# INSULATED PANELS

## INSULATED PANEL OVERVIEW

Our various series of wall and roof panels are filled with non CFC polyisocyanurate foam. The panels are manufactured in a uniform pressure laminating process that bonds metal facings to precured insulating rigid foam cores. The process uses structural urethane adhesives applied under heat and pressure to form an integral bond between steel and foam. Cores are inspected at the factory for uniform density and cell structure, and then are cut by a laser guided saw to exacting tolerances. This extra care ensures premium quality flat cores, suitable for use with embossed or smooth facings.

The EcoSteel insulated panels are ideal for projects with a focus on energy efficiency and speed of construction. Our exterior wall and roof panels have a 50 year proven history on industrial and cold storage applications.

The Insulated panels are provided with hidden fastener off-set joinery for easy installation from the building exterior. Vertical and Horizontal wall panel options are available with a closed (SI) or reveal (RI) exterior joint.

End joints are finished with a matching steel trim or extruded aluminum piece set with sealing tapes and plugged at reveals, or panels can be factory folded for a "trimless" installation. Trimless end joints are commonly treated with a field applied gasket or foam backer rod and sealant.

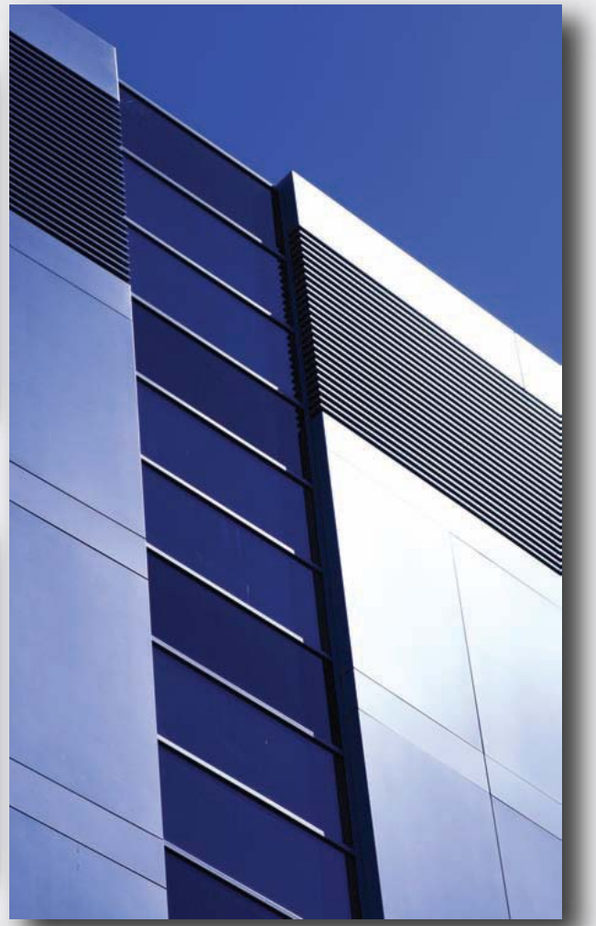
# INSULATED PANELS

## ENERGY EFFIECENCY

Although many people believe an R value for construction materials is the equivalent of the thermal performance, there are many factors that significantly reduce efficiency in traditional stick and batt building. You must also consider all the non-insulated items such as studs, bracing, nails and screws, and electrical boxes. Key findings from technical analysis include:

- A 4" Structural Insulated Panel (SIP) wall has a "whole wall performance" of R-14.
- A 2"x4" batt insulated wall has a whole wall performance of R-9.5.
- A 2"x6" batt insulated wall has a whole wall performance of R-13.7.
- Standard components in stick and batt construction can reduce R-values by up to 30% from their advertised values.

The R-24 "whole wall performance" of a standard EcoSteel 3" IP is more than 2.5 times higher than a timber framed 2x4 batt insulated wall. You would have to frame with 12" walls to get this performance with timber framing, and it offers almost twice the thermal efficiency of a 4" SIP wall.



# INSULATED PANELS

## FORM CORE ENVIRONMENTAL FACTORS

### VOC (VOLATILE ORGANIC COMPOUNDS)

The foam core and surface paints contain no VOC's and do not contribute to smog.

### ODP (OZONE DEPLETING POTENTIAL)

The blowing agent HCFC-22 has a very low ODP of .05 and is sanctioned for use by the EPA. Finished panels are completely encapsulated in metal, which prevents off-gassing oft he blowing agent after panels are shipped and installed on the building. HFC-134a has zero ODP and has no EPA limits for its use today & into the future.

### GWP (GLOBAL WARMING POTENTIAL)

HCFC-22 has a small aggregate radiative forcing impact and is sanctioned for use by the EPA. Finished panels are completely encapsulated in metal, which prevents off-gassing of the blowing agent after panels are shipped and installed on the building. HFC-134a also has a small aggregate radiative forcing impact and has no EPA limits on its use today & into the future.

### Thermal Properties Table

| Insulation Thickness | Operating Temperature | Thermal Conductivity (K-Factor) | Heat Transfer Coefficient (U-Value) | Thermal Resistance (R-Value) |
|---|---|---|---|---|
| 3″ | To +30F | .127 | .042 | 24 |
| 4″ | +30F to -20F | .127 | .031 | 32 |
| 5″ | -20F to -50F | .127 | .025 | 40 |
| 6″ | -50F to -70F | .127 | .021 | 48 |

**FIRE RATED PANELS**

Fire Rated panels are available in applications requiring one or two hour fire resistive ratings. They can be used for exterior walls or interior partitions. The specifications for these panels are provided in the Fire Rated Panel Overview.

# INSULATED PANELS

## PANEL FINISHES AND DESCRIPTIONS

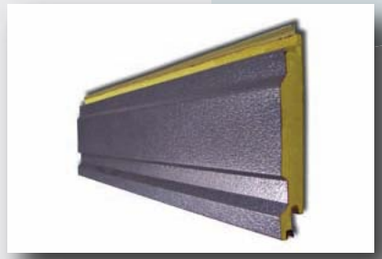
There are many different finish options available for our wall and roof panels depending on the specific look you desire. We have listed our most common textures and finishes to help provide you an understanding of the options available. EcoSteel can work with you during the design process to select the best materials and finishes to provide your desired look.

### INSULATED ARCHITECUTURAL PANELS

The Architectural wall panel is ideal for high profile architectural applications. The panels are designed to be installed vertically or horizontally with concealed clips and fasteners in the side joints. The flat exterior and variable joint sizes provide tremendous flexibility to achieve your desired appearance. New available \design features include custom widths and preformed and radius corners.

Sample Horizontal Panel

Sample Accent Panel



# INSULATED PANELS

## STANDARD INSULATED PANEL FINISHES AND DESCRIPTIONS

### ECO MESA PANEL

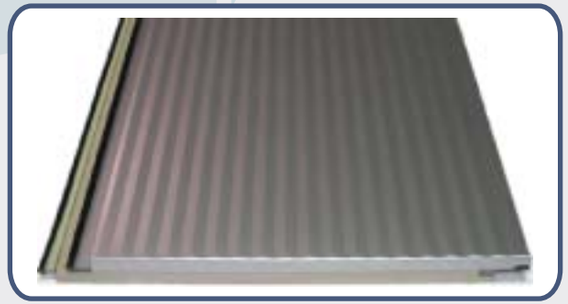
The Eco Mesa wall panel is well suited for exterior and interior partition wall applications. The lightly corrugated profile on both faces of the panel ensures symmetry from outside of the building to inside and from room to room in partition installations. The Eco Mesa wall panel has deeper groves with large flat areas. Panel width is 42”.

### ECO LIGHT MESA PANEL

The Eco Mesa Light wall panels are well suited for exterior and interior partition wall applications. The lightly corrugated profile on both faces of the panel ensures symmetry from outside of the building to inside and from room to room in partition installations. The Eco Mesa Light wall panel has expanded flat areas to reduce shadow lines. Panel width is 42”.

### ECO MICRO RIB

The Eco Micro Rib wall panel is an attractive and economical alternative to typical flat wall panels. The exterior face is lightly profiled with narrow longitudinal striations to 1/32” depth and exhibits a virtual flat appearance from a short distance away. The Eco Micro Rib wall panel is an exceptional value combining the aesthetics to a flat wall. Panel widths are 24”, 30”, 36”, and 42”.



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# INSULATED PANELS

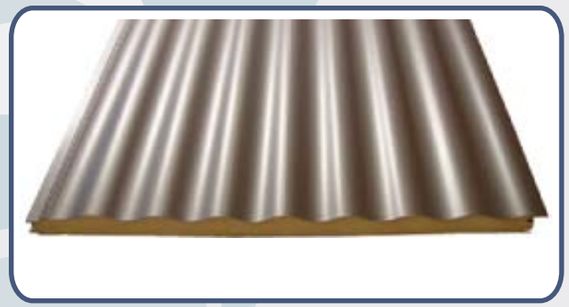
## STANDARD INSULATED PANEL FINISHES AND DESCRIPTIONS

### ECO EMBOSSED

The Eco Embossed wall panel is ideal for high profile architectural applications. The panels are designed to be installed vertically with concealed clips and fasteners in the side joint. The Eco Embossed wall panels have a slightly embossed texture that provides a flush appearance. Panel width is 42".

### ECO LIGHT WAVE

The unique continuous sweeping profile of the light wave wall panel creates beautiful shadowing effects, especially when used with metallic or mica based paint systems. The unique side lap joint creates a seamless appearance with fully concealed fastener attachments. The panel can be integrated with flat panels to create architectural highlights, or can be used by itself. Panel width is 39 3/8".



### ECO FLUTED

The Eco Fluted wall panel combines shallow and deep grooves that provides a variety of vertical lines. Traditional styling bundled with R-values at 8 per inch of thickness sets the Plateau panel as a flexible design choice. Panel width is 42".

# INSULATED PANELS

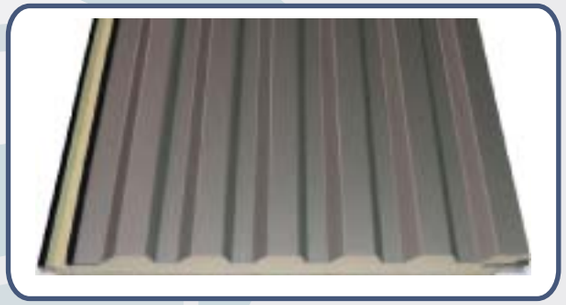
## PREMIUM INSULATED PANEL FINISHES AND DESCRIPTIONS

### ECO PREMIUM FLAT

The Eco Premium Flat wall panel is ideal for smooth and modern exterior walls. This simple design allows for maximum design flexibility. All premium panels feature double-gasket shiplap joint in both vertical and horizontal applications to maximize thermal efficency and create a double barrier against are and water penetration. Panel widths are 12”, 24”, 30”, and 36”.

### ECO RIDGE

The Eco Ridge wall panel is ideal for a modern exterior apperance with inch deep grooves. This design can be applied both vertically or horizontally to meet design needs. Panel widths are 12” and 24”.

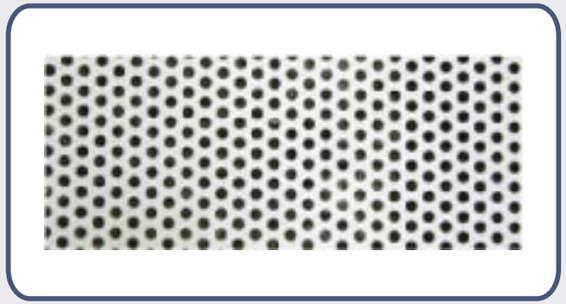


# INSULATED PANELS

## SPECIAL ORDER INSULATED PANEL FINISHES AND DESCRIPTIONS

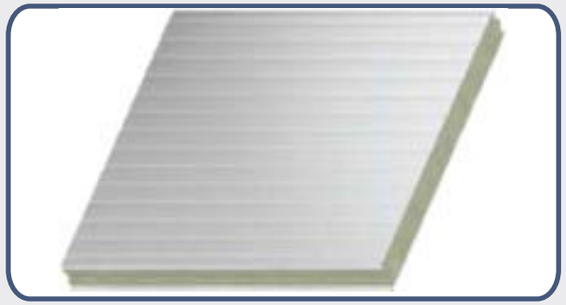
### PERFORATED

The Perforated wall panel is ideal areas that need specialized sound performance. Combines thermal insulation with superior sound absorption. Sound transmission class determined in accordance with ASTM E413. Panel width is 42”.



### FIRE RATED ECO PANEL

The Fire Rated Eco wall panel is widely used in areas that require either one or two hours fire resistive ratings. The panel has a minor ribbed design which provides a clean, flat apperance. Panel width is 42”.



Tested and approved in accordance with ASTM E119-98, “Standard Test Method for Fire Tests of Building Construction and Materials.”

# INSULATED PANELS

## ALTERNATIVE FINISHES AND DESCRIPTIONS

The stucco and natural stone wall panels offer the advantages of lightweight insulated panels with the architectural appearance of sprayed stucco or natural stone that many designers and communities desire. They may also be used in vertical or horizontal applications to provide a distinctive architectural appearance. The panel provides a flush profile using an acrylic aggregate finish factory applied over primed steel facings. The finish offers an extremely durable; impact and abrasion resistant coating that withstands severe weather conditions. Unlike field-applied finishes that are vulnerable to damp or cold weather during installation, insulated panels can be erected in virtually any weather condition.

### PLASTER WALL PANEL

The Plaster wall panels come in a variety colors and finishes to provide provides a flush profile using an acrylic aggregate stucco finish factory applied over primed steel facings. These panels offer superior strength and energy efficiency in a product that is easier to install than traditional methods. The interior face of the panel is finished with an attractive Mesa profile and painted with a white polyester coating.

### NATURAL STONE WALL PANEL

With the newest applied surfaces, you get the best of both worlds. The Natural Stone product line is comprised of naturally colored quartz aggregates and synthetics, resulting in a stunning stone appearance. Combined with insulated metal panels, your building solution will boast the strength and efficiency of steel, with the architectural finish you desire.

# INSULATED PANELS

## ROOF INSULATED PANEL OPTIONS

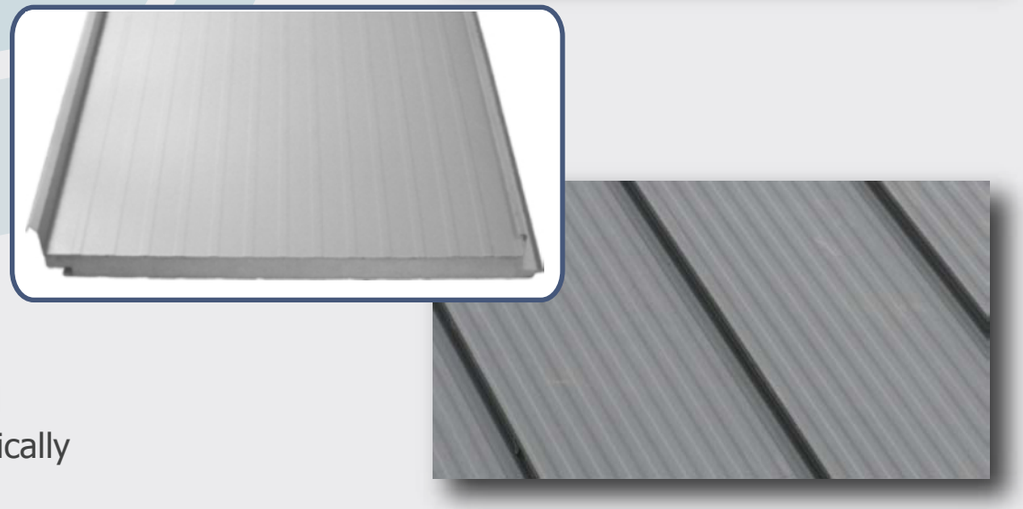
There are two main styles for roof panels. Both are available in a variety of colors and custom finishes are available.

### HIGH RIB ROOF PANEL

The High Rib Roof Panel functions well as a roof or wall panel when used in conjunction with preengineered building framing systems. The product features an over-lapping major rib at the panel sidelap. The ribs of the panel produce an extremely strong section that can span long distances between wall girts and roof joists/purlins. It is available up to 6” thick ,making it ideal for applications needing strong, well insulated metal walls and roofs. Exposed fasteners are located in the major ribs when the panel is used as a roof and in the pan when the panel is used in a wall application. There is 14” between each rib. Panel width is 42“.

### STANDING SEAM ROOF PANEL

The Standing Seam Roof Panel includes a patented sidelap connection. The panel is a true factory foamed-in-place trapezoidal roof panel with a standing seam offering superior weather tightness. With the patented sidelap connection, the roof panels snap together before being mechanically seamed. There is 42” between each rib and 40” of coverage.



# INSULATED PANELS

## WALL PANEL SPECIFICATIONS

### MATERIAL

Exterior: 24 ga. steel (std). 26 and 22 ga. also available.
Interior: 26 ga. steel (std). 24 and 22 ga. also available.

### FINISH OPTIONS

Exterior: Galvalume Plus
Dura-20 (silicone polyester)
Royal K-70 (Kynar 500/Hylar 5000)

Dura-20 (silicone polyester)

### TEXTURE

The exterior skin is available in several finishes depending on the final panel types selected. The interior skin is embossed only.

### DIMENSIONS

Widths of 24”-42" depending on panels type; Thickness (T) – Half inch increments from 2.5” to 6”.

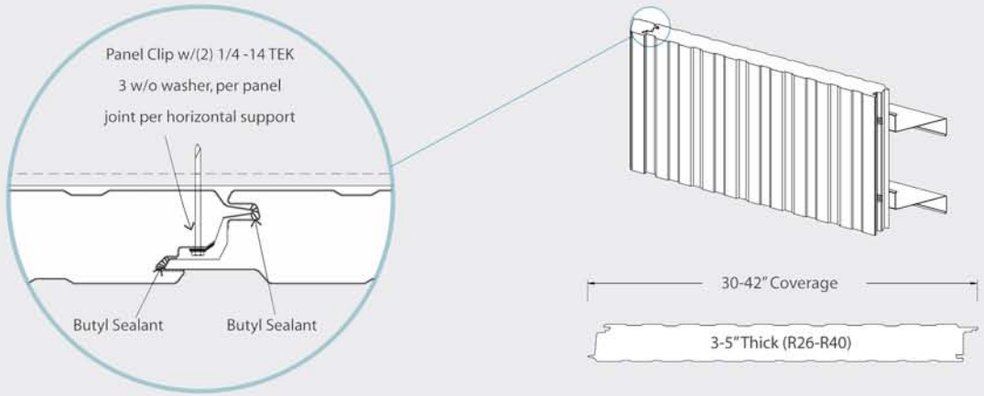
### LENGTH

The maximum recommended length is 30' 0". Contact EcoSteel for panel length options.

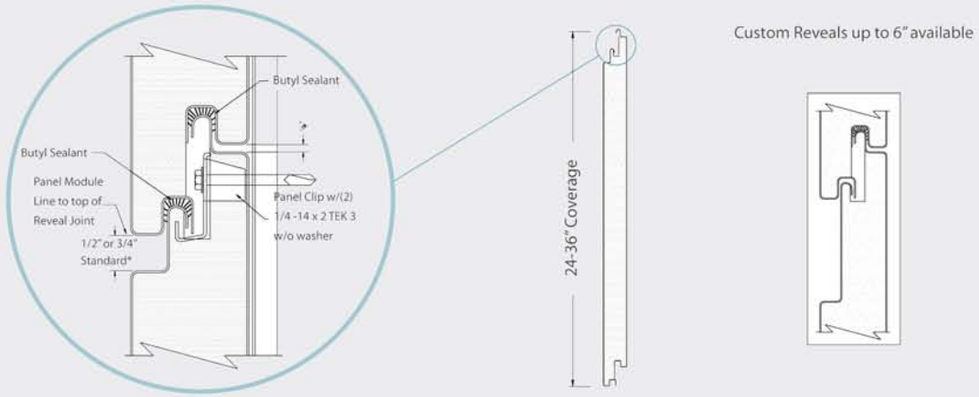
### FASTENERS

Fastener and 14 ga. clip concealed in the side joint.

### VERTICAL WALL JOINT DETAIL




### HORIZONTAL WALL JOINT DETAIL

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# INSULATED PANELS

## STANDARD WALL PANEL TEST DATA

| TEST | PURPOSE | PROCEDURE | RESULT |
|---|---|---|---|
| **Thermal Resistance** | Determines insulating properties of the panels | ASTM C 236 Guarded Hot Box | Good R values for an HCFC Foam System (see published values for panel type and thickness) |
| **Air Leakage** | Measures air leakage through the panel joints | ASTM E 283<br>Chamber Method | The leakage rate for panel will not exceed<br>0.01 CFM/SF at 40 psf pressure differential |
| **Water Penetration** | Measures water leakage through the panel joints | ASTM E 331<br>Chamber Method | No water penetration at pressure differential of 50 psf |
| **Strength** | Determines the load/span properties of the roof and wall panels | ASTM E 72<br>Chamber Method | Panel load/span and deflection tables are available |
| **Ignition Properties** | Determines ignition temperatures of the panel core material | ASTM D 1929 | Self-ignition temperature is 860 degrees F. Flash-ignition temperature is 842 degrees F. |
| **Surface Burning** | Determines the surface burning characteristics of the core and panels | Underwriters Laboratories UL 723<br>(ASTM E 84)<br>Southwest Research Institute ASTM E 84 | **Core Material** (5")<br>Flame Spread 20*, Smoke Developed 400<br>**Finished Panel**<br>2" to 5" Wall Panel<br>Flame Spread 15*, Smoke Developed 250 - 450<br>**Finished Panel**<br>2" to 5" Wall Panel<br>Flame Spread 10*, Smoke Developed 145 |
| **Room Fire Test** | Evaluates the burning of roof and wall panels in a room configuration | Factory Mutual STD. 4880 (1994)<br>(UBC 17-5) | All wall and roof panels are rated Class 1 to 30 ft. high, 5 in. max. thickness |

# INSULATED PANELS

## ROOF PANEL SPECIFICATIONS

### MATERIAL

Exterior: 26 ga. steel (std). 24 and 22 ga. also available.
Interior: 26 ga. steel (std). 24 and 22 ga. also available.

### FINISH OPTIONS

Exterior: Galvalume Plus
Dura-20 (silicone polyester)
Royal K-70 (Kynar 500/Hylar 5000)
Interior: USDA White (standard)
Dura-20 (silicone polyester)

### TEXTURE

The exterior skin is smooth as a standard and available embossed as an option. The interior skin is embossed only.

### DIMENSIONS

Nominal 42" coverage; Thickness (T) – 3", 4", 5" and 6".

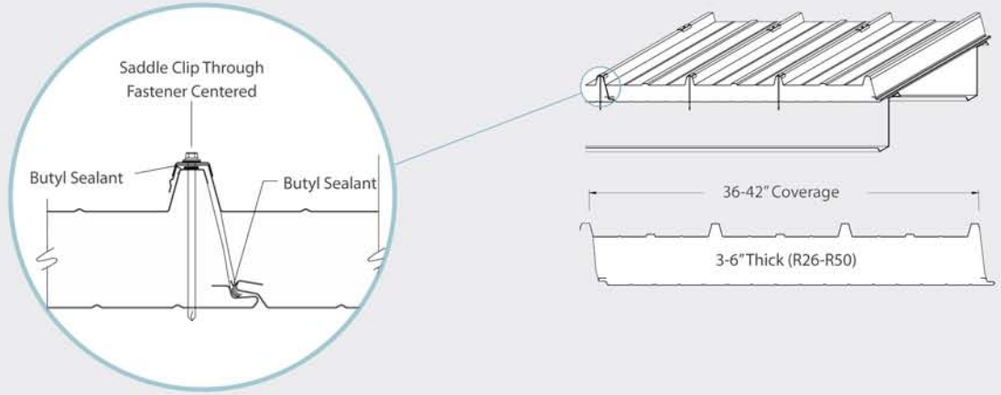
### LENGTH

The maximum recommended length is 35' 0". Contact EcoSteel for panel length options.

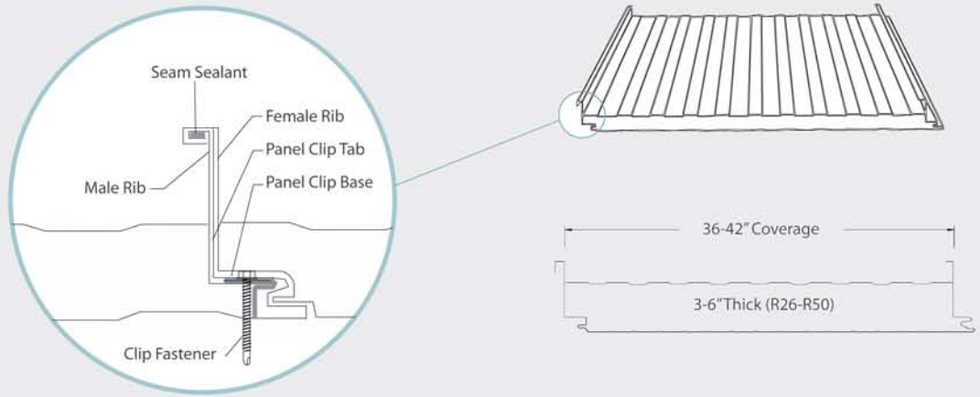
### FASTENERS

Exposed - hex head with neoprene washers for High Rib and concealed, 14 ga. steel clip and 18 ga. steel tab for Standing Seam.

### HIGH RIB ROOF JOINT DETAILS




### STANDING SEAM ROOF JOINT DETAILS

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# INSULATED PANELS

## STANDARD ROOF PANEL TEST DATA

| TEST | PURPOSE | PROCEDURE | RESULT |
|---|---|---|---|
| **Thermal Resistance** | Determines insulating properties of the panels | ASTM C 236 Guarded Hot Box | Good R values for an HCFC Foam System (see published values for panel type and thickness) |
| **Strength** | Determines the load/span properties of the roof and wall panels | ASTM E 72 Chamber Method | Panel load/span and deflection tables are available |
| **Wind Uplift** | Determines uplift resistance of roof panels in high winds | Factory Mutual STD. 4471(1995) | Roof Panels have a class 1-60 rating with a 5' 0" purlin spacing |
| **Ignition Properties** | Determines ignition temperatures of the panel core material | ASTM D 1929 | Self-ignition temperature is 860 degrees F. Flash-ignition temperature is 842 degrees F. |
| **Surface Burning** | Determines the surface burning characteristics of the core and panels | Southwest Research Institute ASTM E 84 | Finished Panels<br>1 1/2" to 5" Roof/Wall Panel Flame Spread 20*, Smoke Developed 170 |
| **Room Fire Test** | Evaluates the burning of roof and wall panels in a room configuration | Factory Mutual STD. 4880 (1994) (UBC 17-5) | All wall and roof panels are rated Class 1 to 30 ft. high, 5 in. max. thickness |
| **Roof Deck Fire Test** | Evaluates the burning of roof deck panels from internal fire | Underwriters Laboratories UL 1256 Southwest Research Institute UBC STD. 17-4 | The Roof Panels satisfactorily meets the acceptance requirements |
| **Roof Covering Fire Test** | Evaluates the burning of roof covering from external fire | Factory Mutual STD. 4471 (1995) (ASTM E 108) | The RWP Roof Panel is rated Class A |

# INSULATED PANELS

## FIRE RATED WALL PANEL SPECIFICATIONS

Fire Rated panels are used in applications requiring one or two hour fire resistive ratings. They can be used for exterior walls or interior partitions. The core material is non-toxic, does not release gases in a fire and has a smoke developed rating of zero. It is also water repellent, free of (H)CFCs and recyclable.

**MATERIAL AND FINISH**

Exterior: Standard is 26 gauge stucco embossed G-90 galvanized steel with standard in-stock Durafin 2000™ finish.

Interior: Standard is 26 gauge stucco embossed G-90 galvanized steel with Imperial White Durafin 2000™ finish.

**TEXTURE**

The exterior skin is available in several finishes depending on the final panel types selected. The interior skin is embossed only.

**DIMENSIONS**

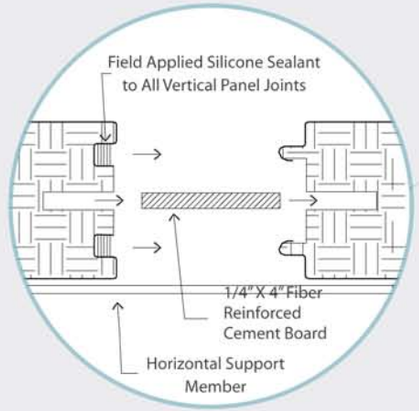
Width of 42"; Thickness (T) – 4", 6" and 8".

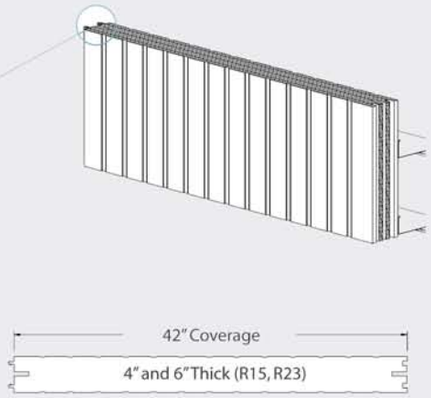
**R-VALUES BY ASTM C236**

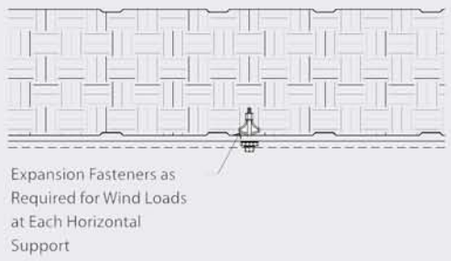
15, 23, 31

**CORE**

Laminated lamella style rockwool core.




The Fire Rated Panels are available in a variety of exterior finish options to achieve your desired architectural look. Please contact us for options.

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