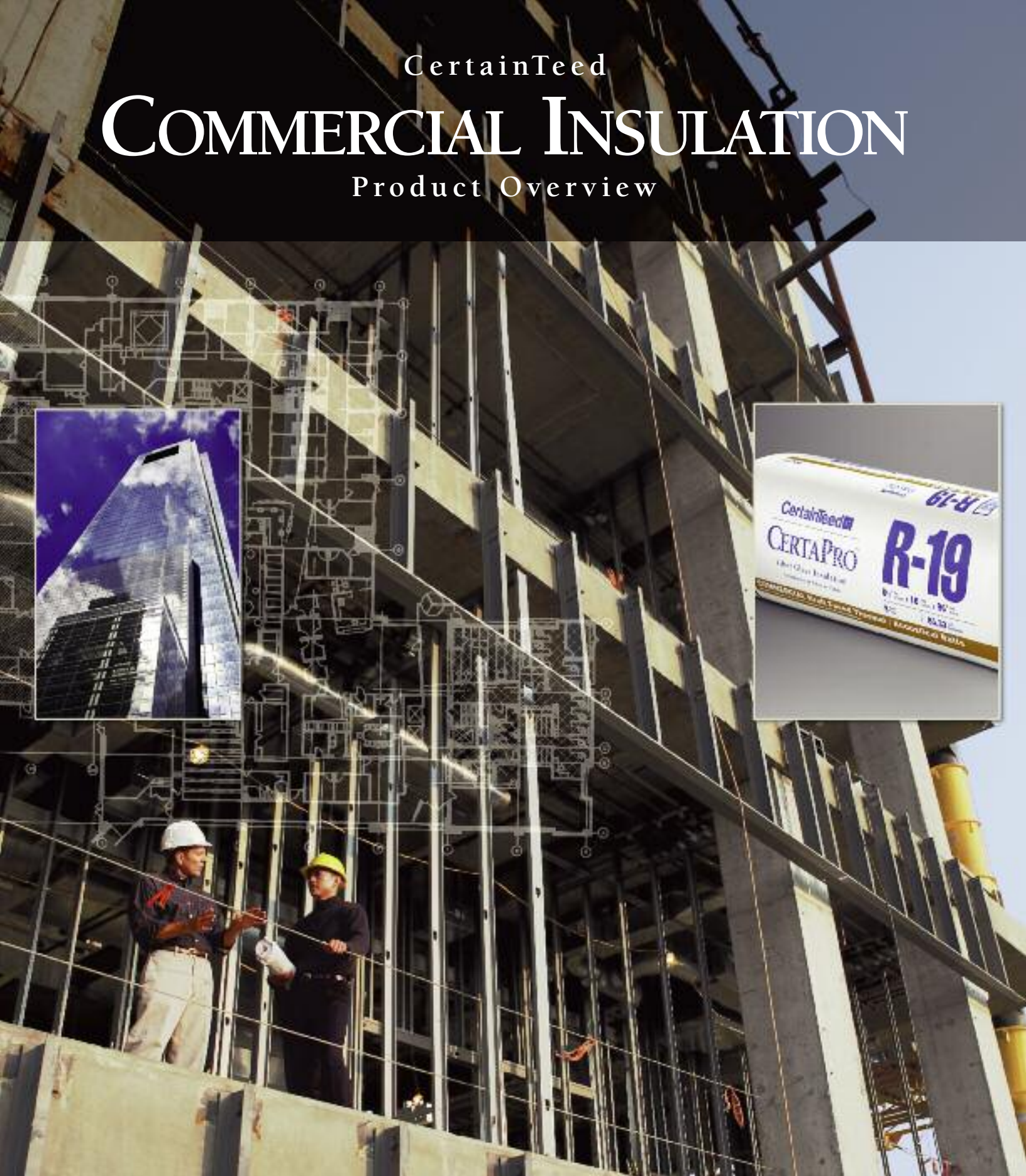


CertainTeed

COMMERCIAL INSULATION

Product Overview



CertainTeed 

Quality made certain. Satisfaction guaranteed.™

Energy efficiency and acoustical performance are just the beginning.



CERTAINTEED HAS YOU COVERED.

We recognize that you have numerous options when it comes to insulation. So what makes CertainTeed a better choice for your insulation program?

Simply put, we consider ourselves more than just a supplier. And the feeling is mutual with our customers. Whether it involves Building Science, technical support, or delivery requirements, we partner with you to understand your unique business needs. Our goal is to deliver the best overall insulation program possible.

THE PROFESSIONAL'S CHOICE.

Our name says it all. Building professionals trust CertainTeed for quality made *certain*, satisfaction *guaranteed*. From our complete line of thermal and

acoustical insulation to our specialty products, you can turn to us for products and solutions your customers can count on. Project after project. Year after year.

GET SMART ABOUT BUILDING SCIENCE.

Building Science continues to gain attention and grow in importance in commercial construction. A number of factors—from code requirements to increased media coverage—have brought this issue to the forefront. CertainTeed understands the role insulation plays in the overall integrity of a building system. We have a dedicated Building Science department that works regularly with building professionals to solve critical building envelope issues and provide solutions that have a positive and lasting effect on the industry. If your customers have questions about Building Science, we encourage you to tap into this unique resource.



SOLUTIONS THAT SUPPORT—AND MAKE YOUR JOB EASIER.

Our goal is to make working with CertainTeed as hassle-free as possible. We work to fully understand your business, to help you optimize your results and provide value to your customers. Our sales materials provide you with relevant and timely information to use with your customers. And our Customer Bill of Rights demonstrates our commitment across all aspects of your business.

WE DELIVER FOR YOUR BUSINESS—GUARANTEED.

Our delivery schedules are designed to fit your needs. In fact, if we don't deliver as promised, we will credit you 3% of the invoice amount.

PROTECTING THE ENVIRONMENT. INSIDE AND OUT.

CertainTeed believes in protecting interior and exterior environments. Our fiber glass insulation products have achieved GREENGUARD® Certification for superior indoor air quality performance. In addition, the thermal protection our products provide means less energy is required to heat and cool your buildings. This results in less greenhouse gases being released from the burning of fossil fuels. Plus, CertainTeed uses recycled glass in the production of our insulation, creating less impact on the environment.

PUTTING THE “SERVICE” BACK IN CUSTOMER SERVICE.

At CertainTeed we take service seriously. That's why our phone system is seamlessly integrated with our customer database, so that your history, and orders in process are instantly available to the Order Management Associate who handles your call. And there's a pretty good chance you'll talk with someone you've spoken with before—which means a better understanding of your business and better service for you.



THE RIGHT CHOICE. With everything we have to offer, it's easy to see why CertainTeed is the right insulation partner for your business.



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R-19
6 1/2" Thick x 16" Wide x 96" Long
8 Pads
85.33 sq. ft.
Acoustical Batts

R-11
3 1/2" Thick x 16" Wide x 96" Long
16 Pads
170.67 sq. ft.
Acoustical Batts

CertainTeed
CERTA PRO
Fiber Glass Insulation
Aislamiento de Fibra de Vidrio
ALL Thermal / Acoustical Batts

CertainTeed
CERTA PRO
Fiber Glass Insulation
R-11
3 1/2" Thick x 24" Wide x 96" Long

CertainTeed
Noise Reducer
Fiber Glass Insulation
Aislamiento de Fibra de Vidrio
Unfaced Sound Control Batts
3 1/2" Thick x 16" Wide x 96" Long
16 Pads
170.67 sq. ft.
Ceilings • Floors • Walls

CertainTeed
MEMBRAIN
Vapor Retarder & Air Barrier Film
Helps prevent wall cavity mold year-round with a smart nylon film that adapts to relative humidity.
MemBrain Protects
Keeps the building healthy.
MemBrain Breathes
Keeps the building dry.



CertaPro™ AcoustaTherm™ Batts



DESCRIPTION

- Unfaced, light-density fiber glass batts for use in steel stud construction. Batts are designed for friction-fit installation.
- Unfaced or kraft faced ceiling batts are designed to lay directly on suspended ceiling systems. Faced batts have no tabs. When installed, they must be butted together.

USES

- To enhance acoustical and thermal performance of exterior and interior walls.
- To improve sound transmission loss performance of suspended ceiling systems.

PRODUCT BENEFITS

- Unfaced batts rated noncombustible per ASTM E 136.
- Kraft faced batts suitable for non-exposed applications.
- Versatile: Enhances acoustical and thermal performance of interior and exterior walls and suspended ceiling systems.
- Will not rot or mildew; resists fungal growth.
- Lightweight, easily fabricated and installed.

PROPERTIES

| PROPERTIES | TEST METHOD | UNFACED PERFORMANCE | KRAFT FACED PERFORMANCE |
|---------------------------------|---------------------|---------------------|----------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 7 | See table, page 7 |
| Combustibility | ASTM E 136 | Pass/Noncombustible | Combustible |
| Surface burning characteristics | ASTM E 84 | ≤ 5/0 | Not rated |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | Not rated | ≤ 1.0 perm (57ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass | Pass |
| Fungi resistance | ASTM C 1338 | Pass | Pass |
| Odor emission | ASTM C 1304 | Pass | Pass |
| Maximum use temperature | ASTM C 411 | 450°F (232°C) | 200°F (93°C) |

ACOUSTICAL PERFORMANCE CONSIDERATIONS

Refer to pages 34–35.





COMPLIANCES

- ASTM C 553, Type I (unfaced)
- ASTM C 665, Type I (unfaced); Type II, Class C, Category 1 (kraft faced)
- ICC Model Building Code
- New York City MEA 18-80-M (unfaced)
- California Quality Standards, Reg. No. CA-T024 (PA)
- City of Los Angeles, RR 8148 (unfaced)

SIZES AND THERMAL RESISTANCE VALUES

UNFACED BATTS

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 8 | 1.4 | 2½ | 64 | 16, 24 | 406, 610 | 96 | 2438 |
| 11 | 1.9 | 3½ | 89 | 16, 24 | 406, 610 | 96 | 2438 |
| 11 | 1.9 | 3½ | 89 | 24 | 610 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 16, 24 | 406, 610 | 96 | 2438 |
| 19 | 3.3 | 6¼ | 159 | 24 | 610 | 48 | 1219 |
| 30 | 5.3 | 10 | 254 | 24 | 610 | 48 | 1219 |

KRAFT FACED NO TAB BATTS

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|-------|-----|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 24 | 610 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 24 | 610 | 48 | 1219 |

Also available:

CertainTeed Building Insulation for wood stud construction, unfaced and kraft faced. See page 26 for additional R-Values and dimensions.

INSTALLATION

Walls: CertaPro AcoustaTherm Batts are designed to fill the entire stud cavity and be held in place by friction-fit. For applications where the wall is not finished on both sides or the insulation does not fill the cavity, supplementary support of the insulation, such as wire or insulation pins, shall be provided to hold the insulation in place.

Suspended ceiling systems: Install with the facing down toward the occupied area. When placing AcoustaTherm Batts over suspended ceiling panels, refer to the suspended ceiling manufacturer's recommendations to ensure proper installation. Kraft facings are combustible; do not use in exposed applications. Check local code requirements.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ Partition Batts



DESCRIPTION

- Unfaced, light-density fiber glass batts 1½" (38mm) thick, for use in steel stud construction. Sized for friction-fit installation.

USES

- To enhance acoustical and thermal performance in shaft and low-profile partition walls.

PRODUCT BENEFITS

- Enhances acoustical and thermal performance properties.
- Will not rot or mildew; resists fungal growth.
- Lightweight; easily fabricated and installed.
- Rated noncombustible per ASTM E 136.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|---------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 9 |
| Combustibility | ASTM E 136 | Pass/Noncombustible |
| Surface burning characteristics | ASTM E 84 | ≤ 5/0 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1338 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 450°F (232°C) |

ACOUSTICAL PERFORMANCE CONSIDERATIONS

Refer to pages 34–35.





COMPLIANCES

- ASTM C 553, Types I, II
- ASTM C 665, Type I
- ICC Model Building Code
- California Quality Standards, Reg. No. CA-T024 (PA)

SIZES AND THERMAL RESISTANCE VALUES

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|----|-------|-----|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 5.8 | 1.0 | 1½ | 38 | 24 | 610 | 48 | 1219 |

INSTALLATION

CertaPro Partition Batts are designed to fill the entire stud cavity and be held in place by friction-fit until the interior finish is applied. For applications where the wall is not finished on both sides or the insulation does not fill the cavity, supplementary support of the insulation, such as wire or insulation pins, shall be provided to hold the insulation in place.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ Thermal Kraft Faced Batts



DESCRIPTION

- Light-density fiber glass batts with a kraft vapor retarder facing.

USES

- To improve thermal performance of exterior and interior walls and floor/ceiling assemblies.

PRODUCT BENEFITS

- Versatile: Enhances thermal performance of walls and floor/ceiling assemblies in steel stud construction.
- Kraft faced, suitable for non-exposed applications.
- Will not rot or mildew; resists fungal growth.
- Lightweight; easily fabricated and installed.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|----------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 11 |
| Combustibility | ASTM E 136 | Combustible |
| Surface burning characteristics | ASTM E 84 | Not rated |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | ≤ 1.0 perm (57ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1338 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 200°F (93°C) |





COMPLIANCES

- ASTM C 665, Type II, Class C, Category 1
- ICC Model Building Code
- California Quality Standards, Reg. No. CA-T024 (PA)

SIZES AND THERMAL RESISTANCE VALUES

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 16, 24 | 406, 610 | 96 | 2438 |
| 19 | 3.3 | 6¼ | 159 | 16 | 406 | 96 | 2438 |

Also available:

CertaPro Thermal Foil Faced Batts. See pages 12–13.

CertaPro Thermal FSK-25 Faced Batts. See pages 14–15.

CertainTeed Building Insulation for wood stud construction, unfaced and kraft faced. See page 25.

INSTALLATION

In steel stud construction, insulation is friction-fitted into stud cavities prior to applying the interior finish. Kraft facings are combustible; do not use in exposed applications. Check local code requirements.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ Thermal Foil Faced Batts



DESCRIPTION

- Light-density fiber glass batts with foil vapor retarder facing.

USES

- To enhance thermal performance of exterior and interior walls and floor/ceiling assemblies.
- Where a Fire Hazard Classification of 75/450 is required.
- For non-exposed applications in both wood and steel stud construction.

PRODUCT BENEFITS

- Foil faced, for use in concealed noncombustible construction.
- Excellent thermal performance.
- Will not rot or mildew; resists fungal growth.
- Lightweight; easily fabricated and installed.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|------------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 13 |
| Combustibility | ASTM E 136 | Combustible |
| Surface burning characteristics | ASTM E 84 | ≤ 75/450 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | ≤ 0.05 perm (2.8ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1338 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 200°F (93°C) |





COMPLIANCES

- ASTM C 665, Type III, Class B, Category 1
- ICC Model Building Code
- California Quality Standards, Reg. No. CA-T024 (PA)

SIZES AND THERMAL RESISTANCE VALUES

FOR STEEL STUDS

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 16, 24 | 406, 610 | 96 | 2438 |
| 11 | 1.9 | 3½ | 89 | 24 | 610 | 48 | 1219 |
| 13 | 2.3 | 3½ | 89 | 16 | 406 | 96 | 2438 |
| 13 | 2.3 | 3½ | 89 | 24 | 610 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 16, 24 | 406, 610 | 96 | 2438 |
| 19 | 3.3 | 6¼ | 159 | 24 | 610 | 48 | 1219 |
| 30 | 5.3 | 10 | 254 | 16, 24 | 406, 610 | 48 | 1219 |
| 38 | 6.7 | 12 | 305 | 24 | 610 | 48 | 1219 |

FOR WOOD STUDS

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 15, 23 | 381, 584 | 93 | 2362 |
| 19 | 3.3 | 6¼ | 159 | 15, 23 | 381, 584 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 15, 23 | 381, 584 | 93 | 2362 |

Also available:

CertaPro Thermal Kraft Faced Batts. See pages 10–11.

CertaPro Thermal FSK-25 Faced Batts. See pages 14–15.

CertainTeed Building Insulation for wood stud construction, unfaced and kraft faced. See page 25.

INSTALLATION

In steel stud construction, insulation is friction-fitted into stud cavities prior to applying the interior finish. Foil-faced products used in wood stud construction should be stapled approximately every 8" (200mm) with the vapor retarder facing the conditioned space. Foil facings are combustible; do not use in exposed applications. Check local code requirements.

These installation recommendations are general in nature. Other methods are acceptable. Please consult your local building codes for recommendations best suited to the application.

CertaPro™ Thermal FSK-25 Faced Batts



DESCRIPTION

- Light-density fiber glass batts with a foil scrim kraft (FSK) fire resistant vapor retarder facing.

USES

- To enhance thermal performance of exterior and interior walls and floor/ceiling assemblies.
- Where a Fire Hazard Classification of 25/50 is required.

PRODUCT BENEFITS

- UL listed; flame spread rating of 25 for exposed applications.
- Excellent thermal performance properties.
- Will not rot or mildew; resists fungal growth.
- Lightweight; easily fabricated and installed.
- Low perm rating.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|------------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 15 |
| Combustibility | ASTM E 136 | Pass/Noncombustible |
| Surface burning characteristics | ASTM E 84 | ≤ 25/50 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | ≤ 0.02 perm (1.1ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1338 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 250°F (121°C) |





COMPLIANCES

- ASTM C 553, Type I
- ASTM C 665, Type III, Class A, Category 1
- ICC Model Building Code
- New York City MEA 19-80-M
- California Quality Standards, Reg. No. CA-T024 (PA)
- City of Los Angeles, RR 8148

SIZES AND THERMAL RESISTANCE VALUES

FOR STEEL STUD

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 16, 24 | 406, 610 | 48 | 1219 |
| 11 | 1.9 | 3½ | 89 | 16, 24 | 406, 610 | 96 | 2438 |
| 13 | 2.3 | 3½ | 89 | 16 | 406 | 96 | 2438 |
| 19 | 3.3 | 6¼ | 159 | 16, 24 | 406, 610 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 16, 24 | 406, 610 | 96 | 2438 |
| 30 | 5.3 | 10 | 254 | 16, 24 | 406, 610 | 48 | 1219 |
| 38 | 6.7 | 12 | 305 | 24 | 610 | 48 | 1219 |

FOR WOOD STUDS

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|--------|----------|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 15 | 381 | 48 | 1219 |
| 11 | 1.9 | 3½ | 89 | 15, 23 | 381, 584 | 96 | 2438 |
| 19 | 3.3 | 6¼ | 159 | 15, 23 | 381, 584 | 48 | 1219 |

Also available:

CertaPro Thermal Kraft Faced Batts. See pages 10–11.

CertaPro Thermal Foil Faced Batts. See pages 12–13.

CertainTeed Building Insulation for wood stud construction, unfaced and kraft faced. See page 25.

INSTALLATION

In steel stud construction, insulation is friction-fitted into stud cavities prior to applying the interior finish. FSK-25 faced products used in wood stud construction should be stapled approximately every 8" (200mm) with the vapor retarder system facing the conditioned space. For most applications, stapling and/or friction-fitting is all that is required. Consult your architect for specific vapor retarder requirements.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ Thermal Extended-Flange Batts



DESCRIPTION

- Light-density faced fiber glass blankets with 4" (102mm) flanges.
- Facings available:
 - Black Poly Scrim Kraft (PSK)
 - White Poly Scrim Kraft (PSK)
 - Foil Scrim Kraft (FSK)

USES

- Adding thermal performance below the wood roof deck systems of large retail stores, warehouses, lofts, and studios.
- Class A, Class I, Fire Hazard Classification 25/50 for exposed applications.

PRODUCT BENEFITS

- Energy saving thermal performance.
- FSK and White PSK facings provide high light reflectance.
- Black PSK facing provides low light reflectance.
- Will not rot or mildew; resists fungal growth.
- Increases sound transmissions class (STC) ratings.
- Absorbs noise, reduces noise transmission.

PROPERTIES

| PROPERTIES | TEST METHOD | FSK FACED PERFORMANCE | PSK FACED PERFORMANCE |
|---------------------------------|---------------------|------------------------------------------|------------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 17 | See table, page 17 |
| Combustibility | ASTM E 136 | Pass/Noncombustible | Pass/Noncombustible |
| Surface burning characteristics | ASTM E 84 | ≤ 25/50 | ≤ 25/50 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | ≤ 0.02 perm (1.1ng/Pa•s•m ²) | ≤ 0.02 perm (1.1ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass | Pass |
| Fungi resistance | ASTM C 1338 | Pass | Pass |
| Odor emission | ASTM C 1304 | Pass | Pass |
| Maximum use temperature | ASTM C 411 | 250°F (121°C) | 250°F (121°C) |

Not available in all locations. Check with your CertainTeed representative for availability.





COMPLIANCES

- ASTM C 553, Type I
- ASTM C 665, Type II, Class A, Category 1 (PSK)
- ASTM C 665, Type III, Class A, Category 1 (FSK)
- ICC Model Building Code
- California Quality Standards, Reg. No. CA-T024 (PA)
- City of Los Angeles, RR 8148 (FSK)

SIZES AND THERMAL RESISTANCE VALUES

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | | LENGTH | |
|--------------------|-----|-----------|-----|-------|-----|--------|------|
| R | RSI | in. | mm | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 15 | 381 | 48 | 1219 |
| 19 | 3.3 | 6¼ | 159 | 23 | 584 | 93 | 2362 |
| 19 | 3.3 | 6¼ | 159 | 23 | 584 | 96 | 2438 |
| 30* | 5.3 | 10 | 254 | 24 | 610 | 48 | 1219 |

*FSK only.

INSTALLATION

Position the batt and staple through the back surface of the extended flange to the side of the joist. Swing the batt into the cavity, fold the opposite flange over the other side of the next joist, and staple the flange to it spacing staples approximately every 8" (200mm) with beginning and ending staples about 1" (25mm) from the end of the flange. This installation allows full thickness recovery of R-19 insulation in 2x4 construction. For R-30 insulation in 2x6 construction, the insulation is compressed to approximately 8½" (216mm), which results in an installed R-Value of 28 (RSI, 4.93). In each case, the insulation should hang approximately 3" (75mm) below the bottoms of the joists.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ Commercial Board



DESCRIPTION

- Boards of resin bonded glass fibers in a range of densities.
- Unfaced boards for use where an exterior finish will be applied.
- Foil Scrim Kraft (FSK) faced boards provide a clean metallic surface finish.
- All Service Jacket (ASJ) faced boards provide a white surface finish.

USES

- Where rigidity properties of a board product are required.
- Adding sound absorption to interior spaces.
- For exposed or non-exposed applications where a Fire Hazard Classification of 25/50 is required.

PRODUCT BENEFITS

- High sound absorption performance.
- A versatile selection of products ranging in stiffness properties from flexible to rigid.
- Easily fabricated and installed.
- High thermal resistance performance per inch.

PROPERTIES

| PROPERTIES | TEST METHOD | UNFACED PERFORMANCE | FSK FACED PERFORMANCE | ASJ FACED PERFORMANCE |
|-----------------------------------------|---------------------|---------------------|------------------------------------------|------------------------------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 19 | See table, page 19 | See table, page 19 |
| Limited combustible (Types CB 300, 600) | NFPA 259 | < 3500 Btu/lb. | < 3500 Btu/lb. | ≤ 3500 Btu/lb. |
| Surface burning characteristics | ASTM E 84 | ≤ 25/50 | ≤ 25/50 | ≤ 25/50 |
| Acoustical performance | ASTM C 423 | See page 37 | See page 37 | See page 37 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight | ≤ 3% by weight | ≤ 3% by weight |
| Water vapor permeance | ASTM E 96 | Not rated | ≤ 0.02 perm (1.1ng/Pa•s•m ²) | ≤ 0.02 perm (1.1ng/Pa•s•m ²) |
| Corrosiveness | ASTM C 665 | Pass | Pass | Pass |
| Fungi resistance | ASTM C 1338 | Pass | Pass | Pass |
| Odor emission | ASTM C 1304 | Pass | Pass | Pass |
| Maximum use temperature | ASTM C 411 | 450°F (232°C) | 250°F (121°C) | 250°F (121°C) |

ACOUSTICAL PERFORMANCE CONSIDERATIONS (ASTM C 423)

See Page 37.





COMPLIANCES

- ASTM C 553, Type I, II, III (Type CB 150)
- ASTM C 612: CB 150 and CB 225 - Type IA; CB 300 and CB 600 - Types IA, IB
- ICC Model Building Code
- New York City MEA 35-79-M
- California Quality Standards, Reg. No. CA-T024 (PA)
- City of Los Angeles, RR 8148

INSTALLATION

Exterior walls: The faced side of the board should be installed toward the interior side of the structure, except in some warm and humid areas where local practice and/or building codes may require a vapor retarder to be outside the heating or building envelope.

Curtain walls: CertaPro Commercial Board is applied to spandrel and pre-cast concrete panels with approved adhesives or mechanical fasteners. Follow the fastener manufacturer's recommendations for pin terminations and safety considerations. Boards may also be installed using hat channels or Z studs.

For applications involving low perm (≤ 1.0) exterior finishes, consideration should be given to taping or sealing all seams, joints and penetrations or for providing a separate continuous vapor retarder system. Consult your architect for specific vapor retarder requirements.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

SIZES, DENSITIES, THERMAL RESISTANCE VALUES AND NRC VALUES

| TYPE | THICKNESS | | DENSITY | | THERMAL RESISTANCE | | THERMAL CONDUCTIVITY | NRC VALUE |
|--------|-----------|-----|--------------------|-------------------|--------------------|-----|-------------------------------|-----------|
| | in. | mm | lb/ft ³ | Kg/m ³ | R | RSI | Btu•in/hr•ft ² •°F | UNFACED |
| CB 150 | 1½ | 38 | 1.50 | 24 | 6.0 | 1.1 | 0.25 | 0.80 |
| | 2 | 51 | 1.50 | 24 | 8.0 | 1.4 | 0.25 | 0.90 |
| | 2½ | 64 | 1.50 | 24 | 10.0 | 1.8 | 0.25 | 0.90 |
| | 3 | 76 | 1.50 | 24 | 12.0 | 2.1 | 0.25 | 1.00 |
| | 3½ | 89 | 1.50 | 24 | 14.0 | 2.5 | 0.25 | 1.05 |
| | 4 | 102 | 1.50 | 24 | 16.0 | 2.8 | 0.25 | 1.00 |
| CB 225 | 1 | 25 | 2.25 | 36 | 4.3 | 0.8 | 0.23 | 0.70 |
| | 1½ | 38 | 2.25 | 36 | 6.5 | 1.1 | 0.23 | 0.80 |
| | 2 | 51 | 2.25 | 36 | 8.7 | 1.5 | 0.23 | 0.95 |
| | 2½ | 64 | 2.25 | 36 | 10.9 | 1.9 | 0.23 | 1.00* |
| | 3 | 76 | 2.25 | 36 | 13.0 | 2.3 | 0.23 | 1.00 |
| | 3½ | 89 | 2.25 | 36 | 15.2 | 2.7 | 0.23 | 1.05 |
| CB 300 | 4 | 102 | 2.25 | 36 | 17.4 | 3.1 | 0.23 | 1.05 |
| | 1 | 25 | 3.00 | 48 | 4.3 | 0.8 | 0.23 | 0.70 |
| | 1½ | 38 | 3.00 | 48 | 6.5 | 1.1 | 0.23 | 0.80 |
| | 2 | 51 | 3.00 | 48 | 8.7 | 1.5 | 0.23 | 0.95 |
| | 2½ | 64 | 3.00 | 48 | 10.9 | 1.9 | 0.23 | 1.00 |
| | 3 | 76 | 3.00 | 36 | 13.0 | 2.3 | 0.23 | 1.05 |
| CB 600 | 3½ | 89 | 3.00 | 48 | 15.2 | 2.7 | 0.23 | 1.05 |
| | 4 | 102 | 3.00 | 48 | 17.4 | 3.1 | 0.23 | 1.05 |
| | 1 | 25 | 6.00 | 96 | 4.5 | 0.8 | 0.22 | 0.70 |
| | 1½ | 38 | 6.00 | 96 | 6.8 | 1.2 | 0.22 | 0.90 |
| | 2 | 51 | 6.00 | 96 | 9.1 | 1.6 | 0.22 | 1.00 |

Standard board sizes: 24" x 48" (610mm x 1219mm), 48" x 96" (1219mm x 2438mm).

All Service Jacket (ASJ) is not available in Type CB 150.

Other sizes and thicknesses up to 4" (102mm) are available as made-to-order items. Check with your CertainTeed representative for availability.

*Estimated NRC value (unfaced)

CertaPro™ AcoustaBoard™ Black



DESCRIPTION

- Rigid glass fiber board with an abuse resistant black non-woven facing.
- Class A, Class I, Fire Hazard Classification 25/50 for exposed applications.

USES

- Sound control in theaters, sound studios and entertainment facilities.
- For applications requiring an exposed, black faced, sound absorbing insulation.

PRODUCT BENEFITS

- Deep black facing.
- Mat facing fully bonded to core, no delamination.
- Controls room reverberation, reducing noise levels, eliminating echoes.
- Ideal when interior is to be dark.
- Lightweight; easily fabricated and installed.
- Will not rot or mildew; resists fungal growth.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|--------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 21 |
| Limited combustibility | NFPA 259 | ≤ 3500 Btu/lb. |
| Surface burning characteristics | ASTM E 84 | ≤ 25/50 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1338 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 250°F (121°C) |





COMPLIANCES

- ASTM C 612: Type 225, Type IA; Type 300, Types IA, IB
- ICC Model Building Code
- California Quality Standards, Reg. No. CA-T024 (PA)
- City of Los Angeles, RR 8148

SIZES, DENSITIES AND THERMAL RESISTANCE VALUES

| THICKNESS | | THERMAL RESISTANCE | |
|-----------|----|--------------------|-----|
| in. | mm | R | RSI |
| 1 | 25 | 4.3 | 0.8 |
| 1½ | 38 | 6.5 | 1.1 |
| 2 | 51 | 8.7 | 1.5 |

Standard board sizes are 24" x 48" (610mm x 1219mm), 48" x 96" (1219mm x 2438mm). Contact your CertainTeed representative for availability and non-standard sizes.

ACOUSTICAL PERFORMANCE

Tested in accordance with ASTM C 423 using an ASTM E 795 Type A mounting.

| THICKNESS | | ABSORPTION COEFFICIENTS AT OCTAVE BAND CENTER FREQUENCIES | | | | | | |
|-----------|----|-----------------------------------------------------------|--------|--------|---------|---------|---------|------|
| in. | mm | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 1 | 25 | 0.07 | 0.28 | 0.71 | 0.90 | 0.93 | 0.93 | 0.70 |
| 1½ | 38 | 0.10 | 0.51 | 0.89 | 0.95 | 0.92 | 0.93 | 0.80 |
| 2 | 51 | 0.17 | 0.76 | 1.05 | 1.02 | 0.95 | 0.96 | 0.95 |

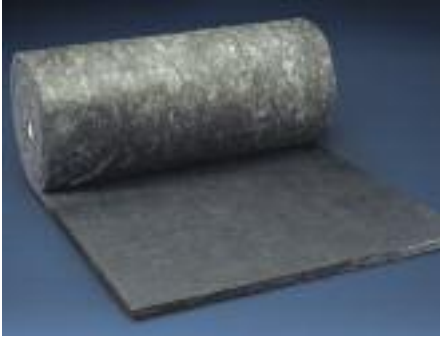
INSTALLATION

CertaPro AcoustaBoard Black can be installed rapidly and is easily cut to fit around obstructions and structural members. The black faced side of the board should be installed toward the interior side of the structure.

AcoustaBoard Black insulation is applied to spandrel, pre-cast concrete panels, and to gypsum board surfaces with adhesives or mechanical fasteners. Boards may also be installed using hat channels or Z studs.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

CertaPro™ AcoustaBlanket™ Black



DESCRIPTION

- A black glass fiber blanket with an abuse resistant black surface.
- Class A, Class I, Fire Hazard Classification 25/50 for exposed applications.

USES

- Sound absorption in theaters, studios, and entertainment facilities.
- For applications requiring a black, sound absorbing insulation.

PRODUCT BENEFITS

- Controls room reverberation, reduces noise levels, eliminates echoes.
- Ideal when interior needs to be dark.
- Flexible; can be easily fabricated and installed on irregular surfaces.
- Will not rot or mildew; resists fungal growth.

PROPERTIES

| PROPERTIES | TEST METHOD | PERFORMANCE |
|---------------------------------|---------------------|--------------------|
| Thermal resistance | ASTM C 518 or C 177 | See table, page 23 |
| Limited combustibility | NFPA 259 | ≤ 3500 Btu/lb. |
| Surface burning characteristics | ASTM E 84 | ≤ 25/50 |
| Water vapor sorption | ASTM C 1104 | ≤ 3% by weight |
| Corrosiveness | ASTM C 665 | Pass |
| Fungi resistance | ASTM C 1138 | Pass |
| Odor emission | ASTM C 1304 | Pass |
| Maximum use temperature | ASTM C 411 | 250°F (121°C) |

ACOUSTICAL PERFORMANCE CONSIDERATIONS (ASTM C 423)

See page 37.





COMPLIANCES

- ASTM C 553, Type I, II
- ICC Model Building Code

SIZES, DENSITIES AND THERMAL RESISTANCE VALUES

| TYPE | THICKNESS | | DENSITY | | ROLL WIDTH | | ROLL LENGTH | | THERMAL RESISTANCE | |
|------|-----------|----|--------------------|-------------------|------------|------|-------------|------|--------------------|-----|
| | in. | mm | lb/ft ³ | kg/m ³ | in. | mm | ft. | m | R | RSI |
| 150 | 1.0 | 25 | 1.5 | 24 | 48 | 1219 | 100 | 30.5 | 4.2 | 0.7 |
| | 1½ | 38 | 1.5 | 24 | 48 | 1219 | 50 | 15.2 | 6.3 | 1.1 |
| | 2.0 | 51 | 1.5 | 24 | 48 | 1219 | 50 | 15.2 | 8.3 | 1.5 |
| 200 | ½ | 13 | 2.0 | 32 | 48 | 1219 | 100 | 30.5 | 2.1 | 0.4 |

ACOUSTICAL PERFORMANCE

Tested in accordance with ASTM C 423 using an ASTM E 795 Type A mounting.

| TYPE | THICKNESS | | ABSORPTION COEFFICIENTS AT OCTAVE BAND CENTER FREQUENCIES | | | | | | |
|------|-----------|----|-----------------------------------------------------------|--------|--------|---------|---------|---------|------|
| | in. | mm | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 150 | 1.0 | 25 | 0.10 | 0.32 | 0.66 | 0.84 | 0.91 | 0.91 | 0.70 |
| | 1½ | 38 | 0.16 | 0.53 | 0.95 | 1.02 | 1.03 | 1.00 | 0.90 |
| | 2.0 | 51 | 0.24 | 0.79 | 1.09 | 1.05 | 1.02 | 1.01 | 1.00 |
| 200 | ½ | 13 | 0.03 | 0.12 | 0.35 | 0.61 | 0.75 | 0.84 | 0.45 |

INSTALLATION

CertaPro AcoustaBlanket Black insulation is applied to spandrel and pre-cast concrete panels with approved adhesives or mechanical fasteners.

These installation recommendations are general in nature. Other methods are acceptable. Please consult local building codes for recommendations best suited to the application.

MemBrain™

The Smart Vapor Retarder



USES

- Intended for use in place of traditional vapor retarders with unfaced fiber glass insulation in wall and ceiling cavities.
- Can be used as a vapor retarder with blown-in insulation systems.

PRODUCT BENEFITS

- MemBrain allows closed building envelope systems to increase their drying potential with seasonal climatic changes.
- Decreases both moisture accumulation within the construction and potential for damage.

DESCRIPTION

- A polyamide film that changes its permeability with the ambient humidity condition.
- Capable of changing its permeability, from low permeability in conditions of low relative humidity, to higher permeability during conditions of high relative humidity.

INSTALLATION

MemBrain should be installed in all insulated walls and ceilings, including cathedral ceilings. For most areas, vapor retarders should be installed on the warm-in-the-winter side of the insulation (toward the interior). For some warm and humid areas, the vapor retarder should be installed outside the heating envelope. MemBrain is not intended to be used as an exterior vapor retarder. Check local practice and/or building codes.

AVAILABLE SIZES

| NOMINAL PRODUCT SIZE | | NOMINAL ROLL WIDTH | | ACTUAL ROLL WIDTH | | SQ. COVERAGE | | BOX LENGTH | | ROLL WEIGHT* | | ROLLS PER PALLET | WEIGHT PER PALLET | |
|----------------------|------|--------------------|------|-------------------|------|--------------|-------|------------|------|--------------|------|------------------|-------------------|-----|
| ft. | m | in. | mm | in. | mm | sq. ft. | m | in. | mm | lbs. | kg | ** | lbs. | kg |
| 8 | 2.44 | 96 | 2438 | 100 | 2540 | 800 | 74.3 | 28.3 | 718 | 11.1 | 5.0 | 45 | 545 | 247 |
| 9 | 2.74 | 108 | 2743 | 112 | 2845 | 900 | 83.6 | 31.5 | 800 | 12.5 | 5.7 | 45 | 608 | 276 |
| 10 | 3.05 | 120 | 3048 | 124 | 3150 | 1000 | 92.9 | 34.5 | 876 | 13.7 | 6.2 | 40 | 593 | 269 |
| 12 | 3.66 | 144 | 3658 | 148 | 3759 | 1200 | 111.5 | 41.0 | 1041 | 17.0 | 7.71 | 30 | 555 | 252 |

*With box and core

**48" (1219 mm) maximum pallet height

Protected by one or more of the following U.S. and foreign patents:
 U.S. Pat. Nos. 6,890,666; 6,878,455 and 6,808,772
 Can. Pat. No. 2215502
 Other U.S. and foreign patents pending.

Other CertainTeed Fiber Glass Insulation



CertainTeed makes a full line of unfaced and kraft faced fiber glass insulation products in batts and rolls for residential construction. Each is designed to fill a specific need in the new construction, remodeling, or reinsulation markets. To meet today's demand for greater energy efficiency, CertainTeed also offers a full line of high-density batt products.

All CertainTeed fiber glass insulation products comply with the performance requirements of applicable ASTM and federal specifications. Please refer to CertainTeed's Catalog 30-29-092 and to the tables below.

AVAILABLE SIZES, UNFACED**

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | |
|--------------------|-----|-----------|-----|-------------------------------------------|---------------------------------------------------|
| R | RSI | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 11½, 15, 15½, 19, 23, 23½, 44, 48, 84 | 286, 381, 387, 483, 584, 591, 1118, 1219, 2134 |
| 13 | 2.3 | 3½ | 89 | 15½, 16, 23½, 24, 32 | 387, 406, 591, 610, 813 |
| 15 | 2.6 | 3½ | 89 | 15½, 23½ | 387, 591 |
| 19 | 3.3 | 6¼ | 159 | 11, 11½, 15, 15½, 16, 19, 23, 23½, 24, 48 | 279, 286, 381, 387, 406, 483, 584, 591, 610, 1219 |
| 21 | 3.7 | 5½ | 140 | 15½, 23½, 24 | 387, 591, 610 |
| 25 | 4.4 | 8 | 203 | 15, 16, 19, 23, 24, 32, 46½ | 381, 406, 483, 584, 610, 813, 1181 |
| 30 | 5.3 | 10 | 254 | 16, 19, 24, 48 | 406, 483, 610, 1219 |
| 30C* | 5.3 | 8¼ | 210 | 15½, 23½ | 387, 591 |
| 38 | 6.7 | 12 | 305 | 16, 24 | 406, 610 |
| 38C* | 6.7 | 10¼ | 254 | 15½, 23½ | 387, 591 |

*Cathedral Ceiling Batt

**Not all sizes available in all locations. Please contact your CertainTeed representative.

AVAILABLE SIZES, KRAFT FACED**

| THERMAL RESISTANCE | | THICKNESS | | WIDTH | |
|--------------------|-----|-----------|-----|-----------------------------|-----------------------------------|
| R | RSI | in. | mm | in. | mm |
| 11 | 1.9 | 3½ | 89 | 11, 15, 16, 23, 24 | 279, 381, 406, 584, 610 |
| 13 | 2.3 | 3½ | 89 | 11, 13½, 15, 16, 19, 23, 24 | 279, 343, 381, 406, 483, 584, 610 |
| 15 | 2.6 | 3½ | 89 | 15, 23 | 381, 584 |
| 19 | 3.3 | 6¼ | 159 | 11, 15, 16, 19, 23, 24 | 279, 381, 406, 483, 584, 610 |
| 21 | 3.7 | 5½ | 140 | 15, 23 | 381, 584 |
| 22 | 3.9 | 8 | 203 | 15, 19, 23 | 381, 483, 584 |
| 25 | 4.4 | 8 | 203 | 15, 23 | 381, 584 |
| 26 | 4.6 | 8 | 203 | 16, 24 | 406, 610 |
| 30 | 5.3 | 10 | 254 | 11, 12, 15, 16, 19, 19½, 24 | 279, 305, 381, 406, 483, 489, 610 |
| 30C* | 5.3 | 8¼ | 210 | 15, 23 | 381, 584 |
| 38 | 6.7 | 12 | 305 | 16, 24 | 406, 610 |
| 38C* | 6.7 | 10¼ | 254 | 15, 23 | 381, 584 |

*Cathedral Ceiling Batt

**Not all sizes available in all locations. Please contact your CertainTeed representative.

Other CertainTeed Products for Commercial Construction

CERTAINEED METAL BUILDING INSULATION 202-96



A flexible blanket of fiber glass insulation, furnished in rolls, designed to be faced on one side with a suitable vapor retarder by independent metal building insulation laminators.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-27-003

INSULSAFE® SP FIBER GLASS BLOWING INSULATION



High performance fiber glass blowing insulation. Designed for installation in open or closed cavities. Lasts for the life of the building to reduce energy demand and costs. Applied using recommended pneumatic blowing machines.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-24-294

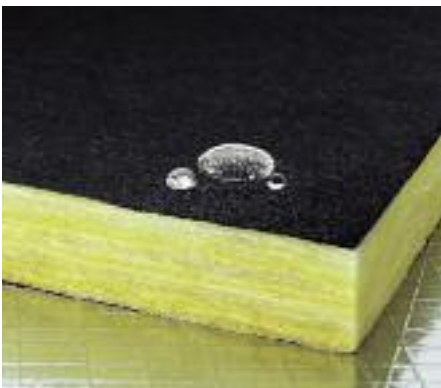
OPTIMA® FIBER GLASS BLOWING INSULATION SYSTEM



High performance loose-fill insulation designed for installation into framed construction cavities covered with non-woven OPTIMA® fabric or equivalent.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-24-216

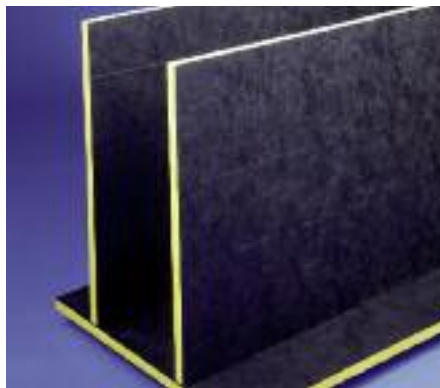
TOUGHGARD® DUCT BOARD



Rigid boards of resin bonded glass fibers with a reinforced foil laminate air barrier/vapor retarder. ToughGard Duct Board has a tough, durable, black mat facing applied to the air stream surface. Used to fabricate air ducts for heating, ventilating and air conditioning systems.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-34-006

TOUGHGARD™ RIGID LINER BOARD



Semi-rigid acoustical and thermal insulation board composed of glass fibers firmly bonded with a thermosetting resin. Air stream surface is overlaid with a tough, durable, fire-resistant black composite surface. Used for lining large sheet metal HVAC ducts and plenums.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-34-010

TOUGHGARD™2 AND TOUGHGARD™R DUCT LINERS



Acoustical and thermal insulation used for lining sheet metal HVAC ducts. Composed of long textile glass fibers firmly bonded with a thermosetting resin. Air stream surface is overlaid with a tough, durable, fire-resistant black composite surface. ToughGard R Duct Liner is composed of rotary-type glass fibers.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-33-019 (ToughGard 2), PUB. NO. 30-33-011 (ToughGard R)

CRIMPWRAP™ PIPE AND TANK WRAP



Flexible blanket of variably oriented glass fibers firmly bonded together with a thermosetting resin. Available with either Foil Scrim (FS) or ASJ (All Service Jacket) vapor retarder facings. Used to control heat loss or gain in large diameter piping and equipment.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-32-102

DRYRIGHT™



Fiber glass batts faced with MemBrain™ The Smart Vapor Retarder. Available for residential and commercial applications. Friction-fit for quick, easy installation.

BASEMENT WALL INSULATION



Half-wall or full-wall insulation available in two facings, white PSK and standard FSK. Designed for use in both residential and commercial applications where code or builder preference specifies an insulated basement area. Both facings are perforated. Intended for applications where the insulation will be left exposed.

ULTRA*DUCT™ BLACK DUCT BOARD



Ultra*Duct™ Black Duct Board is a rigid board designed for fabrication into supply and return air HVAC ductwork. Composed of resin bonded glass fibers with a reinforced foil laminate air barrier/vapor retarder facing applied to the outside surface, and a fiber glass textile mat bonded to the air stream surface.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-34-029

CERTAINTED SOFTTOUCH™ DUCT WRAP



Blanket type insulation composed of glass fibers bonded together with a thermosetting resin. Unfaced or faced with a foil scrim kraft (FSK) vapor retarder facing. Used to insulate rectangular and round heating, ventilating and air-conditioning ductwork.

FOR ADDITIONAL INFORMATION: PUB. NO. 30-35-013

ECOPHON® COMMERCIAL CEILING SYSTEMS



High quality resin bonded glass wool ceiling tiles, wall panels, and baffles with smooth, white washable surfaces, in a variety of edge details. The system combines acoustical performance and high aesthetic values with integrated lighting in a fully demountable concealed grid system.

FOR ADDITIONAL INFORMATION: CALL ECOPHON AT 1-877-258-7845 WEBSITE: www.ecophon-us.com

Guide Specification

GUIDE SPECIFICATION – COMMERCIAL BUILDING INSULATION

PART 1 – GENERAL

1.01 Summary

- A. This section includes commercial building thermal/acoustical insulation for application to:
1. Exterior building walls;
 2. Interior partition walls, shaftwalls, and other interior surfaces;
 3. Ceiling suspension systems.

1.02 Submittals

- A. Prepare and submit for approval information as required by the conditions of the contract and Division 1 Submittals sections.
- B. Submit product data for each thermal and acoustical insulation product specified.

1.03 Quality Assurance

- A. Installers shall be qualified to perform work of this section and shall be experienced in the performance of installation operations as appropriate to the project.

1.04 Delivery and Storage

- A. Deliver all insulation materials and accessories to the project site in manufacturers' original, unopened, undamaged packaging, with all identification labels intact. Store in a safe place protected from dust, dirt, moisture and physical abuse before and during installation.

PART 2 – PRODUCTS

2.01 Approved Manufacturer and Products

- A. All thermal/acoustical insulation materials shall be in accordance with Division 1 Submittals, manufactured by CertainTeed Corporation, including but not limited to:

1. CertaPro® AcoustaTherm Batts, Unfaced or Kraft Faced (no tabs).
2. CertaPro Partition Batts.
3. CertaPro Thermal Kraft Faced Batts.
4. CertaPro Thermal Foil Faced Batts.
5. CertaPro Thermal FSK-25 Faced Batts.
6. CertaPro Extended Flange Batts, FSK Faced.
7. CertaPro Extended Flange Batts, Black PSK Faced.
8. CertaPro Extended Flange Batts, White PSK Faced.
9. CertaPro Commercial Board, Unfaced, FSK or ASJ Faced.
10. CertaPro AcoustaBoard Black.
11. CertaPro AcoustaBlanket Black.

- B. Where applicable, specify product thicknesses and length/width dimensions so insulation completely fills wall cavities to meet thermal and acoustical performance specifications.

- C. Specify type of vapor retarder facing to meet water vapor transmission and fire rating specifications.

2.02 Products and Applications

A. Curtain Wall Insulation:

1. CertaPro AcoustaTherm Batts, Unfaced or Kraft Faced (no tabs).
R-Value: _____.
2. CertaPro Thermal Kraft, Foil, or FSK-25 Faced Batts.
R-Value: _____.
3. CertaPro Commercial Board, Unfaced, FSK or ASJ Faced.
R-Value: _____.

B. Partition Insulation:

1. CertaPro Partition Batts.
R-Value: 5.8.

C. Interior Cavity Wall Insulation:

1. CertaPro AcoustaTherm Batts, Unfaced or Kraft Faced (no tabs).
R-Value: _____.
2. CertaPro Thermal Kraft, Foil, or FSK-25 Faced Batts.
R-Value: _____.

3. CertaPro Thermal Extended Flange Batts, FSK or PSK Faced.
R-Value: _____.

D. Insulation over ceiling suspension systems:

1. CertaPro AcoustaTherm Batts, Unfaced or Kraft Faced (no tabs).
R-Value: _____.

E. Insulation for acoustical control in theaters, sound studios, etc.

1. CertaPro AcoustaBoard Black.
NRC value: _____.
2. CertaPro AcoustaBlanket Black.
NRC value: _____.

PART 3 – EXECUTION

3.01 Inspection

- A. Verify that all insulation may be installed in accordance with project drawings, thermal and acoustical design requirements, and fire ratings.
- B. Confirm that all exterior and interior wall, partition, and floor/ceiling assembly construction has been completed to the point where the insulation may be correctly installed.

3.02 Installation

- A. Install all insulation in compliance with manufacturer's published instructions and good workmanship so that acoustical and thermal performance requirements are met.

3.03 Safety Precautions

- A. Properly protect insulation contractor's employees during installation of all insulation. Protection shall include proper attire when handling and applying insulation materials, and shall include but not be limited to gloves, hard hats, disposable dust respirators, and eye protection.
- B. Conduct all job site operations in compliance with applicable provisions of the Occupational Safety and Health Act and/or local safety and health codes and regulations.

Ventilation and Moisture Considerations

THE IMPORTANCE OF ADEQUATE VENTILATION

As we strive to increase energy efficiency, ventilation and condensation control considerations become more important than in the past. Buildings that are more resistant to air leakage will have increased potential for moisture-related problems, unless proper consideration is given to both ventilation and controlling condensation through the use of vapor retarders.

Air inside buildings normally contains moisture in vapor form. Moisture in vapor form is not a problem when the amount present is not excessive; in fact, it increases human comfort and enhances health.

During cold weather, high indoor vapor pressure forces moisture vapor to move from a building's warm interior toward the exterior, where vapor pressure is lower.

If its passage is not slowed by a vapor retarder, condensation can occur when the vapor contacts a cold, impermeable surface. Continued condensation of moisture vapor to liquid water can result in dripping, staining, mold growth, corrosion of metals, or wood rot. If fiber glass insulation becomes wet, its thermal performance is reduced.

To avoid such problems, building designs must provide adequate ventilation in accordance with ANSI/ASHRAE Standard 62.1-2007, Ventilation for Acceptable Air Quality, and vapor retarders must be installed in accordance with good practice. In many heating-dominant U.S. climates, vapor retarders should be placed at the interior surface of

the insulation. In hot, humid climate areas, vapor retarders are typically placed toward the outside of the building envelope. In some dry, temperate climates such as parts of California and Arizona, vapor retarders are not required.

MEMBRAIN™ THE SMART VAPOR RETARDER

MemBrain™ is a polyamide film that changes its permeability with the ambient humidity condition. It is capable of changing its permeability, from low permeability in conditions of low relative humidity, to higher permeability during conditions of high relative humidity.

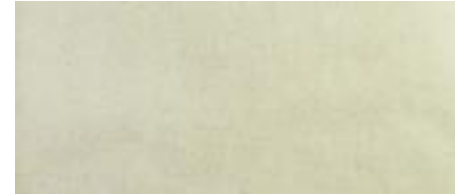
This process allows closed building envelope systems to increase their drying potential with seasonal climatic changes. It is intended for use with unfaced fiber glass insulation in wall and ceiling cavities.

This product can be used in place of traditional vapor retarders with unfaced fiber glass insulation to provide an insulation system that is ideal for cold and mixed climate applications.

For more information on vapor retarders, check local practice and building code requirements and refer to the 2009 ASHRAE Handbook of Fundamentals.

CertainTeed provides a variety of CertaPro fiber glass commercial building insulation products with vapor retarder facings. These products are effective in controlling movement of moisture out of or into conditioned spaces of buildings or into insulated ductwork carrying cold air.

VAPOR RETARDERS AVAILABLE WITH CERTAPRO INSULATION



Kraft Paper with Asphalt



Standard Foil



FSK - Foil Scrim Kraft



PSK - Black Polypropylene Scrim Kraft



PSK - White Polypropylene Scrim Kraft



ASJ - All Service Jacket

Thermal Performance Considerations

HEAT FLOW

Heat flow is defined as the transfer of energy from one area to another due to a temperature difference between the two areas. Heat always flows from the area that has the higher temperature to the area that has the lower temperature. This heat transfer is accomplished by one or more of the following three methods:

- **Conduction** — direct transfer between solids and liquids. A good example: When you touch a hot object, the heat energy is transferred directly from the hot object to your skin.
- **Convection** — by air or other fluid movement. Fluids are heated by conduction at the hot surface and are then transported toward the cooler area where they again transfer energy by conduction to the cooler fluids with which they come in contact.
- **Radiation** — by electromagnetic waves. Energy in the form of electromagnetic waves leaves the hot surface and travels directly to another object, where it is absorbed. The sun warms the earth by radiation heat transfer.

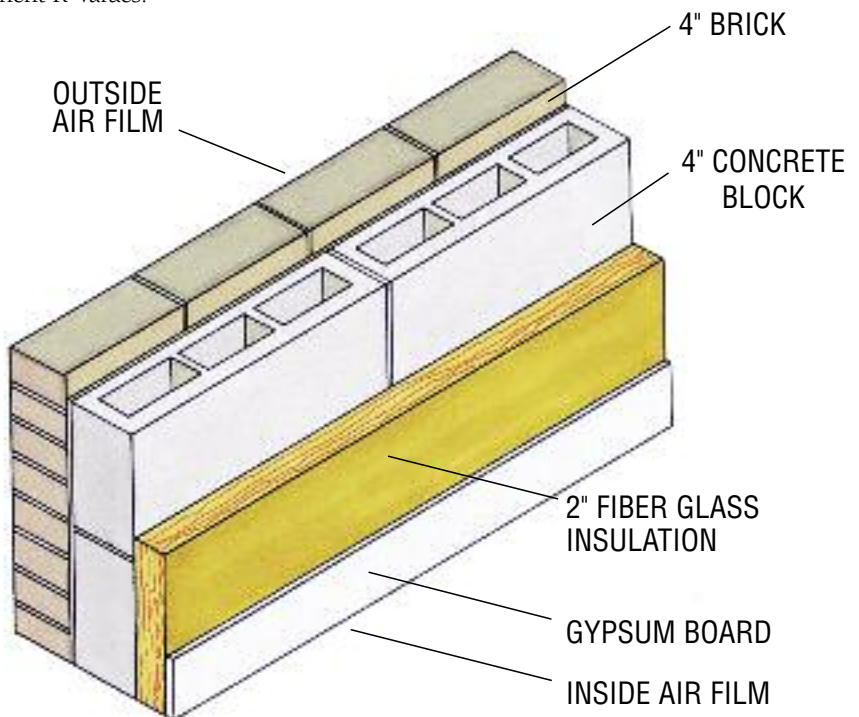
THERMAL RESISTANCE AND THERMAL TRANSMITTANCE

All materials or constructions resist the flow of heat to some extent. This property is called thermal resistance and is often designated as “R-Value,” “R-Factor,” or simply as “R.” (Thermal resistance is designated as RSI in the metric system.)

R-Value is a convenient property to use in commercial building construction because R-Values of materials in a series can be added to determine the thermal resistance of the total construction. The example below shows how the thermal resistance of an insulated masonry wall is determined by adding the individual component R-Values:

| RESISTANCES | R | RSI |
|----------------------------------|--------------|-------------|
| Outside air film | 0.17 | 0.03 |
| 4" (102mm) brick | 0.98 | 0.17 |
| 4" (102mm) concrete block | 0.63 | 0.11 |
| 2" (51mm) fiber glass insulation | 8.70 | 1.53 |
| 1/2" (13mm) gypsum board | 0.45 | 0.08 |
| Inside air film | 0.68 | 0.12 |
| Total resistance (Rt) | 11.61 | 2.04 |

$$U = \frac{1}{R_t} = \frac{1}{11.61} = 0.09 \text{ Btu/hr}\cdot\text{ft}^2\cdot\text{°F}$$



The thermal transmittance of a material or assembly is a measure of the amount of heat that passes through the construction for each degree temperature difference between one side of the construction and the other side. Thermal transmittance is designated as “U-Value” or “U-Factor.”

Thermal resistance and thermal transmittance are related to each other by the following equation:

$$U = 1/R$$

In the example above:

$$U = 1/Rt = 1/11.61 = 0.09$$

The thermal resistance and transmittance properties of a material can vary depending upon the temperature of the material. For this reason, material thermal properties are normally referenced to a mean temperature which, for most energy code requirements, is 75°F (24°C).

Materials that are uniform or homogenous in nature, such as concrete or fiber glass insulation, can also be characterized by their thermal conductivity, or k-Value (metric: λ). Thermal conductivity is a measure of the ability of a material to allow heat to pass through itself, independent of its thickness. Thermal conductivity is related to R-Value by the following equation:

$$R=t/k, \text{ where } t \text{ is the material thickness}$$

Materials that are not homogenous in nature, such as cinder blocks, are characterized by their thermal conductance or C-Value. Thermal conductance is a measure of the ability of a material to allow heat to pass through its entire thickness and is related to R-Value by the following equation:

$$R=1/C$$

Use of these equations is straightforward as long as the units used to measure the properties are consistent. In the English system the units are: feet (ft), inches (in), degrees Fahrenheit (°F), hour (hr), and British thermal units (Btu). In the metric or SI system the units are: millimeters (mm), meters (m), degrees Celsius (°C), hour (hr), and watts (W).

| PROPERTY | ENGLISH UNITS | METRIC (SI) UNITS |
|-----------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Thermal resistance | $R = \frac{(\text{hr}\cdot\text{ft}^2\cdot^\circ\text{F})}{\text{Btu}}$ | $\text{RSI} = \frac{(\text{m}^2\cdot^\circ\text{C})}{\text{W}}$ |
| Thermal transmittance | $U = \frac{\text{Btu}}{(\text{hr}\cdot\text{ft}^2\cdot^\circ\text{F})}$ | $\text{RSI} = \frac{\text{W}}{(\text{m}^2\cdot^\circ\text{C})}$ |
| Thermal conductivity | $k = \frac{\text{Btu}\cdot\text{in}}{(\text{hr}\cdot\text{ft}^2\cdot^\circ\text{F})}$ | $\text{RSI} = \frac{\text{W}}{(\text{m}^2\cdot^\circ\text{C})}$ |
| Thermal conductance | $C = \frac{\text{Btu}}{(\text{hr}\cdot\text{ft}^2\cdot^\circ\text{F})}$ | $\text{RSI} = \frac{\text{W}}{(\text{m}^2\cdot^\circ\text{C})}$ |

Thermal Performance Data

| CERTAPRO™ COMMERCIAL THERMAL/ ACOUSTICAL INSULATION | THICKNESS | | THERMAL RESISTANCE | | THERMAL CONDUCTIVITY | |
|-------------------------------------------------------------------|-----------|-----|--------------------|-----|----------------------|-------|
| | in. | mm | R | RSI | k | l |
| AcoustaTherm Batts | 2½ | 64 | 8.0 | 1.4 | 0.31 | 0.045 |
| | 3½ | 89 | 11.0 | 1.9 | 0.32 | 0.046 |
| | 6¼ | 159 | 19.0 | 3.3 | 0.33 | 0.047 |
| | 10 | 254 | 30.0 | 5.3 | 0.33 | 0.048 |
| Partition Batts | 1½ | 38 | 5.8 | 1.0 | 0.26 | 0.037 |
| Thermal Kraft Faced Batts | 3½ | 89 | 11.0 | 1.9 | 0.32 | 0.046 |
| | 6¼ | 159 | 19.0 | 3.3 | 0.33 | 0.047 |
| Thermal Foil Faced Batts | 3½ | 89 | 11.0 | 1.9 | 0.32 | 0.046 |
| | 3½ | 89 | 13.0 | 2.3 | 0.27 | 0.039 |
| | 6¼ | 159 | 19.0 | 3.3 | 0.33 | 0.047 |
| | 10 | 254 | 30.0 | 5.3 | 0.33 | 0.048 |
| Thermal FSK-25 Faced Batts | 3½ | 89 | 11.0 | 1.9 | 0.32 | 0.046 |
| | 3½ | 89 | 13.0 | 2.3 | 0.27 | 0.039 |
| | 6¼ | 159 | 19.0 | 3.3 | 0.33 | 0.047 |
| | 10 | 254 | 30.0 | 5.3 | 0.33 | 0.048 |
| Thermal Extended Flange Batts (all facings) (FSK only) | 6¼ | 159 | 19.0 | 3.3 | 0.33 | 0.047 |
| | 10 | 254 | 30.0 | 5.3 | 0.33 | 0.048 |
| Commercial Board Type CB 150 | 1½ | 38 | 6.0 | 1.1 | 0.25 | 0.036 |
| | 2 | 51 | 8.0 | 1.4 | 0.25 | 0.036 |
| | 2½ | 64 | 10.0 | 1.8 | 0.25 | 0.036 |
| | 3 | 76 | 12.0 | 2.1 | 0.25 | 0.036 |
| | 3½ | 89 | 14.0 | 2.5 | 0.25 | 0.036 |
| | 4 | 102 | 16.0 | 2.8 | 0.25 | 0.036 |
| Commercial Board Type CB 225 | 1 | 25 | 4.3 | 0.8 | 0.23 | 0.033 |
| | 1½ | 38 | 6.5 | 1.1 | 0.23 | 0.033 |
| | 2 | 51 | 8.7 | 1.5 | 0.23 | 0.033 |
| | 2½ | 64 | 10.9 | 1.9 | 0.23 | 0.033 |
| | 3 | 76 | 13.0 | 2.3 | 0.23 | 0.033 |
| | 3½ | 89 | 15.2 | 2.7 | 0.23 | 0.033 |
| Commercial Board Type CB 300 | 1 | 25 | 4.3 | 0.8 | 0.23 | 0.033 |
| | 1½ | 38 | 6.5 | 1.1 | 0.23 | 0.033 |
| | 2 | 51 | 8.7 | 1.5 | 0.23 | 0.033 |
| | 2½ | 64 | 10.9 | 1.9 | 0.23 | 0.033 |
| | 3 | 76 | 13.0 | 2.3 | 0.23 | 0.033 |
| | 3½ | 89 | 15.2 | 2.7 | 0.23 | 0.033 |
| Commercial Board Type CB 600 | 1 | 25 | 4.5 | 0.8 | 0.22 | 0.032 |
| | 1½ | 38 | 6.8 | 1.2 | 0.22 | 0.032 |
| | 2 | 51 | 9.1 | 1.6 | 0.22 | 0.032 |
| | 1 | 25 | 4.3 | 0.8 | 0.20 | 0.033 |
| | 1½ | 38 | 6.5 | 1.1 | 0.22 | 0.033 |
| | 2 | 51 | 8.7 | 1.5 | 0.23 | 0.033 |
| AcoustaBlanket Black Type 150 | 1 | 25 | 4.2 | 0.7 | 0.24 | 0.035 |
| | 1½ | 38 | 6.3 | 1.1 | 0.24 | 0.035 |
| | 2 | 51 | 8.3 | 1.5 | 0.24 | 0.035 |
| AcoustaBlanket Black Type 200 | ½ | 13 | 2.1 | 0.4 | 0.24 | 0.035 |

Acoustical Design Considerations

INCREASING ACOUSTICAL PERFORMANCE

We live and work today in a world of increasing noise levels. Correctly engineered acoustical insulation systems can help keep outside noise—traffic, loud music, low flying aircraft—from reaching distracting levels inside a building. But it can still be noisy inside due to the sound of air movement in heating and air conditioning systems, office equipment, ringing telephones and conversation.

Acoustically efficient CertaPro fiber glass insulation in exterior walls can help keep excessive outside noise from entering the building. Installed in interior partitions, shaftwalls, ceilings, and roof deck assemblies, fiber glass insulation can reduce noise transmission from room-to-room, control noise within office areas and attenuate sound emanating from mechanical systems. The result: enhanced indoor environmental quality.

There are two basic ways to increase the acoustical performance of partitions:

1. Adding mass to walls and other structures between the source of noise and the listener.
2. Filling wall and ceiling/floor assembly cavities with sound absorbing insulation.

In today's lightweight commercial construction, it is not always practical or cost-effective to increase the mass and weight of walls and other building structures. The solution to most room-to-room sound control problems is to design structural assemblies for optimum reduction of sound transmission and to treat them with fiber glass acoustical insulation.

CERTAINTEED'S CERTAPRO INSULATION CAN HELP

CertaPro acoustical insulation products, backed up by CertainTeed expertise in noise control engineering, can help you design and build to keep sound under control. There's a CertaPro acoustical insulation product for virtually every commercial construction application. See page 33 for information about installing the most appropriate product for specific noise control situations.

Another source for help is "Sound Control for Commercial and Residential Buildings," a publication of the North American Insulation Manufacturers Association (NAIMA). This booklet describes the theory and practice of sound control, discusses the role of acoustical insulation products and recommends specific construction methods. You can download this publication from the NAIMA website at www.naima.org; from there, go to the NAIMA Literature Library and select Publication BI405.

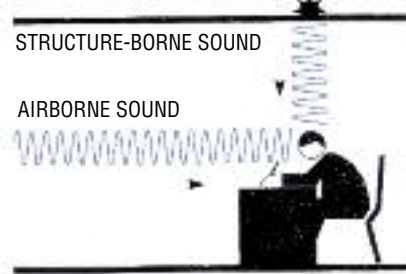
Acoustical Performance Considerations

SOUND CONTROL FOR COMMERCIAL SPACES

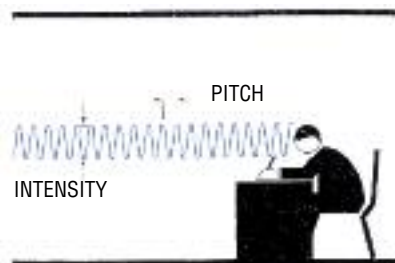
Studies show that excessive noise levels cause fatigue, lower efficiency and productivity, impair speech communication and cause hearing loss. Fortunately, we can design and build to keep noise under control in our homes and workplaces. The following discussion on noise control may help the reader to reduce noise intrusion in commercial buildings.

Basics of Noise Control

A sound wave has both intensity (loudness) and frequency (pitch). The intensity of a particular sound is measured with a sound level meter and is expressed in decibels (dB). Frequently sound levels are expressed in dB(A). This means that the sound level was measured using the A-weighting scale on a sound level meter which provides readings corresponding closely to what humans hear.



Sound frequency is expressed in hertz (Hz). Normal adults hear sounds ranging from 50 Hz to 15,000 Hz. Speech has a frequency range from 200 to 3000 Hz. The faintest sound we can hear is between 0 dB and 10 dB. The highest sound levels measured are between 140 dB and 160 dB. Exposure to sound levels above 90 dB(A) can cause permanent hearing loss. The normal sound levels we are exposed to range from 30 dB(A) to 110 dB(A). Normal noise levels in offices range from 40 dB(A) to 70 dB(A). In industrial plants, noise levels can reach 110 dB(A).

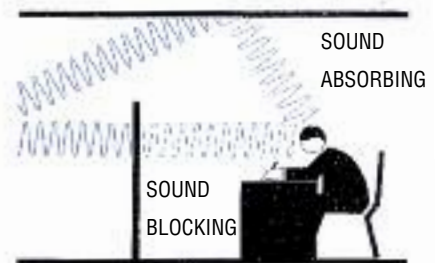


SUBJECTIVE PERCEPTION OF CHANGES IN SOUND LEVELS

| Change in Level | Subjective Response |
|-----------------|----------------------------------|
| 1 dB | Not noticeable |
| 3 dB | Barely noticeable |
| 5 dB | Clearly noticeable |
| 10 dB | Twice or half as loud |
| 20 dB | Four times or one-fourth as loud |

To control noise in commercial spaces such as offices, hotels or motels, and stores, materials or systems must be selected to block transmission of sound from one room to another, or from the outside to the inside of the building; or to reduce the noise within a room by absorbing the sound with a sound absorbing material.

Most acoustical materials or systems either block the transmission of sound or reduce the noise level in a room by absorbing sound energy. A material such as gypsum board is excellent at blocking sound transmission, but poor at absorbing sound. Acoustical ceilings are good at absorbing sound, but poor at blocking the transmission of sound. Rarely are materials good at both sound blocking and sound absorption. Most noise control products and systems are tested and rated for their acoustical performance—their effectiveness either in blocking sound transmission or absorbing sound.



Airborne Sound Rating

The STC—Sound Transmission Class—is a single number rating used to express the effectiveness of an entire construction assembly (wall, floor/ceiling, door or window) in resisting the passage of airborne sound. The rating is determined using ASTM Standard E 413, *Classification for Rating Sound Insulation*. Sound transmission loss values used to determine the STC are obtained from tests conducted in accordance with ASTM Standard E 90, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*. The higher the STC rating, the better the sound insulation performance of the construction.

The table below shows the relationship between STC and noise control effectiveness.

| STC RATING | SPEECH AUDIBILITY | EFFECTIVENESS |
|---------------|-----------------------------------------------------------------------|---------------|
| 15 to 25 | Normal speech easily understood | Poor |
| 25 to 35 | Loud speech easily heard; 50% of normal speech understood | Marginal |
| 35 to 45 | 50% of loud speech understood; normal speech heard but not understood | Good |
| 45 to 55 | Loud speech faintly heard but not understood | Very good |
| 55 and higher | Loud speech usually not heard | Excellent |

The values above are based on a typical background noise level of 30 dB(A) and are based on multiples of five. If a partition rating is between 45 and 50, there is little concern whether the test results were 46,

47, 48, or 49, as all four ratings meet a minimum rating of 45. The partition would not be acceptable for an STC 50 rating.

Impact Sound Rating

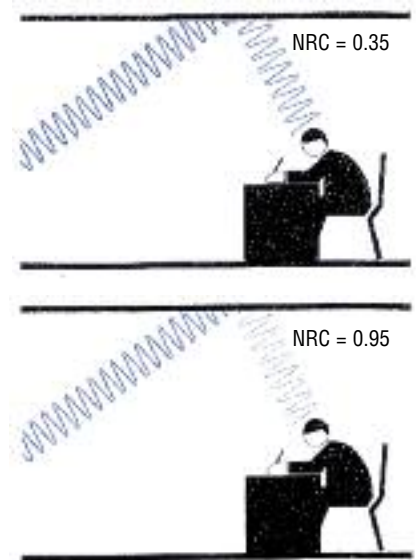
Floor/ceiling assemblies are also rated for impact sound resistance, or structure-borne sound transmitted when one body strikes another, such as with footsteps and falling objects striking a floor. The single number rating system called the Impact Insulation Class (IIC) is used to determine impact sound performance and is determined using ASTM Standard E 989, *Standard Classification for Determination of Impact Insulation Class (IIC)*. Test data obtained in accordance with ASTM Standard E 492, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*, is used to determine the IIC rating of a floor. As with STC ratings, a higher IIC number indicates better performance.

Cushioning floor impacts with a carpet and pad is one of the most effective methods of improving the IIC of a floor. However, a carpet and pad do not significantly increase the STC rating of the floor/ceiling assembly. To increase both the STC and IIC ratings of a floor/ceiling construction, fiber glass insulation should be installed in the joist cavity and a resilient ceiling system installed below the joists. The IIC value of a floor should be equal to or better than the STC value of the floor in order to achieve equal performance for both airborne and structure-borne sound.

Sound Absorption Rating

The NRC, or noise reduction coefficient, is the single number rating used to express how well a material absorbs sound. NRC values range from 0.05 to 1.00. A material with an NRC of 0.05 absorbs only 5% of the sound that strikes it, whereas a material with an NRC of 1.00 theoretically absorbs 100% of the sound that strikes it. A material is usually considered to be a sound absorber if it has an NRC value greater than 0.35.

The NRC value is determined using ASTM Standard C 423, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*.



Acoustical Performance Considerations (cont.)

Sound Control Practice

In addition to the specific sound rated construction assemblies detailed in this catalog, certain construction practices are recommended to reduce sound transmission from room-to-room.

In certain types of stud walls, STC ratings may be increased up to 12 points by the addition of CertaPro AcoustaTherm Batts in the stud cavities.

To obtain the maximum benefit of sound rated constructions, the perimeter of the construction must be sealed with caulking compound wherever it is not completely sealed by normal construction methods (e.g., drywall tape and joint compound). In general, penetrations such as plumbing and gas service lines, electrical outlets, and cabinets should be minimized. If penetrations are necessary, openings should be caulked air-tight. Cabinets should be surface-mounted. Electrical boxes should not be installed back-to-back on opposite sides of a partition in the same stud space.

Plumbing noise can be reduced by larger pipes, air chambers to eliminate water hammer, and isolating pipes from structural framing with fiber glass insulation. Solid wood or metal doors provide better sound control than hollow core wood doors. Door frames should be gasketed to seal tightly when doors are closed.

As with wall construction, penetrations in sound rated floor/ceiling assemblies should be caulked air-tight. Ceiling fixtures should be surface mounted, not recessed. Carpets, pads, and resilient tile will greatly reduce impact sound transmission through floor assemblies.

Acoustical Insulation Density and STC Ratings

It is incorrect to assume that higher density insulation means better sound ratings. Comparative tests conducted at nationally recognized acoustical laboratories have shown that varying density of insulation while maintaining constant thickness, does not have a significant effect on the STC rating of the construction. These tests have shown that insulation thickness is the most important property for acoustical insulation. More detailed information on this subject may be found in reports published in Volume 49, Number 2, 1971, page 385 and in Volume 53, Number 6, 1973, page 1530, of *The Journal of the Acoustic Society of America*. Another study entitled *Gypsum Board Walls: Transmission Loss Data*, conducted by the National Research Council of Canada, also shows that insulation thickness is more important than insulation density in terms of STC ratings.

Constructions and Their STC and IIC Ratings

For typical commercial wall constructions with their STC ratings, see CertainTeed publication *Noise Control in Buildings: Guidelines for Acoustical Problem-Solving* (30-25-047).

Contact CertainTeed Corporation at 800-233-8990 for further information.

Acoustical Performance Data

CERTAPRO COMMERCIAL BOARD (UNFACED) — ACOUSTICAL PERFORMANCE

Tested in accordance with ASTM C 423 using an ASTM E 795 Type A mounting.

| TYPE | THICKNESS | | ABSORPTION COEFFICIENTS AT OCTAVE BAND CENTER FREQUENCIES | | | | | | |
|--------|-----------|-----|-----------------------------------------------------------|--------|--------|---------|---------|---------|-------|
| | in. | mm | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| CB150 | 1½ | 38 | 0.19 | 0.51 | 0.82 | 0.86 | 0.95 | 0.97 | 0.80 |
| | 2 | 51 | 0.23 | 0.61 | 0.94 | 0.97 | 0.98 | 0.96 | 0.90 |
| | 2½ | 64 | 0.41 | 0.78 | 0.96 | 0.94 | 0.93 | 0.97 | 0.90 |
| | 3 | 76 | 0.41 | 0.94 | 1.07 | 1.01 | 1.00 | 0.97 | 1.00 |
| | 3½ | 89 | 0.60 | 1.08 | 1.09 | 1.02 | 1.04 | 1.06 | 1.05 |
| | 4 | 102 | 0.64 | 1.05 | 1.07 | 0.97 | 0.96 | 1.01 | 1.00 |
| CB 225 | 1 | 25 | 0.06 | 0.30 | 0.68 | 0.85 | 0.91 | 0.94 | 0.70 |
| | 1½ | 38 | 0.12 | 0.48 | 0.83 | 0.90 | 0.90 | 0.89 | 0.80 |
| | 2 | 51 | 0.22 | 0.63 | 1.04 | 1.00 | 1.00 | 0.97 | 0.95 |
| | 2½ | 64 | 0.31* | 0.81* | 1.08* | 1.02* | 1.04* | 1.03* | 1.00* |
| | 3 | 76 | 0.34 | 0.95 | 1.08 | 0.99 | 0.98 | 0.99 | 1.00 |
| | 3½ | 89 | 0.54 | 1.11 | 1.12 | 1.01 | 1.02 | 1.00 | 1.05 |
| CB 300 | 1 | 25 | 0.08 | 0.25 | 0.72 | 0.88 | 0.93 | 0.94 | 0.70 |
| | 1½ | 38 | 0.10 | 0.51 | 0.89 | 0.95 | 0.92 | 0.93 | 0.80 |
| | 2 | 51 | 0.21 | 0.73 | 1.08 | 1.04 | 1.04 | 0.96 | 0.95 |
| | 2½ | 64 | 0.31 | 0.81 | 1.08 | 1.02 | 1.04 | 1.03 | 1.00 |
| | 3 | 76 | 0.41 | 0.96 | 1.13 | 1.03 | 1.03 | 1.02 | 1.05 |
| | 3½ | 89 | 0.72 | 1.14 | 1.11 | 1.00 | 1.02 | 1.00 | 1.05 |
| CB 600 | 1 | 25 | 0.05 | 0.27 | 0.78 | 0.97 | 0.97 | 0.91 | 0.70 |
| | 1½ | 38 | 0.17 | 0.50 | 0.98 | 1.03 | 0.99 | 0.98 | 0.90 |
| | 2 | 51 | 0.31 | 0.89 | 1.07 | 0.99 | 1.02 | 0.98 | 1.00 |

*Estimated sound absorption coefficients and NRC

CERTAPRO ACOUSTABOARD BLACK — ACOUSTICAL PERFORMANCE

Tested in accordance with ASTM C 423 using an ASTM E 795 Type A mounting.

| THICKNESS | | ABSORPTION COEFFICIENTS AT OCTAVE BAND CENTER FREQUENCIES | | | | | | |
|-----------|----|-----------------------------------------------------------|--------|--------|---------|---------|---------|------|
| in. | mm | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 1 | 25 | 0.07 | 0.28 | 0.71 | 0.90 | 0.93 | 0.93 | 0.70 |
| 1½ | 38 | 0.10 | 0.51 | 0.89 | 0.95 | 0.92 | 0.93 | 0.80 |
| 2 | 51 | 0.17 | 0.76 | 1.05 | 1.02 | 0.95 | 0.96 | 0.95 |

CERTAPRO ACOUSTABLANKET BLACK — ACOUSTICAL PERFORMANCE

Tested in accordance with ASTM C 423 using an ASTM E 795 Type A mounting.

| TYPE | THICKNESS | | ABSORPTION COEFFICIENTS AT OCTAVE BAND CENTER FREQUENCIES | | | | | | |
|------|-----------|----|-----------------------------------------------------------|--------|--------|---------|---------|---------|------|
| | in. | mm | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 150 | 1 | 25 | 0.10 | 0.32 | 0.66 | 0.84 | 0.91 | 0.91 | 0.70 |
| | 1½ | 38 | 0.16 | 0.53 | 0.95 | 1.02 | 1.03 | 1.00 | 0.90 |
| | 2 | 51 | 0.24 | 0.79 | 1.09 | 1.05 | 1.02 | 1.01 | 1.00 |
| 200 | ½ | 13 | 0.03 | 0.12 | 0.35 | 0.61 | 0.75 | 0.84 | 0.45 |

Fire Safety Considerations

FIRE CODES

Fire codes are intended to establish minimum requirements that provide a reasonable degree of safety from fire in buildings and structures. From the standpoint of building materials the codes are generally concerned with flammability ratings of interior finish materials, combustibility of the construction and its components, and the ability of a construction to resist exposure to fire.

INTERIOR FINISH

Wall and ceiling surfaces are rated by their Flame Spread Index (FSI) and Smoke Developed Index (SDI). These ratings are determined in accordance with ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*.

Building codes have established three classes of performance, based upon flame spread and smoke developed indexes, which are used to specify requirements within the code:

| CLASS DESIGNATION | FLAME SPREAD INDEX | SMOKE DEVELOPED INDEX |
|-------------------|--------------------|-----------------------|
| A or I | 0–25 | 0–450 |
| B or II | 26–75 | 0–450 |
| C or III | 76–200 | 0–450 |

Floor surface finishes are evaluated for their flame propagation properties using NFPA 253 or ASTM E 648, *Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*. This test method measures a performance factor called critical radiant flux, measured in watts per square centimeter.

COMBUSTIBILITY

Materials that meet the criteria of ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°*, are classified as being noncombustible.

For materials that have a surface covering, the model building codes further define a noncombustible material as having a base material that meets the requirements of ASTM E 136 and a surface covering less than 1/8" (3mm) in thickness whose flame spread index is not greater than 50.

Model building codes also classify building construction types as noncombustible or combustible based on their materials of construction. Noncombustible constructions typically designated Types I and II are made from steel, iron, concrete or masonry. Combustible construction, typically designated Types III, IV, or V, can be made of materials specifically permitted by the code (typically wood).

FIRE RESISTANCE

The ability of a structure to remain in place and prevent the spread of flames and heat when exposed to fire conditions is termed its fire resistance or time fire rating and is determined in accordance with ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*.

Building codes regulate the type and location of materials used in building construction to provide for structural stability as well as for an acceptable degree of occupant safety when the building may be exposed to fire. Local code requirements must be consulted in order to determine specific compliance requirements.

Fire Rated Wall Assemblies



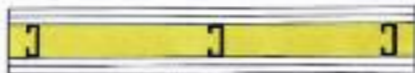
Rating: 2-hour non-bearing (U 419)
 Double layer 1/2" Type X gypsum board on each side
 2 1/2" steel studs on 24" centers
 2 1/2" CertainTeed fiber glass insulation



Rating: 2-hour non-bearing (U 411 or U 419)
 Double layer 5/8" Type X gypsum board on each side
 3 5/8" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 1-hour non-bearing (U 465 or U 419)
 Single layer 5/8" Type X gypsum board on each side
 6" steel studs on 24" centers
 6 1/4" CertainTeed fiber glass insulation



Rating: 2-hour non-bearing (U 411)
 Double layer 5/8" Type X gypsum board on each side
 Min. 2 1/2" steel studs on 24" centers
 2 1/2" CertainTeed fiber glass insulation



Rating: 2-hour non-bearing (U 436)
 Chase wall: Double layer 5/8" Type X gypsum board on each side
 1 5/8" steel studs on 24" centers
 CertainTeed fiber glass insulation to fill cavity



Rating: 2-hour non-bearing (U 419)
 Double layer 5/8" Type X gypsum board on each side
 6" steel studs on 24" centers
 6 1/4" CertainTeed fiber glass insulation



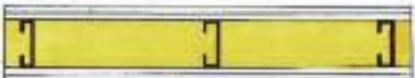
Rating: 1-hour non-bearing (U 419)
 Single layer 5/8" Type X gypsum board on each side
 Min. 3 1/2" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 1-hour non-bearing (U 420)
 Chase wall: Single layer 5/8" Type X gypsum board on each side
 1 5/8" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 3/4-hour bearing (U 317)
 Single layer 1/2" Type X gypsum board on each side
 2" x 4" wood studs on 16" centers
 3 1/2" CertainTeed fiber glass insulation



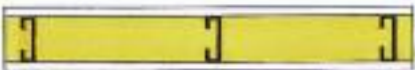
Rating: 2-hour non-bearing (U 419)
 Double layer 1/2" Type X gypsum board on each side
 3 5/8" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



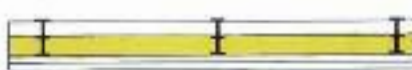
Rating: 2-hour non-bearing (U 420)
 Chase wall: Double layer 5/8" Type X gypsum board on each side
 1 5/8" steel studs on 24" centers
 2 1/2" CertainTeed fiber glass insulation



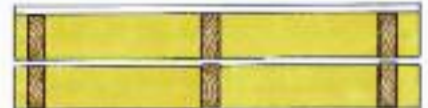
Rating: 1-hour bearing (U 305)
 Single layer 5/8" Type X gypsum board on each side
 2" x 4" wood studs on 16" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 1-hour non-bearing (U 465 or U 419)
 Single layer 5/8" Type X gypsum board on each side
 3 5/8" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



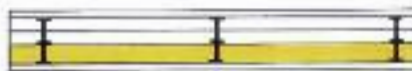
Rating: 2-hour non-bearing (U 497)
 Shaft wall: Single layer 1" Type FSW gypsum board one side, Double layer 1/2" Type FSW-G gypsum board other side
 2 1/2" steel I studs on 24" centers
 1 1/2" CertainTeed CertaPro Partition insulation



Rating: 1-hour bearing (U 341)
 Single layer 5/8" Type X gypsum board on each side
 2" x 4" double wood studs on 24" centers
 2 layers 3 1/2" CertainTeed fiber glass insulation



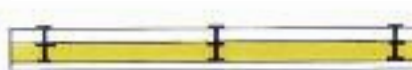
Rating 1-hour non-bearing (U 465)
 Single layer 5/8" Type X gypsum board on each side
 3 5/8" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 2-hour non-bearing (U 498)
 Shaft wall: Double layer (1" Type X + 1/2" Type FSW) gypsum board on one side, Single layer 1/2" Type FSW-G gypsum board on other side
 2 1/2" steel I studs on 24" centers
 1 1/2" CertainTeed CertaPro Partition insulation



Rating: 1-hour non-bearing (U 419)
 Single layer 5/8" Type X gypsum board on each side
 Min. 3 1/2" steel studs on 24" centers
 3 1/2" CertainTeed fiber glass insulation



Rating: 1-hour non-bearing (U 499)
 Shaft wall: Single layer 1" Type FSW gypsum board on one side, Single layer 5/8" Type FSW gypsum board on other side
 2 1/2" steel I studs on 24" centers
 1 1/2" CertainTeed CertaPro Partition insulation

NOTE: Drawings for illustration purposes only. Refer to Underwriters Laboratories Fire Resistance Directory for assembly details and other options.

Specification Compliance

CERTAPRO COMMERCIAL THERMAL / ACOUSTICAL INSULATION

| | ASTM C 553, Type I | ASTM C 553, Type II | ASTM C 553, Type III | ASTM C 612, Type IA | ASTM C 612, Type IB | ASTM C 665, Type I | ASTM C 665, Type II, Class A, Category 1 | ASTM C 665, Type II, Class C, Category 1 | ASTM C 665, Type III, Class A, Category 1 | ASTM C 665, Type III, Class B, Category 1 |
|------------------------------------------|--------------------|---------------------|----------------------|---------------------|---------------------|--------------------|------------------------------------------|------------------------------------------|-------------------------------------------|-------------------------------------------|
| AcoustaTherm™ Batts, Unfaced | ● | | | | | ● | | | | |
| AcoustaTherm™ Batts, Kraft Faced | | | | | | | | ● | | |
| Partition™ Batts, Unfaced | ● | ● | | | | ● | | | | |
| Thermal Kraft Faced Batts | | | | | | | | ● | | |
| Thermal Foil Faced Batts | | | | | | | | | | ● |
| Thermal FSK-25 Faced Batts | ● | | | | | | | | ● | |
| Thermal Extended Flange Batts, FSK Faced | ● | | | | | | | | ● | |
| Thermal Extended Flange Batts, PSK Faced | ● | | | | | | ● | | | |
| Commercial Board Type CB 150 | ● | ● | ● | ● | | | | | | |
| Commercial Board Type CB 225 | | | | ● | | | | | | |
| Commercial Board Type CB 300 | | | | ● | ● | | | | | |
| Commercial Board Type CB 600 | | | | ● | ● | | | | | |
| AcoustaBoard™ Black | | | | ● | ● | | | | | |
| AcoustaBlanket™ Black | ● | ● | | | | | | | | |

All Certapro™ commercial insulations meet requirements of building codes including ICC.

ASTM MATERIAL STANDARDS FOR CERTAPRO PRODUCTS

ASTM C 553-02, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications

- Type I, maximum use temperature of 450°F (232°C), k-Value not greater than 0.36 (l = 0.052) at 75°F (24°C)
- Type II, maximum use temperature of 450°F (232°C), k-Value not greater than 0.31 (l = 0.045) at 75°F (24°C)
- Type III, maximum use temperature of 450°F (232°C), k-Value not greater than 0.26 (l = 0.037) at 75°F (24°C)

ASTM C 612-04, Standard Specification for Mineral Fiber Block and Board Thermal Insulation

- Type IA, maximum use temperature 450°F (232°C)
- Type IB, maximum use temperature 450°F (232°C) and compressive resistance not less than 25 lb/ft² (1.2 kPa) at 10% deformation

ASTM C 665-01, Standard Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing

- Type I, Plain Blanket
- Type II, Blanket with nonreflective facing
- Type III, Blanket with reflective facing
- Class A, Facing flame spread < 25
- Class B, Facing flame propagation resistance > 0.11 Btu/ft² (> 0.12 W/cm²)
- Class C, Facing not rated for flame propagation resistance (for nonexposed applications only)
- Category 1: Facing is a vapor retarder
- Category 2: Facing is not a vapor retarder

Model Building Codes

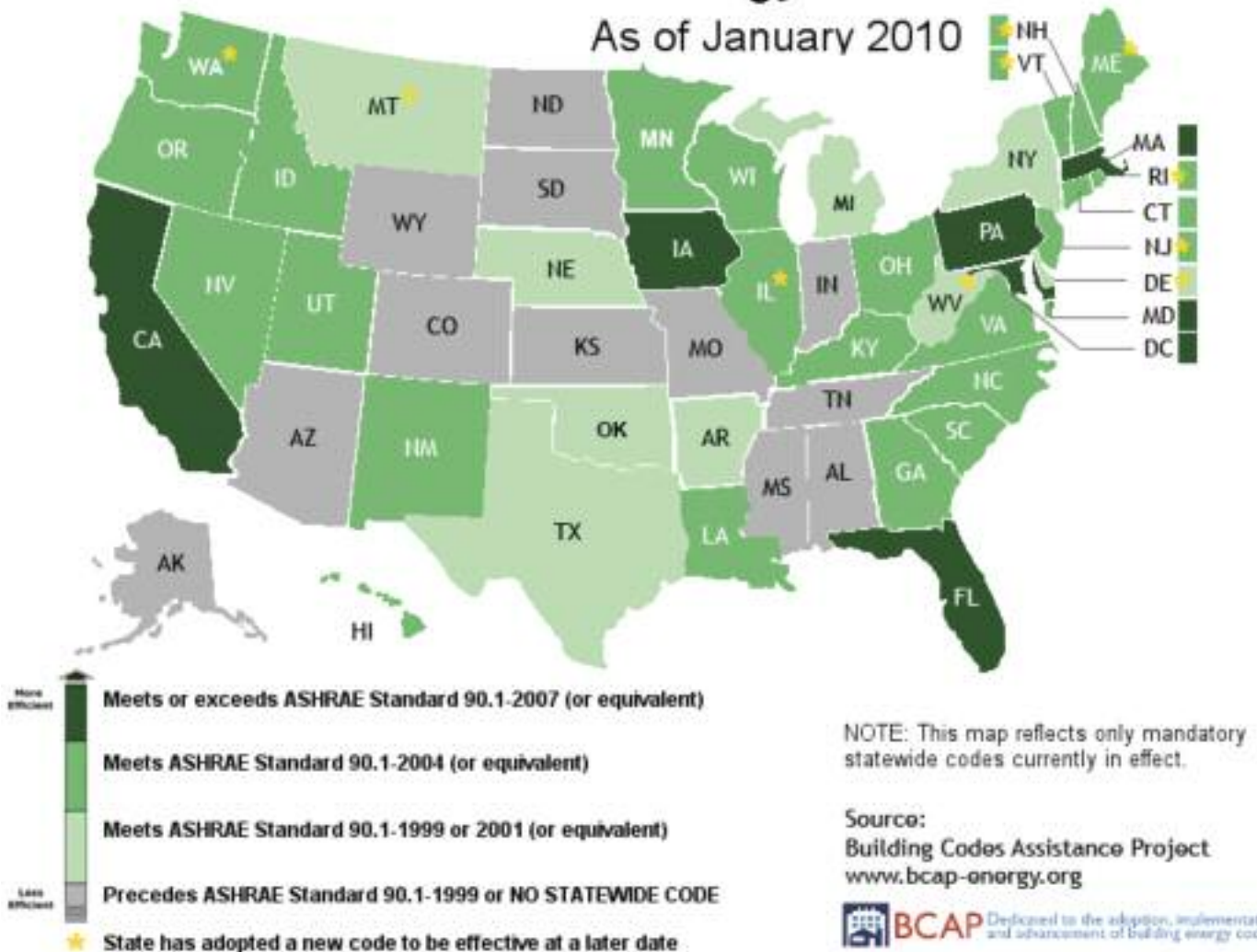
Model building codes establish minimum requirements to protect public health, safety and welfare in the built environment. Local and state governments adopt model codes to protect their communities from fire, structural collapse and general deterioration. These model codes are normally adopted in total or with amendments that reflect specific local needs, and in some cases the local jurisdictions write their code. For decades, three regional model code organizations developed the building codes used in the United States.

The three model code organizations consolidated into the International Code Council in 2003. The map below shows the status of known I-Code adoptions as of the date of this publication. The most current information can be found at www.bcap-energy.org.

The International Code Council, a membership association dedicated to building safety and fire prevention, develops the codes used to construct residential and commercial buildings, including homes and schools. Most U.S. cities, counties and states that adopt codes choose the International Codes developed by the International Code Council.

Commercial State Energy Code Status

As of January 2010



Glossary

THERMAL TERMS

Absorption: Refers to the taking up of water in bulk by matter (such as insulation); penetration of water into the insulation. Also see Sorption.

Adsorption: Refers to the surface retention or adhesion of a very thin layer of water molecules to the surfaces of a material (such as insulation) with which they are in contact. Also see Sorption.

Approved: Acceptable to the authority having jurisdiction.

Authority having jurisdiction: The organization, office, or individual responsible for approving equipment, an installation, or a procedure.

ASJ (All Service Jacket): A reinforced white kraft paper and aluminum foil laminate with the white kraft facing outward.

Blanket (insulation): A relatively flat and flexible insulation in coherent sheet form furnished in units of substantial area.

Board (insulation): Semi-rigid or rigid insulation preformed into rectangular units having a degree of rigidity particularly related to their geometrical dimensions.

British thermal unit (Btu): The heat required to raise the temperature of a pound of water 1°F.

Celsius (formerly Centigrade): A thermometric scale in which the freezing point of water is 0°C and its boiling point 100°C at normal sea level atmospheric pressure (14.7 psi).
 $C=(F-32)/1.8$.

Condensation: The changing of vapor to liquid by extracting heat.

Conductance, thermal (C): The time rate of steady state heat flow through a unit area of a material or construction induced by a unit temperature difference between the body surfaces.

$$C=\text{Btu/hr}\cdot\text{ft}^2\cdot^\circ\text{F}$$

$$C=(\text{W/m}^2\cdot^\circ\text{C})$$

Conductivity, thermal: The time rate of steady state heat flow through a unit area of homogeneous material induced by a unit temperature gradient perpendicular to that unit area.

$$k=\text{Btu}\cdot\text{in/hr}\cdot\text{ft}^2\cdot^\circ\text{F}$$

$$l=(\text{W/m}\cdot^\circ\text{C})$$

Density: The mass per unit volume of in-place thermal insulation.

Dew point temperature: The temperature at which condensation of vapor in a space begins for a given state of humidity and pressure as the vapor temperature is reduced; the temperature corresponding to saturation (100% relative humidity) for a given absolute humidity at constant pressure.

Economic thickness (of insulation):

That thickness which provides the lowest possible annual cost of energy, insulation, and energy producing equipment.

Emittance: The ratio of the radiant flux emitted by an ideal, perfect emitter and absorber of thermal radiation at the same temperature and under the same conditions.

Facing: A protective and/or decorative surface applied as the outermost layers of an insulation system.

Fahrenheit: A thermometric scale in which 32°F denotes freezing and 212°F the boiling point of water under normal sea level atmospheric pressure of 14.7 psi.

Fire resistance rating: The time, in minutes or hours, that materials and assemblies have withstood a fire exposure as established in accordance with the test procedures of NFPA 251, UL 723, or ASTM E 119, Standard Test Methods for Fire Tests of Building Construction and Materials.

Flame spread index: A number or classification of a material determined in accordance with NFPA 255, UL 723, or ASTM E 84, Standard Test Methods for Surface Burning Characteristics of Building Materials.

FSK (Foil Scrim Kraft): A glass scrim reinforced vapor retarder laminate of aluminum foil and kraft paper bonded together with a fire retardant adhesive. The foil side faces outward to present a neat, metallic surface finish.

Heat flow: The rate at which heat moves from an area of higher temperature to an area of lower temperatures.

$$\text{Btu/hr (W/hr)}$$

Heat flow is generally used to quantify the rate of total heat gain or heat loss of a system.

Homogenous material: A material in which relevant properties are not a function of the position within the material.

Humidity: The mass of water vapor per unit volume. Also see relative humidity.

Jacket: A form of facing applied over insulation. It may be integral with the insulation, or field-applied using sheet materials.

Limited combustible material: A building construction material not complying with the definition of non-combustible material, which, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg) and complies with one of the following: (1) Materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1/8" (0.32 cm), that has a flame spread index not greater than 50; (2) Materials, in the form and thickness used, other than as described in (1), having neither a flame spread index greater than 25, nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane, would have neither a flame spread index greater than 25, nor evidence of continued progressive combustion.

Listed: Equipment, materials, or services included in a list published by an organization acceptable to the authority having jurisdiction and concerned with evaluation of products or services and whose listing states either that the equipment, material, or service meets identified standards, or has been tested and found suitable for a specified purpose.

Loose fill (insulation): Insulation in granular, nodular, fibrous, powdery, or similar form designed to be installed by pouring, blowing, or hand placement.

Mean temperature: The arithmetic mean between hot and cold surface temperatures of an insulated pipe, duct, or vessel.
 $t_m = (t_1 + t_2) / 2$.

Noncombustible material: A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat, when tested in accordance with ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C.

PSK (Poly Scrim Kraft): A vapor retarder laminate of polypropylene/scrim (reinforcement)/kraft construction. The white polypropylene surface faces outward to present a smooth, bright white finished appearance.

Perm: The mass rate of water vapor flow through one square foot of a material or construction of one grain per hour induced by a vapor pressure gradient between two surfaces of one inch of mercury, or in units that equal that flow rate.

Relative humidity: The ratio of the mole fraction of water vapor present in the air to the mole fraction of water vapor present in saturated air, at the same temperature and barometric pressure.

Resistance, thermal, R (metric: RSI):
The reciprocal of thermal conductance.
 $R = \text{hr} \cdot \text{ft}^2 \cdot ^\circ\text{F} / \text{Btu}$
 $\text{RSI} = (\text{m}^2 \cdot ^\circ\text{C} / \text{W})$

Smoke developed index: A number or classification of a material determined in accordance with ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials, that measures visible smoke.

Sorption: Refers to the taking up and holding of water by various processes such as absorption and adsorption.

Water vapor diffusion: The process by which water vapor spreads or moves through permeable materials caused by a difference in water vapor pressure.

Water vapor permeability: The time rate of water vapor transmission through unit area of flat material of unit thickness induced by unit vapor pressure difference between two specific surfaces, under specified temperature and humidity conditions.

Water vapor permeance: The time rate of water vapor transmission through unit area of flat material or construction induced by unit vapor pressure difference between two specific surfaces, under specified temperature and humidity conditions.

Water vapor pressure: The pressure of water vapor at a given temperature. Also, the component of atmospheric pressure contributed by the presence of water vapor.

Water vapor resistance: The steady vapor pressure difference that induces unit time rate of vapor flow through unit area of a flat material (or construction that acts like a homogeneous body) for specific conditions of temperature and relative humidity at each surface.

Glossary (cont.)

Water vapor transmission rate: The steady water vapor pressure difference that induces unit time rate of vapor flow through unit area and thickness of a flat material (or construction that acts like a homogeneous body) for specific conditions of temperature and relative humidity at each surface.

Water vapor retarder: A material or system that adequately impedes the transmission of water vapor under specified conditions.

ACOUSTICAL TERMS

Acoustical material: Any material considered in terms of its acoustical properties. Commonly and especially, a material designed to absorb sound.

Airborne sound: Sound which arrives at the point of concern, such as one side of a wall, by propagation through air.

A-weighted sound level (dB): The most common single number rating system for measuring the loudness of a noise. It may be read directly on most sound level meters by selecting the designated scale. It is obtained by applying the A-weighted frequency response curve to the measured sound. The response curve is indicative of the way humans respond to different frequencies.

Attenuation: The sound reduction process in which sound energy is absorbed or diminished in intensity, as the result of energy conversion from sound to motion or heat.

Decibel (dB): The term used to identify ten times the common logarithm of the ratio of two like quantities proportional to power or energy. (Also see sound transmission loss.) Thus, one decibel corresponds to a power ratio of (10 to the 0.1 power) to the n power.

Note: Since the decibel expresses the ratio of two like quantities, it has no dimensions. It is, however, common practice to treat "decibel" as a unit, as for example in the sentence: "The average sound pressure level in the room is 45 decibels."

Direct sound field: The sound that arrives directly from a source without reflection.

Field Sound Transmission Class (FSTC): A single number rating derived from measured values of field transmission loss in accordance with ASTM Standard E 413, Classification for Rating Sound Insulation. It provides an estimate of the performance of the partition in certain common sound insulation problems.

Field Transmission Loss (FTL): Of a partition installed in a building, in a specified frequency band, the ratio, expressed on the decibel scale, of the airborne sound power incident on the partition to the sound power transmitted by the partition and radiated on the other side.

Flanking transmission: Transmission of sound from the source to a receiving location by a path other than that under consideration.

Frequency (Hz): The number of cycles per second measured in units of Hertz (Hz). A frequency of 1000 Hz means 1000 cycles per second.

Impact Insulation Class (IIC): A single number rating derived from measured values of normalized impact sound pressure levels in accordance with Annex 1 of Standard Test Method (ASTM Method E492) for laboratory measurement of impact sound transmission through floor-ceiling assemblies using tapping machine.

Insertion loss: Of a silencer or other sound-reducing element, in a specified frequency band, the decrease in sound power level, measured at the location of the receiver, when a sound insulator or sound attenuator is inserted in the transmission path between the source and the receiver.

Noise: Unwanted sound.

Noise Isolation Class (NIC): A single number rating derived from measured values of noise reduction as though they were values of transmission loss, in accordance with ASTM Standard E 413, Classification for Rating Sound Insulation. It provides an estimate of the sound isolation between two enclosed spaces that are acoustically connected.

Noise Reduction (NR): In a specified frequency band, the difference between the space-time average sound pressure levels produced in two enclosed spaces or one of them.

Note: It is implied that in each room individual observations are randomly distributed about the average value, with no systematic variation with the position within the permissible measurement region. Noise reduction becomes meaningless and should not be used in situations where this condition is not met.

Noise Reduction Coefficient (NRC): A single number rating derived from measured values of sound absorption coefficients in accordance with ASTM Standard C 423, Standard Test Method for Sound Absorption and sound absorption coefficients by the reverberation room method. It provides an estimate of the sound absorptive property of an acoustical material. NRC values range from near 0 for hard, reflective materials such as flat glass and gypsum board, to 1.2 for several inches of highly efficient fiber glass boards.

Outdoor/Indoor Transmission Loss (OITL): Of a building facade, in a specified frequency band, ten times the common logarithm of the airborne sound power incident on the exterior of the facade to the sound power transmitted by the facade and radiated to the interior. The quantity is expressed in decibels.

Octave band: A range of frequency where the highest frequency of the band is double the lowest frequency of the band. The band is usually specified by the center frequency.

Reverberation: The persistence of sound in an enclosed or partially enclosed space after the source of the sound has stopped.

Sabin (L2): The unit of measure of sound absorption in the inch-pound system (i.e., 1 sabin = 1 dB/ft²).

Sound absorption: (1) The process of dissipating or removing sound energy; (2) The property possessed by materials, objects, and structures (such as rooms) of absorbing sound energy.

Note: Sound energy passing through a wall or opening may sometimes be regarded as being absorbed.

Sound absorption coefficient (a) (dimensionless): Metric sabin/m² of a surface, in a specified frequency band, the measure of the absorptive property of a material as approximated by ASTM Standard C 423, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method. Ideally, the fraction of the randomly incident sound power level absorbed or not otherwise reflected.

Sound isolation: Lack of acoustical connection. There are basically two ways to achieve a degree of sound isolation: (1) By insulation, preventing the sound from reaching a receiving location; (2) By attenuation, reducing sound intensity as it travels toward a receiving location.

Sound pressure level (Lp): Of airborne sound, ten times the common logarithm of the ratio of the square of the sound pressure under consideration to the square of the standard reference pressure of 20 mPa. The quantity so obtained is expressed in decibels.

Sound Transmission Class (STC): A single number rating derived from measured values of transmission in accordance with ASTM Classification E 413, Determination of Sound Transmission Class. It provides an estimate of the performance of a partition in certain common sound insulation problems.

Sound Transmission Loss (TL): Of a partition, in a specified frequency band, ten times the common logarithm of the ratio of the airborne sound power incident on the partition to the sound power transmitted by the partition and radiated on the other side. The quantity so obtained is expressed in decibels.

Note: Unless qualified, the term denotes the sound transmission loss obtained when the specimen is exposed to a diffuse sound field as approximated in reverberation rooms meeting the requirements of ASTM Standard E 90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

Structure-borne sound: Sound that arrives at the point of concern by propagation through a solid structure.

PRE-ENGINEERED METAL BUILDING TERMS

Bay: The space between frame center lines or primary supporting members in the longitudinal direction of the building.

Beam: A primary member, usually horizontal, that is subjected to bending loads. There are three types: simple, continuous, and cantilever.

Beam and column: A primary structural system consisting of a series of rafter beams supported by columns. Often used as the end frame of a metal building system.

Butt plate: The end plate of a structural member, usually used to rest against a like plate of another member in forming a connection.

Column: A primary member used in a vertical position on a building to transfer loads from main roof beams, trusses, or rafters to the foundation.

Glossary (cont.)

Curtain wall: Perimeter wall panels which carry their own weight and wind load.

Eaves: The line along the side wall formed by the intersection of the planes of the roof and wall.

Eaves strut: A structural member at the eaves to support roof panels and wall panels. It may also transmit wind load forced from roof bracing to wall bracing.

End wall frame: A frame at the end wall of a building to support the roof load from half the end bay.

End wall post: A secondary column at the end of a building to support the girts and, in a beam-and-column end wall frame, to additionally support the rafter.

Flange: The projecting edge of a structural member at either end of the web.

Framing: The primary and secondary structural members—columns, rafters, girts, purlins, brace rods, etc.—which go together to make up the skeleton of a structure to which the covering can be applied.

Girder: A main horizontal or near-horizontal structural member that supports vertical loads. It may consist of several pieces.

Girt: A secondary horizontal structural member attached to side wall or end wall columns to which wall covering is attached and supported horizontally.

Knee brace: A diagonal brace designed to resist horizontal loads usually from wind or moving equipment. The lower end is normally connected to a column and the upper end connected to an eaves strut.

Masonry: Any construction using materials such as bricks, concrete blocks, ceramic blocks, and poured concrete.

Pier: A concrete structure designed to transfer load from the base of a column to a footing.

Primary members: The main load carrying members of a structural system, including the columns, end wall posts, rafters, and other main support members.

Purlin: A secondary horizontal structural member attached to the primary frame which transfers the roof loads from the roof covering to the primary members.

Rafter: A primary beam supporting the roof system.

Rake: The intersection of the plane of the roof and the plane of the gable.

Rake angle: Angle fastened to purlins at rake for attachment of end wall panels.

Ridge: Highest point on the roof of the building which describes a horizontal line running the length of the building.

Sandwich panel: A panel assembly used as covering consisting of an insulating core material with inner and outer skins.

Secondary members: Members which carry loads to the primary members. In metal building systems, this term includes purlins, girts, struts, diagonal bracing, knee braces, and other miscellaneous framing.

Strut: A brace fitted into a frame work to resist forces parallel to its length.

Stud: A vertical wall member to which exterior or interior covering or collateral material may be attached. It may be either load bearing or non-load bearing.

Thermal block: A spacer of low thermal conductance material (insulation), usually placed over purlins where metal building insulation will be compressed.

Truss: A structure made up of three or more members, with each member designed to carry a tension or compression load. The entire structure acts as a beam.

Web: That portion of a structural member between the flanges.

R-19

6 1/2" Thick de Espesor X 16" Wide de Ancho X 96" Long de Largo

8 Pieces Piezas **85.33** Sq. Ft. Por Paquete

/ Acoustical Batts

R-11

3 1/2" Thick de Espesor X 16" Wide de Ancho X 96" Long de Largo

16 Pieces Piezas **170.67** Sq. Ft. Por Paquete

/ Acoustical Batts

R-11

3 1/2" Thick de Espesor X 24" Wide de Ancho X 96" Long de Largo

CertainTeed

CERTA PRO™

Fiber Glass Insulation
Aislamiento de Fibra de Vidrio

CertainTeed

Noise Reducer™

Fiber Glass Insulation

Aislamiento de Fibra de Vidrio



3 1/2" Thick de Espesor X 16" Wide de Ancho X

16 Pieces Piezas

170

Unfaced Sound Control Batts

Ceilings

CertainTeed
MEMBRAIN

CertainTeed

CertainTeed is the right choice for your business.

THE RIGHT PRODUCTS.

CertainTeed has been making quality building products for more than 100 years and is part of the largest building materials company in the world, Saint-Gobain. We offer you a full line of fiber glass insulation products to meet the needs of your business and your customers.

And even though we've been doing this for a long time, we're always looking for new and better ways to improve our products and increase productivity. Many of our manufacturing plants are registered to ISO 9001:2000 standards. So you know you're getting the best products possible.

THE RIGHT PERFORMANCE.

Our fiber glass insulation products have achieved GREENGUARD® Certification for superior indoor air quality performance. This means our products will contribute very low levels of volatile organic compounds (VOCs) and other pollutants to the indoor environment.

THE RIGHT DELIVERY.

It's tough for you to sell something when it's not there. CertainTeed delivers product when we say we will—or we will credit you 3% of the invoice amount. Our Customer Bill of Rights guarantees it.

THE RIGHT PROGRAMS.

Our ultimate goal, of course, is to deliver the absolute best products and programs for your business. We offer solutions that streamline inventory and incentives to maximize sales as well as margins.

THE RIGHT SUPPORT.

We don't just sell insulation. We listen. We want to understand the unique needs of your business in order to deliver solutions that actually work. From our Building Science department to our dedicated sales team, we work to earn your trust and your business—order after order, year after year.



For questions regarding specifications, building codes and installation practices, contact our Technical Services Department at (800) 233-8990.

In addition to our commercial fiber glass insulation products, CertainTeed offers a full line of residential and HVAC insulation products.

ASK ABOUT OUR OTHER CERTAINTEED PRODUCTS AND SYSTEMS:

EXTERIOR: ROOFING • SIDING • WINDOWS • FENCE • RAILING • TRIM • DECKING • FOUNDATIONS • PIPE
INTERIOR: INSULATION • WALLS • CEILINGS

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www.certainteed.com/insulation

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