply roofing membrane.

Date Created: June 26, 2013



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# EPS/CWP 60-01

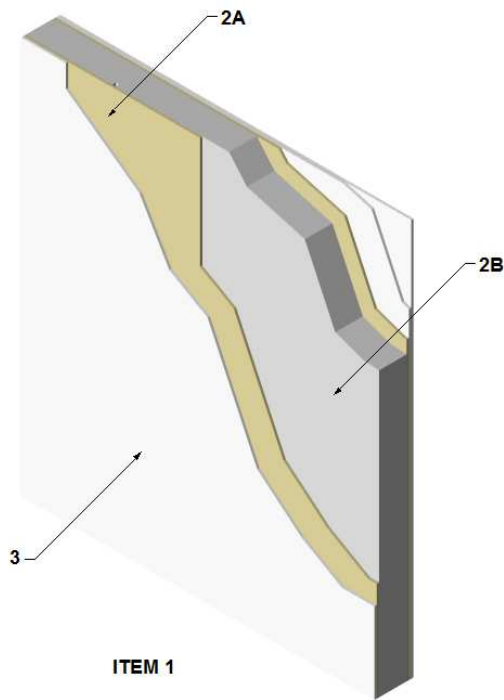
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**Design Number: EPS/CWP 60-01**  
**EXTERIOR WALL SYSTEMS**  
**Energy Panel Structures, Inc.**  
**Energy Panel Structures 4½, 6½ or 8¼ in. Structural Insulated Panels**  
**ASTM E 119 – 2012 Edition**  
**CAN/ULC S 101 – 2007 Edition**  
**Rating – 1 Hour**  
**Restricted Superimposed Load: 1,800 PLF**

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1. WALL ASSEMBLY: Construct a wall assembly using elements described in Items 2 through 4.

2. CERTIFIED COMPANIES: Energy Panel Structures, Inc.

CERTIFIED PRODUCT: Energy Panel Structures Structural Insulated Panels

Date Created: August 7, 2013

WALL PANELS: Install Energy Panel Structures Structural Insulated Panels consisting of the following elements:

A. FACING: Nominal 7/16 in. thick OSB skins factory bonded to interior and exterior sides of EPS foam core (Item 2B) conforming and identified

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- as meeting DOC PS 2-04, Exposure 1, Rated Sheathing with a span index of 24/16 and/or CAN/CSA O325.0, Exterior Grade Sheathing with a span index of 1R24/2F16.
- B. CORE: Use ASTM C578 compliant and Listed Type I EPS (min. 0.9 pcf) with a flame spread rating not exceeding 75 and smoke-developed rating not exceeding 450 per ASTM E84 and/or CAN/ULC S701 compliant and Listed Type 1 EPS with a flame spread rating not exceeding 500 per CAN/ULC S102.2.
- C. ADHESIVE (Not Shown): Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination procedure in accordance with the in-plant quality system documentation.
- D. SPLINE (Not Shown): Structural Insulated Panels are interconnected with surface splines or block splines.
- Surface splines typically consist of 3 in. wide by 7/16 in. thick OSB. At each panel joint, one surface spline is inserted into each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.
- Block splines are manufactured in the same manner as the SIP except with an overall thickness that is 1 in. less than the overall thickness of the panel to be joined.
3. GYPSUM BOARD: Apply two (2) layers of 5/8 in. thick, Type X gypsum board to the interior and exterior side of the wall assembly (Item 1) oriented vertically with the joints staggered 16 in. on center (oc). Secure the base layer using 1-5/8 in. long, bugle head self-drilling screws spaced nominally 12 in. oc around the perimeter and 24 in. oc in the field. Secure the second layer using 2 in. long bugle head self-drilling screws spaced nominally 12 in. oc around the perimeter and 24 in. oc in the field.
- A. JOINT TAPE AND COMPOUND – (Not Shown) Apply a level 2 finish of vinyl or casein, dry or premixed joint compound applied in two coats to all exposed fastener heads and gypsum board joints. Embed minimum 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board (Item 3).
4. BEARING PLATES (Not Shown): Install nominal No. 2 lumber plates to the top and bottom of the wall panels (Item 2) in the pre-cut channel in the foam core covering the entire surface area and secure to the skins (Item 2A) using 8d common nails spaced nominal 6 in. oc. Prior to installing, apply a layer of acrylic latex caulk across the mating face with the EPS foam core (Item 2B).

Date Created: August 7, 2013

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# EPS/CWP 60-02

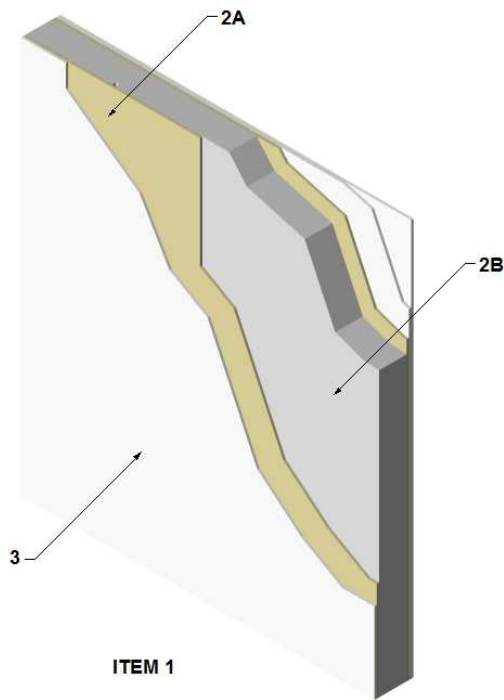
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**Design Number: EPS / CWP 60-02**  
**EXTERIOR WALL SYSTEMS**  
**Energy Panel Structures, Inc.**  
**Energy Panel Structures 6½ in. Structural Insulated Panels**  
**ASTM E 119 – 2012 Edition**  
**CAN/ULC S 101 – 2007 Edition**  
**Rating – 1 Hour**  
**Restricted Superimposed Load: 1,800 PLF**

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1. WALL ASSEMBLY: Construct a wall assembly using elements described in Items 2 through 4.

2. CERTIFIED COMPANIES: Energy Panel Structures, Inc.

CERTIFIED PRODUCT: Energy Panel Structures Structural Insulated Panels

Date Created: August 7, 2013

WALL PANELS: Install Energy Panel Structures Structural Insulated Panels consisting of the following elements:

A. FACING: Nominal 7/16 in. thick OSB skins factory bonded to interior and exterior sides of EPS foam core (Item 2B) conforming and identified

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- as meeting DOC PS 2-04, Exposure 1, Rated Sheathing with a span index of 24/16 and/or CAN/CSA O325.0, Exterior Grade Sheathing with a span index of 1R24/2F16.
- B. CORE: Use ASTM C578 compliant and Listed Type I EPS (min. 0.9 pcf) with a flame spread rating not exceeding 75 and smoke-developed rating not exceeding 450 per ASTM E84 and/or CAN/ULC S701 compliant and Listed Type 1 EPS with a flame spread rating not exceeding 500 per CAN/ULC S102.2.
- C. ADHESIVE (Not Shown): Facing materials are adhered to the core material using a structural adhesive. The adhesive is applied during the lamination procedure in accordance with the in-plant quality system documentation.
- D. SPLINE (Not Shown): Structural Insulated Panels are interconnected with surface splines or block splines.
- Surface splines typically consist of 3 in. wide by 7/16 in. thick OSB. At each panel joint, one surface spline is inserted into each of two tight-fitting slots in the core. The slots in the core are located just inside the facing.
- Block splines are manufactured in the same manner as the SIP except with an overall thickness that is 1 in. less than the overall thickness of the panel to be joined.
3. GYPSUM BOARD: Apply one (1) layer of 5/8 in. thick, Listed Type C gypsum board to the interior and exterior side of the wall assembly (Item 1) oriented vertically. Secure the gypsum board using 1-5/8 in. long, bugle head self-drilling screws spaced nominally 8 in. on center (oc) around the perimeter and 12 in. oc in the field.
- A. JOINT TAPE AND COMPOUND – (Not Shown) Apply a level 2 finish of vinyl or casein, dry or premixed joint compound applied in two coats to all exposed fastener heads and gypsum board joints. Embed minimum 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board (Item 3).
4. STUDS AND BEARING PLATES: Install nominal 2 in. x 6 in. No. 2 lumber plates to the top and bottom of the wall panels (Item 2) in the pre-cut channel in the foam core and secure to the skins (Item 2A) using 8d common nails spaced nominal 6 in. oc. Prior to installing, apply a layer of acrylic latex caulk across the mating face with the EPS foam core (Item 2B).

Date Created: August 7, 2013



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