



INNOVATIONS FOR LIVING™

## INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS





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For more information on these and other products, visit [www.owenscorning.com](http://www.owenscorning.com) or call 1-800-GET-PINK.



## ASTM INSULATION STANDARDS INSULATION—PRODUCT DATA

### **ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials\***

Test determines the relative burning behavior of building materials by observing the flame spread along a specimen in the ceiling position. Both flame spread and smoke developed are reported to the nearest 5 rating.

### **ASTM E 90 Standard Method for Laboratory Measurement of Airborne Sound Transmission Loss in Building Partitions**

Test covers lab measures of airborne sound transmission loss in partitions such as walls, floor/ceiling assemblies, doors and other dividing elements.

### **ASTM E 96 Standard Test Method for Water Vapor Transmission of Materials**

Test covers transmission of water vapor through materials. Commonly applied to paper, plastic films, fiberboard, gypsum and other sheet plastics and wood materials.

### **ASTM E 119 Standard Test Method for Fire Tests of Building Construction and Materials\***

Test determines the time duration for which construction material assemblies will contain a fire, retain their structural integrity or exhibit both properties during a standardized exposure to fire.

### **ASTM E 136 Standard Test Method for Behavior of Materials in Vertical Tube Furnace at 750°C\***

Test determines the combustion characteristics of building materials under specific laboratory conditions. Not intended for coated or laminated materials.

### **ASTM C 177 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Guarded Hot Plate**

Test uses a guarded hot plate to measure the steady-state thermal transmission properties of insulating specimens. Test accuracy may be difficult to verify when testing specimens of low-density thermal insulation.

### **ASTM C 423 Standard Test Method for Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method**

Test determines the sound absorption coefficients of samples measured over 1/3 octave bands, reported at preferred octave band center frequencies. Several defined mounting conditions are used for testing samples.

### **ASTM C 518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter**

Test covers the steady-state thermal transmission properties of thermal insulation specimens using a heat flow meter. Test complements and compares specimen data to ASTM C 177.

### **ASTM C 523 Standard Test Method for Light Reflectance of Acoustical Materials by Integrating Sphere Reflectometer**

Test measures the light reflectivity of acoustical materials and is generally used to predict the room lighting requirements. Results are expressed as a percentage of the incident light reflected by the surface.

### **ASTM C 553 Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications**

Specification covers the composition, dimensions and physical properties of mineral fiber blanket intended for use as thermal insulation on surfaces at temperatures from subambient up to 1200°F (649°C).

### **ASTM C 578 Standard Specification for Rigid Cellular Polystyrene Thermal Insulation**

Specification covers the types, dimensions and physical properties of cellular polystyrene intended for use as thermal insulation at temperatures from -65 to +165°F (-54 to +74°C).

### **ASTM C 612 Standard Specification for Mineral Fiber Block and Board Thermal Insulation**

Specification covers the dimensions, composition and physical properties of mineral fiberboard insulation for use on cooled surfaces and on heated surfaces up to 1800°F (982°C).

### **ASTM C 665 Standard Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing**

Specification covers the physical properties and composition of mineral fiber blanket insulation used to acoustically or thermally insulate walls, ceilings and floors in light frame construction and manufactured housing.

### **ASTM C 1136 Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation**

Specification covers vapor retarders for thermal insulation intended for use at temperatures from -20 to +150°F (-29 to +66°C). Specifically, this specification applies to flexible materials with a permeance of 0.10 perm or lower and burning characteristics of no more than 25 flame spread/50 smoke developed or lower.

### **ASTM D 1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics**

Test determines compressive properties of rigid cellular materials such as expanded plastics.

For more information, contact the North American Insulation Manufacturing Association at:

#### **NAIMA**

44 Canal Center Plaza, Suite 310

Alexandria, VA 22314

Phone: (703) 684-0084

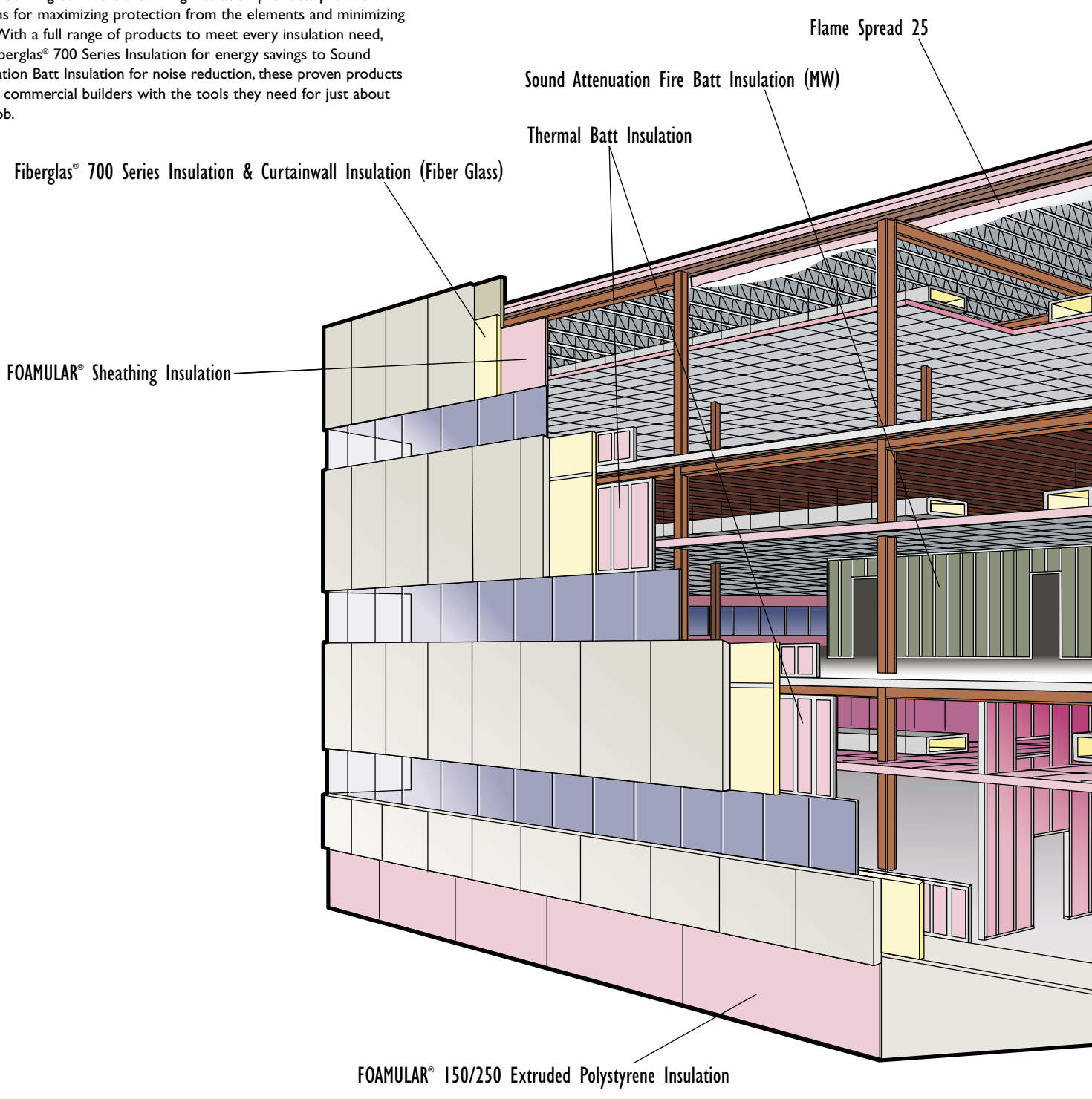
Fax: (703) 684-0427

E-mail: [insulation@naima.org](mailto:insulation@naima.org)

Web site: [www.naima.org](http://www.naima.org)

\* These tests are used to measure and describe the response of materials, products or assemblies to heat and flame under laboratory conditions and should not be used to describe the fire risk of materials, products or assemblies under actual fire conditions. The results of these tests may be used as contributing elements in an assessment of fire risk that considers all factors pertinent to a specific end use application.

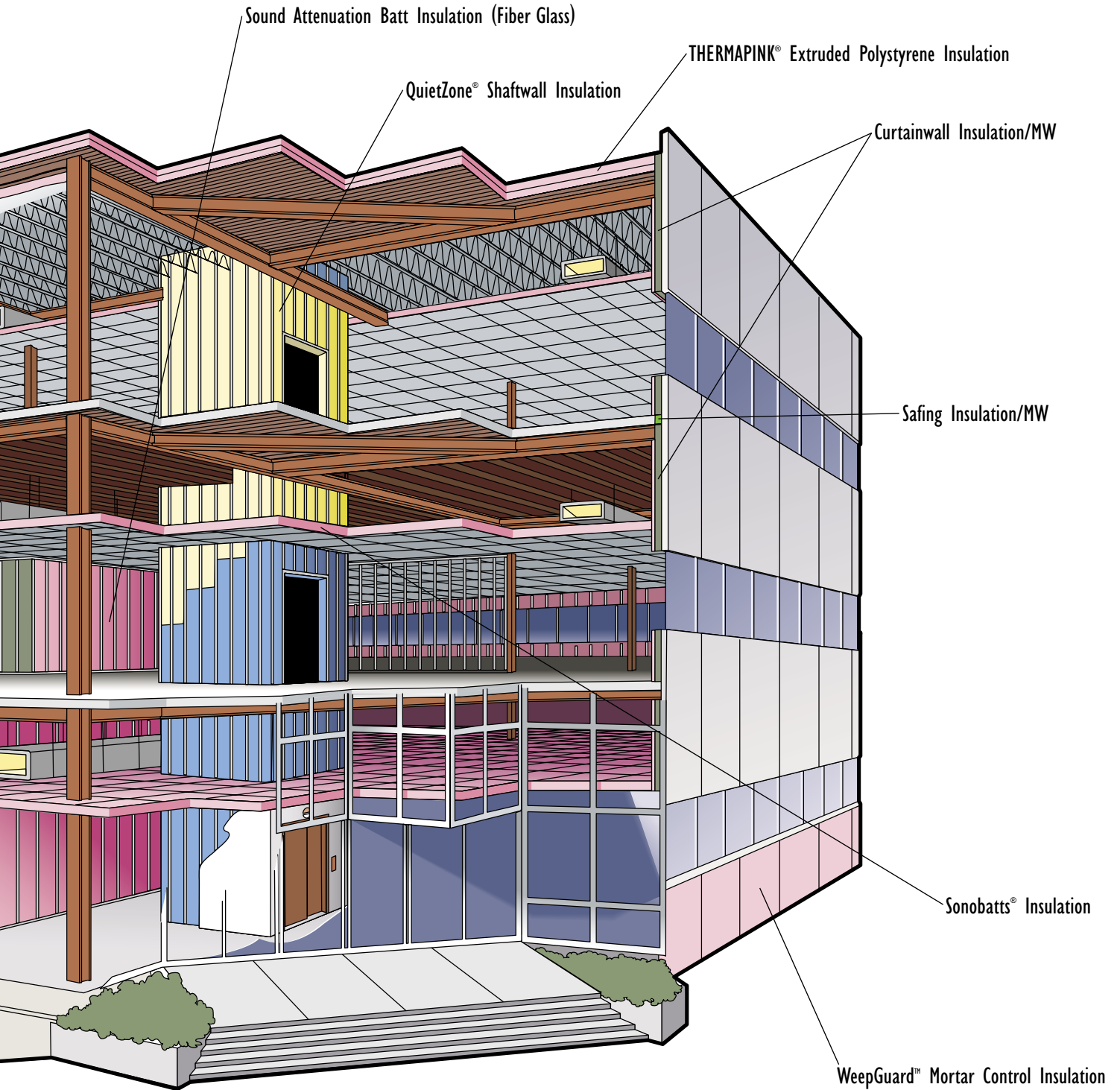
Owens Corning commercial building insulation products provide solutions for maximizing protection from the elements and minimizing noise. With a full range of products to meet every insulation need, from Fiberglas® 700 Series Insulation for energy savings to Sound Attenuation Batt Insulation for noise reduction, these proven products provide commercial builders with the tools they need for just about every job.





INNOVATIONS FOR LIVING™

# PRODUCT OVERVIEW





### DESCRIPTION & USES

- Unfaced
- Kraft-Faced
- Foil-Faced
- For roof/ceiling and interior/exterior wall applications; installed in wood or metal framing cavities or between furring channels.
- Flexible fiber glass insulation 3/2" to 12" thick available unfaced, foil-faced or kraft-faced.

### FEATURES & BENEFITS

- Sized for metal or wood framing; can be stapled or friction-fit. Easy to handle and install. Trim and fabricate with a utility knife.
- Meets thermal specifications.
- Improves interior noise control.
- Inorganic. Non-corrosive to steel, aluminum or copper.
- Dimensionally stable and will not decay or slump in the cavity.
- SpaceSaver packaging reduces freight and streamlines handling.

### DESIGN CONSIDERATIONS

- In commercial roof/ceiling thermal applications, the building envelope must block air movement. Do not rely on the insulation or facing to provide an air barrier.
- Adding insulation inside a structure's perimeter exposes the outside area to temperature extremes.
- Equip curtainwall buildings with sprinkler systems for fire protection as required by building codes.
- Luminaire performance may be affected by closely placed insulation. The National Electric Code requires: Unless fixtures are approved for such use, do not install insulation on top of or within 3" of recessed light fixtures.
- Evaluate the use of vapor retarders based on the project's unique requirements. Maintain facing integrity for vapor retarder performance.
- Kraft facings on this insulation will burn and must not be left exposed. Facings should be installed in substantial contact with approved ceiling, wall or floor material.

### APPLICABLE STANDARDS

- Surface burning characteristics comply with ASTM E 84, a standard used to measure and describe properties of products in response to heat and flame under laboratory conditions. The results are not intended to reflect hazards presented under actual fire conditions. Base material is classified as noncombustible when tested per ASTM E 136.
- See tables for data and other applicable standards.

### THERMAL BATT INSULATION TECHNICAL DATA/ WALL OR CEILING

Width		Length		Thickness	R-value <sup>(1)</sup>		
<b>Metal Frame Construction</b>							
16"	406 mm	24"	609 mm	48" 1219 mm 96" 2438 mm	3/2" 89 mm 11.0		
16"	406 mm	24"	609 mm	48" 1219 mm 96" 2438 mm	3/2" 89 mm 13.0		
16"	406 mm	24"	609 mm	48" 1219 mm 96" 2438 mm	6/4" 159 mm 19.0		
<b>Wood Frame Construction</b>							
15"	381 mm	19.25"	489 mm 23"	584 mm	93" 2362 mm 105" 2667 mm	3/2" 89 mm 11.0	
11"	279 mm 15"	381 mm	19.25"	489 mm 23"	584 mm	93" 2362 mm 105" 2667 mm	3/2" 89 mm 13.0
15"	381 mm	23"	584 mm	48" 1219 mm	93" 2362 mm 105" 2667 mm	3/2" 89 mm 15.0	
11"	279 mm 15"	381 mm	19.25"	489 mm 23"	584 mm	48" 1219 mm 93" 2362 mm 105" 2667 mm	6/4" 159 mm 19.0
15"	381 mm	23"	584 mm	48" 1219 mm	93" 2362 mm	5/2" 139 mm 21.0	
<b>Roof/Ceiling Construction</b>							
11"	279 mm 15"	381 mm	23"	584 mm	48" 1219 mm 93" 2362 mm	6/4" 159 mm 19.0	
16"	406 mm	19.25"	489 mm 24"	609 mm	48" 1219 mm 96" 2438 mm	6/4" 159 mm 19.0	
15"	381 mm	19.25"	489 mm 23"	584 mm	48" 1219 mm	6/4" 171 mm 22.0	
15"	381 mm	23"	584 mm	48" 1219 mm 96" 2438 mm	8" 203 mm	25.0	
16"	406 mm	19.25"	489 mm 24"	609 mm	96" 2438 mm	8" 203 mm 25.0	
15"	381 mm	23"	584 mm	48" 1219 mm	9/2" 241 mm	30.0	
12"	305 mm 16"	406 mm	19.25"	489 mm 24"	609 mm	48" 1219 mm	9/2" 241 mm 30.0
15.5"	394 mm	23.75"	603 mm	48" 1219 mm	8/4" 209 mm	30.0 C <sup>(2)</sup>	
12"	305 mm 16"	406 mm	24"	609 mm	48" 1219 mm	12" 305 mm 38.0	
15.5"	394 mm	23.75"	603 mm	48" 1219 mm	10/4" 260 mm	38.0 C <sup>(2)</sup>	

Unfaced Thermal Batt Insulation complies with the property requirements of ASTM C 665, Type I and ASTM E 136.

Kraft-Faced Thermal Batt Insulation complies with ASTM C 665, Type II and Class C.

Check for availability in your service area.

Foil-Faced Thermal Batt Insulation complies with ASTM C 665, Type III, Class B and C.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

<sup>(2)</sup> C = Cathedral ceilings.

### SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	10	10	All Types	All Types	All Types	All Types
Foil-Faced	75	150	III, IV, V	All Types	All Types	III, IV, V
Kraft-Faced	N/R	N/R	III, IV, V	III, IV, V	III, V, VI	III, IV, V

Thermal Batt Insulation complies with the International Building Code (ICC), Uniform Building Code (UBC), National Building Code (NBC) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

Kraft and standard foil facing on Thermal Batt Insulation will burn and must not be left exposed.

The facing must be installed in substantial contact with an approved interior partition construction material. Protect facing from open flame or other heat source.

Due to the potential for skin irritation, unfaced Thermal Batt Insulation should not be used for exposed applications where it will be subject to human contact.

#### Vapor Retarders

Perms Maximum<sup>(1)</sup>

**Kraft Foil**

1 0.5

#### Water Vapor Sorption

Maximum by Volume

Less than 0.05%

#### Dimensional Stability

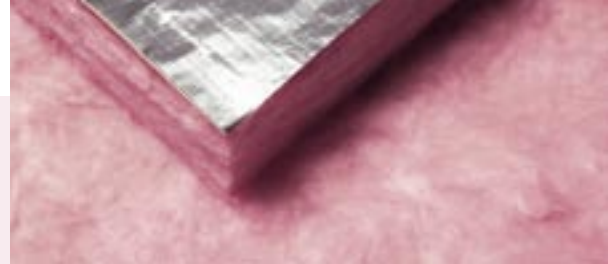
Linear Shrinkage

Less than 0.1%

<sup>(1)</sup> Products are tested in accordance with:  
R-value Surface Burning Characteristics Perm Rating      ASTM C 518  
ASTM E 84  
ASTM E 96



# FLAME SPREAD 25/FLAME SPREAD 25 EXTENDED FLANGES FIBER GLASS INSULATION—PRODUCT DATA



## DESCRIPTION & USES

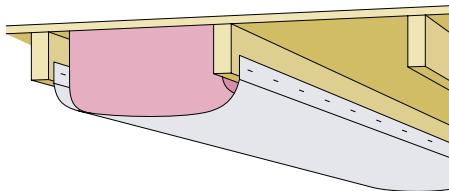
- FSK-Faced (Foil)
- PSK-Faced (White)
- Install between metal or wood framing or attach with impaling pins.
- Light-density, flexible batt insulation with low flame spread FSK or PSK facing, and R-values\* from 11 to 30.
- For walls, ceilings and floors where a low flame spread vapor retarder is required or where insulation will be exposed. Also suited for concealed applications in noncombustible constructions.

## FEATURES & BENEFITS

- Meets thermal specifications.
- Meets building code requirements for exposed applications thereby eliminating the need for a covering or separate finish.
- Improves acoustical performance.
- Easy to install and fabricate with 1 1/4" or 4" flanges for installation in framing applications. Widths accommodate metal and wood framing.

## DESIGN CONSIDERATIONS

- In commercial roof/ceiling thermal applications, the building envelope must block the movement of air into the conditioned space. Do not rely on the insulation or its facing to provide an air barrier.
- Adding insulation inside a structure's perimeter exposes the area outside of the insulation to greater temperature extremes.
- Equip curtainwall buildings with sprinkler systems for fire protection as required by building codes.
- Luminaire performance may be affected by closely placed insulation. The National Electric Code requires: Unless fixtures are approved for such use, do not install insulation on top of or within 3" of recessed light fixtures.
- Evaluate the use of vapor retarders based on the unique requirements of each project.



Flame Spread 25 with 4" Extended Flanges shown in a 2" x 4" exposed ceiling.

## APPLICABLE STANDARDS

- ASTM C 518 tests were used to determine R-values.<sup>1</sup> Listed R-values are for insulation only.
- Complies with ASTM C 665, Type III, Class A when FSK-faced. Complies with the property requirement of ASTM C 665, Type II, Class A when PSK-faced.
- Surface burning characteristics tests performed in accordance with ASTM E 84, a standard used solely to measure and describe properties of products in response to heat and flame under

controlled laboratory conditions. Results are not intended to reflect hazards presented by this material under actual fire conditions. It also complies with the MEA 332-83-M requirements of New York City.

- Facing permeance tests conducted in accordance with ASTM E 96 (desiccant method).

## FLAME SPREAD 25 FIBER GLASS INSULATION TECHNICAL DATA

Width(s)		Length		Thickness		R-value <sup>(1)</sup>
<b>Metal Frame Construction</b>						
16"	406 mm	24"	609 mm	96"	2438 mm	3 1/2" 89 mm 11.0
16"	406 mm	NA		96"	2438 mm	3 1/2" 89 mm 13.0
16"	406 mm	24"	609 mm	96"	2438 mm	6 1/4" 159 mm 19.0
16"	406 mm	24"	609 mm	48"	1219 mm	9 1/2" 241 mm 30.0
<b>Wood Frame Construction</b>						
16"	406 mm	23"	584 mm	96"	2438 mm	6 1/4" 159 mm 19.0

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power. Check for availability in your service area.

## SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
FSK-Faced	25	50	All Types	All Types	All Types	All Types
PSK-Faced	25	50	All Types	All Types	All Types	All Types

Flame Spread 25 *Fiberglas* Insulation complies with the International Building Code (ICC), Uniform Building Code (UBC), National Building Code (NBCC) and Standard Building Code (SBC) model code requirements for building construction types listed above.

Vapor Retarders	FSK	PSK
Perms Maximum	0.02	0.02

Water Vapor Sorption	Less than 0.50%
Maximum by Volume	Less than 0.50%

Dimensional Stability	Less than 0.1%
Linear Shrinkage	Less than 0.1%

Light Reflectance	0.80%
PSK-Faced	0.80%

<sup>\*</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# SOUND ATTENUATION BATT INSULATION

## FIBER GLASS INSULATION—PRODUCT DATA



### DESCRIPTION & USES

- **SAB Unfaced**
- Designed to deliver noise control in standard metal-framed interior partitions, SABs are slightly wider than stud spaces and a full 8' long to accommodate easy, friction-fit installation.
- Lightweight, flexible fiber glass insulation batts, Owens Corning Sound Attenuation Batts/ SABs are manufactured in thicknesses of 2½" and 3½".

### FEATURES & BENEFITS

- Sound Attenuation Batts can improve Sound Transmission Class (STC) ratings by 4 to 10 dBs, depending on the construction method used. See next page for STC performance data.
- Classified as noncombustible by model building codes. When installed in wall systems and tested per ASTM E 119, assembly fire resistance ratings up to 2 hours can be achieved. Sound Attenuation Batt Surface Burning Characteristics meet the code requirements for all building types as described by the Standard Building Code (SBCCI), the National Building Code (BOCA), the Uniform Building Code (ICBO) and the International Building Code (ICC).
- Adhesives and fasteners are not required.
- Easily cut to fit around wires, pipes, electrical service boxes and other obstructions, SABs are simply pressed into the space between metal studs for a friction-fit.
- Adds thermal value in applications where a temperature differential exists.

### DESIGN CONSIDERATIONS

Several important design and construction details can significantly improve acoustical performance of interior drywall partitions.

**Door specifications:** For optimum noise control, solid wood core or metal doors should be specified. A soft weather-stripping should be used to gasket door tops and sides. Air seals or threshold closures at the bottom of the door will reduce sound transmission. Stagger doors on hallways so that doors do not open across from one another.

**Ducts:** Pay special attention to duct design when planning the layout because outdoor sounds are easily transmitted into the building interior through them. Vertical ducts and ventilation shafts often rattle in windy areas or pop due to thermal expansion and contraction. Owens Corning offers a variety of products—including duct wraps and liners—to effectively reduce duct noise.

**Equipment:** Ideally, HVAC equipment should be positioned away from areas where acoustical performance is important. A well-insulated room with a solid core door can help to isolate the noise of furnaces, air conditioners and other equipment.

**Plumbing:** Eliminate unwanted sounds in pipe runs by designing in swing arms so expansion and contraction can occur without binding. Isolate piping from surrounding structures with resilient mounts. Avoid back-to-back fixture installation. For optimum acoustical integrity, plumbing openings made in walls should be caulked.

**Electrical:** Electrical service boxes, switches and outlets can increase sound transmission if placed back-to-back. Position them on well-insulated interior walls, not on party or corridor walls.

**Seal the perimeter:** Use a nonhardening caulk such as a butyl rubber-based compound to seal walls at both top and bottom plates. Two layers of properly staggered wallboard, with joint compound and tape, will effectively seal corners where required.

**Special:** Unfaced Thermal Batt Insulation should not be used for applications where it could be subject to human contact because of the potential for skin irritation.

### SOUND ATTENUATION BATT INSULATION TECHNICAL DATA

Width(s)		Length		Thickness		R-value <sup>(1)</sup>
16"	406 mm	24"	609 mm	96"	2438 mm	3½" 89 mm 11
16"	406 mm	24"	609 mm	96"	2438 mm	2½" 64 mm 8

Sound Attenuation Batt Insulation complies with the property requirements of ASTM C 665, Type 1 and ASTM E 136.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power. R-value ASTM C 518

### SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	10	10	All Types	All Types	All Types	All Types

Sound Attenuation Batt Insulation complies with the International Building Code (ICC), Uniform Building Code (ICBO), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

#### Water Vapor Sorption

Maximum by Volume Less than 0.05%

#### Dimensional Stability

Linear Shrinkage Less than 0.1%

Products are tested in accordance with: Surface Burning Characteristics ASTM E 84.





# SOUND ATTENUATION BATT INSULATION

## FIBER GLASS INSULATION—PRODUCT DATA

### INSTALLATION

- Friction-fit Sound Attenuation Batts in place until the interior finish is applied.
- When insulation is being applied in continuous heights greater than 8' or when batts do not fill the cavity depth, supplementary support should be provided to hold the insulation in place.
- Carefully fit insulation around penetrations such as junction boxes and outlets.
- Keep product dry during storage, shipping and installation.

### APPLICABLE STANDARDS

- Sound Attenuation Batts comply with ASTM C 665, Type I and ASTM E 136. ASTM C 665 replaces canceled Federal Specification HH-I-521F and the MEA 332-83-M requirements of New York City.
- Sound Attenuation Batt Insulation surface burning characteristics were derived from products tested in accordance with ASTM E 84, a standard used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. The resulting numerical values — reported to the nearest 5 rating — are not intended to reflect hazards presented by this or any other material under actual fire conditions.

### STEEL STUD

STC	Test No.	Construction Description	Fire Test	Fire Rating
<b>Double Layer Wall System</b>				
56	W02184	1/2" Type "X" gypsum; 3/8" SS, 3/2" thick Sound Attenuation Batt Insulation	WP 1521 <sup>(1)</sup>	2 Hr.
54	W03084	1/2" Type "X" gypsum; 2/2" SS, 2/2" thick Sound Attenuation Batt Insulation	WP 1546	2 Hr.
<b>Unbalanced Wall System (2 layer/1 layer of gypsum)</b>				
54	W02484	Unbalanced 5/8" Type "X" gypsum; 3/8" SS, 3/2" thick, Sound Attenuation Batt Insulation	WP 1052 <sup>(1)</sup>	1 Hr.
52	W02884	Unbalanced 5/8" Type "X" gypsum; 2/2" SS, 2/2" thick, Sound Attenuation Batt Insulation	UL U494	1 Hr. <sup>(2)</sup>
<b>Unbalanced with Resilient Channel Wall System</b>				
58	RAL-TL90-345	5/8" Type "X" gypsum single layer and resilient channel, one side; double layer other side; 3/8" SS, 3/2" thick, Sound Attenuation Batt Insulation	UL U465	1 Hr. <sup>(2)</sup>
<b>Single Layer Wall System</b>				
50	RAL-TL89-157	Single layer 5/8" Type "X" gypsum; 3/8" SS, 3/2" thick, Sound Attenuation Batt Insulation	UL U465	1 Hr.
47	W05182	Single layer 5/8" Type "X" gypsum; 2/2" SS, 2/2" thick, Sound Attenuation Batt Insulation	UL U494	1 Hr.
<b>Single Layer with Resilient Channel Wall System</b>				
54	RAL-TL90-344	Single layer, resilient channel, one side only; 5/8" Type "X" gypsum; 3/8" SS, 3/2" thick, Sound Attenuation Batt Insulation	UL U465	1 Hr. <sup>(2)</sup>

### WOOD STUD

STC	Test No.	Construction Description	Fire Test	Fire Rating
<b>Double Layer Stud Wall System</b>				
64	W-14-80	Double WS 16" o.c.; double layer 1/2" Type "X" gypsum, both sides; 3/2" thick, Wood Framing Batt Insulation, one side only	UL U306	1 Hr. <sup>(2)</sup>
62	W-40-69	Double WS 16" o.c.; double layer 5/8" Type "X" gypsum; one thickness, 3/2" thick, Wood Framing Batt Insulation, one side only	WP 3820 <sup>(1)</sup>	2 Hr.
59	W-28-69	Double WS 16" o.c.; single layer 1/2" Type "X" gypsum; two thicknesses, 3/2" thick, Wood Framing Batt Insulation, both sides	OSU 4970	1 Hr. <sup>(2)</sup>
56	OCF448	Double WS 16" o.c.; single layer 5/8" Type "X" gypsum; 3/2" thick, Wood Framing Batt Insulation, one side only	UL U305	1 Hr. <sup>(2)</sup>
<b>Staggered Wood Stud Wall System</b>				
55	W-48-69	Staggered WS 24" o.c.; double layer 5/8" Type "X" gypsum; 3/2" thick, Wood Framing Batt Insulation	UL U340	1 Hr.
51	OCSFC	Staggered WS 16" o.c.; single layer 1/2" Type "X" gypsum; 3/2" thick, Wood Framing Batt Insulation, both sides	OSU 4970	1 Hr.
46	W-57-69	Staggered WS 16" o.c.; single layer 5/8" Type "X" gypsum; 3/2" thick, Wood Framing Batt Insulation	UL U340	1 Hr. <sup>(2)</sup>
<b>Single Wood Stud with Resilient Channel Wall System</b>				
50	TL 77-138	Single WS; resilient channel; on one side 5/8" Type "X" gypsum, each side; 3/2" thick, Wood Framing Batt Insulation	WP 3230 <sup>(1)</sup>	1 Hr.
<b>Single Wood Stud Wall System</b>				
45	W-25-69	Single WS; 16" o.c.; double layer; 1/2" Type "X" gypsum; both sides; 3/2" thick, Wood Framing Batt Insulation	UL U305	1 Hr. <sup>(2)</sup>
36	OCF423	Single WS; 16" o.c.; double layer; 5/8" Type "X" gypsum; 3/2" thick, Wood Framing Batt Insulation	UL U305	1 Hr.

<sup>(1)</sup>Listed in the Gypsum Association "Fire Resistance Design Manual."

<sup>(2)</sup>Rating is estimated from tests using thinner assemblies or fewer layers of gypsum drywall.  
Key: SS=Steel Stud      WS=Wood Stud



# SONOBATTS® INSULATION

## FIBER GLASS INSULATION—PRODUCT DATA



### DESCRIPTION & USES

- **Unfaced**
- **Kraft-Faced**
- Designed and sized for application over standard suspended ceiling tiles, they control noise and improve the thermal performance of ceiling systems.
- *Sonobatts* flexible fiber glass insulation is available in R-values ranging from 11 to 38 and either unfaced or kraft-faced in thicknesses from 3½" to 12".

### FEATURES & BENEFITS

- Ideal for renovation and remodeling projects; install in suspended ceiling systems by simply laying the product on top of the ceiling panels.
- Because of the excellent thermal resistance of *Sonobatts* insulation, it may be possible to reduce the size and/or operating cost of HVAC equipment.
- Significantly improves ceiling STC ratings by 4 to 10 points. *Sonobatts* insulation has been tested for air erosion (according to UL 181) and can be used in a return air plenum at air velocities up to 1000 fpm for acoustical benefit.

### DESIGN CONSIDERATIONS

- For *Sonobatts* insulation to improve energy efficiency when installed on suspended ceiling systems, the building envelope must block the movement of air from the outdoor environment to the conditioned space. Do not rely on the insulation or its facing to provide an air barrier.
- Minimizing the number of penetrations in the ceiling will help to maximize thermal performance. Large (4' x 4') ceiling panels and surface-mounted lighting can be used to reduce penetrations and improve thermal performance.
- Using the area above the insulation as a return air plenum would render the insulation thermally ineffective, as the air above the ceiling would be at the same temperature as the room below. In return plenum applications, thermal insulation would best be added at the side walls and roof.
- For acoustical control in floor-to-ceiling partition systems, insulation placed at the top of a suspended ceiling will reduce the transfer of sound over the partition. If thermal performance is not a factor, the area above the insulation may serve as a return air plenum.
- Adding insulation to the inside perimeter of a structure exposes the area outside of the insulation to greater temperature extremes.

- Refer to the ceiling system manufacturer's recommendations for maximum backloading and for information on fire-resistance rated floor or roof-ceiling assemblies.
- Kraft facings on this insulation will burn and must not be left exposed. Facings should be installed in substantial contact with an approved ceiling construction material.

### INSTALLATION

- Easily installed by simply laying them on top of the ceiling panel and suspension system. Fit *Sonobatts* together tightly to reduce heat loss.
- Keep product dry during storage, shipping and installation.

### APPLICABLE STANDARDS

- Tests conducted according to ASTM C 518 were used to determine thermal resistance values. The listed R-values\* are for insulation only.
- *Sonobatts* insulation complies with ASTM C 665, Type I and ASTM E 136 (unfaced) and with ASTM C 665, Type II, Class C (kraft-faced).
- The surface burning characteristics for *Sonobatts* insulation were derived from products tested in accordance with ASTM E 84, a standard used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. The resulting numerical values—reported to the nearest 5 rating—are not intended to reflect hazards presented by this or any other material under actual fire conditions.
- Tests conducted in accordance with ASTM E 96 (desiccant method) were used to produce the vapor retarder permeance of the kraft facings on *Sonobatts* insulation.

### SONOBATTS® INSULATION TECHNICAL DATA

Width		Length		Thickness		R-value <sup>(1)</sup>
24"	609 mm	48"	1219 mm	12"	305 mm	38.0
24"	609 mm	48"	1219 mm	9½"	241 mm	30.0
24"	609 mm	48"	1219 mm	6¼"	159 mm	19.0
24"	609 mm	48"	1219 mm	3½"	89 mm	11.0

**NOTE:** Unfaced *Sonobatts* insulation complies with the property requirements of ASTM C 665, Type I and ASTM E 136. Kraft-faced *Sonobatts* Insulation complies with the property requirements of ASTM C 665, Type II, Class C.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

### SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	10	10	All Types	All Types	All Types	All Types
Kraft-Faced	N/R	N/R	III, IV, V	III, IV, V	III, IV, V	III, IV, V

*Sonobatts* insulation complies with the International Building Code (ICC), Uniform Building code (ICBO), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

Kraft facing on *Sonobatts* insulation will burn and must not be left exposed. The facing must be installed in substantial contact with an approved ceiling construction material. Protect facing from open flame or heat source.

Vapor Retarders	Kraft
Perms Maximum <sup>(1)</sup>	1
Water Vapor Sorption	
Maximum by Volume	Less than 0.05%
Dimensional Stability	
Linear Shrinkage	Less than 0.1%
Air Erosion	
Air Velocities per UL 181 up to 1000 fpm	Less than 0.1%

<sup>(1)</sup> Products are tested in accordance with:  
 R-value ASTM C 518  
 Surface Burning Characteristics ASTM E 84  
 Perm Rating ASTM E 96

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# CURTAINWALL INSULATION FIBER GLASS INSULATION—PRODUCT DATA

INNOVATIONS FOR LIVING™



## DESCRIPTION, USES & DESIGN CONSIDERATIONS

- Unfaced
- Faced (FSK)
- Provides thermal performance in curtainwall spandrel systems when placed between or over framing members and held in place with mechanical fasteners.
- Semirigid, board-like fiber glass insulation is available unfaced or FSK (foil-reinforced kraft) faced in thicknesses from 1" to 4". (Evaluate the use of vapor retarders based on the project requirements.)
- Equip curtainwall buildings with sprinkler systems for fire protection as required by building codes.

## FEATURES & BENEFITS

- The standard size is 24" x 48"; nonstandard lengths and widths are available.
- Accommodates most thermal specifications.
- Will not decay or slump within the wall cavity, and its fibers will not shrink or warp.

## INSTALLATION

- Impaling pins, if used, should be 3" to 8" from the edges. Follow pin manufacturer's recommendations.
- Cut with a utility knife and fit into irregularly shaped areas. Install on impaling pins, friction-fit between furring strips, or install with appropriate adhesive. Seal joints and repair facing tears and punctures with a pressure-sensitive foil tape.
- Keep product dry.
- Use adhesives appropriate for lightweight board insulation. Follow manufacturer's recommendations.

## APPLICABLE STANDARDS

- ASTM C 518 tests determined R-values.\* Listed R-values are for insulation only.
- Surface burning characteristics were determined with ASTM E 84, a standard used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. The results are not intended to reflect hazards presented under actual fire conditions.
- Complies with ASTM C 612, Type IA/IB. ASTM C 612 replaces Federal Specification HH-I-558B.
- NRC data produced through ASTM C 423 testing.
- Facing permeance determined through ASTM E 96 (desiccant method) and the MEA 87-84 requirements of New York City.

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

## CURTAINWALL INSULATION/CW 225 TECHNICAL DATA

Width	Length	Thickness	R-value <sup>(1)</sup>
<b>Density 2.25 pcf – K-value .23</b>			
24" 609 mm	48" 1219 mm	4" 102 mm	17.4
24" 609 mm	48" 1219 mm	3½" 89 mm	15.2
24" 609 mm	48" 1219 mm	3" 76 mm	13.0
24" 609 mm	48" 1219 mm	2½" 64 mm	10.9
24" 609 mm	48" 1219 mm	2" 51 mm	8.7
24" 609 mm	48" 1219 mm	1½" 38 mm	6.5
24" 609 mm	48" 1219 mm	1" 25 mm	4.3

**NOTE:** CW 225 FSK-faced is not available in 1" thicknesses. Contact your Owens Corning sales representative for complete details on size availability and minimum order quantities.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

## SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	20	20	All Types	All Types	All Types	All Types
FSK	25	50	All Types	All Types	All Types	All Types

Curtainwall Insulation/CW 225 complies with the International Building Code (ICC), Uniform Building Code (UBC), National Building Code (NBC) and Standard Building Code (SBC) model code requirements for building construction types listed above.

### Vapor Retarders

Perms Maximum <sup>(1)</sup>	FSK
	0.10

### Water Vapor Sorption

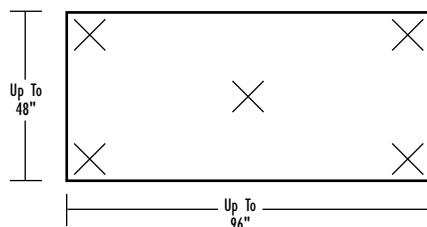
Maximum by Volume	Less than 0.05%
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### Dimensional Stability

Linear Shrinkage	Less than 0.1%
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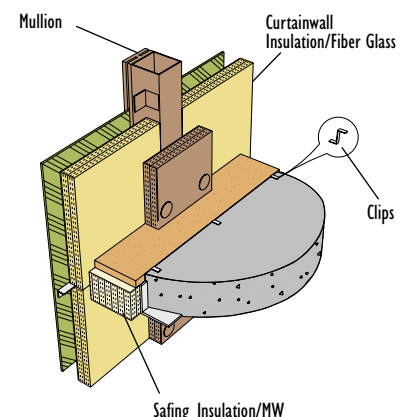
<sup>(1)</sup> Products are tested in accordance with:

R-value	ASTM C 518
Surface Burning Characteristics	ASTM E 84
Perm Rating	ASTM E 96



Recommended impaling pin pattern. Pins should be located 3" to 8" from the edge(s) of the board.

## PERIMETER FIRE CONTAINMENT JOINT\*\*



\*\* See approved System Listing Directories for full system details.



## DESCRIPTION & USES

- Unfaced
- FSK-faced (Foil-Scrim Kraft)
- ASJ (All Service)
- PSK (Poly-Scrim Kraft)
- Flexible, semi-rigid and rigid rectangular boards formed from inorganic glass fibers with a thermosetting resin binder.
- 701, 702, 711 — Unfaced, lightweight, resilient insulation in a sheet form, used on vessels with irregular surfaces where an exterior finish will be supported mechanically.
- 703, 704 — Semi-rigid boards for use on equipment, vessels and air conditioning ductwork. Available unfaced, with factory-applied FSK, ASJ or PSK vapor retarding facings.
- 705 — High-strength, rigid board for use on equipment where high abuse resistance and good appearance are required. Available unfaced or with factory-applied FSK, ASJ or PSK vapor retarding facings.
- 707 — For acoustical wall panels and specialized ceiling applications.

## FEATURES & BENEFITS

- Helps save energy and reduce heat transfer.
- Available in various densities to meet specific performance, appearance and economic requirements.
- Resists damage and maintains structural integrity.
- Excellent acoustic properties.

## AVAILABILITY

- Fiberglas 700 Series Insulations are available in standard 24" x 48" (610 mm x 1219 mm) boards with thicknesses from 1" (25 mm) to 4" (102 mm) in 1/2" (13 mm) increments. Contact your Owens Corning Sales Representative for additional sizes or if specific labeling is required for air handling.

## SPECIFICATION COMPLIANCE

- ASTM C 553, Mineral Fiber Blanket Thermal Insulation, Types I,II,III — Type 701, 711
- ASTM C 612, Mineral Fiber Block & Board Thermal Insulation, Types IA, IB — Types 702, 703, 704, 705, 707
- ASTM C 795, Thermal Insulation For Use Over Austenitic Stainless Steel<sup>(1)</sup>
- ASTM C 1136, Flexible Low Permeance Vapor Retarders for Thermal Insulation, Type I: ASJ; Type II: FSK
- Nuclear Regulatory Commission Guide 1.36, Non-Metallic Thermal Insulation<sup>(1)</sup>
- New York City MEA No. 227-83 — Types 703 & 705, plain and FSK-faced
- CAN/CGSB-51.10 — Type I, Class I — Types 703, 704<sup>(2)</sup>
- NFPA 90A and 90B
- California Insulation Quality Standards CA-T052

<sup>(1)</sup> Preproduction qualification testing complete and on file. Chemical analysis of each production lot required for total conformance.

<sup>(2)</sup> Standard obsolete, replaced by ASTM C 612.

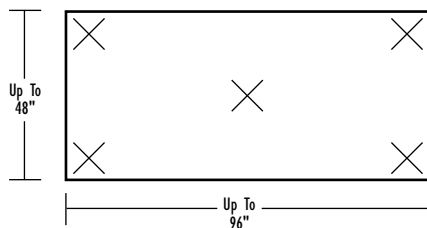
## PHYSICAL PROPERTY DATA

Property	Test Method	Value		
Equipment operating temperature limitation	ASTM C 411	Up to 450°F (232°C) <sup>(1)</sup>		
Insulation jacket temperature limitation	ASTM C 1136	-20°F to 150°F (-29°C to 66°C)		
Jacket permeance	ASTM E 96, Proc. A	0.02 perm		
Jacket puncture resistance	TAPPI T803	FRK: 25 units; ASJ: 50 units		
Compressive strength (minimum) at 10% deformation	ASTM C 165	Type 703	Type 704	Type 705
		25 lb/ft <sup>2</sup> (1197 Pa)	60 lb/ft <sup>2</sup> (2873 Pa)	200 lb/ft <sup>2</sup> (9576 Pa)
at 25% deformation		90 lb/ft <sup>2</sup> (4309 Pa)	225 lb/ft <sup>2</sup> (10.8 kPa)	
Water vapor sorption	ASTM C 1104	<2% by weight at 120°F (49°C), 95% R.H.		
Nominal density	ASTM C 167	Type 701:	1.5 pcf (24 kg/m <sup>3</sup> )	
		711:	1.65 pcf (26 kg/m <sup>3</sup> )	
		702:	2.3 pcf (37 kg/m <sup>3</sup> )	
	ASTM C 303	703:	3.0 pcf (48 kg/m <sup>3</sup> )	
		704:	4.2 pcf (67 kg/m <sup>3</sup> )	
		705:	6.0 pcf (96 kg/m <sup>3</sup> )	
		707:	7.0 pcf (112 kg/m <sup>3</sup> )	
Composite surface burning characteristics	UL 723 <sup>(2)</sup> , ASTM E 84 <sup>(2)</sup> or CAN/ULC-S102 <sup>(2)</sup>	Flame spread	25 <sup>(2)</sup>	
		Smoke developed	50	

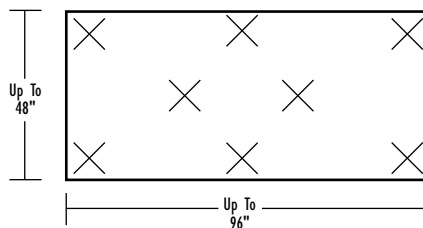
<sup>(1)</sup> Maximum thickness at 450°F (232°C): Type 701, 702: 6" (152 mm); Type 703, 704, 705: 4" (102 mm).

<sup>(2)</sup> The surface burning characteristics of these products have been determined in accordance with ASTM E 84, UL 723 or CAN/ULC-S102. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

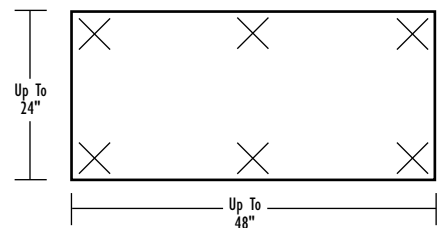
Walls: 703 and 705 Series



Ceilings: 703 and 705 Series



Ceilings: 703 and 705 Series



Recommended impaling pin pattern. Pins should be located 3" to 8" from the edge(s) of the board.



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# FIBERGLAS® 700 SERIES INSULATION

## FIBER GLASS INSULATION—PRODUCT DATA

### THERMAL PERFORMANCE, ASTM C 680 (TYPE 703)

Thickness, in (mm)	Operating Temperature, °F (°C)									
	200 (93)		250 (121)		300 (149)		350 (177)		400 (204)	
	HL	ST	HL	ST	HL	ST	HL	ST	HL	ST
1.0 (25)	27	98	42	106	57	114	75	123	95	133
1.5 (38)	19	93	29	99	40	105	52	112	66	119
2.0 (51)	15	90	22	95	31	100	40	105	50	111
2.5 (64)	12	88	18	92	25	96	32	101	41	106
3.0 (76)	10	87	15	91	21	94	27	98	34	102
3.5 (89)	9	86	13	89	18	92	23	96	30	99
4.0 (102)	8	86	11	88	16	91	21	94	26	97

The above table provides approximate heat loss values (HL), Btu/hr·ft², and Surface Temperatures (ST), °F, for flat surfaces. Values are based on horizontal heat flow, vertical flat surface, 80°F ambient temperature, still air, ASJ jacket. To convert heat loss values to W/m², multiply values by 3.15. To convert surface temperatures, use the formula: °C = (°F-32)/1.8.

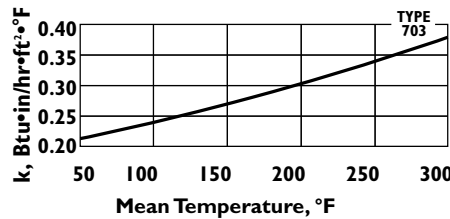
### SOUND ABSORPTION COEFFICIENTS, ASTM C 423

#### MOUNTING: TYPE A – MATERIAL PLACED AGAINST A SOLID BACKING

Product Type	Thickness, in (mm)	Octave Band Center Frequencies, Hz						
		125	250	500	1000	2000	4000	NRC
701, plain	1 (25)	.17	.33	.64	.83	.90	.92	.70
	2 (51)	.22	.67	.98	1.02	.98	1.00	.90
703, plain	1 (25)	.11	.28	.68	.90	.93	.96	.70
	2 (51)	.17	.86	1.14	1.07	1.02	.98	1.00
705, plain	1 (25)	.02	.27	.63	.85	.93	.95	.65
	2 (51)	.16	.71	1.02	1.01	.99	.99	.95
703, FSK	1 (25)	.18	.75	.58	.72	.62	.35	.65
	2 (51)	.63	.56	.95	.79	.60	.35	.75
705, FSK	1 (25)	.27	.66	.33	.66	.51	.41	.55
	2 (51)	.60	.50	.63	.82	.45	.34	.60
703, ASJ	1 (25)	.17	.71	.59	.68	.54	.30	.65
	2 (51)	.47	.62	1.01	.81	.51	.32	.75
705, ASJ	1 (25)	.20	.64	.33	.56	.54	.33	.50
	2 (51)	.58	.49	.73	.76	.55	.35	.65

**NOTE:** Values given in table above are for design approximations only; production and test variabilities will alter results. Specific designs should be evaluated in end-use configurations.

### THERMAL CONDUCTIVITY



Apparent thermal conductivity curve determined in accordance with ASTM Practice C 1045 with data obtained by ASTM Test Method C 177. Values are nominal, subject to normal testing and manufacturing tolerances.

Mean Temp. °F	k, Btu·in/hr·ft²·°F							Mean Temp. °C	λ, W/m·°C						
	701	702	703	704	705	707	711		701	702	703	704	705	707	711
50	0.22	0.21	0.21	0.22	0.22	0.27	0.22	10	0.032	0.030	0.030	0.032	0.032	0.039	0.032
75	0.24	0.23	0.23	0.23	0.23	0.28	0.24	25	0.035	0.032	0.033	0.034	0.034	0.041	0.035
100	0.26	0.24	0.24	0.25	0.25	0.29	0.25	50	0.040	0.036	0.036	0.038	0.037	0.043	0.039
150	0.30	0.27	0.27	0.28	0.27	0.31	0.29	75	0.045	0.041	0.040	0.042	0.041	0.046	0.044
200	0.35	0.31	0.30	0.31	0.30	0.33	0.33	100	0.052	0.046	0.045	0.046	0.045	0.048	0.048
250	0.40	0.36	0.34	0.35	0.33	0.35	0.37	125	0.059	0.053	0.050	0.051	0.049	0.051	0.058
300	0.46	0.41	0.38	0.39	0.37	0.37	0.43	150	0.067	0.060	0.055	0.056	0.053	0.053	0.062

### APPLICATION RECOMMENDATIONS

- Types 701 and 702 are lightweight, unfaced, flexible insulations in batt form for use on vessels having irregular surfaces, where compressive strength is not a performance criterion.
- Types 703, 704 and 705 are board insulations usually impaled over welded pins on flat surfaces. Unfaced boards are normally finished with reinforced insulation cement or weather-proof mastic.
- ASJ-, FSK- or PSK-faced insulation boards shall be applied using mechanical fasteners such as weld pins or speed clips. Fasteners shall be located not less than 3" (75 mm) from each edge or corner of the board. Pin spacing along the equipment shall be no greater than 12" (300 mm) on center. Additional pins or clips may be required to hold the insulation tightly against the surface where cross breaking is used for stiffening. Weld pin lengths must be selected to ensure tight fit but avoid "oil canning."
- In multiple layer applications, use faced material on outer layer only. Where a vapor retarder is required, cover pins and clips with vapor sealing, pressure-sensitive patches matching insulation facing. Rub hard with a plastic sealing tool to ensure a tight bond and a vapor seal.
- All insulation joints should be sealed with pressure-sensitive joint sealing tape to match the insulation facing. Rub hard with a plastic sealing tool to effect a tight bond. Recommended practice suggests a 3" (76 mm) wide tape on flat surfaces or where edges are shiplapped and stapled. Use 5" (102 mm) wide tape in lieu of shiplapping. If insulation is being applied to sheet metal ductwork, all sheet metal joints must be sealed prior to insulating. Glass fabric and mastic may be used in lieu of pressure sensitive tape.
- May be installed in either single or multiple layers up to a maximum of 6" (152 mm) at temperatures not over 450°F (232°C).



# QUIETZONE® SHAFTWALL INSULATION



## DESCRIPTION & USES

When looking for an acoustical insulation that makes the most of acoustic performance and provides thermal resistance, *QuietZone* Shaftwall Insulation is the ideal solution. Shaftwall Insulation is acoustical insulation designed specifically for use in the cavity of a metal stud and gypsum board shaftwall partition system. It eliminates penetrations in walls and adjoining spaces to maximize acoustical performance. Lightweight and easy to handle, this insulation won't slump or sag within the wall due to vibration. In addition to its superior acoustic insulation, Shaftwall also provides thermal resistance with an R-value\* of 5.8.

## FEATURES & BENEFITS

Designed for use as an acoustical insulation in the cavity of a metal stud and gypsum board shaftwall partition system, Shaftwall Insulation reduces the amount of airborne sound transmitted through the shaftwall to the adjoining space. Depending on the construction method used, Shaftwall Insulation can reduce the amount of airborne sound transmitted through a shaftwall by as much as 5 to 7 dBs.

Shaftwall Insulation is sag-resistant and will not slump within the wall cavity during building vibration. Shaftwall Insulation is also dimensionally stable.

*QuietZone* Shaftwall Insulation is lightweight and easy to handle. It is pre-cut in 4' or 8' lengths for easy one-step installation. Batts are conveniently sized 1/8" wider than standard stud spaces and can be pressed into place for friction-fit. No adhesives or fasteners are required, Shaftwall Insulation can be easily cut to fit around wires and obstructions such as outlets and junction boxes.

**Fire Safety:** Shaftwall Insulation is a component in ASTM E 119 1-hour fire rated partitions. The surface burning characteristics of Shaftwall Insulation meet or exceed the code requirements for all building types as described by the International Building Code (ICC), Uniform Building Code (ICBO), National Building Code (BOCA) and Standard Building Code (SBCCI).

## DESIGN CONSIDERATIONS

Maximum acoustical performance is obtained by eliminating penetrations in walls between adjoining spaces. When electrical and plumbing connections are installed in walls of adjoining spaces, precautions should be taken to stagger electrical outlet boxes and to caulk around conduit and other through-the-wall penetrations. The entire perimeter of the wall should also be caulked. Due to the potential for skin irritation, Shaftwall Insulation should not be used for exposed applications where it will be subject to human contact.

## INSTALLATION

Shaftwall Insulation may be friction-fit between metal studs until the interior finish is applied. In applications where Shaftwall Insulation does not fill the cavity depth or where insulation will be applied in continuous heights over eight (8) feet, supplementary support should be provided to hold the product in place. Walls with penetrations

require that insulation be carefully fit around outlets, junction boxes and other irregularities. Product should be kept dry during shipping, storage and installation.

## APPLICABLE STANDARDS

Shaftwall Insulation complies with ASTM C 665, Type I. The thermal resistance values for Shaftwall Insulation were tested in accordance with ASTM C 518: R-value\* for insulation only.

The surface burning characteristics of Shaftwall Insulation were derived from product tests per ASTM E 84 and UL 723. This standard is used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. These numerical ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions. Values are reported to the nearest five rating.

### SHAFTWALL SYSTEM

STC	Test No.	Construction Description	Fire Test
47	NCC-2616 <sup>(1)</sup>	Unbalanced wall. 1" shaftliner one side. 2 layers 1/2" Type "X" gypsum drywall other side: 2 1/2" I-studs, 1 1/2" Shaftwall Insulation	2 Hr. UL U497
45	NCC-2617 <sup>(1)</sup>	Unbalanced wall, 1" shaftliner and 1 layer 1/2" Type "X" gypsum drywall one side. 1 layer 1/2" Type "X" gypsum drywall other side: 2 1/2" I-studs, 1 1/2" Shaftwall Insulation	2 Hr. UL U498
42	NCC-2542 <sup>(1)</sup>	Single layer wall, 1" shaftliner one side, 1/2" Type "X" gypsum drywall other side: 2 1/2" I-studs, 1 1/2" Shaftwall Insulation	1 Hr. UL U499

<sup>(1)</sup> Reprinted with the permission of National Gypsum Company.

### SHAFTWALL INSULATION TECHNICAL DATA

	Width	Length	Thickness	R-Value <sup>(1)</sup>
K-value .26	24" (610mm)	96" (2438mm)	1 1/2" (38mm)	5.8
K-value .26	24" (610mm)	48" (1219mm)	1 1/2" (38mm)	5.8

### SURFACE BURNING CHARACTERISTICS/BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Surface Burning Characteristics	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI
Unfaced	20	20	All Types	All Types	All Types

Shaftwall Insulation complies with the International Building Code (ICC), Uniform Building Code (ICBO), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

#### Water Vapor Sorption

Maximum by Volume Less than 0.05%

#### Perm Rating of Faced Product

Linear Shrinkage Less than 0.1%

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# PINKWRAP® BUILDING WRAP



## DESCRIPTION & USES

- Typically installed over wood or insulation sheathing, and under siding or other exterior covering, PINKWRAP building wrap surrounds your building with a protective barrier to help seal out energy-robbing leaks and drafts (air infiltration).
- Working hand-in-hand with insulation, which traps air in tiny pockets to slow the transfer of heat, PINKWRAP building wrap functions like a windbreaker layered over a thick sweater to keep your building comfortable and energy efficient throughout the year.

## FEATURES & BENEFITS

- Keeps heated/cooled air from escaping.
- Stands up to windy conditions.
- High tensile strength.
- Helps protect building until exterior finishing materials can be applied.

## DESIGN CONSIDERATIONS

- Specially designed to resist tearing around nail and staple holes.
- Translucent—makes it easier to see where to nail and staple.
- Unrolls and cuts easily to cover application area.
- Lightweight and easy to handle for fast, efficient installation.

## INSTALLATION

- Attach underneath or over sheathing board or insulation. PINKWRAP building wrap is translucent to help you see your alignments.
- To begin wrapping, start at the base of the wall, 2' to 3' from a corner. Fold 3" to 5" of PINKWRAP building wrap under itself and fasten to a stud or framing member; printed side out. Wrap entire building, including door and window openings.
- Staples (galvanized 16 gauge) or nails (3/8" diameter) may be used for attachment to structural materials such as framing members or plywood.
- When covering non-structural sheathing (such as foam plastic insulation boards) nail through



sheathing and into studs using large head fasteners or nails with plastic heads. Fasteners should penetrate a minimum of 1/2" into studs.

- Once PINKWRAP building wrap is in place, fasteners should be placed every 6 inches at the perimeter of the wall and around door and window openings, and should be spaced every 12" to 16" along vertical framing members.
- At the end of a roll, fold the edge under and fasten to the nearest stud or framing member. To minimize air infiltration, overlap PINKWRAP building wrap at least 8" on all horizontal and vertical seams, with the upper layer overlapping the lower layer. For upper stories, a 12" overlap over the story below is necessary.

## APPLICABLE STANDARDS

- Surface burning characteristics were determined with ASTM E 84, a standard used solely to measure and describe properties of products in response to heat and flame under controlled laboratory conditions. The results are not intended to reflect hazards presented under actual fire conditions.

## PHYSICAL PROPERTY DATA

Property	Test Method	Nominal Value
Thickness (inches)	ASTM D 1777	0.008
Weight (lbs./MSF)	ASTM D 3776	15
Tensile Strength (lbs./in.) MD <sup>(1)</sup>	ASTM D 882	51
Tensile Strength (lbs./in.) XD <sup>(2)</sup>	ASTM D 882	38
Trapezoid Tear Strength (lbs.) MD <sup>(3)</sup>	ASTM D 1117	37
Trapezoid Tear Strength (lbs.) XD <sup>(3)</sup>	ASTM D 1117	49
Puncture Resistance (in lbs.)	ASTM D 781	344
Burst Strength (psi)	ASTM D 751	155
Water Resistance time at 60cm height	ASTM D 779	(10 min. minimum)
Water Vapor Transmission Rate (g/m <sup>2</sup> /24 hrs) Desiccant Method @ 75 F, 50% RH	ASTM E 96	94
Water Vapor Permeance (perms) Desiccant Method @ 75 F, 50% RH	ASTM E 96	14
Air Leakage Rate—(cfm/ft <sup>2</sup> ) Tested @ 0.3 in H <sub>2</sub> O	ASTM E 283	0.03
Fire Characteristics Flame Spread <sup>(4)</sup>	ASTM E 84	5
Fire Characteristics Smoke <sup>(4)</sup>	ASTM E 84	20

<sup>(1)</sup> Machine Direction.

<sup>(2)</sup> Cross Machine Direction.

<sup>(3)</sup> For this test method the direction of tear is in the perpendicular direction to the orientation of the specimens.

<sup>(4)</sup> Flame spread and smoke are not intended to reflect the hazards presented by this material under fire conditions.

PINKWRAP building wrap provides a weather-resistant barrier for the exterior building sheathing during construction. While PINKWRAP building wrap can be left exposed for up to 300 days, Owens Corning recommends that PINKWRAP building wrap be covered as soon as practical to ensure its optimal performance as an air and moisture barrier.

Building Code Compliance: See BOCA Research Report No. 99-50; See ICBO Evaluation Report No. 4649; See SBCCI Compliance Report No. 9769B; See ICC Evaluation Report NER 689. HUD/FHA UU-B-790A, Equivalent to Grade "D" paper.

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NO WARRANTY, EXPRESSED OR IMPLIED, IS GIVEN AS TO THE MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, OR OTHERWISE WITH RESPECT TO THE PRODUCTS REFERRED TO.



## DESCRIPTION & USES

- Unfaced
- FSP
- Install between the spandrel panel and floor slab in curtainwall systems for fire resistance.
- Basalt-derived fibers bonded and formed into flexible 4"-thick unfaced or FSP-faced batts.

## FEATURES & BENEFITS

- Provides up to 3-hour endurance rating for listed assemblies when installed in approved systems.
- Classified as noncombustible by model building codes.
- R-values\* of 4.0 per inch.
- Easy fabrication and installation; cuts with a utility knife. Compress between curtainwall insulation and the floor slab.

## DESIGN CONSIDERATIONS

- Generally specified to meet code requirements.
- Fire suppression systems should be used as required by building codes, along with good construction practices.
- Evaluate use of vapor retarders based on the project's unique requirements.

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

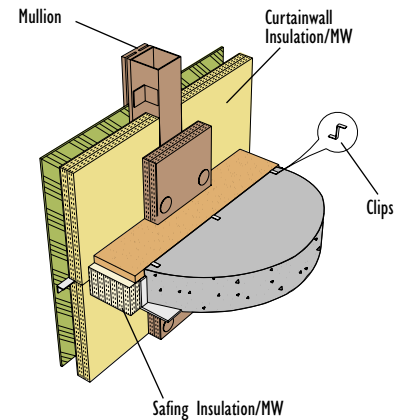
## INSTALLATION

- Fit edges and ends together and fill voids with additional insulation.
- Impaled on galvanized safing clips, 24" o.c., and compression fit without voids into the opening between the floor slab and the curtainwall insulation and around open assembly penetrations in fire-rated floor slabs and partitions.
- Wear safety glasses with wide shields or goggles particularly when installing it overhead. Protect skin with a loose fitting long-sleeved shirt and long pants. Use gloves with wristbands to cover shirt cuffs. Wear a hat or cap to keep dust out of hair and away from scalp.
- Maintain vapor retarder integrity for moisture and humidity control. Tape all joints, punctures or tears in the facing. Follow tape manufacturer's instructions and recommendations.
- Use an approved dust respirator when handling.
- Do not expose to weather during storage, shipping or installation.

## APPLICABLE STANDARDS

- Surface burning characteristics were determined with ASTM E 84, a standard used solely to describe and measure properties or products in response to heat and flame under laboratory conditions. The results are not intended to reflect hazards presented under actual fire conditions.
- Unfaced Safing Insulation complies with ASTM C 612. Specification HH-I-558 has been canceled and is replaced by ASTM C 612.
- Base material is classified as noncombustible when tested per ASTM E 136 or CAN4 S-114. Also meets the MEA 346-90-M requirements of New York City.

### PERIMETER FIRE CONTAINMENT JOINT\*\*



\*\* See approved System Listing Directories for full system details.

### SAFING INSULATION/MW TECHNICAL DATA

Density (pcf)	Width	Length	Thickness	
			Unfaced	Faced
4.0	24" 609 mm	48" 1219 mm	1-6"	3-4"

### SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATION

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	5	0	All Types	All Types	All Types	All Types
Foil-Scrim Polyethylene (FSP)	25	50	All Types	All Types	All Types	All Types

Safing Insulation/MW complies with International Building Code (ICC), Uniform Building Code (UBC), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

#### Water Vapor Sorption

Maximum by Volume Less than 1%

#### Perm Rating of Faced Product

Perms Maximum<sup>(1)</sup> 0.02

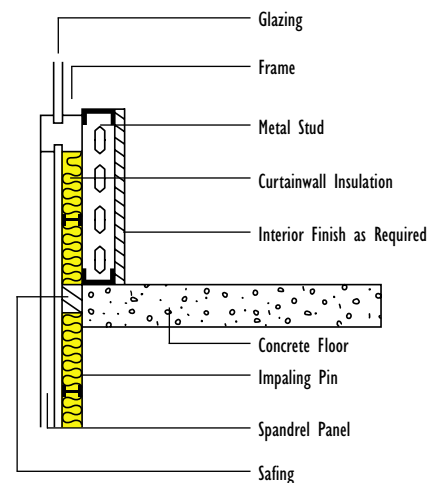
#### Thermal Performance

R-value per in. 4.0

<sup>(1)</sup> Products are tested in accordance with:

R-value	ASTM C 518
Surface Burning Characteristics	ASTM E 84
Perm Rating	ASTM E 96

Custom sizes available. Thicknesses 1" to 6" in 1/2" increments.







# SAFING INSULATION/MW MINERAL WOOL—PRODUCT DATA

Available only in FL, GA, TN, AL, NC, SC, MS and LA

## UNDERWRITERS LABORATORIES (UL) PERIMETER FIRE CONTAINMENT SYSTEMS<sup>(1)</sup>

System Number	Curtainwall Insulation	Joint Packing Material	Joint Sealant	Wall Panel Type	Framing Mullion	Joint Ratings <sup>(2)</sup>			
						Insul (hr)	Integ (hr)	L	% <sup>(3)</sup>
CW-D-2022	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and glass spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	NR	Class II @ 5%, 8"
CW-D-2023	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and alum spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	NR	Class II @ 5%, 8"
CW-D-2024	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and granite spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	NR	Class II @ 5%, 8"
CW-S-1006	3" min., Owens Corning CW-8, unfaced or faced	4 pcf, 4½" Owens Corning Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and cement board or gypsum board under alum, stl brick or stucco. Sill height: 33" min.	Stl Stud	¼	2	<I CFM/lf	NR 2½"
CW-S-2044	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and glass spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	<I CFM/lf	NR 8"
CW-S-2045	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and alum spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	<I CFM/lf	NR 8"
CW-S-2046	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and granite spandrel. Spandrel/Sill min. height: 60"/24" 69"/34"	Rec Alum	0 ¼	1½ 2	<I CFM/lf	NR 8"
CW-S-2048	2" min., Owens Corning CW-8, faced	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and concrete spandrel. Vertical separation between Windows: 72" min. Sill height: 34" min.	None	¼	2	<I CFM/lf	NR 8"
CW-S-2050	2" min., Owens Corning CW-8, faced (hung on clips only)	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and glass spandrel. Spandrel min. height: 66" Sill min. height: 33"	Rec Alum	¼	3	<I CFM/lf	NR 8"
CW-S-2051	2" min., Owens Corning CW-8, faced (hung on clips only)	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and alum spandrel. Spandrel min. height: 66" Sill min. height: 33"	Rec Alum	¼	3	<I CFM/lf	NR 8"
CW-S-2052	2" min., Owens Corning CW-8, faced (hung on clips only)	4 pcf Safing Insul/MW	STI, SpecSeal AS200 spray	Vision glass and granite spandrel. Spandrel min. height: 66" Sill min. height: 33"	Rec Alum	¼	3	<I CFM/lf	NR 8"

<sup>(1)</sup> This table is only an index to listed systems. See the complete UL system listings online at [www.ul.com](http://www.ul.com) for complete specifications and details concerning the systems summarized.

<sup>(2)</sup> Two hourly fire ratings are defined for each perimeter fire containment system—the Integrity Rating and the Insulation Rating.

The **Integrity Rating** is a measure of the perimeter fire containment system's ability to withstand the fire exposure test without permitting the passage of flame through openings or the occurrence of flaming on any element of the unexposed surface of the fill material or floor or on the interior surface of the curtainwall above the fill material.

The **Insulation Rating** is a measure of the perimeter fire containment system's resistance to both flame passage and heat transfer and requires the maximum temperature rise on the unexposed surface of the fill material or on the interior surface of the curtainwall 1" above the fill material not to exceed 325°F above the starting temperature. For perimeter fire containment systems having a clearance distance of 6" or greater between the curtainwall and the floor, the Insulation Rating also requires the average temperature rise on the unexposed surface of the fill material not to exceed 250°F above the starting temperature.

The **Leakage Rating**, optional, is a measure of the amount of air leakage, in cubic feet per minute per linear foot, through the perimeter fire containment system at ambient and/or 400°F air temperature at an air pressure differential of 0.30" of water. The Leakage Rating is intended to assist Authorities Having Jurisdiction, and others, in determining the suitability of perimeter fire containment systems for restricting the movement of smoke in accordance with NFPA 101, "Life Safety Code."

<sup>(3)</sup> ANSI/UL 2079 requires joint systems with movement capabilities to be cycled through the intended range of movement prior to the fire test. The movement cycling is intended to demonstrate the compatibility between the individual components of the joint system and the fire resistive assembly. Joint systems are required to be cycled through the intended movement range 500 or 100 complete movement cycles at a minimum rate of 1, 10 or 30 cycles per minute prior to the fire test.



### DESCRIPTION & USES

- **Unfaced**
- Designed to deliver noise control in metal stud wall cavities of interior partition walls or above suspended ceilings.
- Made of inorganic fibers derived from basalt (a volcanic rock) with fibers bonded and formed into flexible batts, Sound Attenuation Fire Batt Insulation has an R-value\* of 3.8 per inch and is available in thicknesses from 1" to 4" and comes in standard metal frame widths.

### FEATURES & BENEFITS

- Batt's are sized to friction-fit between metal studs in interior partitions and lay over suspended ceilings supported by the ceiling suspension system.
- With a melting point in excess of 2000°F (1093°C), Sound Attenuation Fire Batt Insulation (MW) is classified as noncombustible by model building codes. It may provide up to 2-hour rating when installed in tested wall systems and tested per ASTM E 119. Flame spread and smoke developed ratings are low.

- Sound Attenuation Fire Batt Insulation (MW) can improve the Sound Transmission Class (STC) ratings of ceilings and interior partition walls.

### DESIGN CONSIDERATIONS

Several important design and construction details can significantly improve acoustical performance of interior drywall partitions.

**Door specifications:** For optimum noise control, solid wood core or metal doors should be specified. A soft weatherstripping should be used to gasket door tops and sides. Air seals or threshold closures at the bottom of the door will reduce sound transmission. Stagger doors on hallways so that doors do not open across from one another.

**Ducts:** Pay special attention to duct design when planning the layout because outdoor sounds are easily transmitted into the building interior through them. Vertical ducts and ventilation shafts often rattle in windy areas or pop due to thermal expansion and contraction. Owens Corning offers a variety of products to effectively reduce duct noise including duct wraps and liners.

**Equipment:** Ideally, HVAC equipment should be positioned away from areas where acoustical performance is important. A well-insulated room with a solid core door can help to isolate the noise of furnaces, air conditioners and other equipment.

**Plumbing:** Eliminate unwanted sounds in pipe runs by designing in swing arms so expansion and contraction can occur without binding. Isolate piping from surrounding structures with resilient mounts. Avoid back-to-back fixture installation. For optimum acoustical integrity, plumbing openings made in walls should be caulked.

**Electrical:** Electrical service boxes, switches and outlets can increase sound transmission if placed back-to-back. Position them on well-insulated interior walls, not on party or corridor walls.

**Seal the perimeter:** Use a nonhardening caulk such as a butyl rubber-based compound to seal walls at both top and bottom plates. Two layers of properly staggered, joined, taped and sealed wallboard, where required, will effectively seal corners.

### APPLICABLE STANDARDS

- Sound Attenuation Fire Batt Insulation (MW) is UL classified for surface burning characteristics and considered noncombustible per ASTM E 136 and CAN4 S-114. It complies with ASTM C 665, Type I and the MEA 346-90 requirements of New York City.
- ASTM E 84 provided information on the surface burning characteristics of Sound Attenuation Fire Batt Insulations (MW). ASTM E 84 is a standard used to measure and describe the properties of materials in response to heat and flame under controlled laboratory conditions and should not be used to describe or approve the fire hazard of materials under actual fire conditions. The results of these tests, however, may be used as elements of a fire risk assessment that takes into account all of the factors pertaining to an assessment of the fire hazard of a particular end use. The data from this standard is reported to the nearest 5 rating.

### SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATION

Product Type	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	5	0	All Types	All Types	All Types	All Types

Sound Attenuation Fire Batts Insulation/MW complies with the International Building Code (ICC), Uniform Building Code (UBC), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# SOUND ATTENUATION FIRE BATT INSULATION/MW MINERAL WOOL—PRODUCT DATA

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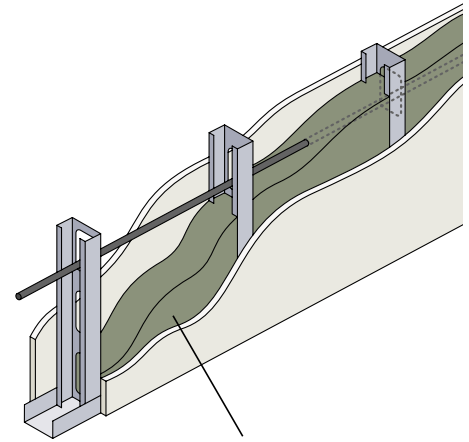
Available only in FL, GA, TN, AL, NC, SC, MS and LA

## SOUND ATTENUATION FIRE BATT INSULATION/MW TECHNICAL DATA

Width(s)		Length		Thickness			
<b>Metal Frame Construction</b>							
16"	400 mm	24"	600 mm	48"	1200 mm	4"	102 mm
16"	400 mm	24"	600 mm	48"	1200 mm	3½"	89 mm
16"	400 mm	24"	600 mm	48"	1200 mm	3"	76 mm
16"	400 mm	24"	600 mm	48"	1200 mm	2½"	64 mm
16"	400 mm	24"	600 mm	48"	1200 mm	2"	51 mm
16"	400 mm	24"	600 mm	48"	1200 mm	1½"	38 mm
16"	400 mm	24"	600 mm	48"	1200 mm	1"	25 mm
<b>Water Vapor Sorption</b>							
Maximum by Volume						Less than 1%	
<b>Thermal Performance</b>							
R-value <sup>(1)</sup> per in.						3.8	
Nominal Density (pcf)						2.5	
Products are tested in accordance with:						R-value	ASTM C 518
						Surface Burning Characteristics	ASTM E 84

**NOTE:** This product cannot be faced.

<sup>(1)</sup> R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



Mineral wool in cavity wall

## INTERIOR PARTITIONS STC RATINGS FOR MINERAL WOOL—OWENS CORNING

STCOC Test No.	Gypsum Drywall Thickness (Type "X")	Steel Stud Depth	Sound Attenuation Batt/MW Thickness
<b>Single Layer Wall System</b>			
43	RAL-TL91-188	½"	2½"
46	RAL-TL91-172	½"	2"
48	RAL-TL91-183	⅝"	2"
48	RAL-TL91-173	½"	3⅝"
49	RAL-TL91-180	⅝"	3⅝"
50	RAL-TL90-264	⅝"	2½"
51	RAL-TL91-177	½"	3"
51	RAL-TL91-182	⅝"	3"
53	RAL-TL92-246	½"	3⅝"
<b>Unbalanced Wall System<sup>(1)</sup></b>			
50	RAL-TL93-124	½"	1½"
51	RAL-TL93-126	½"	2"
52	RAL-TL93-127	½"	1½"
53	RAL-TL91-175	⅝"	2"
53	RAL-TL91-184	⅝"	2"
53	RAL-TL91-174	½"	3⅝"
53	RAL-TL91-178	½"	3"
54	RAL-TL91-185	⅝"	2"
54	RAL-TL92-189	⅝"	3"
<b>Double Layer Wall System</b>			
56	RAL-TL91-176	½"	2"
56	RAL-TL91-179	½"	3⅝"
57	RAL-TL91-181	½"	3"
58	RAL-TL91-187	⅝"	2"
58	RAL-TL91-186	⅝"	2"
60	RAL-TL93-129	⅝"	3"
<b>2x4 Wood Studs<sup>(1)</sup></b>			
39	RAL-TL93-131	½"	1½"

<sup>(1)</sup> One layer gypsum/double gypsum layer opposite side.

### DESCRIPTION & USES

- Unfaced
- FSP
- Designed to provide superior fire resistance and thermal properties in glass, metal and masonry curtainwall spandrel systems, Curtainwall Insulation/MW boards can be held in place between or over framing members with mechanical fasteners.
- Made of inorganic basalt-derived fibers that are bonded and formed into semirigid and rigid boards, Curtainwall Insulation Mineral Wool (MW) is available plain or faced with an FSP vapor retarder with R-values\* ranging from 4 to 25.

### FEATURES & BENEFITS

- Available in a standard size of 24" x 48", it can also be furnished precut in certain nonstandard lengths and widths to simplify installation by eliminating the need for jobsite fabrication.
- With a melting point in excess of 2000°F (1093°C), Curtainwall Insulation/MW is classified as noncombustible by the model building codes. When tested per ASTM E 119, Curtainwall Insulation/MW provides up to a 2-hour endurance rating when installed in approved wall systems.
- Curtainwall Insulation/MW is available in a range of R-values\* and thicknesses to accommodate most thermal specifications.
- Using common hand tools, it is easy to cut, fabricate and install Curtainwall Insulation/MW.

### DESIGN CONSIDERATIONS

- The building designer should evaluate the need for and placement of a vapor retarder based on the unique requirements of each project.
- To provide adequate fire protection for a building, as required by building codes, a fire suppression system should be used as required by building codes, along with good construction practices.

### INSTALLATION

- Follow the pin and curtainwall manufacturers' instructions for surface preparation and clearance when using impaling pins. Select pin lengths to ensure a snug fit. If pins might be subject to contact, protect pin tips.
- Fit edges and ends closely together and fill any voids with additional insulation.

- Curtainwall Insulation/MW is easy to cut with a utility knife, so installation is quick and it's easy to achieve a close fit at the edges, around obstructions and structural members.
- Attach Curtainwall Insulation/MW to the curtainwall panels or framing members with mechanical fasteners such as welded pins and clips or with another mechanically secured impaling pin system.
- Safety glasses with wide shields or goggles should be worn when handling or installing Curtainwall Insulation/MW. This is particularly important when installing it overhead. To provide skin protection, a loose fitting long-sleeved shirt and long pants are recommended. Use glove wristbands to cover shirt cuffs. A hat or cap can be worn to keep dust particles out of hair and away from scalp.
- An approved dust respirator such as 3M's 8710 and 9900 (high humidity environments) should be used when handling Curtainwall Insulation/MW. OSHA requires a "fit test" and the respirator manufacturer's instructions for this test should be followed.
- For effective moisture and humidity control, it's important to maintain vapor retarder integrity. Use pressure sensitive joint sealing tape to cover all joints, punctures or tears in the facing, including punctures caused by pins or clips. Follow tape manufacturer's instructions and recommendations.
- Do not expose the product to weather during storage, shipping or installation.

### APPLICABLE STANDARDS

- R-values\* listed are for insulation only. These characteristics were tested in accordance with ASTM C 518.
- Complies with ASTM C 612, Type I-IVA. This standard replaces the canceled Federal Specification HH-1-558B. Curtainwall Insulation/MW also complies with City of New York MEA 346-90.
- Tests conducted in accordance with ASTM E 84 were used to determine surface burning characteristics. This standard is used solely to describe and measure properties of products in response to heat and flame under controlled laboratory conditions. The resulting numerical ratings (reported to the nearest 5 rating) are not intended to reflect hazards presented by this or any other material under actual fire conditions.
- Base material is classified as noncombustible when tested per ASTM E 136 and CAN4 S-114.

### ASTM SPECIFICATIONS FOR MINERAL FIBER BOARDS AND BLANKETS

#### Summary

The ASTM C 16 Committee on Thermal Insulation has recently approved revisions to the **ASTM Standard Specifications** for mineral fiber boards and blankets used in commercial and industrial applications. The new standards represent a significant change in the way these products are specified, and will encourage the selection of these insulation products based on the thermal and mechanical properties required for the application. Density has been removed as a basis for specifying and ordering. The performance of Owens Corning Commercial Board and Batt Products, however, **will not change**. They will continue to meet the requirements of the new standards. The impact on the ordering process will be minimal.

#### Background

The two standards affected are:

- ASTM C 612 "Standard Specification for Mineral Fiber Block and Board Thermal Insulations."
- ASTM C 553 "Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications."

These standard specifications cover mineral fiber products "composed of rock, slag, or glass processed from a molten state into fibrous form...". These particular standards have been a source of confusion in the industry, particularly for the rock and slag products. Historically, rock and slag products have been **specified by density based on a shot content of 40%**. This practice was reflected in ASTM standards as follows:

"When a specified density is part of the purchase contract, the specified density... shall be based on a product containing 40% by weight non-fibrous material (shot)... The density of the delivered product will vary from that specified in direct proportion to the non-fibrous content of the delivered product."

Shot content does not contribute to the thermal or mechanical properties of the insulation. As the technology of fiber production has advanced, the amount of shot contained in mineral fiber products has been reduced. Several manufacturers now routinely produce product with less than 20% shot. This has allowed reductions in bulk density while still providing the thermal and compressive performance desired.

There is no doubt that the "delivered density" concept was confusing. The ASTM C 16 Committee recognized this and acted to update the ASTM C 553 and C 612 standards to remove density as a basis for specifying these products.

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# CURTAINWALL INSULATION/MW MINERAL WOOL—PRODUCT DATA

INNOVATIONS FOR LIVING™

Available only in FL, GA, TN, AL, NC, SC, MS and LA

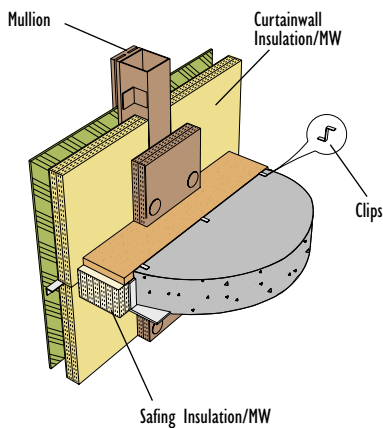
## Rationale

It is generally recognized that the best way to specify insulation products is to base the specification on key performance characteristics. For some insulation products, density (which is easily measured) can serve as a proxy for other performance attributes that are more difficult to measure (such as thermal conductivity or compressive strength). For mineral fiber products, shot content complicates the density measurement since it adds weight without contributing to the desired product characteristics. The delivered density concept was an attempt to recognize this and allow bulk density adjustments based on variable shot content. The procedure, however, has proven confusing to both producers and users and ASTM has elected to remove density from the standards. These products are now to be specified based on the thermal and compressive-strength requirements of the applications.

## Impact

- The performance of Owens Corning Mineral Wool Curtainwall Insulation products will not change. They will continue to meet the requirements of the revised ASTM Specifications.
- Purchasers who order Owens Corning products by name will continue to receive these same products. If in the past you ordered a nominal 8 lb. curtainwall product, you should now order Owens Corning CW8.

## PERIMETER FIRE CONTAINMENT JOINT\*



\* See approved System Listing Directories for full system details.

## CURTAINWALL INSULATION/MW TECHNICAL DATA

Product	Density (pcf)	Width		Length		Thickness <sup>(1)</sup>	
						Unfaced	Faced
CW4	3.0	24"	609 mm	48"	1219 mm	1-6	Available >3"
CW6	4.5	24"	609 mm	48"	1219 mm	1.5-6	2-6
CW8	6.0	24"	609 mm	48"	1219 mm	1-6	1.5-6

<sup>(1)</sup> Thickness range available in 1/2" increments. Custom lengths, widths and thicknesses are also available.

## SURFACE BURNING CHARACTERISTICS/ BUILDING CODE CONSTRUCTION CLASSIFICATIONS

Product Types	Flame Spread	Smoke Developed	ICBO	BOCA	SBCCI	ICC
Unfaced	5	0	All Types	All Types	All Types	All Types
Foil-Scrim Polyethylene (FSP)	25	50	All Types	All Types	All Types	All Types

Curtainwall Insulation/MW complies with International Building Code (IBC), Uniform Building Code (UBC), National Building Code (BOCA) and Standard Building Code (SBCCI) model code requirements for building construction types listed above.

### Vapor Retarders

Perms Maximum<sup>(1)</sup>

FSP

0.02

### Water Vapor Sorption

Maximum by Volume

Less than 1%

### Thermal Performance

CW4

4.0

CW6

4.1

CW8

4.2

<sup>(1)</sup> Products are tested in accordance with:

R-value  
Surface Burning Characteristics  
Perm Rating

ASTM C 518  
ASTM E 84  
ASTM E 96





INNOVATIONS FOR LIVING™

## FOAMULAR® EXTRUDED POLYSTYRENE RIGID FOAM INSULATION



### DESCRIPTION & USES

- FOAMULAR® 150/250 Insulation
- FOAMULAR® 400/600/1000 Insulation
- FOAMULAR® CW15/CW25 Cavity Wall Insulation
- High-R CW Plus Insulation
- INSULPINK®-Z Insulation
- PINKCORE® Insulation
- FOAMULAR® ProPink® Sheathing Insulation
- FOAMULAR® Insulating Sheathing
- INSUL-DRAIN® Insulating Drainage Board
- AGTEK® Insulation
- WeepGuard™ Mortar Control Insulation
- FANFOLD Damproofing Waterproofing Board (DWB)

### WHAT MAKES FOAMULAR® EXTRUDED POLYSTYRENE SUSTAINABLE?

Sustainability has many definitions in the design community, but in simple terms it's all about how the construction, use and maintenance of buildings impacts the use of resources over the long-term life of the building.

FOAMULAR extruded polystyrene is a highly effective insulation. The energy used in making insulation products is typically saved in reduced energy usage in the first year of building occupancy.

FOAMULAR rigid foam insulation is highly moisture and mold resistant. This resistance to moisture, combined with excellent compressive strength and dimensional stability, makes FOAMULAR insulation re-usable.

FOAMULAR rigid foam insulation is made with a high percentage of post-industrial recycled material and has been certified by Scientific Certification Systems. FOAMULAR insulation is also recyclable, although its re-usability will typically make recycling unnecessary.

FOAMULAR rigid foam insulation can help contribute to credits under the Leadership in Energy and Environmental Design (LEED) program of the U.S. Green Building Council in the following categories: Energy and Atmosphere (various credits), Materials and Resources (Resource Re-use, Recycled Content, Local Regional Materials) and Innovation & Design Process.

### FEATURES & BENEFITS

- FOAMULAR insulation is an extruded polystyrene rigid foam insulation
- A wide variety of standard sizes, thicknesses and compressive strengths meet the requirements of nearly every application. High-strength FOAMULAR insulation products meet the challenge of under-slab and foundation applications. Compressive strengths range from an economical 15psi—the world's lowest density extruded polystyrene insulation—to 100psi.
- Suited for diverse applications such as cavity walls, steel- or wood-framed wall sheathing, furred walls, foundation walls, precast and tilt-up concrete walls, under concrete slabs and in decks. Ideal for roofing applications including single-ply, tapered, BUR and protected membrane systems.
- Thermal performance is better than other commonly used insulating products with a long-term, aged thermal resistance (R-value)\* of 5 per 1" of thickness at 75°F mean temperature.
- FOAMULAR insulation is easy to handle and install. Extruded polystyrene insulation is lightweight, durable and impact resistant, which helps to reduce job site damage. Foam insulation can be scored and fabricated easily with common hand tools.
- Hydrophobic properties minimize wicking and contribute to superior dimensional stability under moist conditions. Resists groundwater; condensation, water leakage and freeze/thaw cycling, but is also resistant to the effects of fungus, mildew, corrosion and common soil acids. Moisture resistance helps to maintain thermal performance over the life of the product.
- Panels are available with square edge, shiplaps or tongue and groove edge to further reduce air infiltration.

### STANDARDS AND CODE COMPLIANCE

- Thermal Resistance: 5.0 at 75°F, 5.4 at 40°F mean temperature at 1" thickness (hr • ft² • °F/Btu).
- Recognized by code authorities under Research Reports BOCA 96-24; ICBO 3628; SBCCI PST & ESI 9727A.
- Meets HUD/FHA Use of Materials Bulletin No. UM71a, ASTM C 578 and AASHTO M230.
- Underwriters Laboratories, Inc., See Classification Certification U-197.

### DESIGN CONSIDERATIONS

- Caution: Combustible. Although it does contain a flame-retardant additive to inhibit ignition from small fire sources, if exposed to fire of sufficient heat and intensity, FOAMULAR insulation will ignite. Do not expose the product to open flame during shipping, storage, installation or use. In most applications, a code-compliant thermal barrier must be used to separate FOAMULAR Insulation from the building interior.
- FOAMULAR insulation is not recommended where sustained temperatures exceed 165°F. Do not use it in contact with surfaces such as pipes or chimneys that have temperatures over 150°F.
- Many solvent-laden mastics, and some plastic- or oil-based adhesives are not compatible with polystyrene-based insulations.
- Take provisions to protect the insulation from excessive exposure to direct sunlight by covering it as soon as possible.
- Evaluate all constructions to assess the necessity for providing vapor retarders to avoid condensation and subsequent structural damage. (See the current ASHRAE Handbook of Fundamentals.)

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



# FOAMULAR® EXTRUDED POLYSTYRENE RIGID FOAM INSULATION

INNOVATIONS FOR LIVING™

## FOAMULAR® EXTRUDED POLYSTYRENE INSULATION

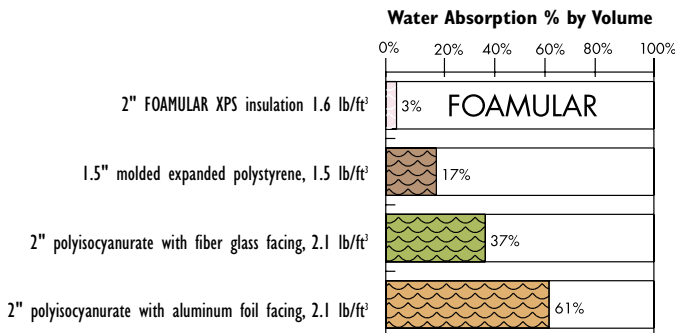
### TYPICAL PHYSICAL PROPERTIES<sup>(1)</sup>

Property	ASTM Method <sup>(2)</sup>	Product Values								
		FOAMULAR 150/CW15	FOAMULAR 250/CW 25	High-R <sup>(3)</sup> CW Plus	FOAMULAR 400	FOAMULAR 600	FOAMULAR 1000	AGTEK®	INSUL-DRAIN®	FANFOLD (DWB)
Thermal Conductivity – “k” (Btu • in/ft <sup>2</sup> • hr • °F, max) <sup>(4)</sup>										
@ 75°F mean temperature	C 518	0.20	0.20	—	0.20	0.20	0.20	0.20	0.20	0.25
@ 40°F mean temperature	—	0.18	0.18	—	0.18	0.18	0.18	0.18	0.18	—
Compressive Strength minimum value (lb/in <sup>2</sup> ) <sup>(5)</sup>	D 1621	15.0	25.0	25.0	40.0	60.0	100.0	25.0	25.0	12.0
Flexural Strength (lb/in <sup>2</sup> , min.) <sup>(6)</sup>	C 203	60	75	—	115	140	150	75	75	—
Water by Absorption (% by volume, max.) <sup>(7)</sup>	C 272	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.5
Water Vapor Permeance (perm, max.) <sup>(8)</sup>	E 96	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	0.6
Water Affinity	—	hydrophobic	hydrophobic	hydrophobic	hydrophobic	hydrophobic	hydrophobic	hydrophobic	hydrophobic	hydrophobic
Water Capillarity	—	none	none	none	none	none	none	none	none	none
Dimensional Stability (% linear change, max.) <sup>(9)</sup>	D 2126	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	—
Linear Coefficient of Thermal Expansion (in/in/°F, max.)	—	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	—	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	2.7 x 10 <sup>-5</sup>	—
Flame Spread <sup>(10)(11)</sup>	E 84	5	5	10	5	5	5	5	5	—
Smoke Developed <sup>(10)(11)(12)</sup>	E 84	45–175	45–175	25	45–175	45–175	175	45–175	45–175	—
Oxygen Index, min <sup>(10)</sup>	D 2863	24	24	24	24	24	24	24	24	—
Type Classifications	C 578	Type X	Type IV	Type IV	Type VI	Type VII	Type V	Type IV	Type IV	—

<sup>(1)</sup> Properties shown are representative values for 1" thick material based upon most recent product quality audit data. <sup>(2)</sup> Modified as required to meet ASTM C 578. <sup>(3)</sup> High-R CW Plus comes in thicknesses of 1 3/4" with an R-value of 10 and in 2 1/4" with an R-value of 12. <sup>(4)</sup> Thermal resistance (R) = (hr • ft<sup>2</sup> • °F/Btu) — of a 1" thickness 5.0 (at 75°F mean temperature), 5.4 (at 40°F mean temperature). <sup>(5)</sup> Value at yield or 10%, whichever occurs first. <sup>(6)</sup> Value at yield or 5%, whichever occurs first. <sup>(7)</sup> Data ranges from 0.00 to value shown, due to the level of precision of the test method. <sup>(8)</sup> Actual water vapor permeance data decreases as thickness increases. <sup>(9)</sup> Data ranges from 0.0 to value shown. <sup>(10)</sup> These laboratory tests are not intended to describe the hazard presented by this material under actual fire conditions. <sup>(11)</sup> Data from Underwriters Laboratories, Inc. Classified. See Classification Certificate U-197. <sup>(12)</sup> ASTM E 84 is thickness-dependent; therefore a range of values is given.

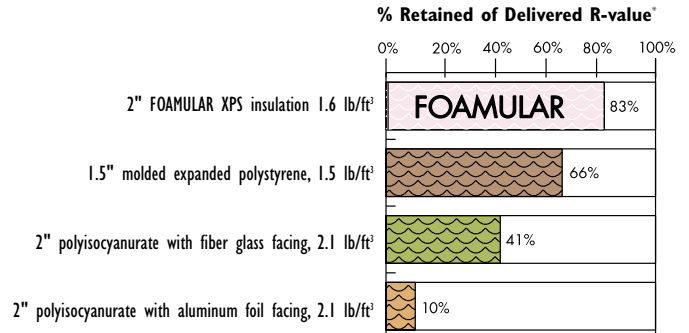
## MOISTURE EFFECTS COMPARISON

### WATER ABSORPTION IN FREEZE/THAW CYCLING TEST (ASTM C 666-73 PROCEDURE A)



## THERMAL RESISTANCE RATIO (TRR%)

### RETENTION OF R-VALUE\* AFTER REPEATED EXPOSURE TO MOISTURE AND FREEZE/THAW CONDITIONS.



\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



## METAL BUILDING INSULATION: ELAMINATOR® INSULATION SYSTEM FIBER GLASS INSULATION—PRODUCT DATA



### FEATURES & BENEFITS

- ELAMINATOR® insulation system offers the 100 and 300 Series patented machines to insulate metal building roof assemblies. The ELAMINATOR insulation is available for any project through a nationwide coverage of franchised laminators who comply with the operational requirements of the Owens Corning ELAMINATOR franchise.
- The ELAMINATOR 300 Series machines meet OSHA requirements to provide fall safety protection while enhancing roof-sheeting productivity. (See Technical Bulletin Pub. No. 57201 for OSHA compliance details.) Each project has a qualified operator who is in the Owens Corning ELAMINATOR Certified Operator Program (CEOP).
- The ELAMINATOR insulation meets all thermal performance codes and specifications with either the single-layer (R-10 up to R-19) or the double-layer insulation levels (total out-of-package R-values R-20 up to R-38).
- ELAMINATOR insulation provides an attractive appearance with 100 Series machines or single-layer insulation levels and 300 Series with machines standard installation profile: Sculpture Profile.
- ELAMINATOR Sculpture Profile™ provides a uniform interior appearance without exposed seams where the facing vapor barrier overlaps over the top of the purlins. The profile provides exposed purlins meeting thermal performance requirements for most buildings.

### Installation Methods

- In double-layer applications with 300 Series, Owens Corning ELAMINATOR insulation is installed in two layers: the first layer is installed between the purlins, and the second layer is installed perpendicular and over the purlins with patented folding facing sized to accommodate the total thickness of the two layers. Sculpture Profile is achieved with the vapor barrier facing overlapped over the top of the purlins with 1" FOAMULAR (extruded polystyrene) thermal blocks as an option to achieve specified U-values.
- In double-layer applications with 100 Series (120 machines), Owens Corning ELAMINATOR insulation is installed in two layers: the first layer is installed between the purlins in pieces cut to fit the purlin space, and the second layer is installed perpendicular and over the purlins with patented folding facing sized to accommodate the total thickness of the two layers. Sculpture Profile is achieved with the vapor barrier facing overlapped over the top of the purlins with 1" FOAMULAR (extruded polystyrene) thermal blocks as an option to achieve specified U-values.

- In single-layer applications with 100 or 300 Series machines, Owens Corning ELAMINATOR insulation is installed perpendicular and over the purlins with facing sized to accommodate the total thickness of the single layer. Sculpture Profile is achieved with the vapor barrier facing overlapped over the top of the purlins with 1" FOAMULAR (extruded polystyrene) thermal blocks as an option to achieve specified U-values.

### Important Safety Issues

- The roof slope may be less than or equal to 3:12 for both the 100 and 300 Series machines.
- 300 Series machines equipped with Purlin Stabilizer Wheels can install the ELAMINATOR insulation system on purlins without structural roof cross bracing.
- 100 Series machines with double-layer applications require structural roof cross bracing.
- 300 Series machines provide fall protection that meets current OSHA safety standards.
- 100 Series machines require additional OSHA-compliant safety methods and/or personal fall arrest systems to meet current OSHA safety standards.
- 100 Series 120 machines are designed to install the ELAMINATOR insulation system over the SkyWeb II® safety net system.
- 300 Series machines are advanced down the roof with a cable pulling system or a patented Power Puller system. Owens Corning recommends the use of the Power Puller system, which allows the workers to stay within the guardrail system for the operation of the machines.
- Use of a crane or a forklift with appropriate rigging is required to lift the machines to and from the roof.
- A qualified machine operator who is certified or has a certificate from the Owens Corning ELAMINATOR Certified Operator Program (CEOP) must assemble, operate and disassemble the 300 Series machines during the project roofing stage. This assures the owner, architect and contractor that the machine operation is performed by an operator who was trained to operate the 300 Series machines in accordance with Owens Corning written procedures.

### Vapor Control Considerations

- All reinforced laminated vapor retarder facings may be used with the ELAMINATOR insulation system.
- Selection of a specific facing depends on the building design to meet light reflectance, vapor control and abuse resistance requirements.

- For optimum moisture control, facings with a maximum permeance rating of 0.10 perm are recommended.
- ELAMINATOR insulation system is not to be used in buildings with high moisture levels, such as buildings that house swimming pools.
- Detailed information on performance of available facings can be obtained from the ELAMINATOR franchisee.

### Installation Specifications Considerations

- Installation must be made in accordance with Owens Corning published ELAMINATOR installation manuals and must comply with applicable provisions of OSHA, state, local and owner safety and health codes.
- Selection of the appropriate ELAMINATOR installation method is at the discretion of the ELAMINATOR franchisee and depends on the insulation levels required, conditions at the job site and other project-specific criteria.
- To specify R-values to meet U-value performance, see the Owens Corning ELAMINATOR Technical Bulletins on ELAMINATOR insulation U-value thermal performance data which is obtained by ANSYS, finite element model, validated by hotbox test (ASTM C 976). (100 Series Pub No: 5-MB-43647C or 300 Series Pub No: 5-MB-22790D.)

\* SkyWeb II is a registered trademark of Butler Manufacturing, Inc.





# CERTIFIED R METAL BUILDING INSULATION

## FIBER GLASS INSULATION—PRODUCT DATA



### DESCRIPTION & USES

- A light-density glass fiber blanket designed for use as part of the insulation system in the roofs and walls of pre-engineered metal buildings. Certified R Metal Building Insulation is designed to be laminated with a variety of appropriate facings for attractiveness, abuse resistance and moisture control.
- It is available in standard R-values\* of 10, 11, 13, 16 and 19. R-25 is available as a special order item. Standard roll widths are 36", 48", 60" and 72". Selected made-to-order widths are also available.
- Several methods are used to insulate metal buildings. The usual method is to apply the insulation over the structural members (purlins and girts) and inside the exterior panels. This method generally accommodates single-layer installation. Methods such as the Owens Corning ELAMINATOR insulation system are also available to apply insulation between purlins so as to accommodate greater insulation thicknesses and better thermal performance.

### Certified Thermal Performance

Owens Corning Certified R Metal Building Insulation is regularly tested to ensure compliance to the NAIMA 202-96 (Rev. 2000) Standard. Sampling and testing are performed by the National Association of Home Builders Research Laboratories (NAHBR). The product is labeled on the top surface of each roll with the nominal R-value<sup>†</sup> and the "NAIMA 202-96 (Rev. 2000)" to indicate compliance. The NAIMA 202-96 (Rev. 2000) standard specifies thermal performance which provides the capability of obtaining nominal thermal resistance (R-values<sup>†</sup>) after laminating. The actual thermal performance obtained from the laminated product will depend primarily on the recovered thickness.

### SPECIFICATION COMPLIANCE

- NAIMA 202-96 (Rev. 2000) Standard for Flexible Fiber Glass Insulation Used in Metal Buildings
- ASTM C 991 Type I, Flexible Glass Fiber Insulation for Metal Buildings

### PHYSICAL PROPERTY DATA

Property	Test Method	Result
Water Vapor Sorption	ASTM C 1104	<2% by weight
Fungi Resistance	ASTM C 1338	Provides no sustenance
Fire Hazard Classification	UL 723 <sup>(1)</sup> , ASTM E 84 <sup>(1)</sup> and CAN/ULS S102 <sup>(1)</sup>	FHC 25 / 50
Noncombustibility	ASTM E 136	Noncombustible

<sup>(1)</sup> The surface burning characteristics of these products have been determined in accordance with UL 723. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

\* R-values differ. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.



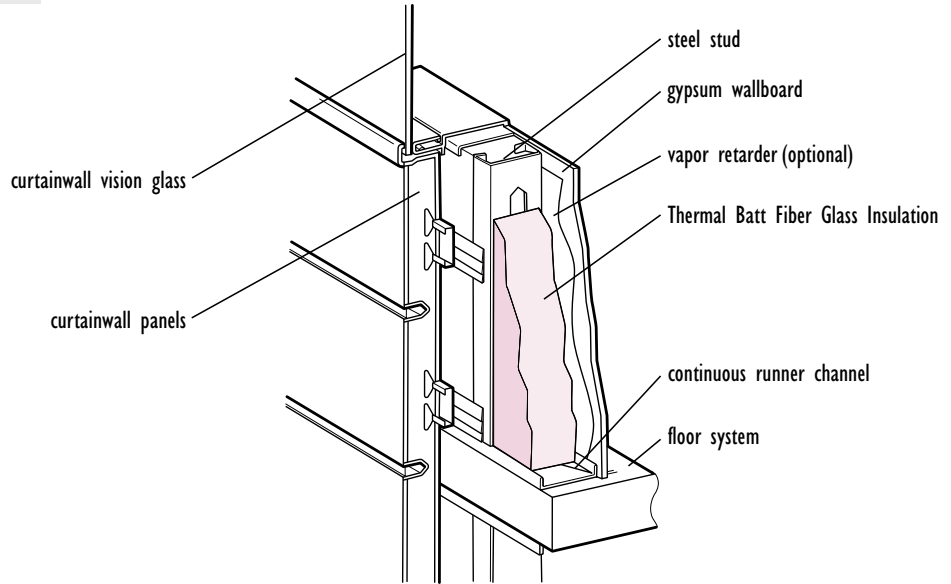
INNOVATIONS FOR LIVING™

# APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

## EXTERIOR WALL SYSTEM: CURTAINWALL

### Product Options

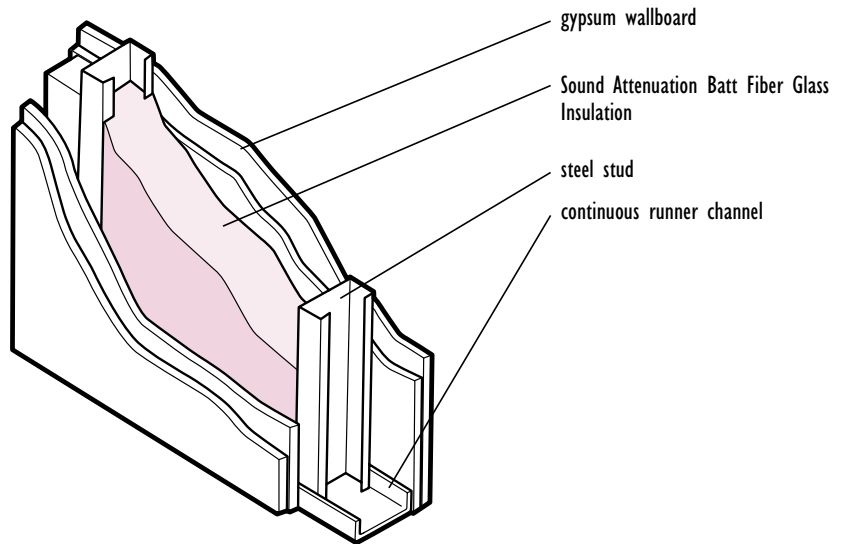
**Thermal Batt Fiber Glass Insulation**



## INTERIOR WALL SYSTEM: DOUBLE LAYER GYPSUM

### Product Options

**Sound Attenuation Batt  
Fiber Glass Insulation**





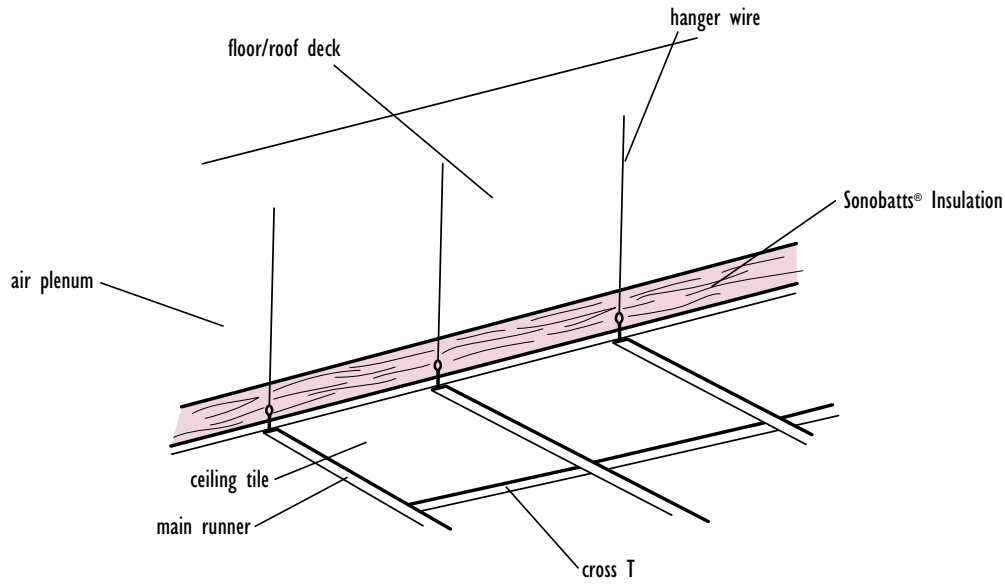
INNOVATIONS FOR LIVING™

# APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

## SONOBATTS® INSULATION

### Product Options

#### Sonobatts® Insulation





## APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

### STEEL STUD/BRICK VENEER WALLS

#### Product Options

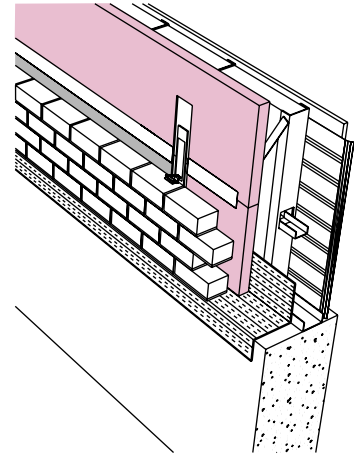
**FOAMULAR® 250 Insulation**

**Thermal Batt Fiber Glass Insulation**

#### Installation & Design Considerations

- Thermal Batts are suitable for installation in the stud cavity.
- FOAMULAR Insulation is not a structural material so when using, provide adequate bracing for structural framing.
- Steel stud spacing, 24" o.c. maximum.
- Between the inside brick face and the exterior surface of the insulation board, provide a minimum of 2" clear space, 1" in residential construction.
- Use corrosion-resistant masonry ties; connect them directly to steel framing.
- Install with caulk movement joints, functioning weep holes and adequate flashings.
- Insulation joints must fit together tightly and should be sealed with sealant or tape recommended by its manufacturer for this application.
- Building designer should determine the need for and placement of vapor retarders, air barriers and moisture barriers.

**IMPORTANT NOTE:** ASHRAE 90.1 compliance requires the use of a "CONTINUOUS INSULATION LAYER" over the exterior flange of the steel stud. FOAMULAR 250 insulation meets this requirement.



### MASONRY CAVITY WALLS

#### Product Options

**FOAMULAR® CW15 / CW25 Insulation**

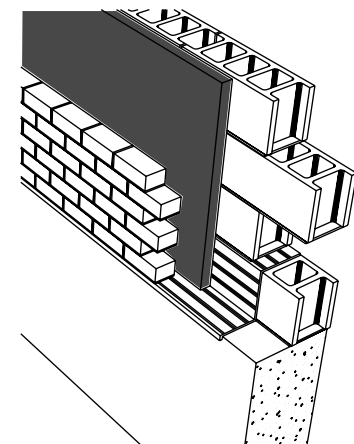
**FOAMULAR® 150 / 250 Insulation  
Scored Square Edge**

**High-R CW Plus**

**WeepGuard™ Mortar Control Insulation**

#### Installation & Design Considerations

- Position insulation horizontally between wall ties directly on back-up wall.
- Tightly fit insulation around vents, louvers, pipes, conduits and other penetrations. Foam insulation board joints should also fit tightly.
- Install with caulk movement joints, functioning weep holes and adequate flashings.
- Openings and joints may be sealed with construction tape per tape manufacturers' recommendations.
- Use corrosion-resistant masonry ties.
- Maintain a minimum of 1" of clear space between inside brick face and the insulation board's exterior surface.
- Building designer should determine the need for and placement of vapor retarders, air barriers and moisture barriers.
- *WeepGuard* mortar control is restricted for use as the initial course in the cavity of a commercial masonry cavity wall. The product is designed to be installed vertically with the drainage mat facing the exterior wythe and the trough of the "J" channel facing upward so as to catch any mortar droppings that may fall from above.





# APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

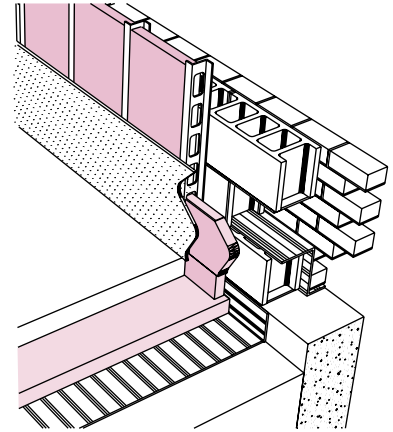
## INTERIOR FURRING SYSTEMS

### Product Options

- INSULPINK® Insulation**
- INSULPINK®-Z Insulation**
- Fiberglas® 700 Series Insulation**

### Installation & Design Considerations

- Eliminate thermal “shorts” by installing insulation under furring for maximum performance.
- Separate rigid foam from the building interior: Completely cover insulation with an approved thermal barrier.
- Using a 4 mil polyethylene film vapor retarder with a .08 or lower perm rating will provide maximum moisture control. Adequate protection can be provided by a 2 mil polyethylene film in moderate climate conditions.
- 24" o.c. maximum furring spacing. Attach furring to structural wall. Tightly close joints between foam insulation panels.
- Building designer should determine the need for and placement of vapor retarders, air barriers and moisture barriers.



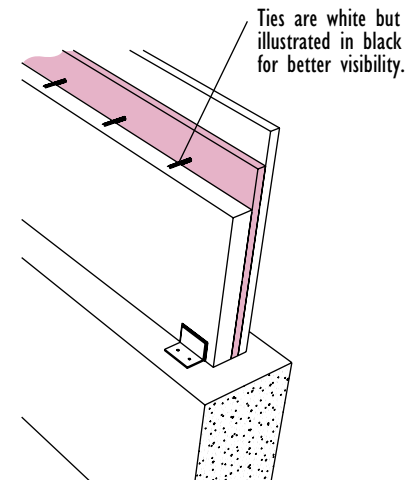
## PRECAST/TILT-UP WALLS/VERTICAL POUR

### Product Options

- PINKCORE® Extruded Polystyrene Rigid Foam Insulation and Low Conductivity Ties**

### Installation & Design Considerations

- PINKCORE low-conductivity ties\* are designed to hold the fascia in place without a concrete-foam bond or solid concrete sections in the panel.
- Fascia thickness should be a minimum of 2". The minimum fascia reinforcement recommended is welded wire fabric 6 x 6 – W6 x W6.
- Ties should be spaced 16" o.c. in precast or tilt-up applications, and 12" o.c. in vertical pour both horizontally and vertically.
- For maximum panel thermal performance, eliminate solid sections of concrete.
- A minimum concrete compressive strength of 2,500 psi is recommended before lifting the panels from the forms.
- Concrete on bottom layer should be consolidated around the ties by applying foot pressure (walking) on boards immediately following tie insertion. Refer to PINKCORE Installation Guidelines for detailed information.



\* PINKCORE ties are made with RADEL® R polyphenylsulfone, which delivers an impressive show of strength and resistance to corrosive elements. RADEL is a registered trademark of Amoco Polymers Inc.



INNOVATIONS FOR LIVING™

## APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

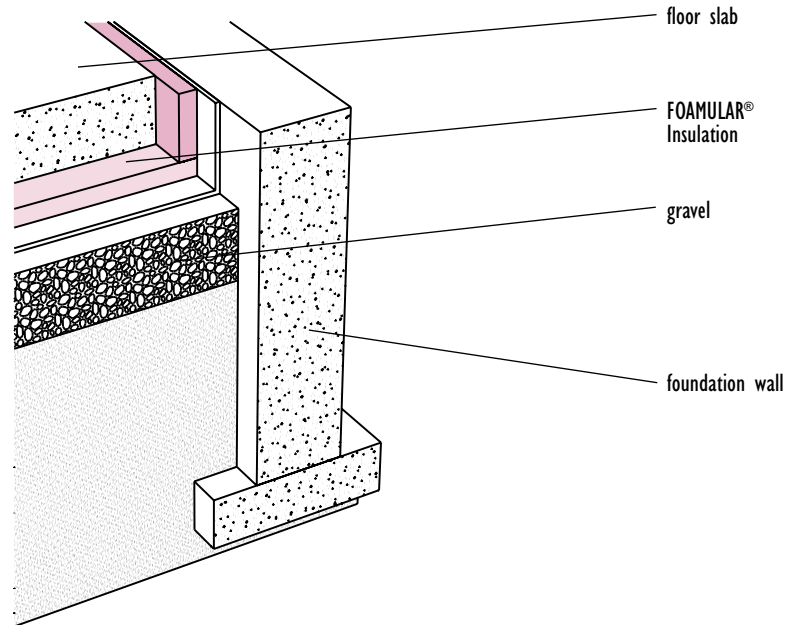
### UNDER FLOOR SLABS

#### Product Options

**FOAMULAR® Insulation 250 / 400 / 600 / 1000**

#### Installation & Design Considerations

- FOAMULAR 400, 600 and 1000 Insulation are for industrial applications where floor will encounter heavy loads.
- Use FOAMULAR 250 Insulation in light commercial or residential applications where floors are subject to normal loads.
- To establish a stable, even base, use gravel fill. Gravel must be tamped thoroughly before installing insulation.
- Insulation board should be butted together tightly, and against adjacent vertical insulation surfaces or foundation walls.
- Building designer should determine the need for and placement of vapor retarders.





## APPLICATION RECOMMENDATIONS INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

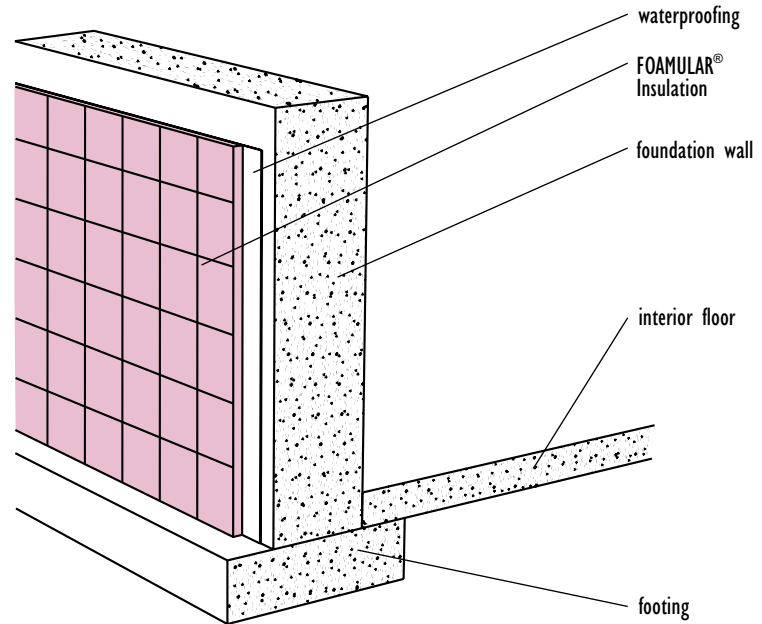
### VERTICAL FOUNDATION WALLS

#### Product Options

**INSUL-DRAIN®  
Insulating Drainage Board**  
**FOAMULAR® 150 / 250 Insulation**

#### Installation & Design Considerations

- Install INSUL-DRAIN insulation drainage board directly over properly cured, but slightly tacky waterproofing or damp proofing membranes.
- Boards should be installed vertically, with the fabric side facing the backfill, from top of the footing to several inches below finished grade.
- Install adjacent boards by engaging the tongue and groove edge. Seal joints with waterproof fabric sealant. Fabric should overlap from board-to-board and be secured with adhesive.
- Use adhesive to secure the fabric over the boards' top and bottom edges. This prevents soil penetration in the drainage channels.
- Install additional tiers of INSUL-DRAIN insulation drainage board in the same way securing fabric overhangs to the adjacent boards.
- For complete installation details, see the INSUL-DRAIN insulation drainage board installation instructions.
- Surrounding grades and/or concrete slabs should be sloped away from the foundation.
- Backfill promptly. Protect joints to prevent backfill entry. Make sure the INSUL-DRAIN insulation drainage board maintains full contact with the foundation.
- Cover any insulation that is installed above grade. Typical coverings include siding, cementitious coatings and masonry veneers. Insulation is combustible. FOAMULAR Insulation will ignite if exposed to fire of sufficient heat and intensity. Do not expose the product to open flame during shipping, storage, installation or use.





# INSTALLATION INFORMATION

## INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

### INSULATION INSTALLATION

- Insulation should be fabricated to fit tightly around outlets, junction boxes, pipes and other irregularities for full acoustical performance.
- Wall cavities should be filled with insulation. If wall height is less than 96", batts should be cut to friction-fit against floor and ceiling tracks. When installed in continuous heights over 8', supplementary support should be provided until drywall is in place.

### INSTALLATION FOR ACOUSTICAL PERFORMANCE

The sound transmission loss of interior partitions can be improved by utilizing insulation in the wall cavity, staggering the wall studs, installing resilient channels between the gypsum wall board and the studs, and by adding additional layers of drywall.

Maximum acoustical performance is obtained by eliminating penetrations in walls between adjoining spaces. When electrical and plumbing connections are installed in walls of adjoining spaces, precautions should be taken to stagger electrical outlet boxes and to caulk around conduit and other through-the-wall penetrations. The entire perimeter of the wall should also be caulked.

### HEALTH ASPECTS

The health effects of man-made mineral fibers, such as fiber glass and mineral wool insulation, have been studied for more than 50 years. Several national and international organizations have reviewed that research and evaluated the hazards and risks possibly associated with this material. Upon request, Owens Corning will provide literature discussing these evaluations and the health issues in greater detail. Owens Corning is confident that fiber glass insulation is safe to use when recommended work practices are followed.

The health and safety label located on the package and the appropriate Material Safety Data Sheet (MSDS) should be reviewed before installing these products. If that label or the MSDS is not available, contact your local supplier or write:

**Owens Corning World Headquarters**  
**One Owens Corning Parkway**  
**Toledo, OH 43659**

You can also call 1-419-248-8234 for a copy of the current label and MSDS.

### FIBER GLASS AND MOLD

As manufactured, fiber glass insulation is resistant to mold growth.\* However, mold growth can occur on building materials, including insulation, when it becomes contaminated with organic materials and when water is present. To avoid mold growth on fiber glass insulation, remove any water that has accumulated and correct or repair the source of that water as soon as possible. Insulation that has become wet should be inspected for evidence of residual moisture and contamination, and any insulation that is contaminated should be promptly removed and replaced.

\* ASTM C 1338-96 Fungi Resistance of Insulation Materials and Facings.

### APPLICABLE STANDARDS BY PRODUCT

Page No.	ASTM C 578 Types IV, V, VI, VII, X	ASTM C 612 Types IA & IB	ASTM C 612 Types I - IV	ASTM C 665 Type I	ASTM C 665 Types I or II	ASTM C 665 Types I - III	ASTM C 665 Type II or III	NAIMA 202-96	ASTM C 991 Type I
6	Thermal Batt Insulation					X			
7	Flame Spread 25/FS25 Ext. Flgs Fiber Glass Insulation						X		
8	Sound Attenuation Batt Insulation			X					
10	Sonobatts® Insulation				X				
11	Curtainwall Insulation	X							
25	Certified R Metal Building Insulation							X	X
12	Fiberglas® 700 Series Insulation: 701-711			X					
12	Fiberglas® 700 Series Insulation: 703-705		X						
22	FOAMULAR®	X							
16	Safing Insulation/ Mineral Wool		X						
18	Sound Attenuation Batts/ Mineral Wool			X					
14	QuietZone® Shaftwall Insulation			X					





## ATTACHMENT SYSTEMS

### INSULATION SYSTEMS FOR COMMERCIAL BUILDINGS

The friction-fit characteristics of Owens Corning glass fiber insulation batts frequently let you install them without additional support. However, many applications of fiber glass and FOAMULAR® insulation products do require support to maintain insulation position. The following list is supplied as a convenience to readers interested in learning more about attachment systems.

#### ATTACHMENT SYSTEMS

COMPANY	PRODUCT	TELEPHONE
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##### Handheld Power Fastening Tools

###### *Pneumatic Nailers and Staplers*

Stanley Bostitch	TU20-7, RN45B	1-800-556-6696
Linic Systems	HT-550, HT-755	1-800-513-9918
Paslode	3150W16R, 3200W16	1-800-222-6990
Pneutek	PT-79, PT-250, PT-300-I	1-800-431-8665
Senco	PW, SJ10	1-800-543-4596
Spotnails	HL1620, HL7616AP	1-800-873-2239

###### *Powder Actuated Systems*

Hilti	DX-600N, XA41-X-AM72	1-800-879-8000
Pneutek	FA-75, SA-45, SA-75W	1-800-431-8665
ITW Ramset/Red Head	D60, SA270, 721, D45	1-800-348-3231

###### *Anchor Pins, Washers, Caps and Clips*

AGM Industries	Tactoo Insul-Hangers, Series T and Series TSA	1-800-225-9990
Buildex	Tapcon Concrete Fastening Systems, HWH Tek3, Gridmate	1-800-848-5611
Gemco	Insulation Hangers, Self Locking Washers Cupped Head Weld Pins, Weld Pins	1-800-331-1164
Wind-lock Products	Steel Screws, Steel/Plastic Washers	1-800-872-5625

###### *Wire and Insulation Supports*

Moore Products	Insulation Support Rods and Netting	1-800-241-5807
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###### *Adhesives*

OSI Sealants	PL 200, PL Premium	1-800-624-7767
Foster & Childers Products	Max Bond, 85-15, 85-120, 85-60 CP-56, CP-82, CP-85, CP-88, CP-89, CP-35	1-800-231-9541
Macco Adhesives	LN-601, LN-604, Liquid Nails	1-800-634-0015
Tacc International	MA-4062, DSA-40, PF-101	1-800-503-6991
3M	Fastbond 42 NF Plus, 847L, 1357, 1870, 1300L	1-800-362-3550
Gemco	Tuff-Bond	1-800-331-1164

This list is supplied for the reader's convenience. Owens Corning does not endorse or recommend these products. Contact the manufacturer for information on products and approved applications.



## SECTION 07200 EXTERIOR WALL THERMAL INSULATION

### PART 1 GENERAL

#### 1.01 Summary

- A. Provide glass fiber thermal insulation for exterior walls as indicated in building plans.

#### 1.02 Materials Provided in Other Sections

- A. Section 03400—Precast Concrete
- B. Section 04200—Unit Masonry
- C. Section 04235—Preassembled Masonry Panels
- D. Section 04400—Stone
- E. Section 07240—Exterior Insulation and Finish Systems
- F. Section 07410—Preformed Roof and Wall Panels
- G. Section 07420—Composite Building Panels
- H. Section 07920—Sealants, Caulking and Seals
- I. Section 08400—Entrances and Storefronts
- J. Section 08500—Metal Windows
- K. Section 08810—Glass
- L. Section 08900—Glazed Curtain Walls
- M. Section 09300—Tile

#### 1.03 References

- A. American Society for Testing and Materials (ASTM).
  - 1. E 84 Test Method for Surface Burning Characteristics of Building Materials
  - 2. E 96 Test Method for Water Vapor Transmission of Materials
  - 3. E 136 Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.
  - 4. C 177 Test Method for Steady-State Thermal Transmission Properties by means of the Guarded Hot Plate
  - 5. C 423 Test Method for Sound Absorption and the Sound Absorption Coefficient by the Reverberation Room Method
  - 6. C 518 Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter
  - 7. C 553 Standard Specification for Mineral Fiber Blanket and Felt Insulations
  - 8. C 612 Standard Specification for Mineral Fiber Block and Board Thermal Insulation
  - 9. C 665 Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing

#### 1.04 Submittals

- A. Product Data: Submit Owens Corning product literature, samples and installation instructions for specified insulation.

#### 1.05 Delivery

- A. Protect insulation from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

- B. Label insulation packages to include material name, production date and/or product code.
- C. Deliver and store materials under provision of Section (01600) (01620).

#### 1.06 Limitations

- A. Do not use unfaced insulation in exposed applications where there is potential for skin contact and irritation.
- B. Kraft and standard foil facings will burn and must not be left exposed. The facing must be installed in substantial contact with an approved exterior wall construction material. Protect facing from any open flame or heat source.

### PART 2 PRODUCTS

#### 2.01 Manufacturer

- A. Owens Corning.

#### 2.02 Curtainwall CW225 Insulation

- A. Type: Unfaced or FRK-faced glass fiber thermal insulation complying with ASTM C 612, Type IA and IB.
- B. Size:
  - R-value \_\_\_\_
  - When tested in accordance with ASTM C 518.
  - Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_
- C. Vapor Retarder Perm Rating: FRK-facing Perms Maximum 0.10
  - When tested in accordance with ASTM E 96.
- D. Surface Burning Characteristics:
  - 1. Unfaced Insulation
    - Maximum flame spread: 20
    - Maximum smoke developed: 20
  - 2. FRK-faced Insulation
    - Maximum flame spread: 25
    - Maximum smoke developed: 50
    - When tested in accordance with ASTM E 84.
- E. Noise Reduction Coefficient:
  - 1. Unfaced 2" NRC 1.00
  - 2. FRK-faced 2" NRC 0.80
    - When tested in accordance with ASTM C 423 on a Type E-405 mounting.

- F. Dimensional Stability:

Linear shrinkage less than 0.1%

#### 2.03 700 Series Insulation

- A. Type: 701 Unfaced glass fiber thermal insulation complying with ASTM C 553, Type III and ASTM C 665, Type I.
- B. Type: 711 Unfaced glass fiber thermal insulation complying with ASTM C 553, Type III and ASTM C 665, Type I.

- C. Type: 703 Unfaced, FRK-faced and ASJ-faced glass fiber thermal insulation complying with ASTM C 612, Type IA and IB.

- D. Type: 705 Unfaced, FRK-faced and ASJ-faced glass fiber thermal insulation complying with ASTM C 612, Type IA and IB.

- E. Size:

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

- F. Vapor Retarder Perm Rating:

1. FRK-facing Perms Maximum 0.02

2. ASJ-facing Perms Maximum 0.02

When tested in accordance with ASTM C 1136.

- G. Surface Burning Characteristics:

Maximum flame spread: \_\_\_\_

Maximum smoke developed: \_\_\_\_

When tested in accordance with ASTM E 84.

- H. Noise Reduction Coefficient: NRC \_\_\_\_

When tested in accordance with ASTM C 423 on a Type A mounting.

- I. Dimensional Stability

Linear shrinkage less than 0.1%

#### 2.04 Flame Spread 25 Insulation

- A. Type: FRK-faced glass fiber thermal insulation complying with ASTM C 665, Type III, Class A.

- B. Size:

##### Metal Frame Insulation

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

##### Wood Frame Insulation

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

##### Special Application Insulation

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

- C. Vapor Retarder Perm Rating:

FRK-facing Perms Maximum 0.10

When tested in accordance with ASTM E 96.

- D. Surface Burning Characteristics:

Maximum flame spread: 25

Maximum smoke developed: 50

When tested in accordance with ASTM E 84.



## SECTION 07200 EXTERIOR WALL THERMAL INSULATION

E. Combustion Characteristics:  
Classified non-combustible by model building codes.

F. Dimensional Stability:  
Linear shrinkage less than 0.1%

### 2.05 Thermal Batt Insulation

A. Type: Unfaced glass fiber thermal insulation complying with ASTM C 665, Type I and ASTM E 136.

B. Type: Kraft-faced glass fiber insulation complying with ASTM C 665, Type II, Class C.

C. Type: Foil-faced glass fiber thermal insulation complying with ASTM C 665, Type III, Class B and C.

D. Size:

#### Metal Frame Insulation

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

#### Wood Frame Insulation

R-value \_\_\_\_

When tested in accordance with ASTM C 518.

Thickness \_\_\_\_ Width \_\_\_\_ Length \_\_\_\_

E. Vapor Retarder Perm Rating:

1. Foil-facing Perms Maximum 0.50

2. Kraft-facing Perms Maximum 1.00

When tested in accordance with ASTM E 96.

F. Surface Burning Characteristics:

1. Unfaced Insulation

Maximum flame spread: 10

Maximum smoke developed: 10

2. Foil-Faced Insulation

Maximum flame spread: 75

Maximum smoke developed: 150

When tested in accordance with ASTM E 84.

*Kraft and standard foil facings on this insulation will burn and must not be left exposed. The facing must be installed in substantial contact with an approved exterior wall construction material. Protect facing from any open flame or heat source.*

G. Combustion Characteristics:

Unfaced insulation passes ASTM E 136 test.

H. Dimensional Stability:

Linear shrinkage less than 0.1%

### 2.06 Other Materials

Provide materials, not specifically described but required for a complete and proper installation of the work in this section.

## PART 3 EXECUTION

### 3.01 Inspection and Preparation

A. Examine the areas and conditions under which work of this section will be installed. Verify that adjacent materials are dry and ready to receive insulation. Verify mechanical and electrical services within walls have been tested.

B. Provide written report listing conditions detrimental to performance of work in this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.02 Installation—General

A. Comply with manufacturer's instruction for particular conditions of installation in each case.

B. Mechanical Fasteners

Apply insulation directly to the interior surface of the exterior wall with appropriate spindle or prong-type anchors.

- Fasten anchors to wall by welding the pin to metal and then impale the insulation, or by using pre-attached heads and welding them through the insulation.

- Fasten anchors to wall with adhesive. Follow manufacturer's recommendations for surface preparation and adhesive pattern.

- Impale insulation on anchor and secure with washer. Select pin lengths to ensure tight fit. Protect pin tips where subject to human contact. See manufacturer's diagram for impaling pin pattern.

C. Adhesive Fasteners

Apply insulation with adhesives. Follow adhesive manufacturer's recommendations for surface preparation and adhesive pattern.

D. Furring Strips

- Install insulation between furring strips, hat channels, or Z-shaped furring in areas where finish surface will be applied.

- Contact the furring strip manufacturer for recommendations on the appropriate fastener system to use.

E. Between Metal Studs

Friction-fit insulation between studs after cover material has been installed on one side of the cavity. Use wire or metal straps to hold insulation in place in applications without a cover material or where the stud depth is larger than the insulation thickness. When faced insulation is used, the attachment flanges may be taped to the face of the metal stud prior to applying the interior finish.

- Provide supplementary support to hold the product in place until finish surface is applied when insulation is installed in heights over 8 feet.

F. Between Wood Studs

Friction-fit unfaced insulation between studs after cover material has been installed on one side of the cavity. Use wire or metal straps to hold insulation in place in applications without a cover material. When faced insulation is used staple attachment flanges to face or side of stud every 8 to 12 inches to prevent gaps along the edge of the vapor retarder.

### 3.03 Installation—Vapor Retarders

Maintain vapor retarder integrity by tightly abutting adjacent insulation. Repair punctures or tears in vapor retarder facing by taping. Follow tape manufacturer's application recommendations.

### 3.04 Material Storage and Protection

Protect insulation from damage and from becoming wet before, during and after installation.

## BENEFITS FOR THE LIFE OF THE BUILDING.

Maximize protection. Minimize noise. Owens Corning commercial building insulation products get the job done. Choose from a wide range of proven solutions for your unique needs, from energy-saving products that guard against the elements to the tools you need for noise reduction. You'll feel and hear the difference.



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