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The world leader in stone wool insulation
Le leader mondial de l'isolation en laine de roche



Commercial Applications

Building Insulation Product Overview

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Cavity Wall and Rainscreen Brochure

Cavityrock®
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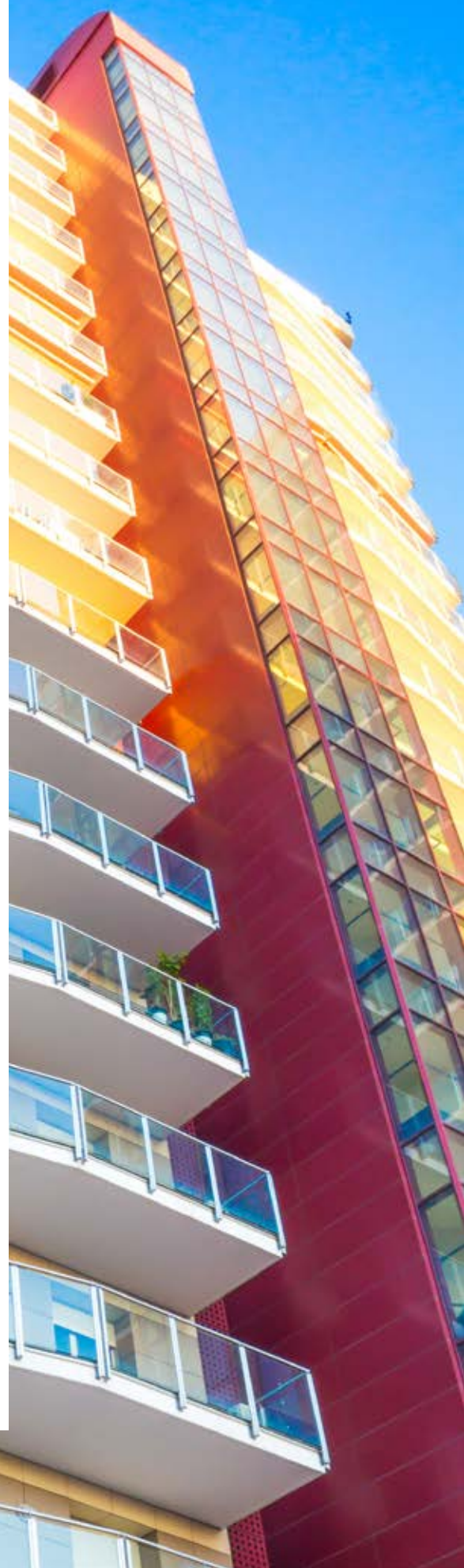
ROXUL Safe® 65
Technical Data Sheet

ROCKWOOL Plus™ MB
Technical Data Sheet



Click on any of the above brochures or data sheets to be directed to that specific document.

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| Products | Standard Thickness | Dimensions (wxl) | Density pcf (Kg/m³) | R-value per Inch | Fire | | Acoustic (at 3” Thickness) | | Corrosive Resistance | Compliance | | | | |
|--|--|--------------------------------------|-------------------------------------|--------------------------------|----------------------------|--------------------|---|---------------------|-------------------------|---------------------|----------------------------|-------------------------|---|-------------------------|
| Interior Wall | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 665 | CAN/ULC S702 | ASTM C 553 | UL Design Nos. |
| AFB® | 1", 1.5", 2", 2.5", 3", 3.5", 4", 5", 6" | 16"x48", 24"x48" | > 2.5 lbs/ft³ (>40 kg/m³) | N/A | Non-combustible | Complies | 0.96 1.18 1.07 1.05 | | 1.05 | Pass | Type 1, Complies | Type 1, Complies | Type 7, Complies | Consult UL/ULC Listings |
| AFB® evo | 1", 1.5", 2", 2.5", 3", 3.5", 4", 5", 6" | 16"x48", 24"x48" | > 2.2 lbs/ft³ (>36 kg/m³) | N/A | Non-combustible | Complies | 0.96 1.18 1.07 1.05 | | 1.05 | Pass | Type 1, Complies | Type 1, Complies | Type 7, Complies | Consult UL/ULC Listings |
| Exterior Wall Batt | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 665 | CAN/ULC S702 | ASTM C 553 | UL Design Nos. |
| Comfortbatt® Steel Stud | 2.5", 3.5", 6", 8" (CAN) 2.5", 3.5", 6", 7.25", 8" (USA) | 16.25"x48", 24.25"x48 | >2 (>32) | R10-R32 (CAN) (USA) | Non-combustible | Complies | N/A | | N/A | Pass | Type 1, Complies | Type 1, Complies | N/A | N/A |
| Comfortbatt® Wood Stud | 3.5", 5.5", 7.25", 8" (CAN) 3.5", 5.5", 7.25", 9.5" (USA) | 15.25"x47", 23"x47" | >2 (>32) | R14-R32 (CAN) R13-R38 (USA) | Non-combustible | Complies | N/A | | N/A | N/A | Type 1, Complies | Type 1, Complies | N/A | N/A |
| | | | | | Fire | | Acoustic (at 3” Thickness) | | Corrosive Resistance | Moisture Resistance | Fungi Resistance | Vapor Permeability | Compliance | |
| Exterior Wall Rainscreen & Cavity Wall | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 1104 | ASTM C 1338 | ASTM E 96 | ASTM C 612 |
| Cavityrock® | 1"- 6" (0.5" increments) 7", 8" | 16"x48", 24"x48" | 6.2 / 3.8 (100 / 61) > 4.3 (>69) | 4.3 | Non-combustible | Complies | 0.93 0.88 0.84 0.90 | | 0.90 | Pass | 0.03% | Zero Growth | 27 perms | Type IVB, Complies |
| Cavityrock® Black | 2", 2.5", 3", 3.5", 4", 5", 6" | 16"x48", 24"x48" | 6.2 / 3.8 (100 / 61) > 4.3 (>69) | 4.3 | Fire | | Acoustic (at 2” Thickness) | | Corrosive Resistance | Moisture Resistance | Compressive Strength (psf) | Vapor Permeability | Compliance | |
| Insulated Sheathing for Continuous Insulation | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 1104 | ASTM C 165 @10% @25% | ASTM E 96 | ASTM C 612 |
| Comfortboard® 110 | 1", 1.25", 1.5", 2", 2.5", 3", 4", 5" | 24"x48", 48"x72" | 11 (176) | 4 | Non-combustible* | Complies | 0.71 0.85 0.90 0.96 | | 0.85 | Pass | 0.28% | 584 1566 | 35 perm | Type IVB, Complies |
| Comfortboard® 80 | 1", 1.25", 1.5", 2", 2.5", 3", 4", 5" | 48"x24", 48"x36", 48"x72", 48"x96" | 8 (128) | 4.2 | Non-combustible* | Complies | 0.78 0.90 0.97 0.97 | | 0.90 | Pass | 0.05% | 439 1065 | 31 perm | Type IVB, Complies |
| | | | | | Fire | | Acoustic (at 3” Thickness) | | Corrosive Resistance | Moisture Resistance | Compliance | | | |
| Curtain Wall Systems | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 1104 | UL/ULC Design Nos. | | ASTM C 612 |
| Curtainrock® (CAN) | 1"-5" (0.5" increments) 6" | 24"x48", 24"x60" | 3.5 (56) | 4.2 | Non-combustible | Complies | 0.95 1.14 1.01 1.03 | | 1.05 | Pass | 0.01% | Consult UL/ULC Listings | | Type IVB, Complies |
| Curtainrock® 40 | 1.5"-5" (0.5" increments) 6", 7" | 24"x48", 48"x72", 36"x60" | 4 (64) Nominal | 4.3 | Non-combustible | Complies | N/A | | N/A | Pass | 0.01% | Consult UL/ULC Listings | | Type IVB, Complies |
| Curtainrock® 80 | 1"-5" (0.5" increments) 6", 7" | 24"x48", 48"x72", 36"x60" | 8 (128) Nominal | 4.3 | Non-combustible | Complies | N/A | | N/A | Pass | 0.04% | Consult UL/ULC Listings | | Type IVB, Complies |
| ROXUL Safe® | 1.5", 2", 3", 4", 5", 6" | 24"x48" | 4 (64) | N/A | Non-combustible | Complies | N/A | | N/A | Pass | 0.04% | Consult UL/ULC Listings | | Type IVA, Complies |
| *Curtainrock 40 and Curtainrock 80 also available in foil faced. | | | | | Fire | | Acoustic (at 3” Thickness) | | Corrosive Resistance | Moisture Resistance | Alternative Solutions | | Compliance | |
| Multi-Purpose Boards | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 423 250Hz 500Hz 1000Hz 2000Hz | | ASTM C 423 NRC | ASTM C 665 | ASTM C 1104 | Facing Options | | ASTM C 612 |
| Rockboard® 40 | 1", 1.5", 2", 2.5", 3", 4", 5" | 24"x48" | 4 (64) | 4.2 | Non-combustible | Complies | 0.95 1.14 1.01 1.03 | | 1.05 | Pass | 0.03% | Foil Faced | | Type IVA, Complies |
| Rockboard® 60 | 2", 3", 4" | 24"x48" | 6 (96) | 4.3 | Non-combustible* | Complies | 0.89 1.04 0.98 1.01 | | 1.00 | Pass | 0.07% | - | | Type IVB, Complies |
| | | | | | Fire | | Corrosive Resistance | Moisture Resistance | Compliance | | | | | |
| Metal Building | | | | | ASTM E 136 & CAN/ ULC S114 | ASTM E 84 (UL 723) | ASTM C 665 | ASTM C 1104 | UL Design Nos. | | ASTM C 612 | ASTM C 553 | DISCLAIMER AND LIMITATION OF LIABILITY: The statements and data contained in this brochure are for general information purposes ONLY. They are NOT specific technical recommendations as to any particular design or application and the ultimate determination as to product suitability is the sole responsibility of the installer or end user. Although the information contained herein, including ROCKWOOL product descriptions, is believed to be correct at the time of publication, accuracy cannot be guaranteed. ROCKWOOL fully reserves the right to make product specification changes, without notice or obligation, and to modify or discontinue any of its products at any time. In no event shall ROCKWOOL be liable for any direct, indirect, or consequential damages of any kind arising from information contained in this brochure, including, but not limited to, claims for loss of profits, business interruption, or damages to business reputation. This limitation of liability shall apply to all claims whether those claims are based in contract, tort, or any legal cause of action. | |
| ROXUL Safe® 65 | 3" | 24"x48", 31.5"x48", 31.5"x60" | 6 (96) Nominal | 4.2 | Non-combustible | Complies | Pass | 0.04% | Consult UL/ULC Listings | | Type IVB, Complies | N/A | | |
| ROXUL Safe® 55 | 4" | 24"x48", 24"x60", 31.5"x48", 48"x48" | 4.5 (72) Nominal | 4.2 | Non-combustible | Complies | Pass | | Consult UL/ULC Listings | | Type IVB, Complies | N/A | | |
| ROCKWOOL Plus™ MB | 2", 3", 3.5", 4", 5", 6" | 24"x48", 32"x48" | 2 (32) | 4 | Non-combustible | Complies | Pass | 0.03% | N/A | | N/A | Type I, II, III | | |



Cavityrock® and Comfortbatt®

Effective Insulation Solutions – The Future
of High-Performance Rainscreen Systems





Over 60,000 sq. ft. of ROCKWOOL Cavityrock® was installed in the Rush University Medical Center's 14-story hospital in Chicago. (Also shown on front cover.) Rush is seeking gold leadership in energy and environment design (LEED®) certification for the new hospital. "From the beginning, it's been designed to use water and energy efficiently and keep down waste. We're using environmentally responsible building materials, and we're recycling as much as we possibly can," says Mick Zdeblick, vice president, campus transformation.*

The Building Envelope Design using ROCKWOOL

Evolution of Rainscreen Systems

The primary functions of a wall system* – to protect, facilitate, and/or provide heat, air, rain penetration, movement of moisture, fire, durability, noise, light, strength, and aesthetics – have not changed over the past 40 years. The same cannot be said for the components and design of cavity wall systems, which have undergone a significant transformation in North America.

This change in design requirements is a result of the increased code requirements that are based on changing ASHRAE standards. Increasing requirements also ask for continuous insulation (c.i.) to meet the R-value and U-value requirements of ASHRAE 90.1.

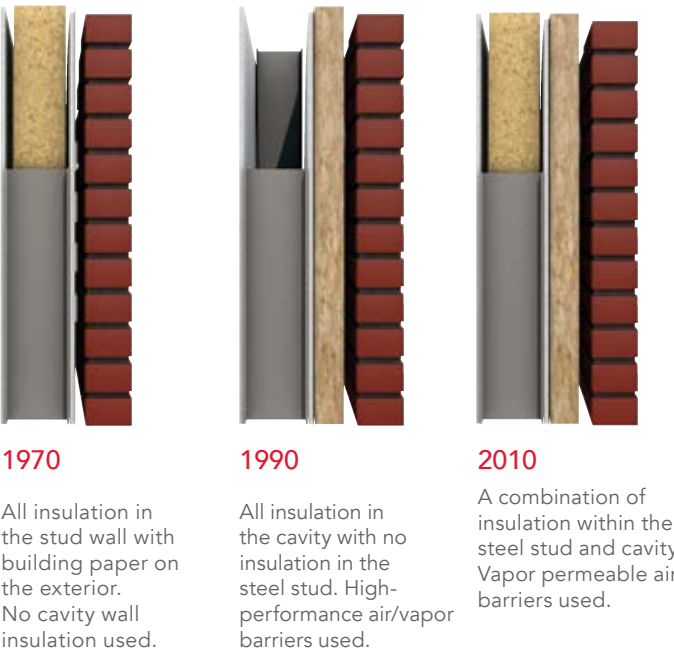
ROCKWOOL is at the forefront of developing wall systems that meet this call for higher energy efficiency, sustainability, durability and better overall performance in commercial buildings.

*Canadian Building Digest, NRC National Research Council Canada

The ROCKWOOL Difference

The R-value of ROCKWOOL insulation does not change over time because stone wool is not produced with blowing agents, which off-gas and result in lower thermal performance. Not only is the thermal performance of ROCKWOOL insulation maintained over its lifetime, but the wall system's thermal performance is maintained because ROCKWOOL products are dimensionally stable.

ROCKWOOL insulation will not slump in stud spacing causing gaps, will not expand or contract due to temperature variances in the rainscreen system, nor is it adversely affected by the presence of moisture in the system, all of which contribute to the optimal thermal performance of a building envelope. ROCKWOOL insulation is made from stone and is non-combustible with an extremely high melting point, making it the safest insulation when compared to both fiberglass and foam plastics.



High-Performance Rainscreen Systems

- Stable Long-Term Thermal Resistance
- Sound Absorbent
- Fire Resistant
- Vapor Permeable
- Continuous Insulation
- Environmentally Sustainable

The Rainscreen System

The ROCKWOOL Wall Rainscreen System comprises ROCKWOOL thermal batt insulation in the exterior stud wall cavity (up to 6”), combined with a high-density, semi-rigid ROCKWOOL insulation board (up to 6”) in the external cavity.

ROCKWOOL insulation within the exterior wall stud cavity and the external cavity offers superior long-term thermal efficiency, fire resistance, moisture control, and acoustic performance.

Rainscreen System Zone 4-8

Components: Cladding, Air space, Cavityrock®, Permeable air barrier, Exterior gypsum board sheathing, Steel stud, Comfortbatt®, Vapor barrier, Gypsum board.

Note: In climates dominated by heating degree days (HDDs), the blue air barrier material should be vapor permeable.



ROCKWOOL Comfortbatt® and Cavityrock® – Wall Combination

ROCKWOOL Comfortbatt®

The Comfortbatt® product line is a non-combustible, semi-rigid batt insulation range that is designed for exterior steel stud wall applications.

Comfortbatt® products are available from 2.5” to 8” in thickness and have standard R-values ranging from R10 to R32. Comfortbatt® also has a unique flexible edge designed to compress as the batt is inserted into walls, attics, ceilings and floor frames.

ROCKWOOL Cavityrock®

ROCKWOOL Cavityrock® products are non-combustible, semi-rigid insulation boards specifically engineered for exterior cavity wall and rainscreen applications.

Cavityrock® is available in thicknesses ranging from 1” to 6”, in .5” increments. The products available in 1” to 2” thicknesses are mono-density solutions, thickness of 2.5” or greater is designed using our dual-density technology. The full line of Cavityrock® products provide a thermal resistance rating of R4.3/inch.

The dual-density technology offers a high-density outer layer and a lower-density inner layer. The high-density outer layer provides greater rigidity and water repellency, while the inner layer helps to conform to architectural features leading to a truer installation.

ROCKWOOL Cavityrock® products are compatible with numerous framing systems and cladding attachment systems. This exterior insulation solution is also approved for use in many NFPA 285-compliant designs.

To learn more visit
rockwool.com/products/cavityrock

Benefits to this Wall Assembly

Dimensional Stability

The dimensional stability of an insulation material is necessary for the faultless function of an insulation system. Dimensional changes in materials vary according to their physical properties. Thermal expansion coefficients express the rate at which materials shrink or expand when cooled or heated. ROCKWOOL insulation has a much smaller thermal expansion coefficient than organic insulation materials such as foam plastics.

Poor dimensional stability can cause shrinking, expansion, and buckling of a system's insulation. These actions can lead to thermal bridging, waterproofing breaches, and unpredictable insulation performance.

| Material Type | Expansion Co-Efficient 10-6 m/m°C | Expansion at Temp. Difference of 50°C or 90°F over 10 m./33 ft. |
|----------------------|-----------------------------------|---|
| Stone Wool | 5.5 | 3 |
| Concrete | 12 | 6 |
| Steel | 12 | 6 |
| Expanded Polystyrene | 70 | 35 |
| Extruded Polystyrene | 80 | 40 |
| Polyurethane | 100 | 50 |
| Polyisocyanurate | 120 | 60 |

Water Vapor Permeance

The water vapor permeance of ROCKWOOL insulation allows for increased potential for drying without trapping transient moisture in the assembly. ROCKWOOL Cavityrock® and Comfortbatt® are water repellent yet vapor permeable insulation products, and will allow transient vapors to pass through without restriction. Lower permeable insulations such as foam plastics can work as vapor retarders and can greatly affect the drying potential of many typical building assemblies.

Long-Term Thermal Performance

As the building industry seeks new and innovative solutions that are truly energy efficient, ROCKWOOL leads the way in developing wall systems with excellent long-term thermal performance. This is the result of two inherent properties in its insulating systems – lack of thermal loss due to dimensional changes, and the insulation’s ability to repel water, which aids in the control of heat loss and gain.

The use of Cavityrock® as a continuous insulation (c.i.) results in a wall with higher effective thermal resistance values than foam plastics.

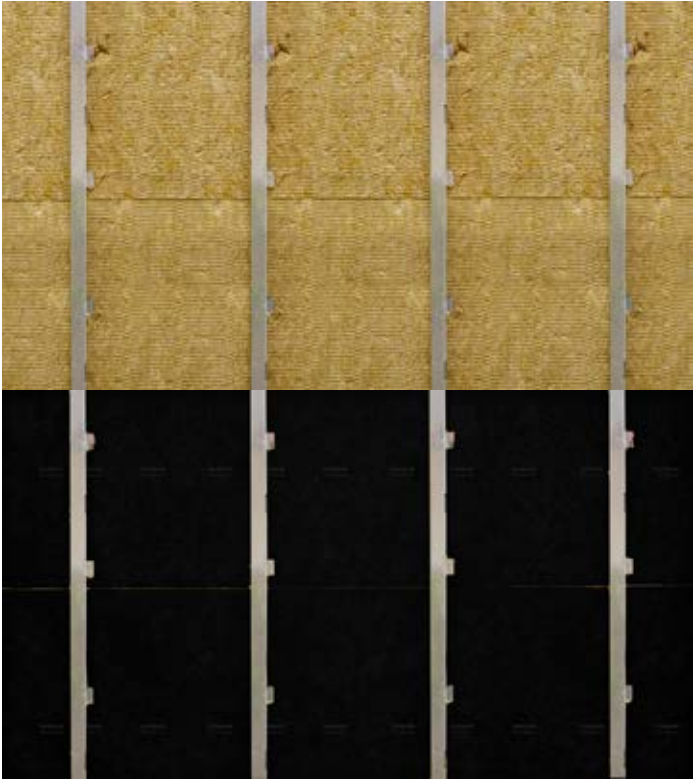


Soleno Project, Montreal, QC
ROCKWOOL Cavityrock®

Cavityrock® Black

The Future of Open-Joint Rainscreen Design

Cavityrock® Black is specially designed to mask the insulation layer in open-joint rainscreen applications, with a bonded black mat fleece facing that leaves the appearance with crisp, black lines. These aesthetic benefits come with the same excellent thermal performance, fire resistance, and moisture control that is standard with ROCKWOOL Cavityrock® insulation.



The image above shows a view of an insulated exterior wall, one with un-faced Cavityrock®, and the other with Cavityrock® Black, installed between vertical Z-Girts

Perfect for the Job Site

Many open-joint cladding solutions use a combination of materials such as a secondary weather-resistive barrier (WRB) to mask the insulation layer, Cavityrock® Black simplifies the system by combining the insulation installation and masking in one step. This reduces the installation time and material cost to achieve the clean, distinguishable aesthetic along the façade.

Download the technical datasheet and learn more about **Cavityrock® Black** by visiting

rockwool.com/products/cavityrock

Cavityrock® Black maintains the thermal performance of R4.3/inch and achieves a flame spread and smoke development index lower than commonly used black scrim materials. The black facing is also designed for exposure to the elements including weather, heat, and UV exposure.

Available in a variety of dimensions to meet the requirements various projects, Cavityrock® Black comes in thicknesses from 2”-6”, featuring a dual-density design in thicknesses greater than 2”.



Build Your Wall Rainscreen System

| Comfortbatt® | | | | | | | | | | |
|--------------------------------------|-------------|-------|------------|-------|---------------|-------|----------|-------|-------|-------------------|
| R-value and Thickness | Canada Only | | US Only | | North America | | | | | |
| | R14 (3.5") | | R15 (3.5") | | R22.5 (6") | | R24 (6") | | | |
| v | 16" | 24" | 16" | 24" | 16" | 24" | 16" | 24" | | |
| R4.20 (1") | 19.95 | 19.95 | 20.95 | 20.95 | 28.45 | 28.45 | 29.95 | 29.95 | 7.36 | Stated R-value |
| | 12.15 | 13.45 | 12.35 | 13.75 | 13.85 | 15.55 | 14.45 | 16.25 | 8.96 | Effective R-value |
| R6.30 (1.5") | 22.05 | 22.05 | 23.05 | 23.05 | 30.55 | 30.55 | 32.05 | 32.05 | 8.96 | Stated R-value |
| | 14.25 | 15.55 | 14.45 | 15.85 | 15.65 | 17.25 | 15.75 | 17.55 | 18.21 | Effective R-value |
| R8.40 (2") | 24.15 | 24.15 | 25.15 | 25.15 | 32.65 | 32.65 | 34.15 | 34.15 | 11.56 | Stated R-value |
| | 16.35 | 17.65 | 16.55 | 17.95 | 18.05 | 19.75 | 18.65 | 20.45 | 20.36 | Effective R-value |
| R10.75 (2.5") | 26.50 | 26.50 | 27.50 | 27.50 | 35.00 | 35.00 | 36.50 | 36.50 | 13.91 | Stated R-value |
| | 18.70 | 20.00 | 18.90 | 20.30 | 20.40 | 22.10 | 21.00 | 22.80 | 24.66 | Effective R-value |
| R12.90 (3") | 28.65 | 28.65 | 29.65 | 29.65 | 37.15 | 37.15 | 38.65 | 38.65 | 16.06 | Stated R-value |
| | 20.85 | 22.15 | 21.05 | 22.45 | 22.55 | 24.25 | 23.15 | 24.95 | 25.75 | Effective R-value |
| R15.05 (3.5") | 30.80 | 30.80 | 31.80 | 31.80 | 39.30 | 39.30 | 40.80 | 40.80 | 25.75 | Stated R-value |
| | 23.00 | 24.30 | 23.20 | 24.60 | 24.70 | 26.40 | 25.30 | 27.10 | 28.45 | Effective R-value |
| R17.20 (4") | 32.95 | 32.95 | 33.95 | 33.95 | 41.45 | 41.45 | 42.95 | 42.95 | 31.15 | Stated R-value |
| | 25.15 | 26.45 | 25.35 | 26.75 | 26.85 | 28.55 | 27.45 | 29.25 | 32.85 | Effective R-value |
| R21.50 (5") | 37.25 | 37.25 | 38.25 | 38.25 | 45.75 | 45.75 | 47.25 | 47.25 | 37.95 | Stated R-value |
| | 29.45 | 30.75 | 29.65 | 30.05 | 31.15 | 32.85 | 31.75 | 33.55 | 40.25 | Effective R-value |
| No Insulation in the Exterior Cavity | 15.75 | 15.75 | 16.75 | 16.75 | 24.25 | 24.25 | 25.75 | 25.75 | | Stated R-value |
| | 7.95 | 9.25 | 8.15 | 9.55 | 9.65 | 11.35 | 10.25 | 12.05 | | Effective R-value |

- Units in h.ft² °F/BTU
- Effective Insulation/Framing Layer R-values between steel framing factors were obtained from ASHRAE 90.1-2013 Table A9.2-2
- Effective R-values are shown for thermal design only. Assumes **Cavityrock®** is installed as continuous insulation (c.i.).
- Moisture and condensation potential should be calculated for each assembly designed.
- **Comfortbatt®** is also available in 2.5" for steel stud applications.

Effective R-values - Example Calculation

| Components | R-values |
|---------------------------|----------|
| Exterior Cladding | 0 |
| Air Film Ext. | 0.17 |
| 1.5" Air Space | 0 |
| Insulation in the Cavity | 6.3 |
| Exterior Gypsum Sheathing | 0.45 |
| Stud Cavity Insulation | 0.91 |
| Gypsum | 0.45 |
| Air Film Int. | 0.68 |
| Total | 8.96 |

For more detailed calculations, contact the ROCKWOOL Building Science team to discuss your specific wall design and your required performance level at 1-800-265-6878.

Superior Sound Absorption

Architects are increasingly choosing cladding façades on buildings, which, when compared to brick, tends to reduce the acoustical performance value of the wall system. With recent trends towards the use of new lightweight construction techniques and cladding materials, ROCKWOOL stone wool cavity wall insulation provides added acoustical value by outperforming traditional foam plastic insulation.

In a wall system, stone wool provides improved low frequency sound absorption to both normal and random incidents of noise. Reduced noise in the workplace can result in a more efficient and pleasant work environment for building occupants.

The stone wool fiber orientation and increased density of both Cavityrock® and Comfortbatt®, compared to other types of insulation, effectively reduce sound transmission across the wall system. Greater noise or sound control is further achieved when thicker Cavityrock®, Comfortbatt®, and gypsum board are used together.

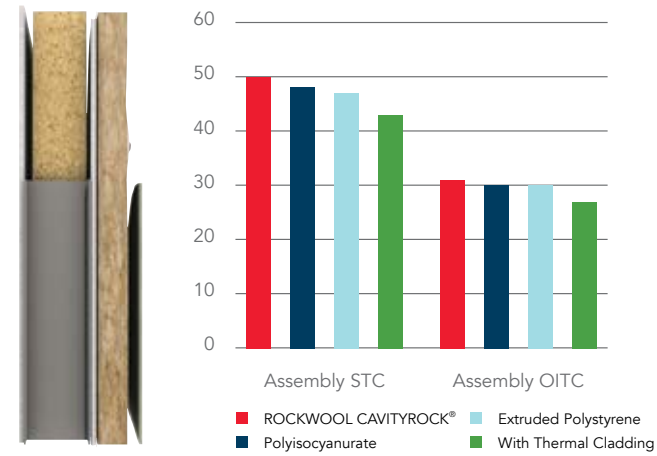
Cavityrock® – Accoustical Performance

ASTM C423 - Co-Efficients at Frequencies

| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
|-----------|--------|--------|--------|---------|---------|---------|------|
| 1.5" | 0.19 | 0.55 | 1.03 | 1.06 | 1.02 | 1.01 | 0.90 |
| 2.0" | 0.26 | 0.71 | 1.14 | 1.09 | 1.04 | 1.03 | 1.00 |
| 3.0" | 0.72 | 0.93 | 0.88 | 0.84 | 0.90 | 0.97 | 0.90 |

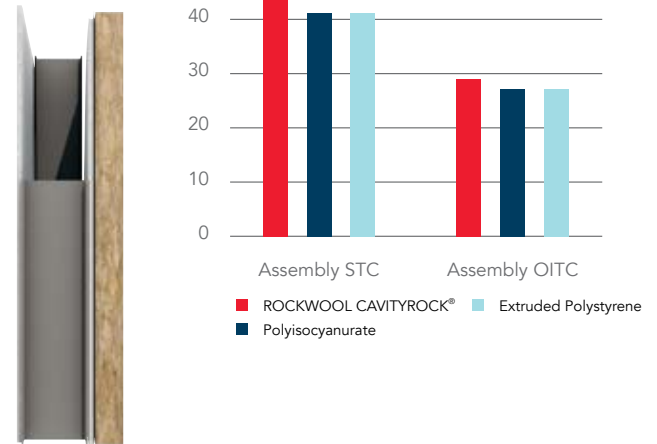


ASTM E90 Sound Transmission Loss Test (Metal stud wall with exterior cladding system)



Test Wall: (Inside to Outside) 1/2" Gypsum, 6" Steel stud, ROCKWOOL Comfortbatt® insulation, 5/8" Gypsum board, Air/Vapor retarder, ROCKWOOL Cavityrock® insulation, 3/8" Cement board cladding.

ASTM E90 Sound Transmission Loss Test (Metal stud wall without exterior cladding system)



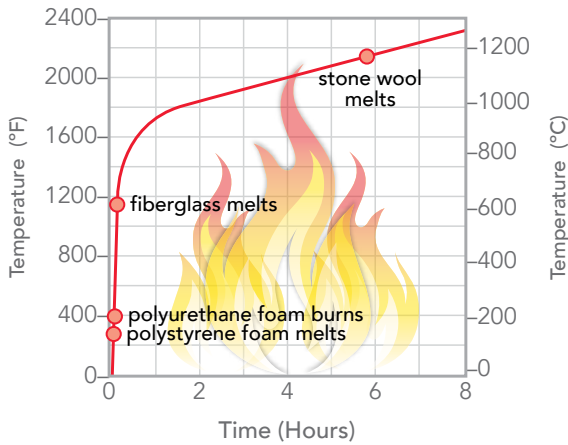
Test Wall: (Inside to Outside) 1/2" Gypsum, 6" Steel stud, Gypsum board, Air/Vapor retarder, ROCKWOOL Cavityrock® insulation, Airspace, 3/8" Cement board cladding.



ROCKWOOL Stone Wool: Fire Resistant, Non-Combustible Insulation

A key feature of ROCKWOOL products is their fire resistance. Cavityrock® is classified as “non-combustible” as determined by ASTM E136 and CAN4-S114. It will not develop toxic smoke or promote flame spread, even when directly exposed to fire, as some other insulation materials do. When tested in accordance with ASTM E84, results typically show a flame spread of 0 and a smoke development of 0. By comparison, spray polyurethane foam (SPUF) results, when tested to ASTM E84, typically achieve a flame of 25 and smoke developed in the 350 to 500 range. ROCKWOOL Cavityrock® and Comfortbatt® stone wool insulation have a melting point of approximately 2150°F (1177°C).

Temperature Development in a Standard Fire (ASTM E119)



Fire Safety: Stone Wool Versus Foam
More recently, as a result of the Shanghai fire in 2010, new concerns have been raised about fire safety during construction. In the case of the Shanghai fire, foam insulation was ignited accidentally during construction and quickly spread through the building exterior. Because of these safety concerns, ROCKWOOL firmly believes in the added value that passive fire resistance provides for buildings.



The severity of the Shanghai fire was partially a result of the use of urethane foam insulation, which aided in the spread of flame and smoke.

Fire Performance

| Product | Specification | Test | Result |
|--|-------------------|--|---|
| Cavityrock® | ASTM E136 | Behavior of Materials at 1382°F (750°C) | Non-Combustible |
| Cavityrock®, Comfortbatt® (split-insulated assembly) | CAN4 S114 | Non-Combustibility in Building Materials | Non-Combustible |
| Cavityrock® | ASTM E84 (UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| Cavityrock®, Comfortbatt® (split-insulated assembly) | CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |

Moisture Management

Moisture Retention Comparison

To obtain a better understanding of the characteristics of in situ thermal insulation within cavity walls, a Certified Building Science Expert at ROCKWOOL reviewed two applicable scenarios in Seattle, Washington. The scenarios were modeled for a three-year period and the theoretical wall was located at mid-level of a high-rise on the western elevation. The charts below represent the first modeled scenario. Note that, in this scenario, Cavityrock® had much less moisture content over the same period than XPS foam insulation under the same conditions.

Double Vapor Barriers can Lead to Moisture Problems

Building enclosures see vapor transport and air movement through the assembly. Although both should be mitigated when designing, air transport will carry higher moisture levels, which could lead to significant moisture problems.

Vapor barriers (retarders) are typically required on the warm side of the assembly (i.e. the interior side for colder climates). As such, the permeability of the insulating materials and the exterior weather resistive barrier/air barrier is critical to avoid the use of double vapor barriers and ensure the wall assembly is able to dry out appropriately.

Wall with ROCKWOOL Cavityrock® [(Water Content (kg/m³))]

| Layer/Material | Start of Calc. | End of Calc. | Min. | Max. |
|-----------------------------------|----------------|--------------|------|--------|
| Brick (Old) | 3.34 | 2.91 | 1.19 | 195.38 |
| Air Layer 25 mm | 1.88 | 2.07 | 0.46 | 23.48 |
| ROCKWOOL Cavityrock® | 0.02 | 0.02 | 0.00 | 0.07 |
| Vapor Retarder (1 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Concrete Blocks, Pumice Aggregate | 28.00 | 11.13 | 8.33 | 28.00 |

Results: Mineral wool insulation in a typical cavity wall will at maximum increase water content from 0.02 kg/m3 to 0.07 kg/m3. XPS had an increase in water content from 0.31 kg/m3 to 0.68 kg/m3.

Ten air changes/hour were included in this calculation.

Vapor Permeability

Cavityrock® and Comfortbatt® are water repellent, yet vapor permeable insulation and will allow transient vapors to pass through without restriction. This vapor permeable quality of ROCKWOOL’s cavity wall insulation allows for an increased potential for drying without trapping water in the wall assembly.

Lower-permeability insulations such as spray foam or XPS can function as vapor retarders and may affect drying potential of typical building assemblies if not designed appropriately.

The stone wool insulation in a cavity wall assembly does not wick water, which means that any bulk water that contacts the outer surface will drain and not be absorbed into the body of the insulation.

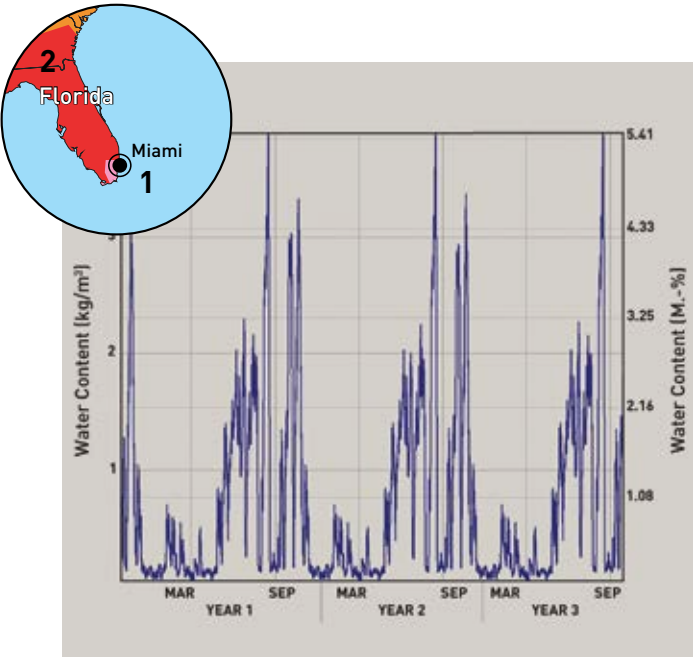
WUFI* – Seattle, Washington Climate Zone 4 Wall with XPS [(Water Content (kg/m³))]

| Layer/Material | Start of Calc. | End of Calc. | Min. | Max. |
|-----------------------------------|----------------|--------------|------|--------|
| Brick (Old) | 3.34 | 3.01 | 1.19 | 195.38 |
| Air Layer 25 mm | 1.88 | 2.44 | .044 | 24.27 |
| Extruded Polystyrene | 0.31 | .033 | 0.12 | 0.68 |
| Vapor Retarder (1 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Concrete Blocks, Pumice Aggregate | 28.00 | 10.85 | 8.17 | 28.00 |

*WUFI is the acronym for “Wärme – und Feuchtetransport instationär” (“Transient Heat and Moisture Transport”). WUFI is designed to calculate the simultaneous heat and moisture transport in multi-layered building components.

Long-Term Performance

WUFI* – Moisture Content within Wall over 3 Years in Climate Zone 1



Graphs indicate the moisture performance of Cavityrock® over a 3-year timeframe.

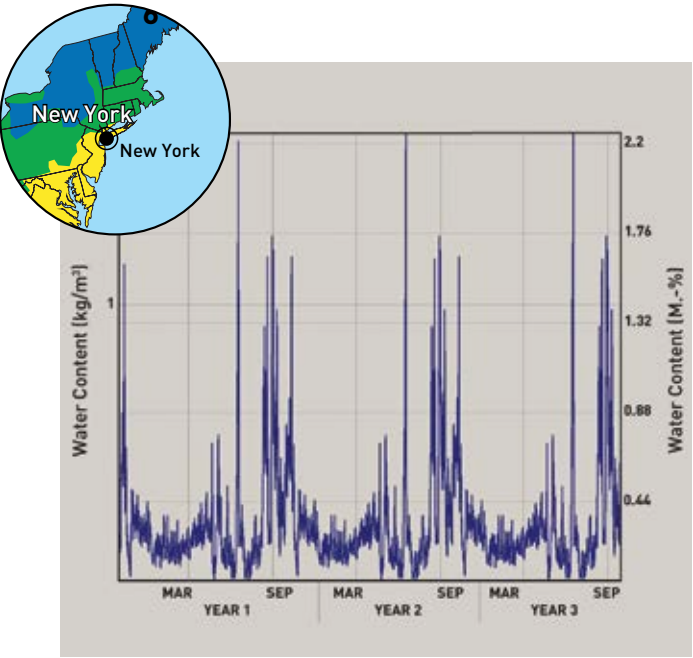
Cavityrock® dries out year over year to the same levels, indicating that moisture does not build up in the insulation over time.

| Wall Layer/Material CLIMATE ZONE 1 | Start of Calc. | End of Calc. | Min. | Max. |
|---------------------------------------|----------------|--------------|-------|--------|
| Cement Board | 43.71 | 197.46 | 16.46 | 349.35 |
| Air Layer (25 mm) | 1.88 | 13.97 | 0.45 | 26.14 |
| ROCKWOOL Cavityrock® | 0.20 | 2.19 | 0.05 | 3.89 |
| Vapor Retarder (10 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Gypsum Board (USA) | 6.19 | 4.32 | 2.74 | 6.19 |
| ROCKWOOL Comfortbatt® | 0.07 | 0.04 | 0.02 | 0.07 |
| Interior Gypsum Board | 8.65 | 5.24 | 3.45 | 8.65 |
| Total Water Content* | 0.79 | 3.05 | 0.3 | 5.19 |

*Water content (kg/m3)

ROCKWOOL Cavityrock® thermal insulation has a very low moisture vapor sorption and does not permit the horizontal transmission of bulk moisture through the material or the assembly.

WUFI* – Moisture Content within Wall over 3 Years in Climate Zone 4



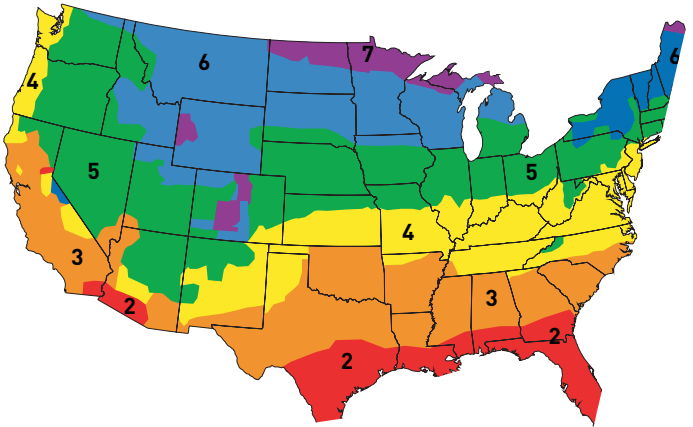
*Water content (kg/m3)

| Wall Layer/Material CLIMATE ZONE 4 | Start of Calc. | End of Calc. | Min. | Max. |
|---------------------------------------|----------------|--------------|-------|--------|
| Cement Board | 43.71 | 144.77 | 13.08 | 348.58 |
| Air Layer (25 mm) | 1.88 | 9.46 | 0.34 | 17.99 |
| ROCKWOOL Cavityrock® | 0.20 | 0.46 | 0.04 | 1.60 |
| Vapor Retarder (10 perm) | 0.00 | 0.00 | 0.00 | 0.01 |
| Gypsum Board (USA) | 6.19 | 6.18 | 2.44 | 11.79 |
| ROCKWOOL Comfortbatt® | 0.07 | 0.06 | 0.01 | 1.41 |
| Vapor Retarder (0.1 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Interior Gypsum Board | 8.65 | 4.99 | 3.56 | 8.65 |
| Total Water Content* | 0.79 | 2.21 | 0.28 | 4.86 |

Meeting the Challenges of Today’s Climate Zones

ASHRAE – History of R-Value Requirements

The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) is an international Society of technical individuals who provide knowledge to the building industry on heating, ventilation, air-conditioning, and refrigeration (HVAC&R). The Society developed ASHRAE 90.1, an energy conservation standard that provides the minimum requirements for energy-efficient buildings. This standard, or an equivalent, is applied today in many states for commercial, government and high-rise building applications. In Canada, look to the National Building Code and refer to section A-5.3.1.2 for information on condensation and energy conservation standards.



ASHRAE 90.1 2013 All Buildings Non-Residential Specific to Cavity Wall/Rainscreen Requirements by Climate Zone

| City/State | Climate Zone | Mass* | Metal Framed** |
|----------------|-------------------|----------|----------------|
| Miami, FL | 1 | NR | R13 |
| Tampa, FL | 2 | R5.7 ci | R13 + R3.8 ci |
| Charleston, SC | 3 | R7.6 ci | R13 + R5 ci |
| New York, NY | 4 (except marine) | R9.5 ci | R13 + R7.5 ci |
| Spokane, WA | 5 (and marine) | R11.4 ci | R13 + R10 ci |
| Milwaukee, WI | 6 | R13.3 ci | R13 + R12.5 ci |
| Anchorage, AK | 7 | R15.2 ci | R13 + R12.5 ci |
| Nome, AK | 8 | R19 ci | R13 + R18.8 ci |

* Wall without Steel Studs eg. Concrete

** Steel Stud and Cavity Wall

Canadian Equivalents to US Climate Zones

| City | Province | Climate Zone |
|-----------|------------------|--------------|
| Vancouver | British Columbia | 5 |
| Calgary | Alberta | 7 |
| Regina | Saskatchewan | 7 |
| Winnipeg | Manitoba | 7 |
| Toronto | Ontario | 6 |
| Montreal | Quebec | 6 |
| Halifax | Nova Scotia | 6 |

ASHRAE Map of Climate Zones

Every rating agency has its own maps that divide regions into thermal or climate zones to tailor codes and standards to what is appropriate for that particular region.

ASHRAE Correction Factors for Metal Wall Framing

| Metal Stud Size | Stud Spacing O.C. | Cavity Insulation* | Correction Factor | Effective R-value |
|-----------------|-------------------|--------------------|-------------------|-------------------|
| 2x4 | 16” | R11 | 0.50 | 5.50 |
| | | R13 | 0.46 | 6.00 |
| | | R15 | 0.43 | 6.40 |
| | 24” | R11 | 0.60 | 6.60 |
| | | R13 | 0.55 | 7.20 |
| | | R15 | 0.52 | 7.80 |
| 2x6 | 16” | R19 | 0.37 | 7.10 |
| | | R21 | 0.35 | 7.40 |
| | 24” | R19 | 0.45 | 8.60 |
| | | R21 | 0.43 | 9.00 |
| | 16” | R25 | 0.31 | 7.80 |
| | | R25 | 0.38 | 9.60 |
| 2x8 | 24” | R25 | 0.38 | 9.60 |

*Cavity Insulation = Steel Stud Wall Insulation



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 12,000 employees in 40 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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Publication date - edition: 04/2022



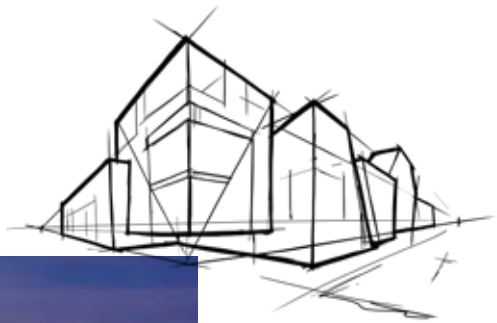
ROCKWOOL
8024 Esquesing Line
Milton, ON L9T 6W3
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rockwool.com

Cavityrock®

Exterior Insulation for Cavity Wall and Rainscreen Applications



Rush University Medical Center, Chicago, IL



Cavityrock® Black: now available with black mineral fiber facing for open-joint cladding systems. The facing provides long-term UV stability as outlined on the next page.

Fire Performance

The non-combustible characteristics of Cavityrock® insulation mean that it will not develop toxic smoke or promote flame spread even when directly exposed to fire.



Also available in a black mat facer finish for open-joint cladding systems, Cavityrock® Black combines your insulation install with masking in a single step, reducing installation time and material cost to achieve your desired design aesthetic.

Learn more at rockwool.com/products/cavityrock/



Cavityrock®

Exterior Insulation for Cavity Wall and Rainscreen Applications

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Cavity Wall Unit Masonry 04 27 23**

ROCKWOOL Cavityrock® is a semi-rigid stone wool insulation board designed for exterior cavity wall and rainscreen applications. Compatible with numerous cladding attachment systems, Cavityrock® is non-combustible and available with a black mineral fleece facing for open-joint cladding systems.

| | Performance | | Test Standard | |
|---|--|---|--|-------------------|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant MEA Approval, New York City Approval For information on CAN/ULC S702 compliance, contact ROCKWOOL Technical Support | | ASTM C612 236 - 05 - M | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Behaviour of materials at 750°C - Non Combustible | | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 | |
| Reaction to fire (with black mat facer) | Flame spread index = 10; Smoke developed index = 25 Flame spread index = 10; Smoke developed index = 10 | | ASTM E84 (UL 723) CAN/ULC S102 | |
| Monolithic Density (thickness: 1", 1.5", 2") | > 4.3 lbs/ft³ (>69 kg/m³)* * Density will change with thickness, please contact ROCKWOOL for more information | | ASTM C303 | |
| Density (thickness ≥ 2.5") | Dual Density - 6.2 lbs/ft³ (100 kg/m³) outer layer and 3.8 lbs/ft³ (61 kg/m³) inner layer | | ASTM C303 | |
| Dimensional Stability | Linear Shrinkage = 0.7% @ 1200°F (650°C) | | ASTM C356 | |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | | ASTM C795 ASTM C665 | |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.3 hr.ft².F/Btu 0.75 m²K/W | ASTM C518 (C177) | |
| Reaction to Moisture | Moisture Sorption - 0.03% by volume Water Vapor Transmission, Desiccant Method - 1555ng/Pa.s.m² (27 perm) Determination of Fungi Resistance - Passed | | ASTM C1104 ASTM E96 ASTM C1338 | |
| Reaction to moisture (with black mat facer) | Moisture Sorption - 0.65% by volume Water Vapor Transmission, Desiccant Method - 2435ng/Pa.s.m2 (43 perm) Determination of Fungi Resistance - Passed | | ASTM C1104 ASTM E96 ASTM C1338 | |
| Dimensions | 1" (25.4 mm) to 4" (101.6 mm) in 1/2" increments. 5" (127 mm) , 5.5" (139.7 mm), 6" (152.4 mm), 7" (177.8 mm), 8" (203.2 mm) 24" x 48" (610 mm x 1219 mm) and 16" x 48" (406 mm x 1219 mm) | | | |
| Dimensions (with black mat facer) | 2" (50.8 mm), 3" (76.2 mm), 4" (101.6 mm) available in 16" x 48" (406 mm x 1219 mm) and 24" x 48" (610 mm x 1219 mm) 2.5" (63.5 mm), 3.5" (88.9 mm), 5" (127 mm), 6" (152.4mm) available in 24" x 48" (610 mm x 1219 mm) | | | |
| Acoustical Performance | Thickness | 125 Hz 250 Hz 500 Hz 1000 Hz 2000Hz 4000 Hz NRC | ASTM C423 | |
| | 1.5" | 0.19 0.55 1.03 1.06 1.02 1.01 0.9 | | |
| | 2" | 0.26 0.71 1.14 1.09 1.04 1.03 1 | | |
| | 3" | 0.72 0.93 0.88 0.84 0.9 0.97 0.9 | | |
| UV Stability (with black mat facer) | Determination of changes in color fastness: achieved rating of 5/5 at 250 hr. and 500 hr. exposure, no perceptible change in color, and a rating of 4/5 at 750 hr. and 1,000 hr. exposure. For more information and technical reports on ISO 105-A02 results, please contact ROCKWOOL Technical Services. | | | ISO 105-AO2: 1993 |

Unfaced: "tested on 4.0" sample"
With Black Mat Facer: "tested on 3.5" sample"

Issued: 03-01-2021
Supersedes 08-23-17



Please contact ROCKWOOL for Declare labels for other ROCKWOOL manufacturing facilities.

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Return to Commercial Applications



Comfortbatt®

Thermal Batt Insulation



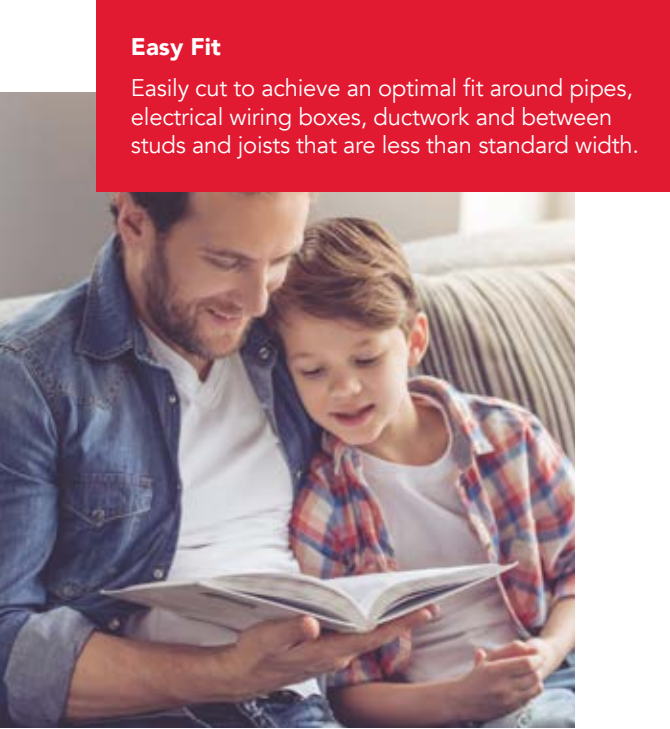
ROCKWOOL Comfortbatt® is a semi-rigid stone wool batt insulation for exterior wood and steel stud applications in both new construction and renovations.

It features a unique flexible edge designed to compress as the batt is inserted then spring back, expanding the batt against the frame studs to give a complete fill. This flexibility ensures the expected R-value is achieved and maintained.

Non-combustible and fire resistant, Comfortbatt® will not develop toxic smoke or promote flame spread, even when exposed directly to a fire. It also offers water and moisture resistance and excellent sound absorbency.

Comfortbatt® is an effective way to improve a home's energy efficiency. It is GREENGUARD Gold Certified and contributes to a healthier indoor environment.

Learn more at rockwool.com



Easy Fit

Easily cut to achieve an optimal fit around pipes, electrical wiring boxes, ductwork and between studs and joists that are less than standard width.

Comfortbatt®

Thermal Batt Insulation

Technical Data Sheet

Batt Insulation 07210*
Blanket Insulation 07 21 16**

ROCKWOOL Comfortbatt® is a mineral wool batt insulation designed for thermal resistance in wood and steel framing.

| | Performance | | Test Standard |
|--------------------|---|--------------------------------------|---------------|
| Compliance | Mineral Fibre Thermal Insulation for Buildings, Type 1 Compliant | | CAN/ULC S702 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | | CAN/ULC S102 |
| | Determination of Non-combustibility of Building Materials - Non-combustible | | CAN/ULC S114 |
| Density | > 2 lbs/ft³ (>32 kg/m³) | | ASTM C167 |
| Thermal Resistance | Wood Stud | Steel Stud | ASTM C518 |
| | R14 (RSI 2.47) - 3.5" thick (89 mm) | R10 (RSI 1.76) - 2.5" thick (64 mm) | |
| | R22 (RSI 3.87) - 5.5" thick (140 mm) | R14 (RSI 2.47) - 3.5" thick (89 mm) | |
| | R24 (RSI 4.23) - 5.5" thick (140 mm) | R22.5 (RSI 3.96) - 6" thick (152 mm) | |
| | R28 (RSI 4.93) - 7.25" thick (184 mm) | R24 (RSI 4.23) - 6" thick (152 mm) | |
| | R32 (RSI 5.64) - 8" thick (203 mm) | R32 (RSI 5.37) - 8" thick (203 mm) | |
| Dimensions | Wood Stud 16" (406 mm) on centre: 15.25" x 47" (387 mm x1194 mm) | | |
| | Wood Stud 24" (610 mm) on centre: 23" x 47" (584 mm x 1194 mm) | | |
| | Steel Stud 16" (406 mm) on centre: 16.25" x 48" (413 mm x 1219 mm) | | |
| | Steel Stud 24" (610 mm) on centre: 24.25" x 48" (616 mm x 1219 mm) | | |



Issued 08 01 2020
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Comfortbatt®

Thermal Batt Insulation



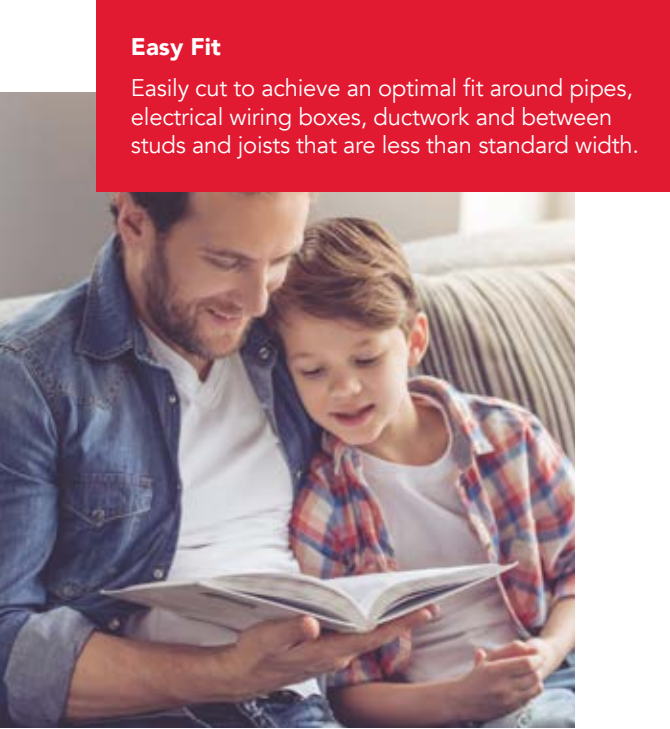
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Comfortbatt®

Thermal Batt Insulation

Technical Data Sheet

Batt Insulation 07210*
Blanket Insulation 07 21 16**

ROCKWOOL Comfortbatt® is a mineral wool batt insulation designed for thermal resistance in wood and steel framing.

| | Performance | Test Standard | |
|--------------------|---|---------------------------------------|-----------|
| Compliance | Mineral Fiber Thermal Insulation for Buildings, Type 1 Compliant | ASTM C665 | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | ASTM E84 (UL 723) | |
| | Determination of Non-combustibility of Building Materials - Non-combustible | ASTM E136 | |
| Density | > 2 lbs/ft³ (>32 kg/m³) | ASTM C167 | |
| Thermal Resistance | Wood Stud | Steel Stud | ASTM C518 |
| | R13 (2.29) - 3.5" thick (89 mm) | R10 (RSI 1.76) – 2.5" thick (64 mm) | |
| | R15 (RSI 2.64) – 3.5" thick (89 mm) | R15 (RSI 2.64) – 3.5" thick (89 mm) | |
| | R21 (3.70) - 5.5" thick (140 mm) | R24 (RSI 4.23) – 6" thick (152 mm) | |
| | R23 (RSI 4.05) – 5.5" thick (140 mm) | R30 (RSI 5.28) - 7.25" thick (184 mm) | |
| | R30 (RSI 5.28) – 7.25" thick (184 mm) | R32 (RSI 5.64) - 8" thick (203 mm) | |
| | R38 (6.69) - 9.5" thick (241 mm) | | |

| | |
|------------|---|
| Dimensions | Wood Stud 16" (406 mm) on center: 15.25" x 47" (387 mm x 1194 mm) Wood Stud 24" (610 mm) on center: 23" x 47" (584 mm x 1194 mm) Steel Stud 16" (406 mm) on center: 16.25" x 48" (413 mm x 1219 mm) Steel Stud 24" (610 mm) on center: 24.25" x 48" (616 mm x 1219 mm) |
|------------|---|



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Comfortboard® 110

High-Performance Thermal Insulated Sheathing



ROCKWOOL Comfortboard® 110 Creates Breathable Wall Systems

ROCKWOOL Comfortboard® 110 (Thermal Insulated Sheathing) is a rigid, high-density, stone wool insulation board designed for use as an exterior continuous insulation in commercial applications.


Comfortboard® 110 is a thermally efficient, moisture resistant, vapor permeable board and takes the place of other external sheathing insulations to create high-performance wall assemblies that are effective against fire, moisture and thermal bridging, and allow for superior drying potential.

This high-density board provides the rigidity and durability needed for many exterior cladding assemblies, such as lightweight metal and composite panels systems. Comfortboard® 110 is available in standard thicknesses of 1", 1.25", 1.5", 2", 2.5", 3", 4" and 5" with R-values ranging from R4 to R20.

A True Continuous Insulation

In commercial steel stud applications, thermal bridging plays a large part in heat loss, leading to increased energy consumption. This assembly provides a true continuous insulation, when combined with ROCKWOOL Comfortbatt® Steel Stud insulation in the stud wall to form a high-performance, split insulation wall system. Comfortboard® 110 has superior compressive resistance and is compatible with lightweight hat channel supported cladding systems, eliminating the need for Z-furring strips which can cause thermal bridging. This allows for a reduced overall thickness of the wall system and greatly improves the energy efficiency of the building.

Comfortboard® 110 provides maximum thermal performance, fire resistance and drying potential using sustainable materials.



- ✓ Vapor Permeable
- ✓ Fire Resistant
- ✓ Environmentally Sustainable
- ✓ Moisture Resistant
- ✓ Stable Long-Term R-Value
- ✓ Dimensionally Stable
- ✓ UV Resistant
- ✓ Sound Absorbent

The ROCKWOOL BEDR™ Wall Rainscreen System is ideal for metal panel systems and comprises a high-density, rigid Comfortboard® 110 board in the external cavity, combined with ROCKWOOL thermal Comfortbatt® insulation in the exterior stud wall cavity.

Thermal Resistance

| Standard | Temperature | R-value/inch | RSI value/25.4 |
|------------------|--------------|------------------|----------------|
| ASTM C518 (C177) | 25°F (-4°C) | 4.3 hr.ft².F/Btu | 0.74 m²K/W |
| | 40°F (4°C) | 4.2 hr.ft².F/Btu | 0.72 m²K/W |
| | 75°F (24°C) | 4.0 hr.ft².F/Btu | 0.70 m²K/W |
| | 110°F (43°C) | 3.6 hr.ft².F/Btu | 0.64 m²K/W |

Compressive Strength

| Standard | | |
|-----------|--------|-------------------|
| ASTM C165 | at 10% | 584 psf (28 kPa) |
| | at 25% | 1566 psf (75 kPa) |

Product Details

| Product | Density | Standard Thickness | R-value | Standard Dimensions W x L |
|-------------------|--|--|--------------------------------------|---|
| Comfortboard® 110 | ASTM C165-00 Actual 11 lb/ft³ , (176 kg/m³) | 1", 1.25", 1.5", 2", 2.5", 3", 4", 5" | R4 per inch, range from R4 to R20 | 24" x 48" (610 mm x 1219 mm) 48" x 72" (1219 mm x 1829 mm) |



Energy Efficient/Vapor Permeable

The trend toward energy efficiency is driving the need for high-performance building envelopes. These advanced wall systems are designed to produce higher effective R-values and minimize air leakage. This increases the need to design walls more carefully and reduce the risk of trapping moisture.

Comfortboard® 110 vapor permeable exterior insulation enables high-performance wall systems to have superior drying potential, minimizing the risk of condensation and water accumulation. The vapor permeance of ROCKWOOL insulation allows for increased drying potential without trapping transient moisture in the assembly. Foam plastic insulations have low vapor permeability and can work as vapor retarders. This may trap moisture within the wall, leading to mold or premature deterioration of building components.

Moisture Resistance

| Standard | | |
|------------|--|------------------------------|
| ASTM C1104 | Moisture Sorption | 0.28 % |
| ASTM E96 | Water Vapor Transmission, Desiccant Method | 2160 ng/Pa.s.m² (35 perm) |
| ASTM C209 | Water Absorption | 1.2 % |

Fire Resistant

Comfortboard® 110 is fire resistant, able to withstand temperatures up to 2150°F (1177°C), and does not produce smoke or propagate flames. This provides a critical line of defense, keeping occupants safe and reducing property damage in the event of a fire.

Fire Performance

| Standard | | |
|-------------------|---------------------------------|---|
| CAN4 S114 | Test for Non-Combustibility | Non-Combustible |
| ASTM E84 (UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |

Dimensionally Stable

Metal panel cladding assemblies are subject to wide temperature changes from the exterior. This can cause shrinking and expanding in other insulation materials, resulting in gaps and significant heat loss in cold temperatures and vice versa in warm temperatures. Comfortboard® 110 remains dimensionally stable behind the assembly wall and does not expand, contract or bow with thermal cycles. This provides for a long-term, energy-efficient wall assembly.



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

AFB®, Cavityrock®, Comfortbatt®, Comfortboard®, Conrock®, Curtainrock®, Rockboard®, Toprock®, Monoboard®, ROXUL Safe®, ROXUL® are registered trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

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Publication date - edition: 01/2022



ROCKWOOL
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Milton, ON L9T 6W3
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Comfortboard® 110

Exterior Continuous Insulation



ROCKWOOL Comfortboard® 110 is a rigid, high-density, non-combustible stone wool insulation board designed for use as an exterior continuous insulation in commercial applications.

Thermally efficient, moisture resistant and vapor permeable, Comfortboard® 110 is a non-structural external sheathing insulation that creates high-performance wall assemblies to improve the energy efficiency and fire resilience of buildings.

The vapor permeance of ROCKWOOL insulation allows for increased drying potential without trapping transient moisture in the assembly, reducing the risk of mold or corrosion of building components.

Comfortboard® 110 provides the rigidity and durability needed for many exterior cladding assemblies, such as metal and composite panel systems.

Learn more at rockwool.com



Thermal Performance

Compatible with screw through supported cladding systems, Comfortboard® 110 reduces thermal bridging.

Comfortboard® 110

Exterior Continuous Insulation

Technical Data Sheet
Board Insulation 05080*
Board Insulation 07 21 13**

ROCKWOOL Comfortboard® 110 is a rigid mineral wool, non-structural insulated sheathing board used as continuous insulation in high-performance wall systems.

| | Performance | Test Standard |
|----------------------|--|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant Mineral Fibre Thermal Insulation for Buildings - Type 1 Compliant | ASTM C612 CAN/ULC S702 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Behaviour of materials at 750°C - Non Combustible | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 |
| Density | Actual Density - 11 lbs/ft³ (176 kg/m³) | ASTM C303 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed Corrosion to Aluminum - Passed | ASTM C795 ASTM C665 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4 hr.ft².F/Btu 0.70 m²K/W ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.28% Water Vapor Transmission, Desiccant Method - 2160ng/Pa.s.m² (35 perm) Water Absorption - 1.2% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C209 ASTM C1338 |
| Compressive Strength | 584psf (28kPa) @ 10% compression 1566psf (75kPa) @ 25% compression | ASTM C165 |
| Thickness Dimensions | 1" (25.4 mm), 1.25" (32 mm), 1.5" (38.1 mm), 2" (50.8 mm), 2.5" (63.5 mm), 3" (76.2 mm), 4" (101.6 mm), 5" (127 mm) 24" x 48" (610 mm x 1219 mm), 48" x 72" (1219 mm x 1829 mm) | |

| | | | | | | | | | |
|------------------------|-----------|--------|--------|--------|---------|--------|---------|------|-----------|
| | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| Acoustical Performance | 1" | 0.13 | 0.49 | 0.85 | 0.89 | 0.89 | 0.97 | 0.8 | |
| | 2" | 0.5 | 0.71 | 0.85 | 0.9 | 0.96 | 1.01 | 0.85 | |



For more information regarding the certifications and listings of our stone wool insulation products, please visit:

rockwool.com/north-america/about-us/sustainability/certifications-and-listings/

Issued 03-01-21
Supersedes 08-23-17

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.



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rockwool.com

ROCKWOOL AFB®

Acoustical Fire Batt Insulation for Commercial
& Interior Partition Wall.



Batt insulation that fights both fire and noise.

ROCKWOOL AFB®
ROCKWOOL AFB® is a lightweight, batt insulation specifically designed for steel stud and wood stud interior wall and floor applications.

This stone wool insulation is made from natural stone and recycled content. It's a sustainable product that provides superior sound absorbency and fire protection for overall occupant comfort and safety. That's why AFB® is quickly becoming the insulation of choice for today's green builders in commercial and industrial construction.

AFB® – Acoustically Better

Sound Transmission Class (STC) values don't take into account Lower Frequency Sounds (LFS) which can cause vibrations between rooms, negatively affecting the sound environment. The higher density of ROCKWOOL AFB® can reduce sound transmission, helping to create a quiet and comfortable space.

Sound Control

When ROCKWOOL AFB® is specified for interior wall or floor assemblies, better overall sound control and fire protection are achieved. Compared to other types of insulation, AFB® provides increased density that effectively reduces airflow and essentially, sound transmissions. Greater noise or sound control is further achieved when thicker AFB® and gypsum board are used together. AFB® thickness ranges from 1.0" (25 mm) to 6" (152 mm).

In commercial applications, much of the sound to be controlled is in the low frequency or bass ranges. This noise includes conversation, projection/video equipment, mechanical rooms and ventilation systems. In the lower 1/3 octave bands, ROCKWOOL AFB® outperforms glass wool insulation, providing more low frequency absorption when comparing acoustical testing at low frequencies (see chart "Random Incidence Sound Absorption Coefficients, in 1/3 Octave Band", pg. 3).

Random Incidence Sound Absorption Coefficients, in 1/3 Octave Band

| | | 1/3 Octave Band Center Frequency (Hz) | | | | | | |
|------------------------------|-----|---------------------------------------|------|------|------|------|------|------|
| | | 65 | 80 | 100 | 125 | 160 | 200 | 250 |
| Glass Fiber Sample 1 | 3½" | 0.15 | 0.18 | 0.21 | 0.25 | 0.32 | 0.43 | 0.54 |
| Glass Fiber Sample 2 | 3½" | 0.15 | 0.17 | 0.19 | 0.22 | 0.28 | 0.37 | 0.48 |
| ROCKWOOL AFB® Sample 1 | 3" | 0.18 | 0.22 | 0.28 | 0.33 | 0.40 | 0.50 | 0.62 |
| ROCKWOOL AFB® Sample 2 | 3" | 0.18 | 0.23 | 0.29 | 0.24 | 0.41 | 0.52 | 0.65 |
| Glass Fiber Sample Average | 3" | 0.15 | 0.18 | 0.20 | 0.20 | 0.30 | 0.40 | 0.50 |
| ROCKWOOL AFB® Sample Average | 3" | 0.18 | 0.23 | 0.29 | 0.34 | 0.41 | 0.51 | 0.64 |

Acoustical Performance

| | | |
|-------------|--|--------|
| ASTM E 90 | Airborne Sound Transmission Loss | Tested |
| ASTM E 413 | Rating Sound Insulation | Tested |
| ASTM C 423 | Sound Absorption Coefficients | Tested |
| ASTM E 1050 | Impedance and Absorption of Acoustical Materials | Tested |

ASTM C423

| Coefficients at Frequencies | | | | | | | |
|-----------------------------|--------|--------|--------|---------|---------|---------|------|
| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 1.0" | 0.14 | 0.25 | 0.65 | 0.90 | 1.01 | 1.01 | 0.70 |
| 1.5" | 0.18 | 0.44 | 0.94 | 1.04 | 1.02 | 1.03 | 0.85 |
| 2.0" | 0.28 | 0.60 | 1.09 | 1.09 | 1.05 | 1.07 | 0.95 |
| 3.0" | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 |
| 4.0" | 0.86 | 1.11 | 1.20 | 1.07 | 1.08 | 1.07 | 1.10 |
| 6.0" | 1.11 | 1.28 | 1.15 | 1.06 | 1.03 | 1.01 | 1.15 |



Features and benefits that set AFB® apart.



Fire Resistant

ROCKWOOL AFB® is non-combustible and will not develop toxic smoke or promote flame spread, even when directly exposed to fire. AFB® will therefore not add fuel to an existing fire, making it ideal for use in high occupancy buildings. Studies have shown that mineral wool insulated rooms provide a 54% increase in overall fire resistance rating compared to non-insulated rooms. Since stone wool does not contribute to a fire, it can provide valuable extra time for people to reach safety, a critical factor especially in health and education facilities. It can also provide fire services personnel additional time to control the spread of fire while reducing property damage.



Water Repellent

ROCKWOOL AFB® will not absorb or hold water and will not promote mold or fungi growth. It has superior drying potential, effectively managing moisture in the event that it does get into the wall or floor, allowing it to dry out and maintain its sound and fire properties.



Sag-Free, Tight Fit

The higher density of AFB® provides superior sag resistance and fit. AFB® holds its shape without sagging or slumping in the wall cavity over time to consistently provide continuous fire protection and sound control.



Fast, Easy Installation

Working with ROCKWOOL insulation is a breeze. Simply cut with a serrated knife for quick and efficient installation between studs, around electrical boxes, pipes, wiring, ductwork and between studs and joists that are less than a standard width.

Fire Performance

| | | |
|-------------------|---|---|
| CAN4 S114 | Test for Non-Combustibility | Non-Combustible |
| ASTM E 136 | Behavior of Materials at 750 °C (1382 °F) | Non-Combustible |
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| ASTM E84 (UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| CAN/ULC S129 | Smolder Resistance | 0.09% |

Corrosive Resistance

| | | |
|-----------------|---|----------|
| ASTM C 665 | Corrosiveness to Steel | Pass |
| ASTM C 795 **** | Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692: U.S. Nuclear Regulatory Commission, Reg. Guide #1.36: U.S. Military Specifications MIL-I-24244 (all versions including B and C) | Conforms |

Air Erosion

| | | |
|--------|----------------------|---------------------|
| UL 181 | Maximum Air Velocity | 1000 fpm (5.08 m/s) |
|--------|----------------------|---------------------|



Compliance and performance.

| | | |
|------------------------------|--|------------------|
| CAN/ULC-S702-07 | Mineral Fiber Thermal Insulation for Buildings | Type 1, Complies |
| ASTM C 665 | Mineral Fiber Blanket Thermal Insulation | Type 1, Complies |
| ASTM C 553 | Mineral Fiber Blanket Thermal Insulation | Complies |
| MEA Approval | New York City Approval | 338-97-M |
| City Of Los Angeles approval | | RR 25444 |
| ULC Design Nos. | U311, W406, W408, W419, W423, W440, W441, W442, W508, W600, Z500 | |
| UL Design Nos. | U305, U311, U317, U411, U412, U448, U465, V417, V418, V419 | |

Dimensions

| |
|---|
| 16.25" (width) x 48" (length) - 413 mm (width) x 1219 mm (length) |
| 24.25" (width) x 48" (length) - 616 mm (width) x 1219 mm (length) |
| 15.25" (width) x 47" (length) - 387 mm (width) x 1194 mm (length) |
| 19.2" (width) x 47" (length) - 488 mm (width) x 1194 mm (length) |
| 23" (width) x 47" (length) - 584 mm (width) x 1194 mm (length) |

Thickness

Product thickness is available in 1" to 3.5" with ½" increments as well as 4", 5" and 6" offerings.

Density

| | | |
|------------------|-------------|----------|
| Nominal Density¹ | 2.5 lbs/ft³ | 40 kg/m³ |
|------------------|-------------|----------|

¹Density will change with thickness. Density is not a performance criteria but is commonly referred to when specifying insulation. Actual density is the true density of the insulation and Nominal density is the effective density of the insulation relative to a historic benchmark where the insulation contained 40% non-fibrous content also known as Shot (ASTM C612-99). Please contact ROCKWOOL for more information.



Commercial wall system performance using ROCKWOOL AFB®.

In the following 13 commercial wall systems, ROCKWOOL AFB® delivers excellent fire resistance ratings and Sound Transmission Class (STC).

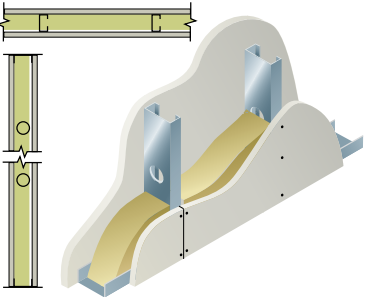
The right-hand column shows the results of acoustical tests done on these ROCKWOOL AFB® wall systems at the internationally-recognized Riverbank Acoustical Laboratories.

For other wall constructions not shown here, please contact ROCKWOOL technical services.

For further details on the illustrated constructions, consult the UL or ULC Design Manual. All STC Ratings are based on Type X gypsum board.

Construction

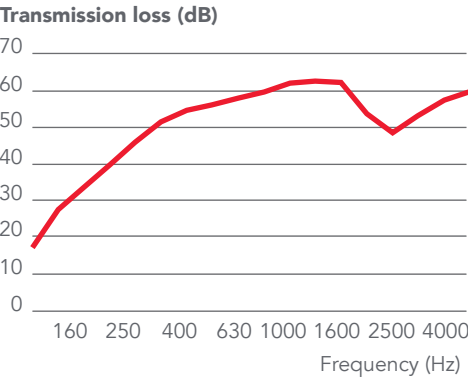
1



Description

- Single layer wall**
5/8" (15.9 mm) gypsum board
- 3 5/8" (92 mm) steel studs spaced 24" (610 mm) centers
- 3" (76 mm) ROCKWOOL AFB®
- Sound Transmission Class**
52 (RAL-TL95-195)
- Fire Resistance**
1 hour (UL design no. V417 and U465)
1 hour (ULC W447)

Transmission Loss



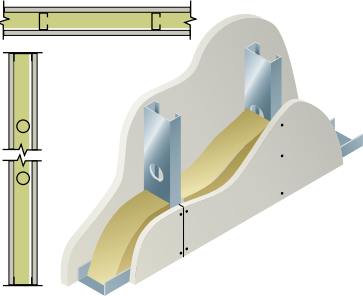
What is STC?

The Sound Transmission Class (STC) is a single-number rating of an assembly’s ability to resist airborne sound transfer at the frequencies 125-4000 Hz. In general, a higher STC rating blocks more noise from transmitting through a partition.



Construction

2



Description

Single layer wall

1/2" (12.7 mm) gypsum board
3 5/8" (92 mm) steel studs spaced
24" (610 mm) centers

3" (76 mm) ROCKWOOL AFB®

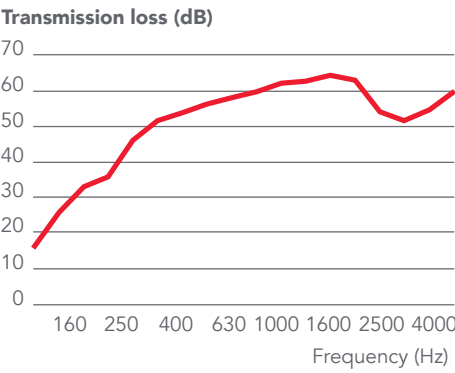
Sound Transmission Class

51 (RAL-TL96-269)

Fire Resistance

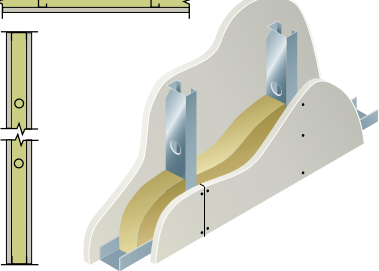
1 hour (UL design no. U448 and
ULC design no W433)

Transmission Loss



Construction

5



Description

Single layer wall

1/2" (12.7 mm) gypsum board
2 1/2" (64 mm) steel studs spaced
24" (610 mm) centers

2 1/2" (64 mm) ROCKWOOL AFB®

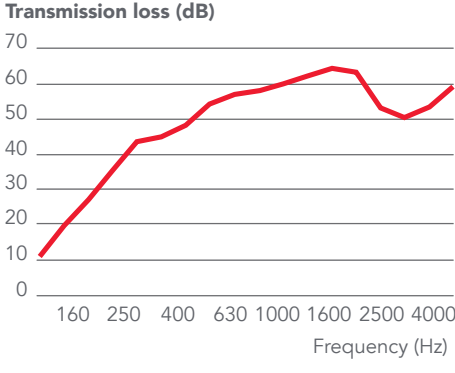
Sound Transmission Class

44 (RAL-TL96-285)

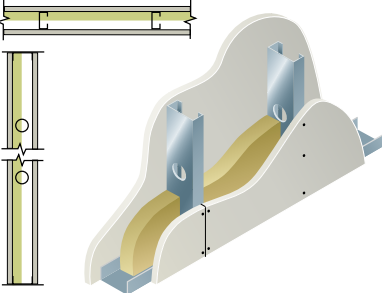
Fire Resistance

1 hour (UL design no. U448 and
ULC design no W433)

Transmission Loss



3



Single layer wall

1/2" (12.7 mm) gypsum board
3 5/8" (92 mm) steel studs spaced
24" (610 mm) centers

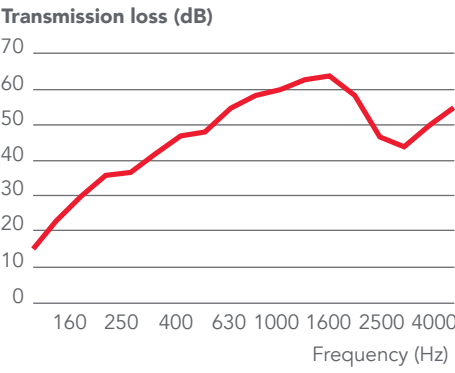
1 1/2" (38 mm) ROCKWOOL AFB®

Sound Transmission Class

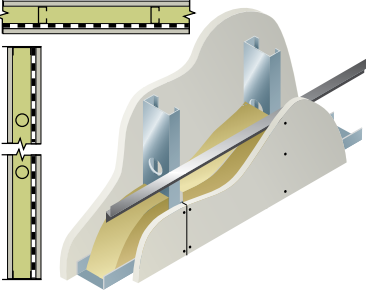
46 (RAL-TL90-195)

Fire Resistance

1 hour (UL design no. U448 and
ULC design no W433)



6



Single layer wall with resilient
metal channels on one side

5/8" (15.9 mm) gypsum board

3 5/8" (92 mm) steel studs spaced
24" (610 mm) centers

Resilient metal channels spaced
horizontally at 24" (610 mm) centers

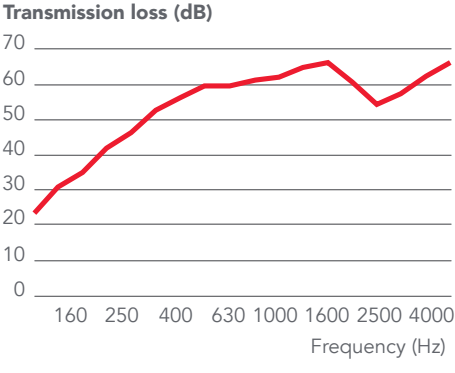
3" (76 mm) ROCKWOOL AFB®

Sound Transmission Class

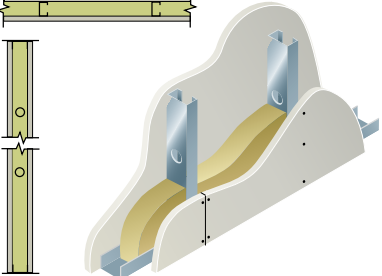
55 (RAL-TL96-289)

Fire Resistance

1 hour (UL design no. V417 and U465)
1 hour (ULC W447)



4



Single layer wall

5/8" (15.9 mm) gypsum board
2 1/2" (64 mm) steel studs spaced
24" (610 mm) centers

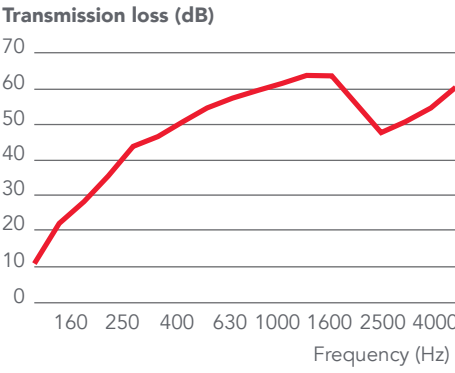
2 1/2" (64 mm) ROCKWOOL AFB®

Sound Transmission Class

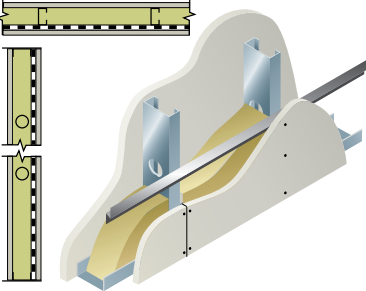
46 (RAL-TL96-270)

Fire Resistance

1 hour (NBC of Canada 1995
and UL design no. U448)



7



Single layer wall with resilient
metal channels on one side

1/2" (12.7 mm) gypsum board

3 5/8" (92 mm) steel studs spaced
24" (610 mm) centers

Resilient metal channels spaced
horizontally at 24" (610 mm) centers

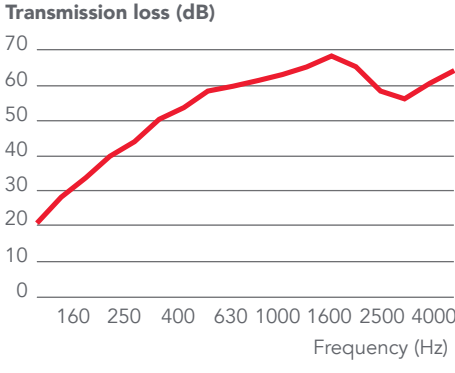
3" (76 mm) ROCKWOOL AFB®

Sound Transmission Class

53 (RAL-TL96-288)

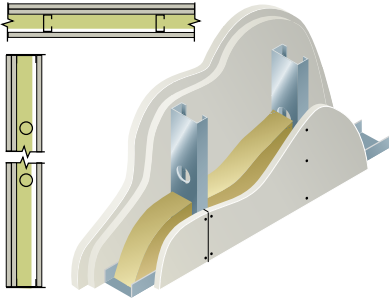
Fire Resistance

1 hour (UL design no. U448)



Construction

8



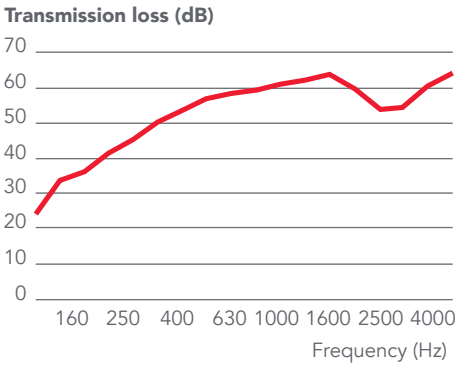
Description

Unbalanced wall
5/8" (15.9 mm) gypsum board, single layer one side; double layer other
3 5/8" (92 mm) steel studs spaced 24" (610 mm) centers
3" (76 mm) ROCKWOOL AFB®/
3 1/2" (89 mm) AFB®

Sound Transmission Class
56 (RAL-TL96-264)

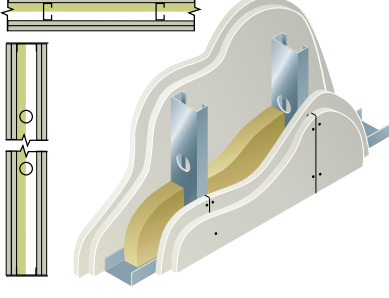
Fire Resistance
1 1/2 hour (NBC of Canada 1995)*
1 hour (UL design no. V417)
*NB. 3 1/2" (89 mm) AFB® only

Transmission Loss



Construction

11



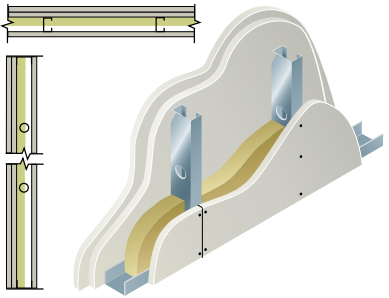
Description

Double layer wall
2 layers of 1/2" (12.7 mm) gypsum board on both sides
3 1/2" (92 mm) steel studs spaced 24" (610 mm) centers
1 1/2" (38 mm) ROCKWOOL AFB®
Sound Transmission Class
56 (RAL-TL90-196)
Fire Resistance
2 hours (UL design no. U412 and V418)

Transmission Loss



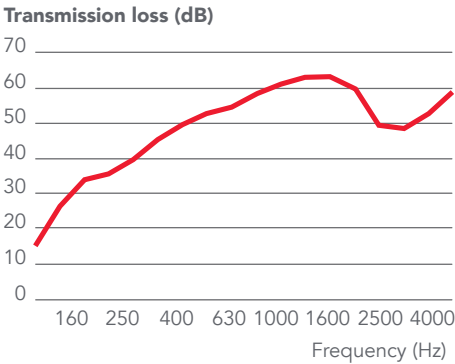
9



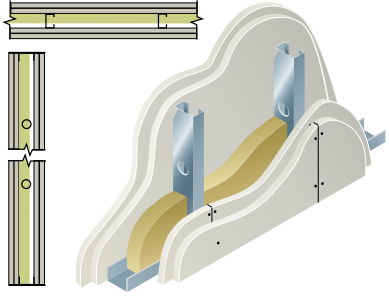
Unbalanced wall
1/2" (12.7 mm) gypsum board, single layer one side; double layer other
2 1/2" (64 mm) steel studs spaced 24" (610 mm) centers
1 1/2" (38 mm) ROCKWOOL AFB®

Sound Transmission Class
50 (RAL-TL90-186)

Fire Resistance
1 hour (NBC of Canada 1995 and UL design no. U448)



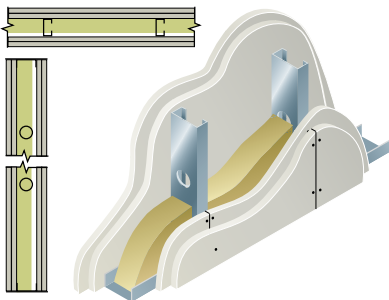
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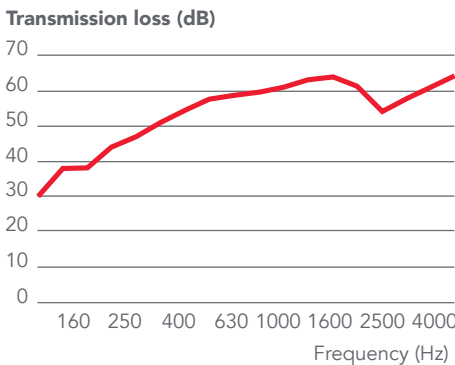
Double layer wall
2 layers of 5/8" (15.9 mm) gypsum board on both sides
2 1/2" (64 mm) steel studs spaced 24" (610 mm) centers
1 1/2" (38 mm) ROCKWOOL AFB®
Sound Transmission Class
56 (RAL-TL90-193)
Fire Resistance
2 hours (UL design no. U411 and V419, NBC of Canada)



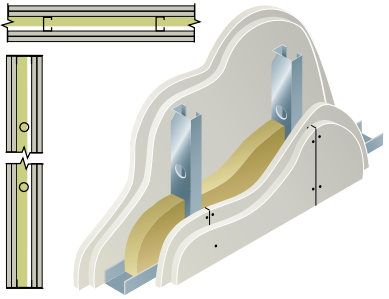
10



Double layer wall
2 layers of 5/8" (15.9 mm) gypsum board on both sides
3 5/8" (92 mm) steel studs spaced 24" (610 mm) centers
3" (76 mm) ROCKWOOL AFB®
Sound Transmission Class
57 (RAL-TL96-268)
Fire Resistance
2 hours (UL design no. U411 and V419, NBC of Canada 1995)



13



Double layer wall
2 layers of 1/2" (12.7 mm) gypsum board on both sides
2 1/2" (64 mm) steel studs spaced 24" (610 mm) centers
1 1/2" (38 mm) ROCKWOOL AFB®
Sound Transmission Class
53 (RAL-TL90-185)
Fire Resistance
2 hours (UL design no. U412 and V418)



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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Publication date - edition: 03/2022



AFB®

Acoustical Fire Batt Insulation



ROCKWOOL AFB® is a lightweight, acoustical fire batt stone wool insulation specifically designed for steel stud interior wall and floor applications. Its superior sound absorbency and fire protection contribute to the overall comfort and safety of occupants.

It provides increased density that reduces sound transmission. Greater noise control is further achieved when AFB® is part of the wall assembly along with gypsum boards and resilient channels.

AFB® is non-combustible and will not develop toxic smoke or promote flame spread, even when directly exposed to fire. This helps to provide valuable extra time for people to reach safety and for fire services personnel to control the spread. It is a key component of fire-rated partitions.

AFB® comes in a number of thicknesses to meet the requirements of both retrofit and new construction applications.

Learn more at rockwool.com

Quiet Spaces

The higher density of ROCKWOOL AFB® can reduce sound transmission, helping to create a quiet and comfortable space.



AFB®

Acoustical Fire Batt Insulation

Technical Data Sheet

Batt Insulation 07210 & 09820* • Blanket Insulation 07 21 16**
Acoustical Blanket Insulation 09 81 16**

ROCKWOOL AFB® is a mineral wool batt insulation for interior partitions in commercial constructions where superior fire resistance and acoustical performance are required.

| | Performance | | | | | | | | Test Standard |
|---|--|--------|--------|--------|---------|--------|---------|------|-------------------|
| Compliance | Mineral Fiber Thermal Insulation for Buildings, Type 1 Compliant | | | | | | | | CAN/ULC S702 |
| | Mineral Fiber Blanket Thermal Insulation, Type 1 Compliant | | | | | | | | ASTM C665 |
| | Mineral Fiber Blanket Thermal Insulation, Type 7 Compliant | | | | | | | | ASTM C553 |
| | MEA Approval, New York City Approval | | | | | | | | 338-97-M |
| | City of Los Angeles Approval | | | | | | | | RR 25444 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | | | | | | | | ASTM E84 (UL 723) |
| | Flame spread index = 0; Smoke developed index = 0 | | | | | | | | CAN/ULC S102 |
| | Determination of Non-combustibility of Building Materials - Non-combustible | | | | | | | | CAN/ULC S114 |
| | Behavior of materials at 750°C - Non-combustible | | | | | | | | ASTM E136 |
| | Smolder Resistance - 0.09% | | | | | | | | CAN/ULC S129 |
| Normal Density | > 2.5 lbs/ft³ (>40 kg/m³)† | | | | | | | | ASTM C303 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed | | | | | | | | ASTM C795 |
| | Corrosion of Steel - Passed | | | | | | | | ASTM C665 |
| Air Erosion | Maximum Air Velocity - 1000 fpm (5.08 m/s) | | | | | | | | UL 181 |
| Thickness Dimensions | 1" through 4" (25.4 mm - 101.6 mm) in 1/2" increments as well as 5" (127 mm) and 6" (152.4 mm) 16" x 48" (413 mm x 1219 mm), 24" x 48" (610 mm x 1219 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 1.0" | 0.14 | 0.25 | 0.65 | 0.9 | 1.01 | 1.01 | 0.7 | |
| | 1.5" | 0.18 | 0.44 | 0.94 | 1.04 | 1.02 | 1.03 | 0.85 | |
| | 2" | 0.28 | 0.6 | 1.09 | 1.09 | 1.05 | 1.07 | 0.95 | |
| | 3" | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 | |
| | 4" | 0.86 | 1.11 | 1.2 | 1.07 | 1.08 | 1.07 | 1.1 | |
| | 6" | 1.11 | 1.28 | 1.15 | 1.06 | 1.03 | 1.01 | 1.15 | ASTM E90 |
| Please contact ROCKWOOL for STC ratings on tested wall assemblies | | | | | | | | | |
| Fire Rated Designs | ULC Classification Code: BZJZC UL Classification Code: BZJZ | | | | | | | | |



Issued 01-01-18
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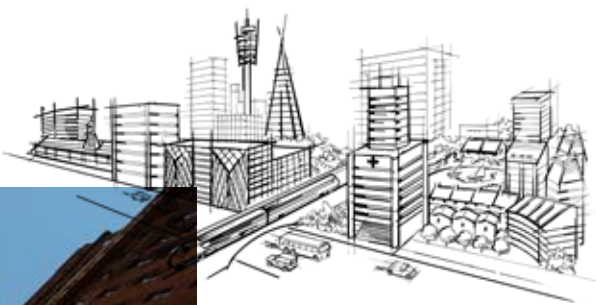
NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose. †Density will change with thickness. Density is not a performance criteria but is commonly referred to when specifying insulation. Actual density is the true density of the insulation and Nominal density is the effective density of the insulation relative to a historic benchmark where the insulation contained 40% non-fibrous content also known as Shot (ASTM C612-99). Please contact ROCKWOOL for more information.



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rockwool.com

AFB[®] evo

Acoustical Fire Batt Insulation



ROCKWOOL AFB[®] evo is a lightweight, acoustical fire batt stone wool insulation for steel stud interior wall and floor applications. This no added formaldehyde insulation provides superior sound absorbency and fire protection that contribute to the overall comfort and safety of occupants.

It provides increased density that reduces sound transmission. Greater noise control is further achieved when AFB[®] is part of the wall assembly along with gypsum boards and resilient channels.

AFB[®] evo is non-combustible and will not develop toxic smoke or promote flame spread, even when directly exposed to fire. This helps to provide valuable extra time for people to reach safety and for fire services personnel to control the spread. It is a key component of fire-rated partitions.

AFB[®] evo comes in a number of thicknesses to meet the requirements of both retrofit and new construction applications.

Learn more at rockwool.com



Greener Building
ROCKWOOL AFB[®] evo is UL validated to be Formaldehyde Free and LBC compliant with the Declare Product Transparency Label Database.

AFB[®] evo

Acoustical Fire Batt Insulation

Technical Data Sheet

Batt Insulation 07210 & 09820* • Blanket Insulation 07 21 16**
Acoustical Blanket Insulation 09 81 16**

ROCKWOOL AFB[®] evo is a no added formaldehyde stone wool batt insulation for interior partitions in commercial constructions where superior fire resistance and acoustical performance is required. ROCKWOOL AFB[®] evo is UL validated to be Formaldehyde Free.

| | Performance | Test Standard | | | | | | | |
|------------------------|--|-------------------|--------|--------|---------|--------|---------|------|-----------|
| Compliance | Mineral Fiber Thermal Insulation for Buildings, Type 1 Compliant | CAN/ULC S702 | | | | | | | |
| | Mineral Fiber Blanket Thermal Insulation, Type 1 Compliant | ASTM C665 | | | | | | | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | ASTM E84 (UL 723) | | | | | | | |
| | Flame spread index = 0; Smoke developed index = 0 | CAN/ULC S102 | | | | | | | |
| | Determination of Non-combustibility of Building Materials - Non-combustible | CAN/ULC S114 | | | | | | | |
| | Behavior of materials at 750°C - Non-combustible | ASTM E136 | | | | | | | |
| Density | > 2.2 lbs/ft³ (>36 kg/m³)* *Density will change with thickness, please contact ROCKWOOL for more information | ASTM C303 | | | | | | | |
| Corrosion Resistance | Corrosion of Steel - Passed | ASTM C665 | | | | | | | |
| Thickness Dimensions | 1" through 4" (25.4 mm - 101.6 mm) in 1/2" increments as well as 5" (127 mm) and 6" (152.4 mm) 16" x 48" (413 mm x 1219 mm), 24" x 48" (610 mm x 1219 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 1.0" | 0.14 | 0.25 | 0.65 | 0.9 | 1.01 | 1.01 | 0.7 | |
| | 1.5" | 0.18 | 0.44 | 0.94 | 1.04 | 1.02 | 1.03 | 0.85 | |
| | 2" | 0.28 | 0.6 | 1.09 | 1.09 | 1.05 | 1.07 | 0.95 | |
| | 3" | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 | |
| | 4" | 0.86 | 1.11 | 1.2 | 1.07 | 1.08 | 1.07 | 1.1 | |
| | 6" | 1.11 | 1.28 | 1.15 | 1.06 | 1.03 | 1.01 | 1.15 | ASTM E90 |
| | Please contact ROCKWOOL for STC ratings on tested wall assemblies | | | | | | | | |
| Fire Rated Designs | ULC Classification Code: BZJZC | | | | | | | | |
| | UL Classification Code: BZJZ | | | | | | | | |



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Perimeter Fire Containment Product and Service Guide

Products, service and the expertise to
support your curtain wall projects



ROCKWOOL

Insulation for Perimeter Fire Containment Systems

ROCKWOOL stone wool insulation is well suited to address the requirements of the spandrel component of the curtain wall assembly, as well as the void created at the intersection of exterior curtain wall assemblies and non-fire-resistance-rated floor or floor/ceiling assemblies, as required by the International Building Code® and CAN/ULC industry standards.

Together, ROCKWOOL Curtainrock® 40/80 and ROCKWOOL ROXUL Safe® provide a comprehensive, critical line of defense in fire protection that has been third-party tested and approved for perimeter fire containment when used with specific UL™, ULC™ or Intertek® listings.

System Design

Always follow the specifications of a UL/ULC- or Intertek-tested ASTM E2307 listing when designing and constructing a perimeter fire containment system.

ROCKWOOL Curtainrock® 40 and Curtainrock® 80

Curtainrock is a semi-rigid stone wool insulation board designed for the spandrel (or curtain wall) component of curtain wall systems. ROCKWOOL offers Curtainrock 40 (nominal 4 lb/ft3) and Curtainrock 80 (nominal 8 lb/ft3) to meet curtain wall specification and listing requirements. These materials are noncombustible and fire resistant. They will not develop smoke or promote flame spread when exposed to fire, providing a critical line of defense in fire protection. ROCKWOOL Curtainrock 40/80 products are available unfaced or with a reinforced vapor retarding foil facing.



Why Stone Wool?

The results of structural integrity testing prove that ROCKWOOL stone wool materials are more durable and easier to install — with less material degradation and better resilience to weathering — than slag wool insulation.

The benefits of working with stone wool insulation include:

- **Fire resistant for occupant safety**
ROCKWOOL stone wool can withstand temperatures greater than 2,150° F (1,177° C) and does not contribute to the development and spread of fire or the release of toxic gases.
- **Dimensional stability to maintain performance**
Stone wool retains its characteristics over time, which means reduced maintenance requirements over the life of a building. ROCKWOOL products have a small coefficient of linear expansion, meaning that even with changes in temperature and/or humidity over long periods of time, the product supports a reliable installation to avoid gaps.
- **Sound absorbent for acoustic comfort**
The nondirectional structure of ROCKWOOL stone wool insulation helps to reduce the intensity and propagation of sound, creating a more comfortable environment for occupants.
- **Water repellent to resist absorption and moisture effects**
Water repellent yet vapor permeable, our insulation materials offer inherent drying potential, which means should they get wet and be allowed to dry, the insulation will retain its stated performance as long as the materials are not damaged. Stone wool is also resistant to rot, mold and mildew growth — contributing to a safer indoor environment.
- **Thermal resistance to stand the test of time**
The R-value of stone wool insulation will not decrease over time. This is because stone wool is not produced with blowing agents. The consistent, long-term, thermal performance helps create a more comfortable environment for building occupants and provides reliable energy efficiency.



ROXUL Safe®

ROXUL Safe is a lightweight, semi-rigid stone wool insulation approved for use in specific UL, ULC and Intertek listings for fire-rated joints, through penetrations and perimeter fire containment systems as a minimum 4 lb/ft3 density material. ROXUL Safe is specifically engineered to fill perimeter gaps between concrete floor slabs and exterior wall systems, between firewalls and ceiling slabs, and around conduit pipes and duct openings through walls and floor slabs. It is noncombustible and fire resistant and will not develop toxic smoke or promote flame spread, even when exposed directly to a fire. ROXUL Safe should always be used in conjunction with a fire sealant to prevent passage of fire and smoke from one floor to the next. The material needs to be installed at the proper compression as specified in the testing listing, which will also identify the product orientation for installation within the perimeter joint.

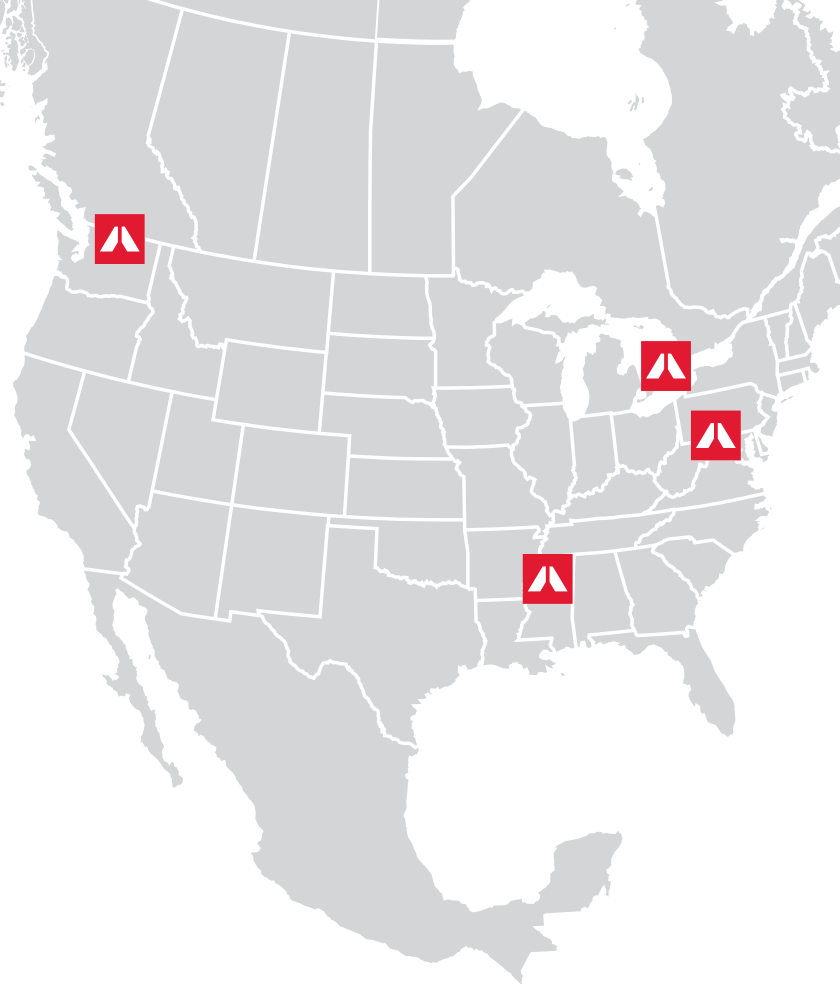


LEFT Designed by James K. M. Cheng Architects Inc., the visually stunning Living Shangri-La hotel, located on the Vancouver waterfront, was built using Curtainrock and ROXUL Safe products as its specified insulation. **RIGHT** Located in the heart of Toronto, The Ritz-Carlton Hotel and Condominium was built using both Curtainrock and ROXUL Safe as part of the perimeter fire containment system.

ROCKWOOL Production Network

As the world’s leading stone wool insulation manufacturer, ROCKWOOL has the products and solutions specifically engineered to meet the needs of each application area that we service, including perimeter fire containment insulation for curtain wall systems.

Within North America, ROCKWOOL has a network of manufacturing facilities to meet the growing demand for stone wool insulation. Through our operations in both the US and Canada, we produce a variety of insulation products. Our capabilities include finished boards, with and without pre-applied facings, as well as batt insulation products.



Our North America Locations

- Milton, Ontario
- Grand Forks, British Columbia
- Byhalia, Mississippi
- Ranson, West Virginia

Cutting Tips

ROCKWOOL stone wool insulation products are easy to cut. A serrated knife is our recommended tool to use. We advise not to use utility knives as they will dull too quickly and end up tearing the product, but a serrated knife or bread knife also works extremely well with our products.



Our Commitment

ROCKWOOL Quality and Warranty

ROCKWOOL stone wool insulation products are designed with stringent density and dimensional tolerances, and quality control parameters, to ensure a consistent installation process and reliable, long-term performance.

In addition, our products are subjected to regular third-party audits to ensure they meet the strict level of quality required to meet our specifications. ROCKWOOL also provides a material guarantee that the product will arrive to our customers to specification and free of defects.

Not Just Insulation

A Network of Partners to Support You

ROCKWOOL works hand in hand with our partners across North America to support the development and execution of perimeter fire containment system-tested designs for the market.

When you work with ROCKWOOL, you also have the support of a global organization with an extensive history in firestopping and fire protection applications. When unitized construction of curtain wall panels is completed overseas and units are imported into North America for final installation, ROCKWOOL is generally able to work with our counterparts in other regions to identify acceptable product substitutions and provide letters of equivalency from the local market, depending on the specific requirements of the project and location of the panel construction.

Product SKU Portfolio

ROCKWOOL offers a comprehensive portfolio of thicknesses and dimensions across our ROCKWOOL Curtainrock 40, Curtainrock 80 and ROXUL Safe product lines to meet your project requirements. Along with a variety of sizes offered through ROCKWOOL, our products are well suited to meet the requirements of third-party fabrication when needed to meet custom project requests. We also continue to monitor industry needs through evolving thermal code requirements and design practices to adopt our product offering accordingly.

| | Curtainrock 40 | Curtainrock 80 | ROXUL Safe |
|-------------|--|--|-------------------------------|
| Application | Curtain Wall Insulation | Curtain Wall Insulation | Safing Insulation |
| Facing | Unfaced or Foil | Unfaced or Foil | Unfaced only |
| Density | Nom. 4 lb/ft3 | Nom. 8 lb/ft3 | Nom. 4 lb/ft3 |
| Thermal | R 4.3 / inch | R 4.3 / inch | — |
| Thicknesses | 1.5", 2", 2.5", 3", 3.5", 4", 4.5", 5", 6", and 7" | 1", 1.5", 2", 2.5", 3", 3.5", 4", 4.5", 5", 6", and 7" | 1.5", 2", 3", 4"*, 5", and 6" |
| Dimensions | 24" × 48" 36" × 60" 48" × 72" | 24" × 48" 36" × 60" 48" × 60" 48" × 72" | 24" × 48" |

ROCKWOOL may be able to produce custom products depending on the order quantity and manufacturing line capabilities. For more information and access to the full ROCKWOOL Price List, which includes dimension, packaging and load factor details for existing SKUs, please contact your local ROCKWOOL sales representative.

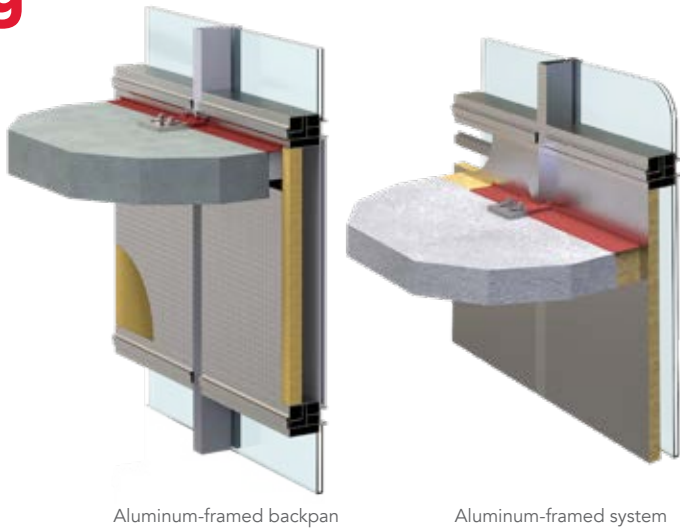
Technical and Building Science Services

ROCKWOOL is a partner with the technical know-how to support inquiries on perimeter fire containment and other firestopping requirements, along with a broader set of application areas for our stone wool insulation products.

We offer a comprehensive set of ASTM E2307-tested systems with industry-leading firestop manufacturers. This includes backpans, aluminum framing and all-vision glass designs, as well as testing for precast, GFRC and EIFS/veneer systems.

From glass to aluminum and stone spandrels, ROCKWOOL Curtainrock 40, Curtainrock 80 and ROXUL Safe can be incorporated into a variety of curtain wall perimeter fire containment systems to help you execute to the requirements of the project and to achieve your creative vision.

ROCKWOOL is committed to assisting you in achieving your project's highest performance by offering building science expertise and services.



For more information about current ASTM E2307 listings with approved use of ROCKWOOL stone wool insulation visit rockwool.com/north-america/resources-and-tools/tools/ul-listings

ROCKWOOL Building Science

The ROCKWOOL Building Science team was established to provide architects, designers and specifiers with the tools and services to unlock the energy-saving potential of your building design, reaching far beyond insulation.

Our North American Building Science team is part of a larger global network, allowing us to utilize international best practice, innovation and design solutions. We combine this knowledge with local expertise to offer high-quality tools, training and tailored advisory services relevant to the North American market.

Complimentary services provided by ROCKWOOL Building Science experts include:

- Building science expertise and resources
- Educational seminars and architectural/site visits
- Envelope detailing and material specifications
- Hygrothermal modeling and dew point calculations
- Thermal modeling – Effective R-value/ U-factor calculations
- Acoustic modeling – STC/OITC calculations

Contact ROCKWOOL Building Science by visiting rockwool.com/buildingscience



Absolute World Residential Tower: Ontario, Canada

LEED® Credits

ROCKWOOL Curtainrock 40, Curtainrock 80 and ROXUL Safe are certified according to UL GREENGUARD and GREENGUARD Gold. They are CDPH compliant, which contributes to LEED points under the Low Emitting Materials category. In material transparency, ROCKWOOL Curtainrock 40, Curtainrock 80 and ROXUL Safe are also RLA (Red List Approved) under the International Living Future Institute Declare program. They also have HPD documents. These can be used to achieve points under the Materials and Resources category under LEED.

To generate a ROCKWOOL LEED certificate specific to your project, please complete our submission form by visiting rockwool.com/leed-calculator.

For a full listing of ROCKWOOL sustainability documentation, including GREENGUARD certificates, GREENGUARD Gold certificates, HPDs, EPDs and Declare labels, please visit our sustainability landing page at rockwool.com/sustainability.

Declare.



Contact ROCKWOOL for support
rockwool.com/contact

From technical services to in-field sales and distribution support, ROCKWOOL is dedicated to providing our partners with solutions for perimeter fire containment systems. Whether you are a contractor, curtain wall consultant, glazier, distributor and/or fabricator, ROCKWOOL offers stone wool products, training, and support to meet your project requirements. See below to get in touch with us today.



Order Samples::
<https://www.rockwool.com/ordersamples>



Distributor Locator:
<https://www.rockwool.com/dealers/>



Find a Sales Rep:
<https://www.rockwool.com/contact/#findasalesrepresentative>



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's smallest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

AFB®, Cavityrock®, Comfortbatt®, Comfortboard®, Conrock®, Curtainrock®, ROXUL Safe®, Rockboard®, Toprock®, Monoboard®, ROXUL® are registered trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

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Return to Commercial Applications



Curtainrock®

Curtain Wall Insulation



ROCKWOOL CURTAINROCK® is a lightweight, semi-rigid stone wool insulation board designed specifically for use in curtain wall systems, and is best suited for backpan or mechanical fastening applications.

CURTAINROCK® is non-combustible and fire resistant, and will not develop toxic smoke or promote flame spread, even when exposed directly to a fire.

ROCKWOOL insulation has excellent acoustic properties and because the products are dimensionally stable, they maintain thermal performance over their lifetime, even in rising and falling temperatures. This contributes to the optimal performance of a building envelope.

ROCKWOOL offers a variety of curtain wall specifications. Products are also available with or without reinforced foil facing (RFF).

Learn more at rockwool.com



A better fit
CURTAINROCK® is easy to fabricate, cut and install, ensuring an optimal fit.

Curtainrock®

Curtain Wall Insulation

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Curtain wall & glazed assemblies 08 44 00**

ROCKWOOL CURTAINROCK® is a semi-rigid, mineral wool insulation board designed for backpan systems in curtain wall applications.

| | Performance | Test Standard |
|-----------------------|--|---|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVA Compliant | ASTM C612 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible Hot Surface Performance - 1200°F | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 ASTM C411 |
| Density | Actual Density - 3.5 lbs/ft³ (56 kg/m³) | ASTM C303 |
| Dimensional Stability | Linear Shrinkage - < 2 % @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.2 hr.ft².F/Btu 0.74 m²K/W ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.01% Water Vapor Transmission, Desiccant Method - 1805ng/Pa.s.m² (32 perm) Determination of Fungi Resistance - Passed | ASTM C1104 ASTM E96 ASTM C1338 |
| Thickness Dimensions | Product is available in 1" through 5" offerings (25.4 mm - 127 mm) 24" x 48" (610 mm x 1219 mm) | |

| | | | | | | | | | |
|------------------------|-----------|--------|--------|--------|---------|--------|---------|------|-----------|
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 2" | 0.26 | 0.68 | 1.12 | 1.1 | 1.03 | 1.04 | 1 | |
| | 3" | 0.63 | 0.95 | 1.14 | 1.01 | 1.03 | 1.04 | 1.05 | |
| | 4" | 1.03 | 1.07 | 1.12 | 1.04 | 1.07 | 1.08 | 1.1 | |

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Curtainrock® 40

Exterior Wall Insulation: Curtain Walls



ROCKWOOL Curtainrock® 40 is a lightweight, semi-rigid stone wool insulation board designed to provide enhanced fire protection in curtain wall and perimeter fire containment systems. These products are non-combustible and fire resistant and will not develop smoke or promote flame spread when exposed to fire.

When Curtainrock® 40 is used with ROCKWOOL ROXUL Safe®, they provide a comprehensive fire-stopping system that has been UL/ULC/Intertek tested and approved for perimeter fire containment systems.

ROCKWOOL insulation has excellent acoustic properties and are dimensionally stable – maintaining thermal performance over their lifetime, even in rising and falling temperatures. This contributes to the optimal performance of a building envelope.

Curtainrock® products are available with or without reinforced foil facing (RFF).

Learn more at rockwool.com



Fire Resistance

Together Curtainrock® and ROXUL Safe® are UL/ULC/Intertek approved for perimeter fire containment systems.

Curtainrock® 40

Exterior Wall Insulation: Curtain Walls

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Curtain wall & glazed assemblies 08 44 00**

ROCKWOOL CURTAINROCK® 40 is a semi-rigid, stone wool insulation board designed to provide enhanced fire protection in curtain wall and perimeter fire containment systems.

| | Performance | Test Standard |
|-----------------------------------|---|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant MEA Approval, New York City Approval | ASTM C612 331-97-M |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible Hot Surface Performance - 1200°F Perimeter Fire Barrier Systems - Consult UL Directory | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 ASTM C411 ASTM E2307/E119 |
| Density | Nominal Density, Minimum - 4.0 lbs/ft³ (64 kg/m³) | ASTM C303 |
| Dimensional Stability | Linear Shrinkage - < 1 % @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.3 hr.ft².F/Btu 0.75 m²K/W ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.01% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Thickness Dimensions Facing | Product is available in 1.5" - 5" (38.1 mm - 127 mm) in half inch increments, 6" (152.4 mm), and 7" (177.8mm), 24" x 48" (610 mm x 1219 mm), 36" x 60" (914 mm x 1624 mm) and 48" x 72" (1219 mm x 1829 mm) Product is available with a reinforced foil facer | |



For more information regarding the certifications and listings of our stone wool insulation products, please visit:

rockwool.com/north-america/about-us/sustainability/certifications-and-listings/

Issued 07-22
Supersedes 01-18

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Return to Commercial Applications



Curtainrock® 80

Exterior Wall Insulation: Curtain Walls



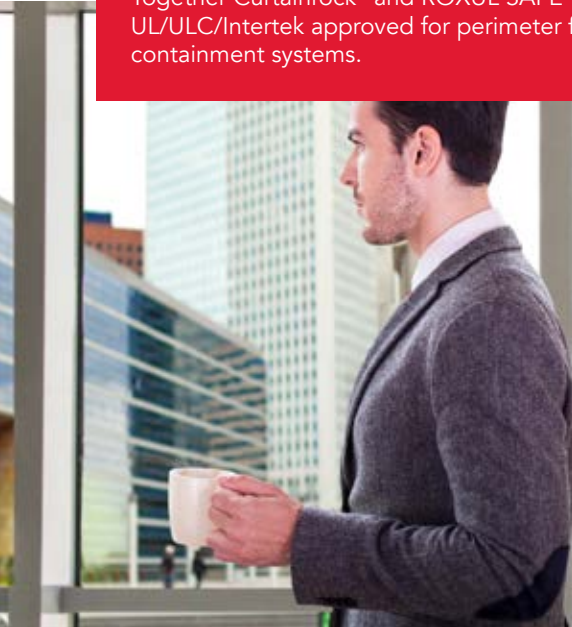
ROCKWOOL Curtainrock® 80 is a lightweight, semi-rigid stone wool insulation board designed to provide enhanced fire protection in curtain wall and perimeter fire containment systems. These products are non-combustible and fire resistant and will not develop smoke or promote flame spread when exposed to fire.

When Curtainrock® 80 is used with ROCKWOOL ROXUL Safe®, they provide a comprehensive fire-stopping system that has been UL/ULC/Intertek tested and approved for perimeter fire containment systems.

ROCKWOOL insulation has excellent acoustic properties and is dimensionally stable – maintaining thermal performance over their lifetime, even in rising and falling temperatures. This contributes to the optimal performance of a building envelope.

Curtainrock® products are available with or without reinforced foil facing (RFF).

Learn more at rockwool.com



Fire Resistance
Together Curtainrock® and ROXUL SAFE® are UL/ULC/Intertek approved for perimeter fire containment systems.

Curtainrock® 80

Exterior Wall Insulation: Curtain Walls

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Curtain wall & glazed assemblies 08 44 00**

ROCKWOOL Curtainrock is a rigid stone wool insulation board designed to provide enhanced fire protection in curtain wall and perimeter fire containment systems.

| | Performance | Test Standard |
|-----------------------------------|---|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant MEA Approval, New York City Approval | ASTM C612 331-97-M |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible Hot Surface Performance - 1200°F Perimeter Fire Barrier Systems - Consult UL Directory | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 ASTM C411 ASTM E2307/E119 |
| Density | Nominal Density - 8.0 lbs/ft³ (128 kg/m³) | ASTM C303 |
| Dimensional Stability | Linear Shrinkage - < 1 % @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.3 hr.ft².F/Btu 0.75 m²K/W ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.04% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Thickness Dimensions Facing | Product is available in 1" - 5" (25.4 mm - 127 mm) in half inch increments, 6" (152.4 mm), and 7" (177.8mm), 24" x 48" (610 mm x 1219 mm), 36" x 60" (914 mm x 1624 mm), 48" x 60" (1219 mm x 1624 mm) and 48" x 72" (1219 mm x 1829 mm) Product is available with a reinforced foil facer | |



Declare.

For more information regarding the certifications and listings of our stone wool insulation products, please visit:

rockwool.com/north-america/about-us/sustainability/certifications-and-listings/

Issued 07-22
Supersedes 01-18

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

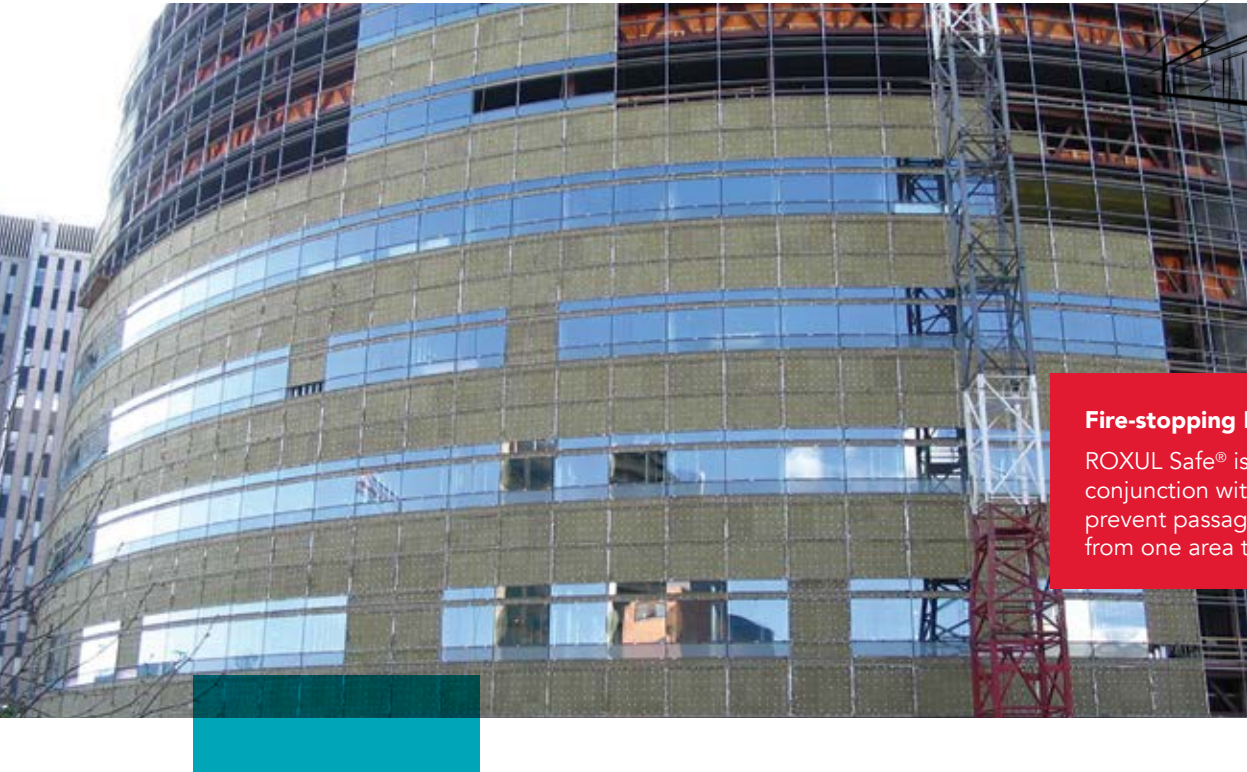


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rockwool.com

Return to Commercial Applications

ROXUL Safe®

Fire Stopping Insulation



Fire-stopping Material

ROXUL Safe® is always used in conjunction with a fire sealant to prevent passage of fire and smoke from one area to the next.



ROCKWOOL ROXUL Safe® is a lightweight, semi-rigid stone wool insulation that provides fire-stopping and acoustical properties. It is designed to fill perimeter gaps between concrete floor slabs and exterior wall systems, between firewalls and ceiling slabs, and around conduit pipes and duct openings through walls and floor slabs.

It is non-combustible and fire resistant, and will not develop toxic smoke or promote flame spread, even when exposed directly to a fire. When ROXUL Safe® is used with ROCKWOOL Curtainrock®, it provides a comprehensive fire-stopping system that has been UL/ULC/Intertek tested and approved for perimeter fire containment systems.

Fire stopping insulation should be installed per the listed assembly with compression fitting requirements to form a tight seal between the floor line and exterior curtain wall assembly in perimeter installations so that flame and hot gases cannot pass through the joint. For through penetrations and construction joints, ROXUL Safe® should be cut as needed for compression fit leaving no voids.

Moisture resistant, non-corrosive and mildew-resistant, ROXUL Safe® also helps to reduce noise transmission into and out of the building for improved occupant comfort.

Learn more at rockwool.com



ROXUL Safe®

Fire Stopping Insulation

Technical Data Sheet
Firestopping 07840* • Firestopping 07 84 00**
Fibrous Fire Safing 07 84 56.13** • Curtain wall & glazed assemblies 08 44 00**

ROCKWOOL ROXUL Safe® is semi-rigid, mineral wool batt insulation approved for use in fire rated joints, through penetrations and perimeter fire containment systems.

| | Performance | Test Standard |
|----------------------|---|---|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVA Compliant MEA Approval, New York City Approval | ASTM C612 339-97-M |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible Fire Tests of Firestop Systems Fire Tests of Penetration Firestop Systems Tests for Fire Resistance of Building Joint Systems Perimeter Fire Barrier Systems Smoulder Resistance - 0.01% Consult UL, ULC and Intertek Directories for fire rated designs | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 CAN/ULC S115 ASTM E814 (UL 1479) UL 2079 ASTM E2307/E119 CAN/ULC S129 |
| Density | Actual Density - 4.0 lbs/ft³ (64 kg/m³) | ASTM C303 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Reaction to Moisture | Moisture Sorption by weight - 0.04% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Thickness Dimensions | Product is available in 1.5", 2", 3", 4", 5" and 6" (38.1 mm, 50.8 mm, 76.2 mm, 101.6 mm, 127 mm and 152.4 mm), 24" x 48" (610 mm x 1219 mm) | |



Declare.

For more information regarding the certifications and listings of our stone wool insulation products, please visit:

rockwool.com/north-america/about-us/sustainability/certifications-and-listings/

Issued 07-22
Supersedes 03-22

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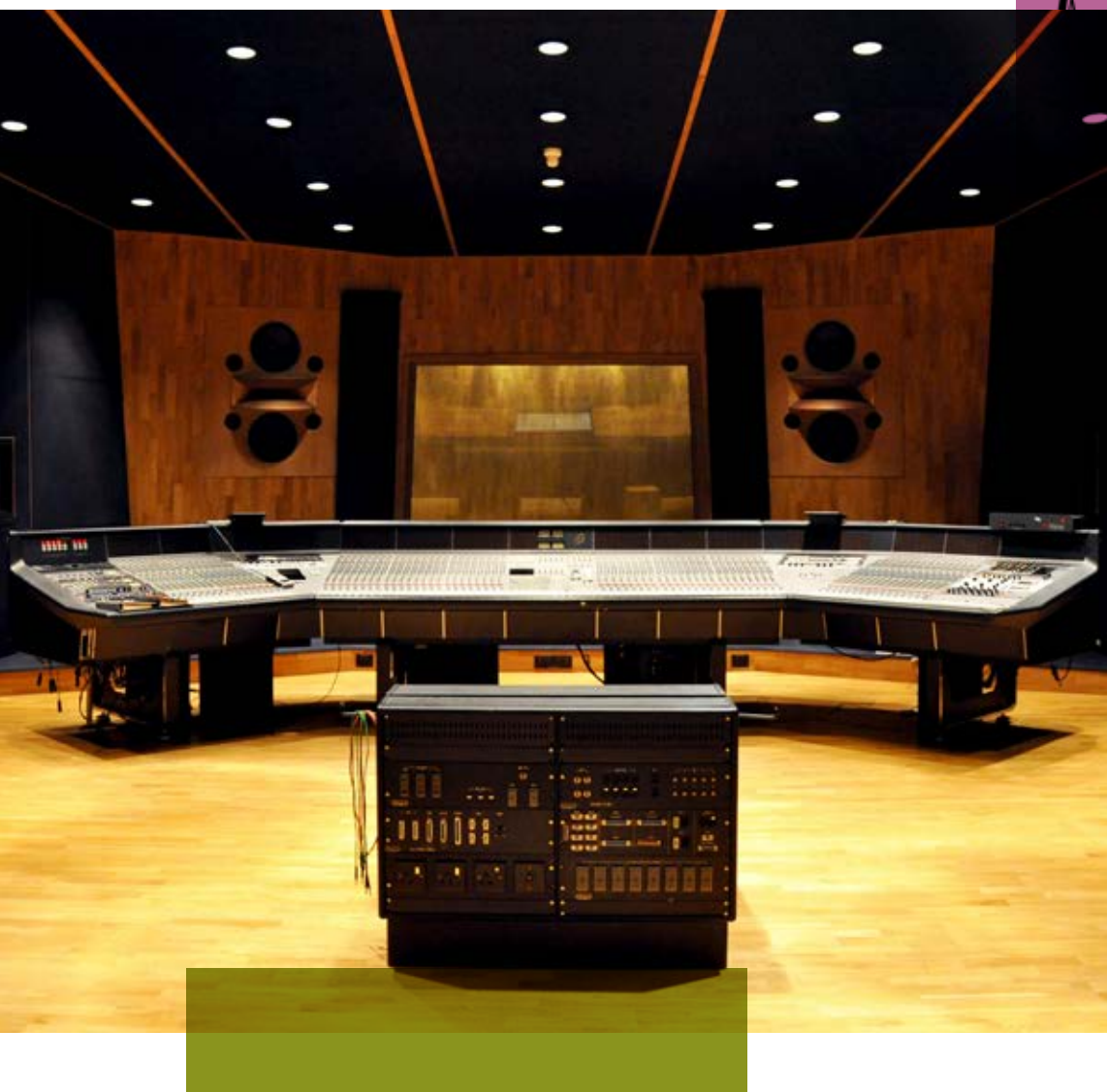
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Return to Commercial Applications



ROCKBOARD® 40/60

Premium Multipurpose Board Insulation
for Acoustic/Thermal Applications



ROCKBOARD® Products and Applications

| Product | Density | Thicknesses | W X L | Common Applications |
|---------------|--------------------|------------------|-----------|---|
| ROCKBOARD® 40 | 4 lb/ft³ (64kg/m³) | 2", 2.5", 3", 4" | 24" x 48" | Mechanical/Utility rooms |
| ROCKBOARD® 60 | 6 lb/ft³ (96kg/m³) | 2", 3", 4" | 24" x 48" | Theaters, Recording studios, Metal roofs requiring snow load |

Facing Options

Facing can help to obtain optimum thermal and energy efficiency, structural integrity, and enhanced interior aesthetics with minimal cost impact on the overall project. ROCKBOARD® can be surfaced with a variety of facings to deliver the desired result. Please contact your ROCKWOOL sales representative for our complete facing offering and technical information related to materials, permeability, light reflectance, and fire performance. Fire Resistant Insulation – Protecting both the Building and the Occupants.

Dimensional Stability

| | | |
|----------------------------|------------------|------------------------------|
| ROCKBOARD® 40 ASTM C356 | Linear Shrinkage | 0.47 % @ 1200 °F (650 °C) |
| ROCKBOARD® 60 ASTM C356 | Linear Shrinkage | 1.14 % @ 1200 °F (650 °C) |

Compressive Strength

| | @10% | @25% |
|----------------------------|-------------------|--------------------|
| ROCKBOARD® 40 ASTM C165 | 90 psf (4.3 kPa) | 226 psf (10.8 kPa) |
| ROCKBOARD® 60 ASTM C165 | 196 psf (9.4 kPa) | 547 psf (26.2 kPa) |

Compliance and Performance

| | | |
|----------------------------|--|--------------------|
| ROCKBOARD® 40 ASTM C612 | Mineral Fiber Block and Board Thermal Insulation | Type IVA, Complies |
| ROCKBOARD® 60 ASTM C612 | Mineral Fiber Block and Board Thermal Insulation | Type IVB, Complies |

ROCKBOARD® has excellent sound-damping characteristics making it ideal for buffering the hum from noisy mechanical rooms.



ROCKWOOL ROCKBOARD® Provides Superior Sound Absorption

Acoustic Performance

ROCKWOOL stone wool insulation products are specified for high acoustical performance. There are two physical characteristics that support this result. One is the multi-directional fiber orientation, the other is the density of the products.

ROCKBOARD® products and applications are available in various densities to support different applications. ROCKBOARD® 60 in particular has exceptional energy absorbing characteristics and is effective at reducing sound transmission across a wide range of frequencies.

ROCKBOARD® has superior acoustic properties making it ideal for theaters, recording studios and other sound damping applications.



ROCKBOARD® 40 – Acoustical Performance

| ASTM C423 CO-EFFICIENTS AT FREQUENCIES | | | | | | | |
|--|--------|--------|--------|---------|---------|---------|------|
| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 2.0" | 0.26 | 0.68 | 1.12 | 1.10 | 1.03 | 1.04 | 1.00 |
| 3.0" | 0.63 | 0.95 | 1.14 | 1.01 | 1.03 | 1.04 | 1.05 |
| 4.0" | 1.03 | 1.07 | 1.12 | 1.04 | 1.07 | 1.08 | 1.10 |

ROCKBOARD® 60 – Acoustical Performance

| ASTM C423 CO-EFFICIENTS AT FREQUENCIES | | | | | | | |
|--|--------|--------|--------|---------|---------|---------|------|
| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
| 2.0" | 0.32 | 0.81 | 1.06 | 1.02 | 0.99 | 1.04 | 0.95 |
| 3.0" | 0.78 | 0.89 | 1.04 | 0.98 | 1.01 | 1.02 | 1.00 |



Thermal Integrity & Moisture Control

Thermal Integrity

Stone wool is naturally denser than fiberglass, and will maintain its dimensional integrity under all conditions. It will not slump, shrink, expand with temperature fluctuations or compress under light loads as competitive insulations are prone to do.

Thermal Resistance

| | | |
|-----------------------------------|---|--------------------------------|
| ROCKBOARD® 40 ASTM C518 (C177) | R-value/inch @ 75 °F RSI value/25.4 mm @ 24 °C | 4.2 hr.ft².F/BTU 0.74 m²K/W |
| ROCKBOARD® 60 ASTM C518 (C177) | R-value/inch @ 75 °F RSI value/25.4 mm @ 24 °C | 4.3 hr.ft².F/BTU 0.75 m²K/W |



ROCKBOARD® is ideal for maintaining thermal integrity and moisture control in interior applications.

Water Repellent Insulation – Will not Rot, Corrode, Promote Mold or Bacterial Growth

Moisture can cause a number of structural and/or aesthetic problems within commercial buildings. As an integral part of any building design, proper ventilation is necessary to allow any built-up condensation to drain out of the system. ROCKBOARD® stone wool insulation is water repellent, helping to deflect moisture away from the surface, alleviating potential issues.

ROCKBOARD® insulation is inorganic, and will not rot, corrode, or promote fungi or bacteria growth, which means the potential for related environmental health issues is also mitigated as a result.



Moisture Resistance

| | | |
|--------------------------------|-------------------|---------|
| ROCKBOARD® 40/60 ASTM C1104 | Moisture Sorption | < 0.08% |
|--------------------------------|-------------------|---------|

Fungi Resistance

| | | |
|--------------------------------|-----------------------------------|--------|
| ROCKBOARD® 40/60 ASTM C1338 | Determination of Fungi Resistance | Passed |
|--------------------------------|-----------------------------------|--------|

Fire Resistant Insulation – Protecting both the Building and the Occupants

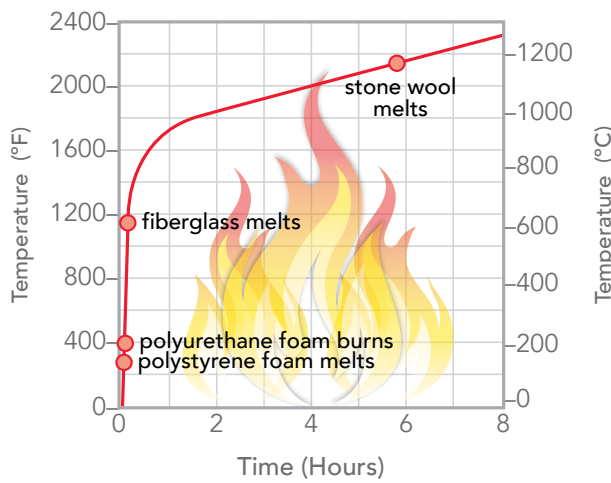
Fire Resistance

ROCKBOARD® products are non-combustible. ROCKWOOL stone wool has an extremely high melting point of 2150 °F (1177 °C) compared to fiberglass at ~1112 °F (~600 °C), thermoplastic insulation at 160-600 °F (~70-315 °C). ROCKBOARD® products do not produce toxic smoke in the event of a fire and are an excellent barrier against the spread of flames to help protect occupants and reduce property damage.

Fire Performance

| | | |
|--------------------------------------|---------------------------------|---|
| ROCKBOARD® 40/60 CAN/ULC S114 | Test for Non-Combustibility | Non-Combustible |
| ROCKBOARD® 40/60 ASTM E84 (UL723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| ROCKBOARD® 40/60 CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |

Temperature Development in a Standard Fire (ASTM E119)



In an application where elevated temperatures are a concern, stone wool will provide greater protection than fiberglass. The maximum service temperature of stone wool insulation when tested to ASTM C411 is 1200 °F (650 °C), compared to fiberglass which is limited to a maximum service temperature of 450 °F (232 °C).

Maximum Service Temperature

| | | | |
|------------------|-----------|-------------------------|---|
| ROCKBOARD® 40/60 | ASTM C411 | Hot Surface Performance | In Compliance with ASTM C612 @ 1200 °F (650 °C) |
|------------------|-----------|-------------------------|---|



ROCKBOARD® adds an extra degree of fire resistance around utility rooms.

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With approx. 10,500 passionate colleagues in 38 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine & offshore.

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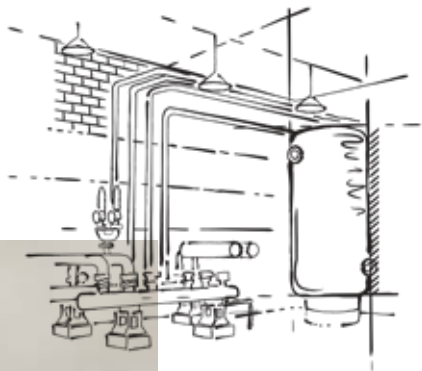
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Return to Commercial Applications



Rockboard® 40

Multipurpose Board Insulation



ROCKWOOL ROCKBOARD® 40 is a premium, multi-purpose stone wool insulation board used in walls, ceilings and floors for acoustic and thermal applications.

ROCKBOARD® 40 is non-combustible and fire resistant, and will not produce toxic smoke or promote flame spread, even when exposed directly to a fire. This can add an extra degree of fire resistance and contribute to occupant protection.

ROCKBOARD® products also maintain dimensional integrity under all conditions and, as a result, will not slump, shrink or expand with temperature.

ROCKBOARD® products can be surfaced with different facings to achieve optimal performance results. From mechanical rooms to sound studios to utility rooms, these products add a high-performance barrier to noise and fire.

Learn more at rockwool.com



Superior Acoustic Properties

Excellent sound-dampening characteristics make ROCKBOARD® products ideal for buffering the hum from noisy mechanical rooms.

Rockboard® 40

Multipurpose Board Insulation

Technical Data Sheet

Board Insulation 07210* • Board Insulation 07 21 13**
Acoustic Board Insulation 09 81 13**

ROCKWOOL ROCKBOARD® 40 is a semi-rigid, multi-purpose mineral wool insulation board.

| | Performance | Test Standard |
|-----------------------|--|---|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVA Compliant | ASTM C612 |
| Reaction to Fire | Flame spread index = 0; Smoke development index = 0 Flame spread index = 0; Smoke development index = 0 Behaviour of materials at 750°C - Non Combustible Test for Non-Combustibility - Non Combustible Hot Surface Performance - 1200°F | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 ASTM C411 |
| Density | Actual Density - 4 lbs/ft³ (64 kg/m³) | ASTM C303 |
| Dimensional Stability | Linear Shrinkage - <1% @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.2 hr.ft².F/Btu 0.74 m²K/W ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption by weight - 0.03% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Compressive Strength | 90psf (4.3kPa) @ 10% compression 225psf (10.8kPa) @ 25% compression | ASTM C165 |
| Air Erosion | Maximum Air Velocity 1000 fpm (5.08 m/s) | UL 181 |
| Thickness Dimensions | Product is available in 1" through 4" offerings (25.4 mm - 101.6 mm) 24" x 48" (610 mm x 1219 mm) | |

| | | | | | | | | | |
|--|-----------|--------|--------|--------|---------|--------|---------|------|-----------|
| | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 1.0" | 0.07 | 0.32 | 0.77 | 1.04 | 1.05 | 1.05 | 0.8 | |
| | 1.5" | 0.18 | 0.48 | 0.96 | 1.09 | 1.05 | 1.05 | 0.9 | |
| | 2" | 0.26 | 0.68 | 1.12 | 1.1 | 1.03 | 1.04 | 1 | |
| | 3" | 0.63 | 0.95 | 1.14 | 1.01 | 1.03 | 1.04 | 1.05 | |
| | 4" | 1.03 | 1.07 | 1.12 | 1.04 | 1.07 | 1.08 | 1.1 | |

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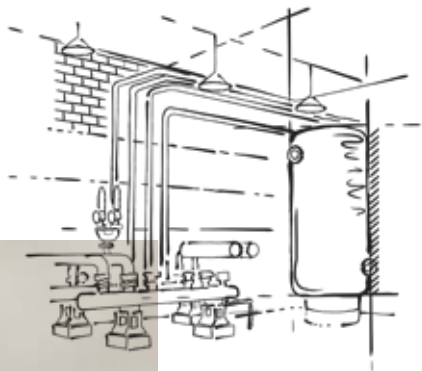
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rockwool.com

Rockboard® 60

Multipurpose Board Insulation



ROCKWOOL ROCKBOARD® 60 is a premium, multi-purpose stone wool insulation board used in walls, ceilings and floors for acoustic and thermal applications.

ROCKBOARD® 60 is non-combustible and fire resistant, and will not produce toxic smoke or promote flame spread, even when exposed directly to a fire. This can add an extra degree of fire resistance and contribute to occupant protection.

ROCKBOARD® products also maintain dimensional integrity under all conditions and, as a result, will not slump, shrink or expand with temperature.

ROCKBOARD® products can be surfaced with different facings to achieve optimal performance results. From mechanical rooms to sound studios to utility rooms, these products add a high-performance barrier to noise and fire.

Learn more at rockwool.com



Superior Acoustic Properties

Excellent sound-dampening characteristics make ROCKBOARD® products ideal for buffering the hum from noisy mechanical rooms.

Rockboard® 60

Multipurpose Board Insulation

Technical Data Sheet
Board Insulation 07210* • Board Insulation 07 21 13**
Acoustic Board Insulation 09 81 13**

ROCKWOOL ROCKBOARD® 60 is a rigid, multi-purpose mineral wool insulation board.

| | Performance | | | | | | | | Test Standard |
|------------------------|---|--------|--------------------------------|--------|---------|--------|---------|------|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant | | | | | | | | ASTM C612 |
| Reaction to Fire | Flame spread index = 0; Smoke development index = 0 Flame spread index = 0; Smoke development index = 0 Behaviour of materials at 750°C - Non Combustible Hot Surface Performance - 1200°F | | | | | | | | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM C411 |
| Density | Actual Density - 6 lbs/ft³ (96 kg/m³) | | | | | | | | ASTM C303 |
| Dimensional Stability | Linear Shrinkage - <1% @ 1200°F | | | | | | | | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | | | | | | | | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | | 4.3 hr.ft².F/Btu 0.75 m²K/W | | | | | | ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption by weight - 0.07% Determination of Fungi Resistance - Passed | | | | | | | | ASTM C1104 ASTM C1338 |
| Compressive Strength | 355psf (17kPa) @ 10% compression 585psf (28kPa) @ 25% compression | | | | | | | | ASTM C165 |
| Thickness Dimensions | Product is available in 2" through 4" offerings (50.8 mm - 101.6 mm) 24" x 48" (610 mm x 1219 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 2" | 0.32 | 0.81 | 1.06 | 1.02 | 0.99 | 1.04 | 0.95 | |
| | 3" | 0.78 | 0.89 | 1.04 | 0.98 | 1.01 | 1.02 | 1 | |

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ROXUL SAFE™ 55 & 65 and ROCKWOOL PLUS™ MB

Insulation for Pre-Engineered Metal Buildings



Exterior Wall Insulation for Pre-Engineered Metal Buildings

ROXUL SAFE™ 55 & 65 and ROCKWOOL PLUS™ MB are non-combustible, high-density insulation products for interior and exterior walls in pre-engineered metal building construction. This stone wool insulation is made from natural stone and recycled content, providing exceptional fire-resistance and energy-saving properties. While similar in thermal insulating properties, each product is designed for specific building applications.



ROXUL SAFE™ 55 & 65 and ROCKWOOL PLUS™ MB products are used to insulate walls in pre-engineered metal buildings. ROXUL SAFE™ 55 & 65 are ideally suited for zero lot line applications where buildings are in close proximity and fire safety is essential.

Assemblies for Zero Lot Line and Exterior Wall Applications

Basic Concept of a Fire Rated Wall Featuring ROXUL SAFE™ 55 & 65 Insulation in the Wall Assembly
ROXUL SAFE™ 55 & 65 are non-combustible, rigid stone wool insulation boards that provide added fire protection for metal buildings in close proximity. ROXUL SAFE™ 55 & 65 are designed for interior or exterior non-load bearing metal panel wall assemblies where a fire resistance rating is required.

ROCKWOOL offers the option of one or two hour, single side or double sided fire rated assemblies.

ROCKWOOL PLUS™ MB is a lightweight, non-combustible, semi-rigid blanket insulation, designed for metal building construction where an hourly fire rating is not required.

Insulating buildings with ROCKWOOL PLUS™ MB will help increase energy efficiency, improve thermal stability, and enhance fire protection for the overall comfort and safety of occupants.

That's why ROCKWOOL PLUS™ MB is the insulation of choice for today's green builders in commercial construction.



Components: Exterior Metal Cladding, ROXUL SAFE™ 55 or 65, Z-Bar Girts, Ceramic Fire Blanket (Z-Girt Cover), Flashing Channels, Wall and Partition Facings/Accessories

Note: For ULC Designs W610 and W611 ceramic strips required on two sides. For actual designs please reference UL/ULC Directories.



Components: Exterior Metal Cladding, ROCKWOOL PLUS™ MB, Z-Bar Girts, Flashing Channels, Wall and Partition Facings/Accessories



These products also provide superior performance in acoustic assemblies, as well as in applications for mechanical equipment isolation and insulation.

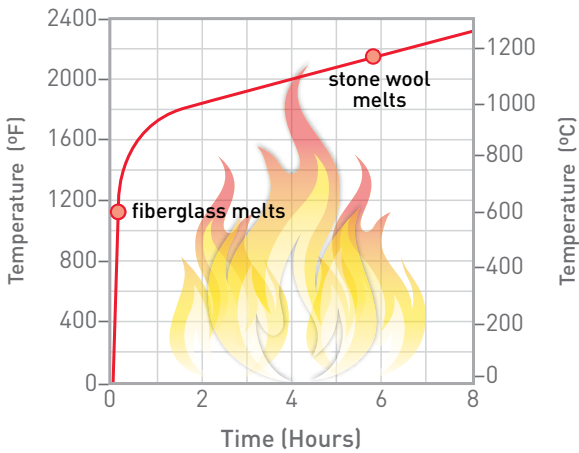
Fire Resistance

ROXUL SAFE™ 55, ROXUL SAFE™ 65 and ROCKWOOL PLUS™ MB are non-combustible, able to withstand temperatures up to 2150°F (1177°C), and do not produce smoke or propagate flames, providing a critical line of defense in fire protection.

These products provide high temperature fire protection, particularly when a fire separation wall is required

ROXUL SAFE™ 55 & 65's fire resistance ratings allow builders to reduce the required separation and increase the area of buildings in close proximity to each other.

Temperature Development in a Standard Fire (ASTM E119)



ROXUL SAFE™ 55 & 65 are able to withstand the intense heat of fire approaching 2150°F (1177°C) without melting or burning. They are specifically designed to meet building codes in high density areas where buildings are in close proximity.

Fire-Rated Exterior Non-Load Bearing Sheet Steel Walls

| Product | Fire Resistance Rating | Fire Protection | UL Design No. | ULC Design No. | Thickness* | W x L |
|----------------|------------------------|-----------------|--|----------------|---------------------------|--|
| ROXUL SAFE™ 65 | 1HR | From 1 Side | U654 | W605 | 3" (76 mm) (2 layers) | 24" x 48" (610 x 1220 mm) |
| | | From 2 Sides | *Contact ROCKWOOL Technical Services | W610 | | 31.5" x 48" (800 x 1220 mm) 32" x 48" (813 x 1220 mm) |
| ROXUL SAFE™ 55 | 2HR | From 1 Side | U655 | W606 | 4" (102 mm) (2 layers) | 24" x 48" (610 x 1220 mm) |
| | | From 2 Sides | *Contact ROCKWOOL Technical Services | W611 | | 31.5" x 48" (800 x 1220 mm) 32" x 48" (813 x 1220 mm) |

*ROXUL SAFE™ 65 & ROXUL SAFE™ 55 products are installed using 2 layers of 3" or 4" material respectively.

High-Performance Insulation
Designed for Pre-Engineered
Metal Buildings

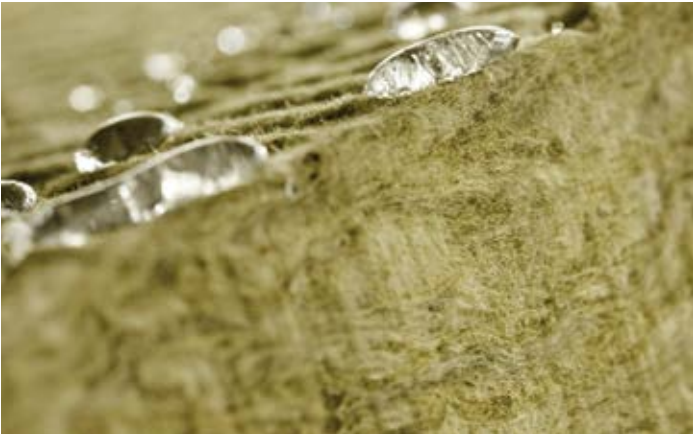
Energy-Saving Thermal Performance

The excellent thermal properties of ROCKWOOL PLUS™ MB, ROXUL SAFE™ 55 and ROXUL SAFE™ 65 contribute to energy efficient building envelopes helping to reduce ongoing energy costs. ROCKWOOL PLUS™ MB delivers consistent thermal performance across the board in metal building wall construction, maintaining an R-value of R4. ROXUL SAFE™ 65 and ROXUL SAFE™ 55 maintain R-values of R4.2 and R4.3, respectively.



Superior Sound Absorption

ROXUL SAFE™ 55, ROXUL SAFE™ 65 and ROCKWOOL PLUS™ MB demonstrate superior sound attenuation characteristics. The unique multi-directional fiber structure and high density effectively trap and dissipate sound waves reducing noise transmission into and out of the building.



Water Repellent

The structure and integrity of ROCKWOOL insulation are not affected by the presence of water. The product is water repellent, resisting the infiltration of water into the system. It is compatible with air/vapor barrier systems to provide an extra layer of protection against moisture and thermal transfer. The product is inorganic and therefore does not rot, corrode, or promote fungi, mold and bacterial growth.



ROXUL SAFE™ 55 & 65 Technical Data

Compliance and Performance

| | | |
|-----------|--|--------------------|
| ASTM C612 | Mineral Fiber Block and Board Thermal Insulation | Type IVB, Complies |
|-----------|--|--------------------|

Fire Performance

| | | |
|--------------|-----------------------------|-----------------|
| CAN/ULC S411 | Test for Non-Combustibility | Non-Combustible |
|--------------|-----------------------------|-----------------|

| | | |
|--------------|---------------------------------|---|
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
|--------------|---------------------------------|---|

Maxiumum Service Temperature

| | | |
|-----------|-------------------------|--|
| ASTM C411 | Hot Surface Performance | In Compliance with ASTM C612 @ 1200°F (650°C) |
|-----------|-------------------------|--|

Dimensional Stability

| | | |
|-----------|------------------|----------------------|
| ASTM C356 | Linear Shrinkage | <1% @ 1200°F (650°C) |
|-----------|------------------|----------------------|

Moisture Resistance

| | | |
|------------|-------------------|-------|
| ASTM C1104 | Moisture Sorption | 0.04% |
|------------|-------------------|-------|

Thermal Resistance

| | | |
|-------------------------------------|---|----------------------------------|
| ROXUL SAFE™ 65 ASTM C518 (C 177) | R-value/inch @75°F RSI value/25.4 mm @25°C | 4.2 hf. ft². F/BTU 0.74 m²K/W |
|-------------------------------------|---|----------------------------------|

| | | |
|-------------------------------------|---|----------------------------------|
| ROXUL SAFE™ 55 ASTM C518 (C 177) | R-value/inch @75°F RSI value/25.4 mm @25°C | 4.3 hf. ft². F/BTU 0.76 m²K/W |
|-------------------------------------|---|----------------------------------|

Corrosive Resistance

| | | |
|-----------|------------------------|------|
| ASTM C665 | Corrosiveness to Steel | Pass |
|-----------|------------------------|------|

| | | |
|-----------|---|----------|
| ASTM C795 | Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692: U.S. Nuclear Regulatory Commission, Reg. Guide #1.36: U.S. Military Specifications – 24244 (all versions including B and C) | Conforms |
|-----------|---|----------|

Dimensions

| |
|--|
| 24” W x 48” L (610 mm x 1219 mm) 31.5” W x 48” L (800 mm x 1219 mm) 32” W x 48” L (813 mm x 1219 mm) |
|--|

Thickness

| | |
|----------------------------------|---|
| ROXUL SAFE™ 65 ROXUL SAFE™ 55 | 3” (76 mm) Thickness 4” (102 mm) Thickness |
|----------------------------------|---|

ROCKWOOL PLUS™ MB Technical Data

Compliance and Performance

| | | |
|-----------|--|-----------------|
| ASTM C553 | Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications | Type I, II, III |
|-----------|--|-----------------|

Fire Performance

| | | |
|--------------|---------------------------------|---|
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
|--------------|---------------------------------|---|

| | | |
|-------------------|---------------------------------|---|
| ASTM E84 (UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
|-------------------|---------------------------------|---|

| | | |
|-----------|-------------------------------------|-----------------|
| CAN4-S114 | Determination of Non-Combustibility | Non-Combustible |
|-----------|-------------------------------------|-----------------|

Maximum Service Temperature

| | | |
|-----------|-------------------------------------|---------------|
| ASTM C411 | Maximum Recommended Use Temperature | 450°F (232°C) |
|-----------|-------------------------------------|---------------|

Dimensional Stability

| | | |
|-----------|------------------|------------------------|
| ASTM C356 | Linear Shrinkage | 0.74 % @ 450°F (232°C) |
|-----------|------------------|------------------------|

Moisture Resistance

| | | |
|------------|----------------------|--------|
| ASTM C1104 | Water Vapor Sorption | 0.028% |
|------------|----------------------|--------|

Thermal Resistance

| | | |
|------------------|---|----------------------------------|
| ASTM C518 (C177) | R-value/inch @ 75°F RSI value/25.4 mm @ 24°C | 4.0 hf. ft². F/BTU 0.71 m²K/W |
|------------------|---|----------------------------------|

Corrosive Resistance

| | | |
|-----------|------------------------|------|
| ASTM C665 | Corrosiveness to Steel | Pass |
|-----------|------------------------|------|

| | | |
|-----------|---|----------|
| ASTM C795 | Stainless Steel Stress Corrosion Specification as per Test Methods C871 and C692: U.S. Nuclear Regulatory Commission, Reg. Guide #1.36: U.S. Military Specifications MIL-I-24244 (all versions including B and C) | Conforms |
|-----------|---|----------|

Dimensions

| | |
|---|---|
| 24” W x 48” L (610 mm W x 1219 mm L) | Product thickness available in 2” through 4” in ½” increments as well as 5” and 6” offerings. |
|---|---|

Density

| | |
|--------------|-----------------------------|
| ASTM C612-00 | 2.0 lbs/sq.ft.3 32 kg/m3 |
|--------------|-----------------------------|



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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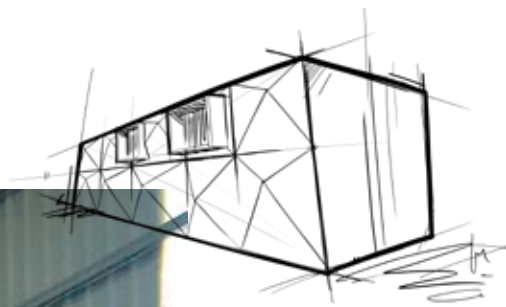
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Publication date - edition: 01/2018



ROXUL Safe™ 55

Metal Building Insulation



ROCKWOOL ROXUL SAFE™ 55 is a medium-density stone wool insulation for exterior and interior non-load-bearing, steel-faced firewall applications where a fire resistance rating is required. It is approved for use in a 2-hour fire rated system.

Designed to meet building codes in high-density areas, ROXUL SAFE™ 55 is non-combustible, withstanding temperatures up to 2150°F (1177°C), and will not produce toxic smoke or promote flame spread. As a result, it provides high-temperature fire protection, enhancing occupant safety, particularly when a fire separation wall is required.

It is also UL/ULC tested and approved for fire-rated assemblies.

ROCKWOOL offers single- or double-sided fire-rated assemblies. ROXUL SAFE™ 55 is ideally suited for zero lot line applications where buildings are in close proximity and fire safety is essential.

Learn more at rockwool.com



Fire-resistant Material

A 2-hour fire resistance rating from the interior side allows builders to reduce the required separation between buildings.

ROXUL Safe™ 55

Metal Building Insulation

Technical Data Sheet
Board Insulation 05080* • Board Insulation 07 21 13**
Metal Wall Panels 07 42 13**

ROCKWOOL ROXUL SAFE™ 55 is a mineral wool insulation board approved for use in metal building assemblies where a 2-hour fire resistance rating is required from one side or both sides of the wall.

| | Performance | Test Standard |
|-----------------------|---|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant | ASTM C612 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible ULC 2 hr rated from interior side - W606 ULC 2 hr rated from both sides - W611 UL 2 hr rated from interior side - U655 UL 2 hr rated from both sides - U659 Consult UL and ULC Directories for fire rated designs | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 |
| Density | Nominal Density, Minimum - 4.5 lbs/ft³ (72 kg/m³) | ASTM C303 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.2 hr.ft².F/Btu 0.74 m²K/W ASTM C518 (C177) |
| Dimensional Stability | Linear Shrinkage - <1% @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Reaction to Moisture | Moisture Sorption by weight - 0.04% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Thickness Dimensions | Product is available in 4" thickness (101.6 mm) 24" x 48" (610 mm x 1219 mm), 31.5" x 48" (800 mm x 1219 mm), 32" x 48" (813 mm x 1219 mm) | |



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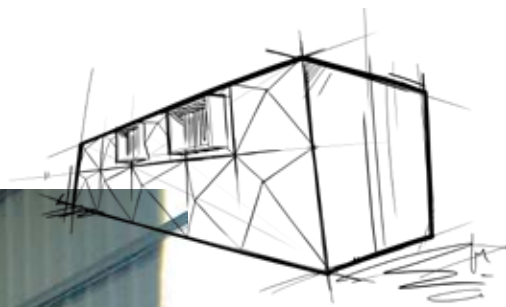
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rockwool.com

ROXUL Safe™ 65

Metal Building Insulation



ROCKWOOL ROXUL SAFE™ 65 is a medium-density stone wool insulation for exterior and interior non-load-bearing, steel-faced firewall applications where a fire resistance rating is required. It is approved for use in a 1-hour fire-rated system.

Designed to meet building codes in high-density areas, ROXUL SAFE™ 65 is non-combustible, withstanding temperatures up to 2150°F (1177°C), and will not produce toxic smoke or promote flame spread. As a result, it provides high-temperature fire protection, enhancing occupant safety, particularly when a fire separation wall is required.

It is also UL/ULC tested and approved for fire-rated assemblies.

ROCKWOOL offers single- or double-sided fire-rated assemblies. ROXUL SAFE™ 65 is ideally suited for zero lot line applications where buildings are in close proximity and fire safety is essential.

Learn more at rockwool.com



Fire-resistant Material
A 1-hour fire resistance rating from the interior side allows builders to reduce the required separation between buildings.

ROXUL Safe™ 65

Metal Building Insulation

Technical Data Sheet
Board Insulation 15080* • Board Insulation 07 21 013**
Metal Wall Panels 07 42 13**

ROCKWOOL ROXUL SAFE™ 65 is a mineral wool insulation board approved for use in metal building assemblies where a 1-hour fire resistance rating is required from one side or both sides of the wall.

| | Performance | Test Standard |
|-----------------------|---|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant | ASTM C612 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Test for Non-Combustibility - Non Combustible ULC 1 hr rated from interior side - W605 ULC 1 hr rated from both sides - W610 UL 1 hr rated from interior side - U654 UL 1 hr rated from both sides - U658 Consult UL and ULC Directories for fire rated designs | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 |
| Density | Nominal Density, Minimum - 6.0 lbs/ft³ (96 kg/m³) | ASTM C303 |
| Thermal Resistance | R-Value / inch @ 75°F 4.2 hr.ft².F/Btu RSI value / 25.4 mm @ 24°C 0.74 m²K/W | ASTM C518 (C177) |
| Dimensional Stability | Linear Shrinkage - <1% @ 1200°F | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Reaction to Moisture | Moisture Sorption by weight - 0.04% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 |
| Thickness Dimensions | Product is available in 3" thickness (76.2mm) 24" x 48" (610 mm x 1219 mm), 31.5" x 48" (800 mm x 1219 mm), 32" x 48" (813 mm x 1219 mm) | |

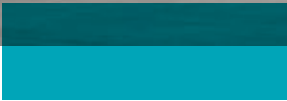
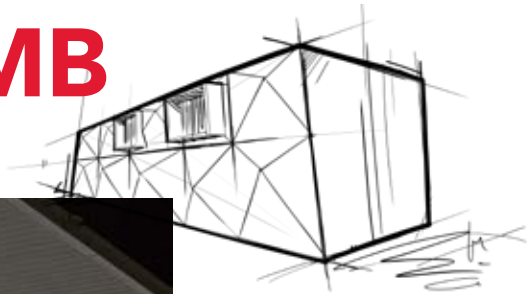


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ROCKWOOL Plus™ MB

Pre-engineered Metal Building Insulation



ROCKWOOL PLUS™ MB is a lightweight, semi-rigid mineral wool batt insulation designed for pre-engineered metal building construction where an hourly fire rating is not required.

It is non-combustible and fire resistant, and will not produce toxic smoke or promote flame spread. As a result, it provides high-temperature fire protection, particularly when a fire separation wall is required.

ROCKWOOL PLUS™ MB also helps to increase energy efficiency and improve thermal stability. Strong and durable onsite, it is easy to cut and install, and can contribute to earning LEED® points.

This product is recommended for installation on the interior side of a watertight metal cladding. It is not recommended for use in a rainscreen or cavity wall application where it may be exposed to the elements during construction or in situ.

Learn more at rockwool.com



Energy-saving Thermal Performance

Maintaining an R-value of R4, ROCKWOOL PLUS™ MB delivers consistent thermal performance, contributing to energy-efficient for pre-engineered metal building.

ROCKWOOL Plus™ MB

Pre-engineered Metal Building Insulation

Technical Data Sheet
Batt Insulation 07810 • Blanket Insulation 07 21 16**
Metal Wall Panels 07 42 13**

ROCKWOOL PLUS™ MB is a mineral wool insulation batt designed for use in pre-engineered metal building constructions.

| | Performance | | | | | | | | Test Standard |
|------------------------|--|--------|------------------|--------|---------|--------|---------|------|-------------------|
| Compliance | Mineral Fiber Blanket Thermal Insulation, Type I, II and III | | | | | | | | ASTM C553 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | | | | | | | | ASTM E84 (UL 723) |
| | Flame spread index = 0; Smoke developed index = 0 | | | | | | | | CAN/ULC S102 |
| | Determination of Non Combustibility of Building Materials - Non Combustible | | | | | | | | CAN/ULC S114 |
| | Behaviour of materials at 750°C - Non Combustible | | | | | | | | ASTM E136 |
| Density | Actual Density - 2 lbs/ft³ (32 kgs/m³) | | | | | | | | ASTM C303 |
| Thermal Resistance | R-Value / inch @ 75°F | | 4.0 hr.ft².F/Btu | | | | | | ASTM C518 (C177) |
| | RSI value / 25.4 mm @ 24°C | | 0.70 m²K/W | | | | | | |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed | | | | | | | | ASTM C795 |
| | Corrosion of Steel - Passed | | | | | | | | ASTM C665 |
| Reaction to Moisture | Moisture Sorption - 0.03% | | | | | | | | ASTM C1104 |
| | Determination of Fungi Resistance - Passed | | | | | | | | ASTM C1338 |
| Thickness Dimensions | 2" through 4" (50.8 mm - 101.6 mm) in 1/2" increments as well as 5" (127 mm) and 6" (152.4 mm) 24" x 48" (610 mm x 1219 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 2.5" | 0.34 | 0.76 | 1.12 | 1.05 | 1.04 | 1.04 | 1 | |
| | 3.5" | 0.56 | 0.99 | 1.17 | 1.04 | 1.05 | 1.05 | 1.05 | |
| | 6" | 1.17 | 1.2 | 1.16 | 1.08 | 1.08 | 1.07 | 1.15 | |

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rockwool.com



Residential Applications

Comfortbatt®

Thermal Batt Insulation Brochure

Comfortbatt®

Technical Data Sheet

Safe'n'Sound®

Fire and Sound proofing Brochure

Safe'n'Sound®

Technical Data Sheet

ROXUL Safe® 45

Residential Party Wall
Technical Data Sheet

Comfortboard® 80

Wall Systems and More Applications Brochure

Comfortboard® 80

Technical Data Sheet Continuous Insulation



Click on any of the above brochures or data sheets to be directed to that specific document.

Visit www.rockwool.com for our full Product Documentation Library.



Comfortbatt®

Thermal Batt Insulation for
Residential & Commercial Construction



Superior building envelope performance by ROCKWOOL Insulation.



ROCKWOOL Comfortbatt® is a semi-rigid batt insulation designed specifically for exterior wood and steel stud applications in residential and commercial construction. Made from natural stone and recycled slag, ROCKWOOL stone wool is a high-density insulation that will fit snugly into wall cavities and will not slump over time. It also adds superior acoustical performance to wall assemblies and floors and can be used in acoustic applications required by building code.



Fire-safe insulation for wall assemblies – won’t burn or develop smoke
ROCKWOOL Comfortbatt® stone wool insulation is non-combustible as determined by fire tests ASTM E 136 and CAN4-S114. It will not develop smoke or promote flame spread, even when directly exposed to fire, as most other insulation materials will.

- Extremely high melting point of 1177°C (2150°F)
- Does not produce smoke or toxic gases in the event of a fire
- Excellent barrier against the spread of flames to help protect occupants and reduce property damage
- Eliminates the risk of insulation accidentally catching fire during installation
- Excellent Passive Fire Protection – Comfortbatt® can add up to an additional 15 minutes of fire protection to wall assemblies

| Fire test performance | | |
|-------------------------------------|---|---|
| CAN/ULC-S702-09 | Mineral Wool Thermal Insulation for Buildings | Type 1, Complies |
| CAN4-S114 | Determination of Non-Combustibility | Non-Combustible |
| ASTM E 136 | Determination of Non-Combustibility | Non-Combustible |
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| ASTM E 84 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| NBC 2010, Article 9.25.2.2 | Insulation Materials | Conforms |
| CC ^{MC} Evaluation Listing | Master Format 07212: Mineral Wool Batt Insulation | 12018-L |



The Insurance Bureau of Canada (IBC) reference to NFPA 285: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components has led to several rainscreen wall system manufacturers to test with ROCKWOOL cavity wall insulation. The use of Spray Polyurethane Foam insulation does not allow rainscreen manufacturers to meet this requirement.

Performance Matters.

Managing moisture in wall assemblies

Depending on your building codes and geographic location, a vapor barrier may be required when insulating exterior wall cavities. The use of a vapor retarder will limit the amount of water vapor that will move to the outside wall – reducing condensation in the wall assembly. ROCKWOOL Comfortbatt® will not absorb or retain water in the event that moisture does get into the wall assembly.

When insulation material such as fiberglass gets wet, it can absorb moisture, reducing R-value, and will slump or sag within the wall cavity. This can also create the risk of mold growth in the insulation. Comfortbatt® is made from inorganic stone and does not support mold or fungus growth, even when exposed to moisture. Comfortbatt® is also vapor permeable, meaning that it will not absorb water but if it does get wet, it will dry out and maintain its R-value.

Better fit equals better wall performance

To ensure the labeled R-value is achieved, batt insulation in wood and steel stud wall cavities must be gap free and void free. Gaps and voids are most prevalent around electrical boxes, wires and pipes.

ROCKWOOL Comfortbatt® is produced at a slight over-thickness to ensure a friction fit within the wall cavity. The batts will stay in place and perform equally well in horizontal, sloped, dormer, vertical and overhead applications.

ROCKWOOL Comfortbatt®’s unique flexible edge ensures the semi-rigid batts compress and expand between studs and joists to eliminate slumping or sagging and conform to off-standard wood studs.

Higher-density batts reduce airflow within the wall cavity, reducing convective losses. This translates into a better-performing and more comfortable thermal wall.

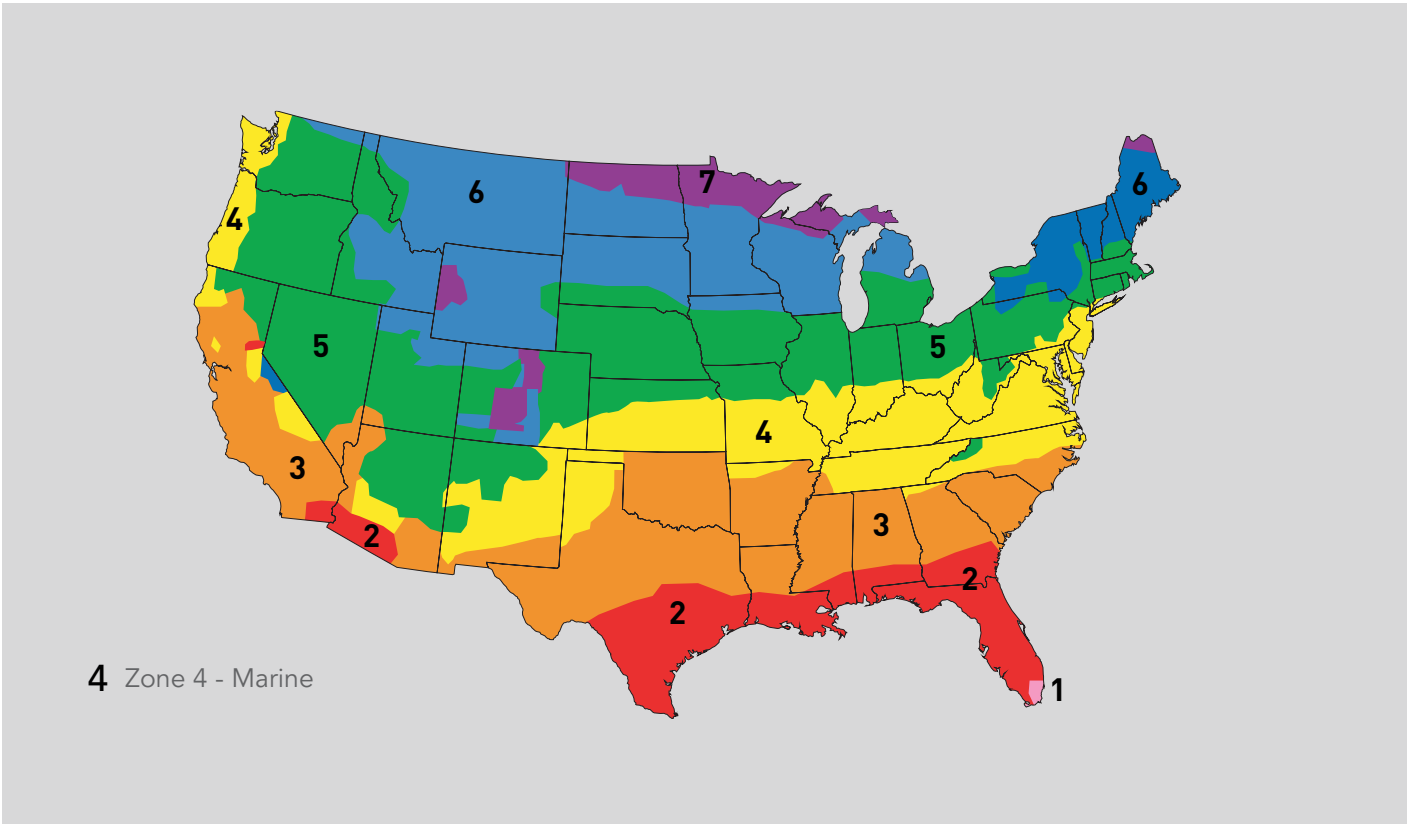
| Compliance & Specification > 2 lb/ft³ 32 kg/m³ | | |
|--|---|-------------------------|
| R13/14/15 | 89 mm (3.5") | 2.8 kg/m² (0.6 lbs/ft²) |
| R21/22/23 | 150 mm (5.5") | 4.8 kg/m² (1.0 lbs/ft²) |
| R28/30 | 203 mm (8.0") | 5.9 kg/m² (1.2 lbs/ft²) |
| R32 | 241 mm (9.5") | 6.5 kg/m² (1.3 lbs/ft²) |
| R38 | 241 mm (9.5") | 7.7 kg/m² (1.6 lbs/ft²) |
| Density | ASTM C 612-00 – 32 kg/m³ (2 lb/ft³) | |
| Fire | CAN/ULC S102 Surface Burning Characteristics Flame Spread = 0 Smoke Developed = 0 | |
| Moisture Resistance | ASTM C 1104 Moisture Sorption 0.03% | |

Studies have proven that wall assemblies with gaps and voids can result in 35% loss of the stated R-value. ROCKWOOL Comfortbatt®’s higher-density batts make it simple for precise cutting to ensure a fit without gaps and voids.



ROCKWOOL cuts quickly and accurately with a serrated knife, such as a bread knife, so you can easily achieve optimal fit around pipes, electrical boxes, wiring, ductwork and between studs and joists that are less than a standard width.

Determining your climate zone and building code requirements.



In the northern states and Canada, chances are that building code mandates a vapor control layer be installed on the warm side of the insulation. A vapor control layer in northern climates helps to reduce the moisture diffusion through the wall assembly and through to the drywall.

Vapor control layers and barriers have different permeance levels measured in perms and depending on your building code you may need to install a vapor control layer with a specific perm rating. In Canada and some northern US states, a 6 mil polyethylene sheet is commonly used, but always check with your local building code for guidance.

ASHRAE – history of R-value requirements
The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) is an international society of technical individuals who provide knowledge to the building industry on heating, ventilation, air conditioning, and refrigeration (HVAC&R). The Society developed ASHRAE 90.1, an energy conservation

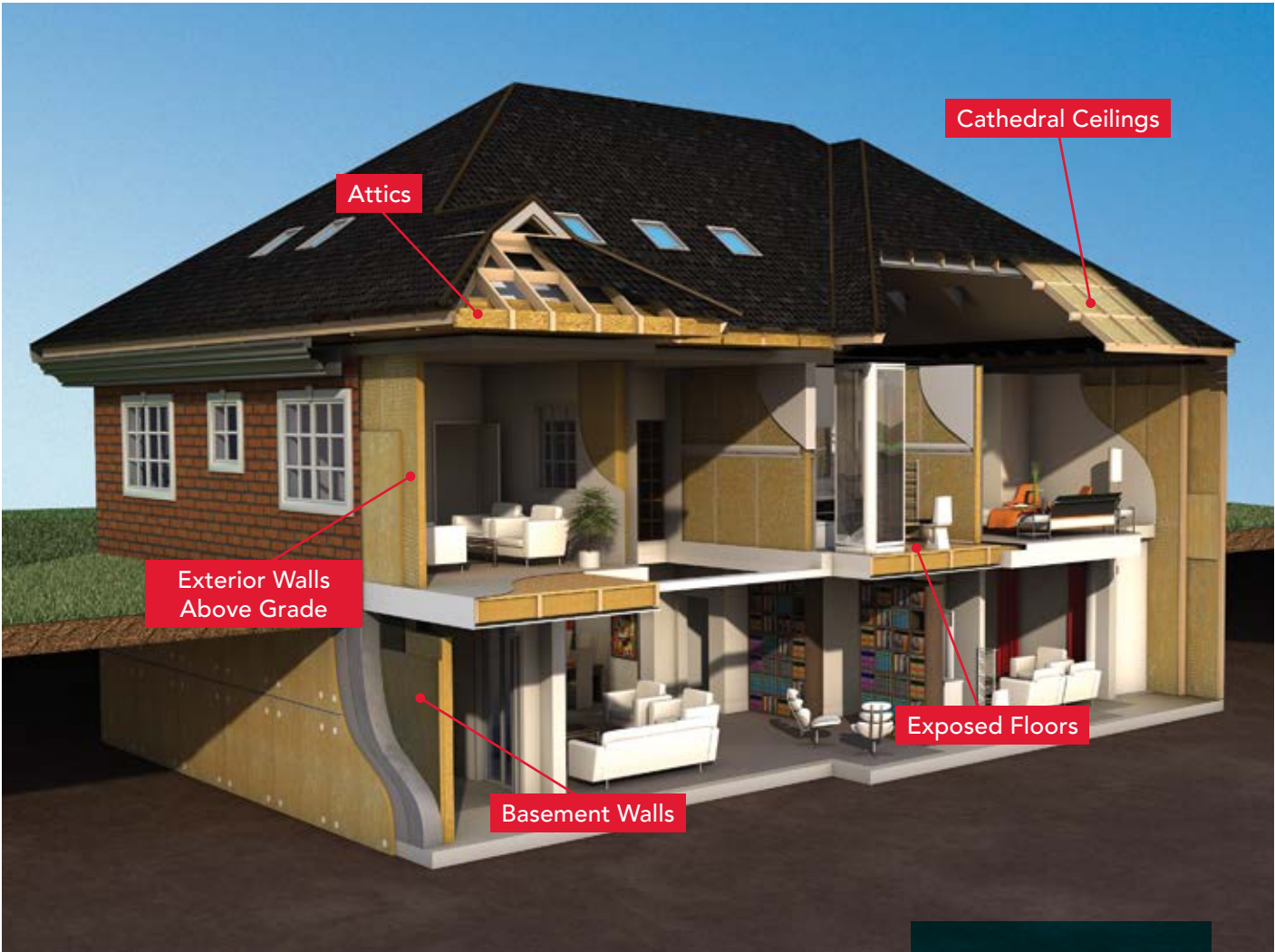
standard that provides the minimum requirements for energy-efficient buildings.

This standard, or an equivalent, is applied today in many states for commercial, government and high-rise building applications. In Canada, look to the National Building Code and refer to section A-5.3.1.2 for information on condensation and energy conservation standards.

ASHRAE map of climate zones (above)
Every rating agency has its own maps that divide regions into thermal or climate zones to tailor codes and standards to what is appropriate for that particular region.

In Zone 1, Zone 2, Zone 3 and Zone 4 (except Zone 4 Marine), no vapor retarder is required on the interior surface of insulated wall and floor assemblies while in the northern states, some form of vapor retarder is likely code mandatory.

Specifically engineered for use in all residential thermal applications.



Environmental Benefits That Go Beyond Residential Homes
The GREENGUARD® Environmental Institute (GEI) is a non-profit organization that oversees the GREENGUARD Gold standards. The GEI's mission is to protect human health and quality of life through programs that improve indoor air that people breathe. GREENGUARD Gold Certification (formerly known as GREENGUARD Children & Schools Certification) offers stricter certification criteria, considering safety factors to account for sensitive individuals (such as children and the elderly), and ensures that a product is acceptable for use in environments such as schools and healthcare facilities. ROCKWOOL Comfortbatt® products are certified to this standard and are recognized by the United States Green Building Council's (USGBC) LEED® program.

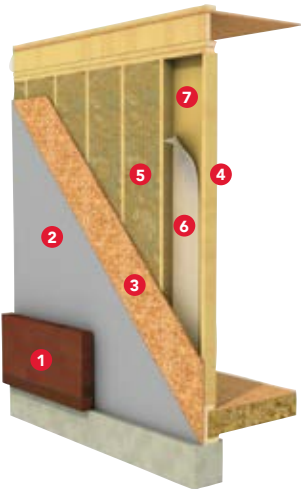
Ideal applications for Comfortbatt® insulation.

The higher density of ROCKWOOL Comfortbatt® ensures a snug friction fit in the wall cavity. Note: A vapor retarder may be required in the wall assembly, depending on the geographical location of the building.

The Comfortbatt® Residential Wall Assembly

(shown from outside to inside)

- 1 Cladding
- 2 Air Barrier
- 3 Sheathing
- 4 2" x 6" Wood Studs
- 5 5.5" Comfortbatt®
- 6 Vapor Retarder*
- 7 Gypsum

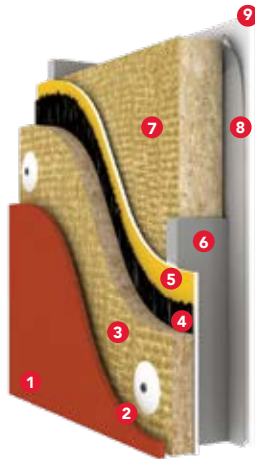


In addition to residential applications, ROCKWOOL Comfortbatt® is ideal as a component of a high performance cavity wall system.

Wall Components

(shown from outside to inside)

- 1 Terra Cotta Cladding
- 2 1" Air Space (1/2" minimum)
- 3 1"-5" Cavityrock® (R4.2-R21.5)
- 4 Permeable Air Barrier
- 5 Exterior Gypsum Board
- 6 3.5" or 6" Steel Stud
- 7 3.5" or 6" Comfortbatt® Insulation
- 8 Vapor Barrier*
- 9 5/8" Gypsum Board

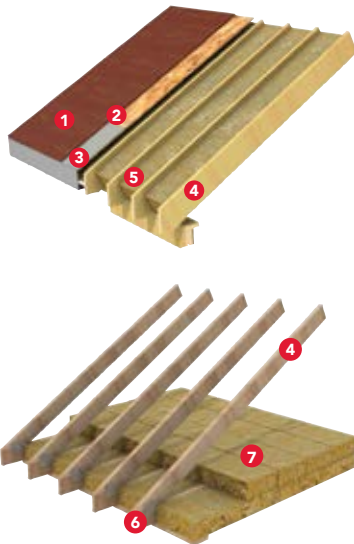


When insulating attics, use two layers of Comfortbatt® to achieve the required R-value. The bottom layer should run parallel to the joists and the top layer run in the opposite direction. For attics and cathedral ceilings, only a single layer of Comfortbatt® is required between the roof trusses.

The Comfortbatt® Roof/Attic Assembly

(shown from outside to inside)

- 1 Shingles
- 2 Tar Paper
- 3 Sheathing
- 4 2" x 10" Roof Trusses
- 5 Comfortbatt® (R30/R32/R38)
- 6 Ceiling Joists
- 7 Comfortbatt® (R21/R22/R23 or R28/R30/R38) two layers running perpendicular



A range of Comfortbatt® products to suit all your building requirements.

| R-Value | Available in Canada | Available in US | RSI Value | Stud/Joist Type | Thickness | Width | Length | Coverage Sq. Ft. (per bag) |
|------------|---------------------|-----------------|-----------|-----------------|-----------|--------|--------|----------------------------|
| Wood Stud | | | | | | | | |
| R13 | X | ✓ | 2.28 | Wood | 3.5" | 15.25" | 47" | 59.7 |
| R13 | X | ✓ | 2.28 | Wood | 3.5" | 23" | 47" | 60.1 |
| R14 | ✓ | X | 2.47 | Wood | 3.5" | 15.25" | 47" | 59.7 |
| R14 | ✓ | X | 2.47 | Wood | 3.5" | 23" | 47" | 60.1 |
| R15 | X | ✓ | 2.64 | Wood | 3.5" | 15.25" | 47" | 59.7 |
| R15 | X | ✓ | 2.64 | Wood | 3.5" | 23" | 47" | 60.1 |
| R21 | X | ✓ | 3.70 | Wood | 5.5" | 15.25" | 47" | 39.8 |
| R21 | X | ✓ | 3.70 | Wood | 5.5" | 23" | 47" | 37.5 |
| R22 | ✓ | X | 3.87 | Wood | 5.5" | 15.25" | 47" | 39.8 |
| R22 | ✓ | X | 3.87 | Wood | 5.5" | 23" | 47" | 37.5 |
| R23 | X | ✓ | 4.05 | Wood | 5.5" | 15.25" | 47" | 39.8 |
| R23 | X | ✓ | 4.05 | Wood | 5.5" | 23" | 47" | 37.5 |
| R24 | ✓ | X | 3.87 | Wood | 5.5" | 15" | 47" | 29.4 |
| R24 | ✓ | X | 3.87 | Wood | 5.5" | 22.75" | 47" | 29.7 |
| R28 | ✓ | X | 4.92 | Wood | 7.25" | 15.25" | 47" | 29.9 |
| R28 | ✓ | X | 4.92 | Wood | 7.25" | 23" | 47" | 30.7 |
| R30 | X | ✓ | 5.28 | Wood | 7.25" | 15.25" | 47" | 29.9 |
| R30 | X | ✓ | 5.28 | Wood | 7.25" | 23" | 47" | 30.7 |
| R32 | ✓ | X | 5.64 | Wood | 8" | 15.25" | 47" | 29.9 |
| R32 | ✓ | X | 5.64 | Wood | 8" | 23" | 47" | 30.0 |
| R38 | X | ✓ | 6.69 | Wood | 9.5" | 15.25" | 47" | 19.9 |
| R38 | X | ✓ | 6.69 | Wood | 9.5" | 23" | 47" | 22.5 |
| Steel Stud | | | | | | | | |
| R10 | ✓ | ✓ | 1.76 | Steel | 2.5" | 16.25" | 48" | 86.7 |
| R14 | ✓ | X | 2.47 | Steel | 3.5" | 16.25" | 48" | 65.0 |
| R14 | ✓ | X | 2.47 | Steel | 3.5" | 24.25" | 48" | 64.7 |
| R15 | X | ✓ | 2.64 | Steel | 3.5" | 16.25" | 48" | 65 |
| R15 | X | ✓ | 2.64 | Steel | 3.5" | 24.25" | 48" | 64.7 |
| R22.5 | ✓ | ✓ | 3.96 | Steel | 6.0" | 16.25" | 48" | 43.3 |
| R22.5 | ✓ | ✓ | 3.96 | Steel | 6.0" | 24.25" | 48" | 40.4 |
| R24 | ✓ | ✓ | 4.22 | Steel | 6.0" | 16.25" | 48" | 43.3 |
| R24 | ✓ | ✓ | 4.22 | Steel | 6.0" | 24.25" | 48" | 40.4 |

*Check with your local building code for approved vapor barrier/retarder information.

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 12,000 employees in 40 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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Publication date - edition: 04/2022

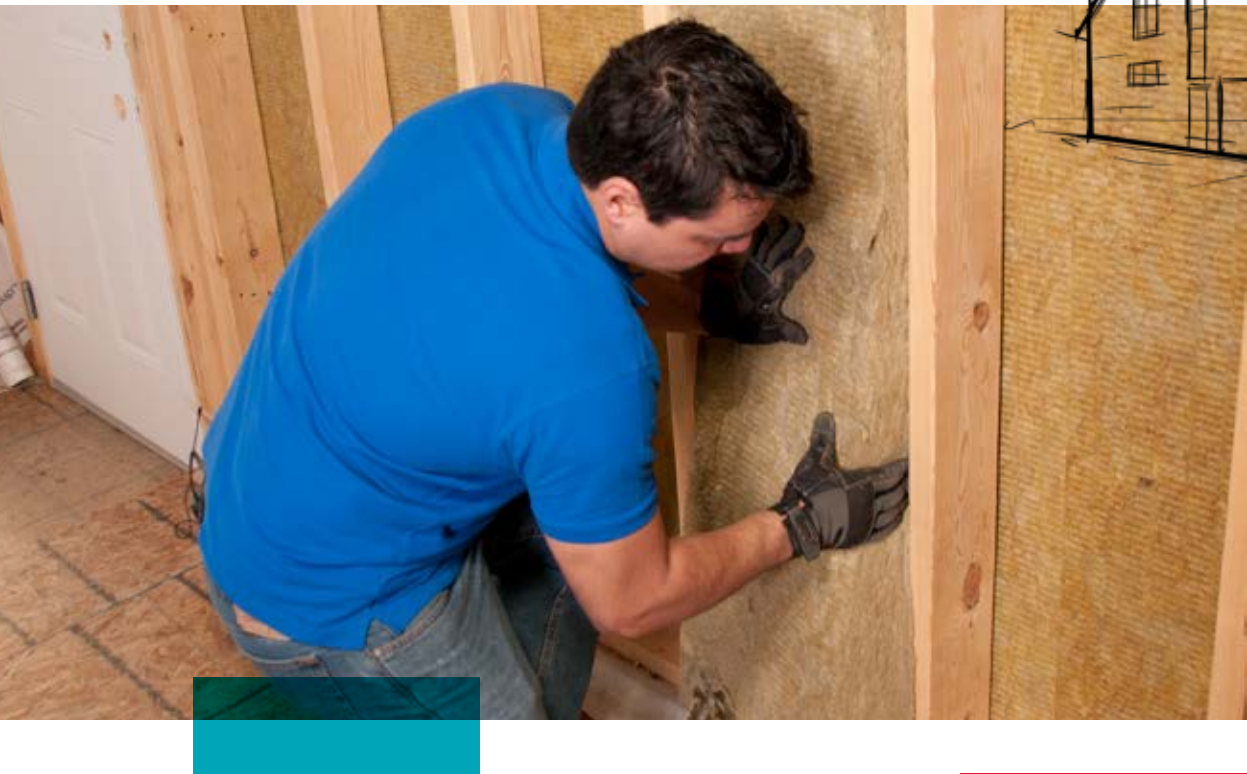


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Comfortbatt®

Thermal Batt Insulation



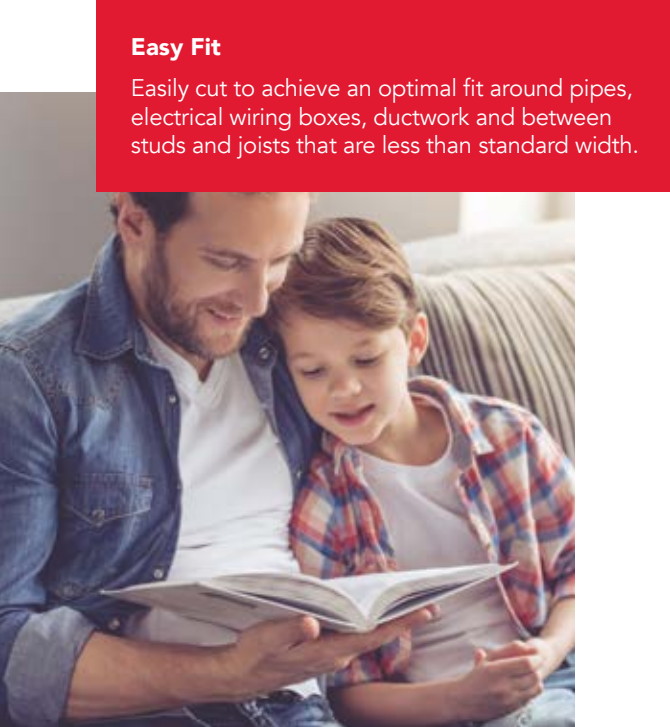
ROCKWOOL Comfortbatt® is a semi-rigid stone wool batt insulation for exterior wood and steel stud applications in both new construction and renovations.

It features a unique flexible edge designed to compress as the batt is inserted then spring back, expanding the batt against the frame studs to give a complete fill. This flexibility ensures the expected R-value is achieved and maintained.

Non-combustible and fire resistant, Comfortbatt® will not develop toxic smoke or promote flame spread, even when exposed directly to a fire. It also offers water and moisture resistance and excellent sound absorbency.

Comfortbatt® is an effective way to improve a home's energy efficiency. It is GREENGUARD Gold Certified and contributes to a healthier indoor environment.

Learn more at rockwool.com



Easy Fit

Easily cut to achieve an optimal fit around pipes, electrical wiring boxes, ductwork and between studs and joists that are less than standard width.

Comfortbatt®

Thermal Batt Insulation

Technical Data Sheet

Batt Insulation 07210*
Blanket Insulation 07 21 16**

ROCKWOOL Comfortbatt® is a mineral wool batt insulation designed for thermal resistance in wood and steel framing.

| | Performance | | Test Standard |
|--------------------|---|--------------------------------------|---------------|
| Compliance | Mineral Fibre Thermal Insulation for Buildings, Type 1 Compliant | | CAN/ULC S702 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | | CAN/ULC S102 |
| | Determination of Non-combustibility of Building Materials - Non-combustible | | CAN/ULC S114 |
| Density | > 2 lbs/ft³ (>32 kg/m³) | | ASTM C167 |
| Thermal Resistance | Wood Stud | Steel Stud | ASTM C518 |
| | R14 (RSI 2.47) - 3.5" thick (89 mm) | R10 (RSI 1.76) - 2.5" thick (64 mm) | |
| | R22 (RSI 3.87) - 5.5" thick (140 mm) | R14 (RSI 2.47) - 3.5" thick (89 mm) | |
| | R24 (RSI 4.23) - 5.5" thick (140 mm) | R22.5 (RSI 3.96) - 6" thick (152 mm) | |
| | R28 (RSI 4.93) - 7.25" thick (184 mm) | R24 (RSI 4.23) - 6" thick (152 mm) | |
| | R32 (RSI 5.64) - 8" thick (203 mm) | R32 (RSI 5.37) - 8" thick (203 mm) | |
| | | | |

| | |
|------------|---|
| Dimensions | Wood Stud 16" (406 mm) on centre: 15.25" x 47" (387 mm x 1194 mm) Wood Stud 24" (610 mm) on centre: 23" x 47" (584 mm x 1194 mm) Steel Stud 16" (406 mm) on centre: 16.25" x 48" (413 mm x 1219 mm) Steel Stud 24" (610 mm) on centre: 24.25" x 48" (616 mm x 1219 mm) |
|------------|---|



Issued 08 01 2020
Supersedes 08-23-17

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.



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Comfortbatt®

Thermal Batt Insulation



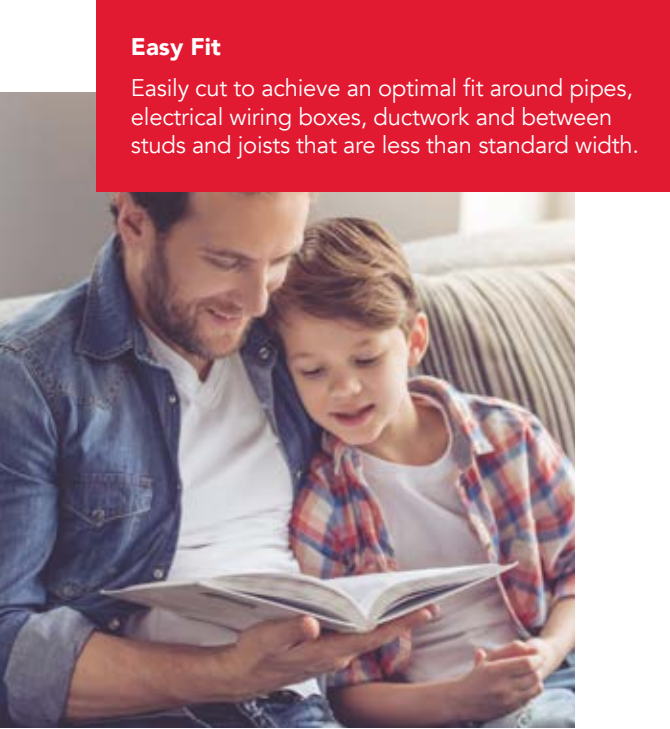
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It features a unique flexible edge designed to compress as the batt is inserted then spring back, expanding the batt against the frame studs to give a complete fill. This flexibility ensures the expected R-value is achieved and maintained.

Non-combustible and fire resistant, Comfortbatt® will not develop toxic smoke or promote flame spread, even when exposed directly to a fire. It also offers water and moisture resistance and excellent sound absorbency.

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Easy Fit

Easily cut to achieve an optimal fit around pipes, electrical wiring boxes, ductwork and between studs and joists that are less than standard width.

Comfortbatt®

Thermal Batt Insulation

Technical Data Sheet

Batt Insulation 07210*
Blanket Insulation 07 21 16**

ROCKWOOL Comfortbatt® is a mineral wool batt insulation designed for thermal resistance in wood and steel framing.

| | Performance | Test Standard | |
|--------------------|---|---------------------------------------|-----------|
| Compliance | Mineral Fiber Thermal Insulation for Buildings, Type 1 Compliant | ASTM C665 | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | ASTM E84 (UL 723) | |
| | Determination of Non-combustibility of Building Materials - Non-combustible | ASTM E136 | |
| Density | > 2 lbs/ft³ (>32 kg/m³) | ASTM C167 | |
| Thermal Resistance | Wood Stud | Steel Stud | ASTM C518 |
| | R13 (2.29) - 3.5" thick (89 mm) | R10 (RSI 1.76) – 2.5" thick (64 mm) | |
| | R15 (RSI 2.64) – 3.5" thick (89 mm) | R15 (RSI 2.64) – 3.5" thick (89 mm) | |
| | R21 (3.70) - 5.5" thick (140 mm) | R24 (RSI 4.23) – 6" thick (152 mm) | |
| | R23 (RSI 4.05) – 5.5" thick (140 mm) | R30 (RSI 5.28) - 7.25" thick (184 mm) | |
| | R30 (RSI 5.28) – 7.25" thick (184 mm) | R32 (RSI 5.64) - 8" thick (203 mm) | |
| | R38 (6.69) - 9.5" thick (241 mm) | | |

| | |
|------------|---|
| Dimensions | Wood Stud 16" (406 mm) on center: 15.25" x 47" (387 mm x 1194 mm) Wood Stud 24" (610 mm) on center: 23" x 47" (584 mm x 1194 mm) Steel Stud 16" (406 mm) on center: 16.25" x 48" (413 mm x 1219 mm) Steel Stud 24" (610 mm) on center: 24.25" x 48" (616 mm x 1219 mm) |
|------------|---|



Issued 08-01-2020
Supersedes 08-23-17

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ROCKWOOL Safe'n'Sound®

Fire and Soundproofing Insulation
for Interior Partition Walls, Floors and Ceilings





Sound control and fire safety from one batt insulation

ROCKWOOL Safe'n'Sound® is a stone wool insulation for use in interior partitions and ceilings between floors of residential construction where superior fire resistance and acoustical performance are required.

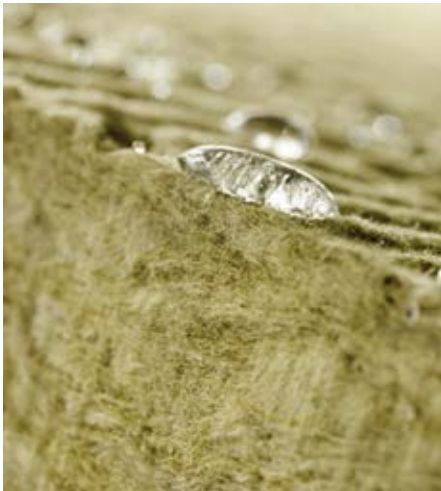
Designed for interior applications, Safe'n'Sound® has not been engineered as a thermal insulation but as sound proofing and as a fire barrier. Withstanding temperatures up to 2150°F (1177°C), Safe'n'Sound® is non-combustible and will not produce toxic smoke or promote flames spreading, even when directly exposed to fire. This adds valuable extra time for people to reach safety and for fire services personnel to arrive.

ROCKWOOL Safe'n'Sound® has excellent acoustical dampening properties and provides an easy friction fit into walls, ceiling and floor applications. It's high density and unique fiber structure absorbs sound and reduces noise traveling from one room to another, improving occupant comfort.



Fire resistance enhances home safety

- Combination of natural stone and recycled content makes ROCKWOOL stone wool insulation an excellent fire barrier
- Works effectively to help contain the fire and prevent its spread even when directly exposed to fire
- Inherently non-combustible, ROCKWOOL Safe'n'Sound® can resist temperatures up to 2150°F (1177°C)



Water repellent & won't sustain mold

- ROCKWOOL Safe'n'Sound® is resistant to water, rot, mold, mildew and bacterial growth
- Contributes to a safer and healthier indoor environment
- GREENGUARD certified, receiving the highest designation for indoor air quality



Higher density means a better fit

- ROCKWOOL Safe'n'Sound® batts are simple to cut with a serrated knife (such as a bread knife)
- Clean, straight cuts provide optimal fit around electrical boxes, wiring, and pipes – minimizing air flow
- Superior friction fit between studs completely fills the wall cavity preventing insulation from sagging



ROCKWOOL Safe'n'Sound® is an excellent acoustic barrier that effectively absorbs sound, making it the choice of professional recording studios.



Typical Assemblies for ROCKWOOL Safe'n'Sound®



Single stud interior wall (Wood Studs – 16" On Center)

Using ROCKWOOL Safe'n'Sound®, 5/8" drywall (type x) and resilient channels at 16" provides:

- Fire Rating: 1 hour
- Sound Transmission Class (STC): 45

ROCKWOOL Safe'n'Sound® Wall Components (shown from outside to inside)

1. 5/8" Type X Gypsum
2. 3" Safe'n'Sound®
3. Resilient Channel
4. 5/8" Type X Gypsum Board

Interior ceiling/floor (2 x 10 Joists – 16" On Center)

Using ROCKWOOL Safe'n'Sound®, 5/8" drywall (type x) and resilient channels at 24" provides:

- Fire Rating: 30 minutes
- Sound Transmission Class (STC): 50

ROCKWOOL Safe'n'Sound® Ceiling/Floor Components (shown from top to bottom)

1. Plywood Floor
2. Air Space
3. 6" Safe'n'Sound®
4. Resilient Channel
5. Gypsum Board



Because it doesn't burn, Safe'n'Sound® can delay the spread of fire for added safety.



Sound control delivers peace and quiet

- Install Safe'n'Sound® in interior walls between rooms and in ceilings between floors
- Higher-density batts more effectively reduce airflow – thereby decreasing sound transmission
- Provides higher sound absorption against low-frequency (bass) ranges, which are most difficult to block
- Typical household applications include home theater, basements (ceilings), home office, laundry room, bathroom and furnace room



The Safe'n'Sound® interior partition wall and floor system is ideal for residential renovation activity such as home theaters.

Maintain a healthy living environment

Home life has changed, and sound dampening is more important than ever

Life is getting louder around the home. Televisions, home theaters, computers and video games blare from almost every room. Family cell phones constantly ring. More people work from home offices and entertainment rooms are the norm.

More and more, sound dampening is a must-have requirement for any modern family home. And unlike other insulation, ROCKWOOL Safe’n’Sound® provides higher sound absorption against low frequency (bass) ranges helping to provide a quieter, safer and more comfortable.



Fact

The cognitive performance of both children and adults is reduced by noise. Their ability to learn is impaired in noisy environments.



A GREENGUARD Gold certified product to help improve quality of life

ROCKWOOL Safe’n’Sound® products are GREENGUARD Gold certified and are recognized by the United States Green Building Council (USGBC) and Canada Green Building Council’s (CaGBC) LEED programs. The GREENGUARD Environmental Institute (GEI) is a non-profit organization that oversees the GREENGUARD Gold standards. The GEI’s mission is to protect human health and quality of life through programs that improve the indoor air that people breathe.

What this means is when Safe’n’Sound® stone wool insulation is installed into a home’s interior partition walls and ceilings between floors it provides piece of mind knowing the product has been designed for indoor spaces in such a way that it meets a strict certification criteria. GEI’s certification criteria is put in place to help reduce indoor air pollution while aiding in the creation of healthier indoor environments. It considers safety factors that account for sensitive individuals (such as children and the elderly), with the GREENGUARD Gold certified specifically ensuring the product is acceptable for use in environments such as schools and healthcare facilities where indoor air quality is of the utmost importance.

Compliance and performance

| System Description | Sound Transmission Class (STC) | Fire Resistance |
|--|--------------------------------|-----------------|
| 5/8" gypsum boards 3 5/8" steel studs spaced 24" centers ROCKWOOL Safe’n’Sound® | 52 | 1 Hour |

Above results are based upon testing using Type X gypsum board. For additional designs, please contact ROCKWOOL Technical Services.

Acoustical performance

ASTM C423
CO-EFFICIENTS AT FREQUENCIES

| System Description | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
|--------------------|-----------|--------|--------|--------|---------|---------|---------|------|
| ROCKWOOL | 3" | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 |
| Safe'n'Sound® | 6" | 1.11 | 1.28 | 1.15 | 1.06 | 1.03 | 1.01 | 1.15 |

Compliance and performance

| | | |
|--------------------|--|---|
| CAN/ULC-S702-09 | Mineral Fiber Thermal Insulation for Buildings | Type 1, Complies |
| ASTM C 665 | Mineral Fiber Blanket Thermal Insulation | Type 1, Complies |
| CAN4-S114 | Determination of Non-Combustibility | Non-Combustible |
| ASTM E 136 | Surface Burning Characteristics | Non-Combustible |
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| ASTM E 84 (UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| CAN/ULC S102 | Smolder Resistance | 0.09% |

Dimensions

| Stud type | Thickness | Width | Length | Coverage |
|---------------|------------------|-----------------------|------------------|----------------------|
| 16" Wood | 3 in. (76 mm) | 15 1/4 in. (387 mm) | 47 in. (1194 mm) | 59.7 ft.² (5.55 m²) |
| 16" Wood | 6 in. (152.4 mm) | 15 1/4 in. (387 mm) | 47 in. (1194 mm) | 29.87 ft.² (2.78 m²) |
| 16" I-Joist | 6 in. (152.4 mm) | 16.25 in. (413 mm) | 48 in. (1219 mm) | 32.5 ft2 (3.02 m²) |
| 19.2" I-Joist | 6 in. (152.4 mm) | 19 1/5 in. (487.7 mm) | 47 in. (1194 mm) | 31.33 ft.² (2.91 m²) |
| 24" Wood | 3 in. (76 mm) | 23 in. (584 mm) | 47 in. (1194 mm) | 60.1 ft.² (5.58 m²) |
| 24" Wood | 6 in. (152.4 mm) | 23 in. (584 mm) | 47 in. (1194 mm) | 30.03 ft.² (2.79 m²) |
| 16" Steel | 3 in. (76 mm) | 16 1/4 in. (413 mm) | 48 in. (1219 mm) | 64 ft.² (5.95 m²) |
| 24" Steel | 3 in. (76 mm) | 24 1/4 in. (616 mm) | 48 in. (1219 mm) | 64 ft.² (5.95 m²) |

Density

| | |
|--------------|----------|
| 2.37 lbs/ft³ | 38 kg/m³ |
|--------------|----------|

At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With approx. 11,000 passionate colleagues in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine & offshore.

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Publication date-edition: 06/2021

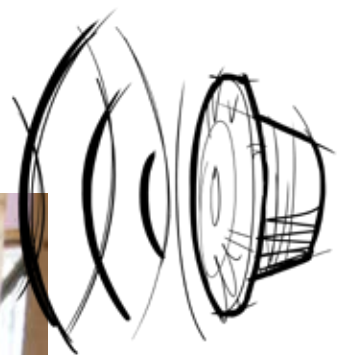


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Safe'n'Sound®

Fire and Soundproofing Insulation



ROCKWOOL Safe'n'Sound® is a stone wool insulation for use in interior partitions of residential wood and steel stud construction where superior fire resistance and acoustical performance are required.

Withstanding temperatures up to 2150°F (1177°C), Safe'n'Sound® is non-combustible and will not produce toxic smoke or promote flames spreading, even when directly exposed to fire. This adds valuable extra time for people to reach safety and for fire services personnel to arrive.

Safe'n'Sound® has excellent acoustical dampening properties and provides an easy friction fit into walls, ceiling and floor applications. It is GREENGUARD Gold Certified and contributes to a healthier indoor environment.

Learn more at rockwool.com

A Quiet Space

A high density and unique fiber structure absorbs sound and reduces noise traveling from one room to another, improving occupant comfort.



Safe'n'Sound®

Residential Fire and Soundproofing Insulation

Technical Data Sheet
Batt Insulation 07210 & 09820*
Acoustic Blanket Insulation 09 81 16**

ROCKWOOL Safe'n'Sound® is a mineral wool batt insulation for interior partitions of wood and steel frame construction where superior fire resistance and acoustical performance is required.

| | Performance | Test Standard |
|------------------|---|-------------------|
| Compliance | Mineral Fiber Blanket Thermal Insulation, Type 1 Compliant | ASTM C665 |
| | Mineral Fiber Thermal Insulation for Buildings, Type 1 Compliant | CAN/ULC S702 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 | ASTM E84 (UL 723) |
| | Flame spread index = 0; Smoke developed index = 0 | CAN/ULC S102 |
| | Determination of Non-combustibility of Building Materials - Non-combustible | CAN/ULC S114 |
| | Behavior of materials at 750°C - Non-combustible | ASTM E136 |
| | Smolder Resistance - 0.09% | CAN/ULC S129 |
| Density | Actual Density - 2.4 lb/ft³ (38 kg/m³) | ASTM C167 |
| Thickness | Product is available in 3" (76 mm) and 6" (152 mm) thicknesses | |

| | |
|------------|--|
| Dimensions | Wood Stud 16" (406 mm) on center: 15.25" x 47" (387 mm x 1194 mm) |
| | Wood Stud 24" (610 mm) on center: 23" x 47" (584 mm x 1194 mm) |
| | I-Joist 16" (402 mm) on center: 16.25"x48 (413 mm x 1219 mm) |
| | I-Joist 19.2" (488mm) on center: 19.2" x 47" (488 mm x 1194 mm) |
| | Steel Stud 16" (406 mm) on center: 16.25" x 48" (413 mm x 1219 mm) |
| | Steel Stud 24" (610 mm) on center: 24.25" x 48" (616 mm x 1219 mm) |

| | | | |
|----------------|---|--------------------------------|--|
| System Testing | System Description | Sound Transmission Class (STC) | Fire Resistance |
| | 5/8" gypsum boards (type x) 3 5/8" steel studs spaced 24" OC 1 layer of 3" Safe'n'Sound® Steel Stud | 52 | 1 hour |
| | 5/8" gypsum boards (type x) 2x4" wood studs spaced 16" OC 1 layer of 3" Safe'n'Sound® Wood Stud Resilient Channels spaced 16" OC | 45 | 1 hour (non-loadbearing) 45 min (loadbearing) |
| | 2x10" Wood Joists spaced 16" OC 1 layer of 6" Safe'n'Sound® Wood Stud Resilient Channels spaced 24" OC 5/8" gypsum boards (type x) | 50 | 30 minutes |

| | | | | | | | | | |
|------------------------|-----------|--------|--------|--------|---------|--------|---------|------|-----------|
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 3" | 0.52 | 0.96 | 1.18 | 1.07 | 1.05 | 1.05 | 1.05 | |
| | 6" | 1.11 | 1.28 | 1.15 | 1.06 | 1.03 | 1.01 | 1.15 | |



Issued: 03-01-2021
Supersedes 08-23-17

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.



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rockwool.com

ROXUL Safe™ 45

Residential Party Wall Insulation



ROXUL SAFE™ 45 is a semi-rigid stone wool insulation board from ROCKWOOL that is specifically engineered as a fire-blocking material for concealed spaces of multi-unit residential buildings.

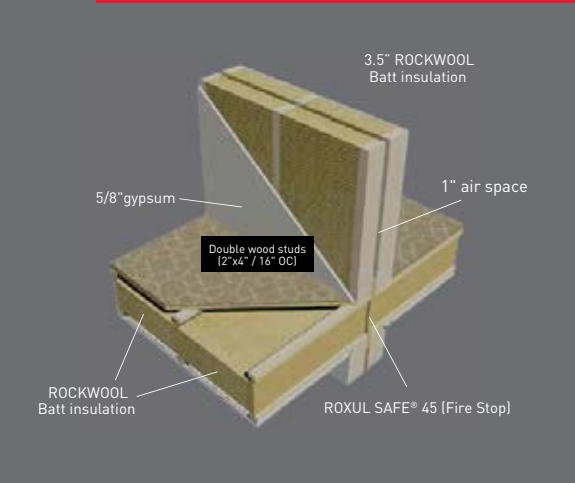
Using ROXUL SAFE™ 45 with our ROCKWOOL batt insulation creates a high-density “party” wall system that improves sound dampening and fire performance. It also reduces the time, labor and material costs usually associated with adding a double layer of gypsum over the wall studs.

With this party wall system in place, required performance specs exceed code while vibration and sound transmission between party walls is reduced.

ROXUL SAFE™ 45 fire separation board complies with the fire-blocking National Building Code, is easy to install, and offers excellent water and moisture resistance.

Learn more at rockwool.com

Party Wall System Advantage
Reduces time, labor and material costs on party wall stud partitions and increases occupant comfort.



ROXUL Safe™ 45

Residential Party Wall Insulation

Technical Data Sheet

Board Insulation 07210*

Board Insulation 07 21 13**

ROXUL SAFE™ 45 is a semi-rigid, mineral wool insulation board designed for firestopping in concealed spaces of residential units. This product complies with the 2010 National Building Code 9.10.16.3(2).

| | Performance | Test Standard | |
|-----------------------|---|--|------------------|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVA Compliant Mineral Fiber Thermal Insulation for Buildings - Type 1 Compliant | ASTM C612 CAN/ULC S702 | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non-combustibility of Building Materials - Non-combustible Behavior of materials at 750°C - Non-combustible | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 | |
| Density | Actual Density - 4.4 lbs/ft³ (70 kg/m³) | ASTM C303 | |
| Dimensional Stability | Linear Shrinkage - <1% @ 1200°F | ASTM C356 | |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 | |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | 4.2 hr.ft².F/Btu 0.74 m²K/W | ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption by weight - 0.03% Determination of Fungi Resistance - Passed | ASTM C1104 ASTM C1338 | |
| Thickness Dimensions | Product is available in 1" thickness (25.4 mm) 16" x 48" (406 mm x 1219 mm), 24" x 48" (610 mm x 1219 mm) | | |

Issued 01-01-18
Supersedes 08-23-17

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rockwool.com

Return to Residential Applications

ROCKWOOL Comfortboard® 80

Exterior non-structural insulated sheathing board used as continuous insulation in high-performance wall systems and more applications.



ROCKWOOL Exterior Wall Solutions

ROCKWOOL Pushes the Building Envelope Forward

As the building industry seeks new and innovative ways to save energy and create quieter and safer homes, ROCKWOOL leads the way with a multitude of exterior and interior insulation products designed to improve the performance of the building's envelope.

ROCKWOOL Comfortboard® 80 thermal insulated sheathing is a rigid stone wool insulation board designed for use as an exterior continuous insulation in residential and commercial construction. Comfortboard 80 does not produce smoke or propagate flames, and being vapor permeable, Comfortboard 80 has the added benefit of allowing fast outward drying. The product has been certified by the California State Fire Marshall's Building Materials Listing Program (BML). Comfortboard 80 has ICC-ES (CCMC) validated product acceptance in accordance to IRC and IBC for the following:

- Non-structural thermal insulation in non-fire-resistive rated dwellings
- Exterior perimeter insulation around foundation
- Under flat concrete slab
- A component of residential wood-framed cathedral ceilings
- In areas where probability of termite infestation is 'very heavy'



Other ROCKWOOL stone wool insulation products:
 ROCKWOOL Comfortboard® 110 Rigid Insulation Board
 ROCKWOOL Comfortbatt® Thermal Insulation
 ROCKWOOL Safe'n'Sound® Soundproofing insulation
 ROCKWOOL Roxul Safe® 45 Fire Separation Board

- 1

Comfortboard® 80 on exterior wall (outside)

2

Comfortbatt® R14/15 on a 2 x 4 wall

3

Comfortbatt® R22/23 on a 2 x 6 wall

4

Comfortbatt® R28/R30 in a cathedral ceiling
- 5

Comfortbatt® R28/30 + Comfortbatt® R14/R15 parallel on the attic

6

Multi-unit partition wall with 3.5" Comfortbatt® on both sides and ROCKWOOL ROXUL SAFE® 45 as fire separation board
- 7

Basement Wall – Comfortboard® 80 (1.5") against the concrete wall (moisture barrier behind the Comfortboard® 80) with wood studs in front and Comfortbatt® R14/15 in the studs (basement system) therefore full height R20/21

8

Safe'n'Sound® on interior partition and basement ceiling

9

Comfortboard® 80 on exterior foundation wall below grade



ROCKWOOL Comfortboard 80 and 110 can be used in both residential and commercial construction.

Superior Building Envelope Performances

As society demands more energy efficient buildings, codes and builders are responding by increasing the R-value of the building enclosure, in particular, the above-grade wall. Given that the cavity of the standard 2x4 or 2x6 wood frame wall used in low-rise housing is already filled with insulation, the clear path forward to higher R-values is to add layers of exterior insulation.

ROCKWOOL Comfortboard® 80 is a rigid stone wool insulation board fastened to the outside face of the exterior sheathing and into the studs, and designed to provide increased thermal performance to the building envelope. The stone wool-based insulation is made from basalt rock & slag, it features up to 40% recycled content. The product delivers thermal and fire-resistant properties that other types of insulations can't match.

Today, building codes are moving to mandate "effective R-values" vs. nominal – and insulated exterior wall sheathing will play a major role to help builders achieve this requirement. ROCKWOOL Comfortboard® 80 is the better sheathing insulation.

As building codes adjust to increased effective R-value requirements, the need for insulated sheathing will increase accordingly, and Comfortboard® 80 leads the way as the exterior insulation of choice for residential applications.



As an exterior insulation, ROCKWOOL Comfortboard® 80 is fastened to the exterior OSB/plywood sheathing or structural stud wall and is designed to provide increased thermal performance to the building envelope

Matt Risinger Takes Thermal Performance To A New Level

Custom Home in Austin, Texas That Goes Beyond Code

ROCKWOOL Leads The Way

The house was framed using LVL 2x6 studs – a plywood stud that's typically only used in the headers and beams. This provided double the strength of traditional 2x6 framing. The prevalence of wood in the structure meant that there was an even greater need to control moisture. Matt and his team used a vapor-open yet airtight peel & stick house wrap and ROCKWOOL's continuous insulation product Comfortboard 80 on the exterior.

While Austin would fall into Zone 2 on the climate map, the methods used in this build would be sufficient up to Climate Zone 5. And, despite being over 170 miles from the Gulf Coast, this home was built to withstand a coastal environment; including extreme weather events like hurricanes and tropical storms, as well as the heightened humidity levels that come with building in the hot/humid Southern US.

Comfortboard® is a vapor-open insulating solution; this ensures the house will dry to the outside. The team used 2" Comfortboard® 80 to achieve an effective R6 rating. This application is well beyond current building codes, but any fluctuations in temperature – such as a cold snap – or changes in humidity would not affect the structure's moisture control.

Self-motivated builders seek to raise their own standards; an approach that makes good business sense. This presents a significant benefit to potential clients and enhances the demand for quality-built homes.

Using the Home Energy Rating System index – the industry standard for measuring a home's efficiency – this house achieved a score of 48; roughly 50% more efficient than the standard code-built home.

"The exterior insulation will lead to a lifetime of energy savings, better durability for the structure - since we don't have to risk any negative impacts inside the house caused by condensation - and we're providing the added benefit of fire resistance."

Matt Risinger



What Makes ROCKWOOL the Insulation of choice for many Architects & Builders?

Factors That Contribute to Superior Thermal Performance

With informed consumers and the building industry pushing for innovative solutions that are truly energy efficient, ROCKWOOL raises the bar in developing wall systems with excellent long-term thermal performance. This is the result of two inherent properties in insulation systems – lack of thermal loss due to dimensional changes, and product that is not produced with blowing agents, which can off-gas and result in lower long-term thermal performance.

As well, the use of ROCKWOOL Comfortboard® 80 in conjunction with Comfortbatt in the wall cavity contributes to a higher effective R-value wall system, increasing the performance of the residential building envelope.

Fast Outward Drying

Vapor-permeable insulation like ROCKWOOL Comfortboard® 80 has the added benefit of allowing fast outward drying during cold weather. This factor allows the wall assembly to dry out, even if the framing is wet from construction or becomes wet because of incidental water leaks.

Decreased Thermal Bridging

ROCKWOOL Comfortboard® 80 insulation helps reduce thermal bridging through wood studs, leading to a better performing thermal wall. In a typical single-family building, wood studs make up 25% of the wall surface, so it's important to ensure the use of exterior insulation to complete the building envelope.

Dimensional Stability

The dimensional stability of an insulation material is necessary for the faultless function of the wall system. Dimensional changes in materials vary according to their physical properties.

Thermal expansion co-efficients express the rate at which materials shrink or expand when cooled or heated. Made from stone wool, ROCKWOOL Comfortboard® 80 insulation has a smaller thermal expansion coefficient than insulation materials such as foam plastics. Poor dimensional stability can cause shrinking, expansion, and buckling of a system's insulation. These actions can lead to thermal bridging, waterproofing breaches, and unpredictable insulation performance.

| Material Type | Expansion Co-Efficient 10-6 m/m°C | Actual Expansion at Temperature Difference 50° on a 10 Meter Board (mm) |
|----------------------|-----------------------------------|---|
| Plywod (Dry) | 3.5 | 2 |
| Stone Wool | 5.5 | 3 |
| Concrete | 12 | 6 |
| Steel | 12 | 6 |
| Expanded Polystyrene | 70 | 35 |
| Extruded Polystyrene | 80 | 40 |
| Polyurethane | 100 | 50 |
| Polyisocyanurate | 120 | 60 |

Some foam products may be considered vapor retarders when in excess of 2 inches. This can substantially affect the drying potential of the wall cavity and restrict the wall system from drying out, increasing the chance of mold and mildew growth. A 2" layer of XPS has an approximate perm rating of 0.55, which is classified as semi-impermeable. In comparison, Comfortboard® 80 has a perm rating of 30 and is classified as vapor-permeable.



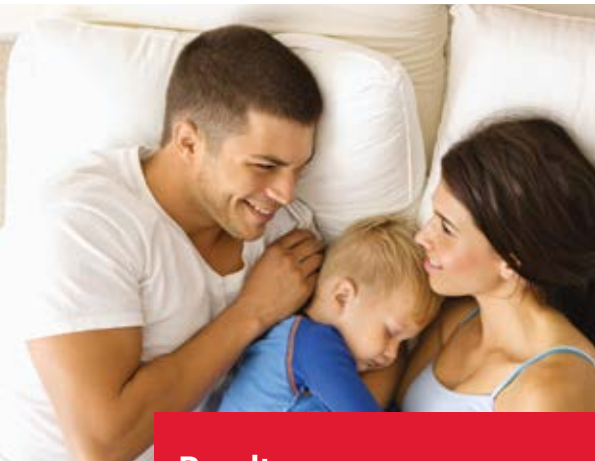
ROCKWOOL Stone Wool Outperforms Plastic Foams and Fiberglass

Stone Wool Offers a Vapor Open Design

Comfortboard® 80 is moisture resistant, yet vapor-permeable insulation (30 perms) and will allow transient vapors to pass through without restriction. This unique vapor-permeable quality of insulation allows for an increased potential for drying without trapping moisture in the wall assembly. The stone wool insulation does not wick water, which means that any bulk water that contacts the outer surface will drain and not be absorbed into the body of the insulation.

Better Acoustics

As building trends move towards higher density communities, it's time to start thinking about improving acoustics on exterior walls – planes, trains and automobiles all contribute to noisier living space and with a ROCKWOOL stone wool wall system, that noise can be significantly reduced. Compared to other types of insulation, the stone wool wall systems provides increased density and effectively reduces airflow and, essentially, sound transmission.



Results:
Stone wool on the outside of the studs will at a maximum increase water content from 0.01 to 0.12 and Comfortbatt® between the studs from 0.01 to 0.10. XPS as an increase from .23 to .77 and fiberglass between the studs from .41 to 1.87. Ten air changes/ hour were included in the calculation.

Acoustical Performance

ASTM C423 CO-EFFICIENTS AT FREQUENCIES

| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000 Hz | 4000 Hz | NRC |
|-----------|--------|--------|--------|---------|---------|---------|------|
| 1.5" | 0.21 | 0.64 | 0.92 | 1.00 | 0.95 | 1.01 | 0.90 |
| 2.0" | 0.43 | 0.78 | 0.90 | 0.97 | 0.97 | 1.00 | 0.90 |
| 3.0" | 0.75 | 0.82 | 0.89 | 0.94 | 1.00 | 1.00 | 0.90 |

Wall with XPS [Water Content (kg/m3)]

| Layer/Material | Start of Calc. | End of Calc. | Min. | Max. |
|--|----------------|--------------|-------|-------|
| Brick (Old) | 3.34 | 9.34 | 1.76 | 51.08 |
| Air Layer 25 mm | 1.88 | 7.72 | 0.89 | 10.16 |
| 1" Extruded Polystyrene Insulation (XPS) | 0.31 | 0.58 | 0.23 | 0.77 |
| Spun Bonded Polyolefine Membrane (SBP) | 0.00 | 0.00 | 0.00 | 0.00 |
| Oriented Strand Board | 83.25 | 78.66 | 71.09 | 89.53 |
| Fiberglass | 1.86 | 0.88 | 0.41 | 1.87 |
| Vapor Retarder (0.1 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Interior Gypsum Board | 8.65 | 4.43 | 2.75 | 8.65 |

Wall with ROCKWOOL Comfortboard® 80 [Water Content (kg/m3)]

| Layer/Material | Start of Calc. | End of Calc. | Min. | Max. |
|--|----------------|--------------|-------|-------|
| Brick (Old) | 3.34 | 9.36 | 1.94 | 51.50 |
| Air Layer 25 mm | 1.88 | 8.15 | 0.97 | 9.71 |
| 1.5" ROCKWOOL Comfortboard® 80 | 0.02 | 0.04 | 0.01 | 0.12 |
| Spun Bonded Polyolefine Membrane (SBP) | 0.00 | 0.00 | 0.00 | 0.01 |
| Oriented Strand Board | 83.25 | 90.99 | 49.79 | 95.28 |
| ROCKWOOL Comfortbatt® | 0.07 | 0.05 | 0.01 | 0.10 |
| Vapor Retarder (0.1 perm) | 0.00 | 0.00 | 0.00 | 0.00 |
| Interior Gypsum Board | 8.65 | 4.44 | 2.75 | 8.65 |



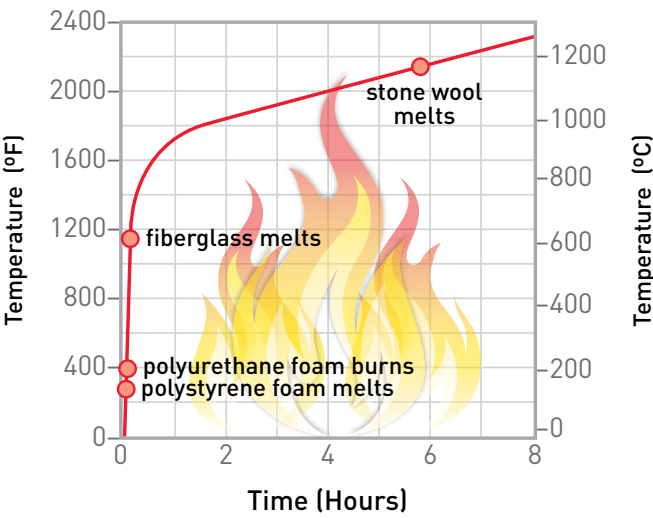
ROCKWOOL Stone Wool:
Fire-Resistant, Non-Combustible Insulation

A key feature of ROCKWOOL insulation is fire resistance. Comfortboard® 80 is classified as “non-combustible” as determined by CAN4-S114. It will not develop toxic smoke or promote flame spread, even when directly exposed to fire, as most other insulation materials do. By comparison, combustible extruded polystyrene (XPS) foam results, when tested to ASTM E84, typically achieve smoke developed up to 175 and can contribute to the spread of fire. The risk of fire spread during construction or after occupancy is considerably reduced when non-combustible ROCKWOOL Comfortboard® 80 is used.

Fire Safety: Stone Wool Versus Foam
Actual fires like the Shanghai fire (2010) or the Grenfell Tower fire in London (2017), serve to raise fire safety issues not only when a building is in operation but when it is also under construction (new construction or renovation).

In the case of the Shanghai fire, foam insulation was ignited accidentally during construction and quickly spread through the building exterior. Because of these safety concerns, ROCKWOOL firmly believes in the added value that passive fire resistance provides for buildings.

Temperature Development in a Standard Fire (ASTM E119)

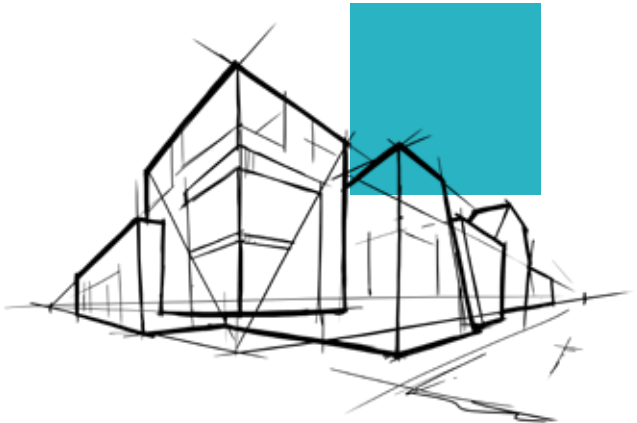


The severity of the Shanghai fire was partially a result of the use of urethane foam insulation, which aided in the spread of flame and smoke.

Fire Performance of ROCKWOOL Comfortboard 80

| Specification | Test | Result |
|-------------------|---------------------------------|---|
| CAN/ULC S114 | Test for Non-Combustibility | Non-Combustible |
| ASTM E 84(UL 723) | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |
| CAN/ULC S102 | Surface Burning Characteristics | Flame Spread = 0 Smoke Developed = 0 |

ROCKWOOL Stone Wool:
Meeting the Demands for
Higher R-Values of Tomorrow



Building Envelope Performance Matrix

| | | | | Thermal Batt Insulation | | | | | | | | |
|-----------------------|------------------|-------|--------|-------------------------|-------|---------------|-------|---------------|-------|---------------|-------|-------------------|
| Continuous Insulation | | | | Comfortbatt® | | Comfortbatt® | | Comfortbatt® | | Comfortbatt® | | |
| | | | | 16" On Center | | 24" On Center | | 16" On Center | | 24" On Center | | |
| | | | | 3.5" | | 3.5" | | 5.5" | | 5.5" | | |
| | | | | Canada | U.S. | Canada | U.S. | Canada | U.S. | Canada | U.S. | |
| | | | | R14 | R15 | R14 | R15 | R22 | R23 | R22 | R23 | |
| A | Comfortboard® 80 | 1.25" | R 5.2 | 19.2 | 20.2 | 19.2 | 20.2 | 27.2 | 28.2 | 27.2 | 28.2 | NOMINAL R-VALUE |
| | | | | 16.16 | 16.86 | 16.56 | 17.26 | 21.34 | 22.04 | 21.97 | 22.62 | EFFECTIVE R-VALUE |
| B | Comfortboard® 80 | 1.5" | R 6.3 | 20.3 | 21.3 | 20.3 | 21.3 | 28.3 | 29.3 | 28.3 | 29.3 | NOMINAL R-VALUE |
| | | | | 17.26 | 17.96 | 17.66 | 18.36 | 22.44 | 23.14 | 23.07 | 23.72 | EFFECTIVE R-VALUE |
| C | Comfortboard® 80 | 2.0" | R 8.4 | 22.4 | 23.4 | 22.4 | 23.4 | 30.4 | 31.4 | 30.4 | 31.4 | NOMINAL R-VALUE |
| | | | | 19.36 | 20.06 | 19.76 | 20.46 | 24.54 | 25.24 | 25.17 | 25.82 | EFFECTIVE R-VALUE |
| D | Comfortboard® 80 | 3.0" | R 12.6 | 26.6 | 27.6 | 26.6 | 27.6 | 34.6 | 35.6 | 34.6 | 35.6 | NOMINAL R-VALUE |
| | | | | 23.56 | 24.26 | 23.96 | 24.66 | 28.74 | 29.44 | 29.37 | 30.02 | EFFECTIVE R-VALUE |
| E | Comfortboard® 80 | 4.0" | R 16.8 | 30.8 | 31.8 | 30.8 | 31.8 | 38.8 | 39.8 | 38.8 | 39.8 | NOMINAL R-VALUE |
| | | | | 27.76 | 28.46 | 28.16 | 28.86 | 32.94 | 33.64 | 33.57 | 34.22 | EFFECTIVE R-VALUE |
| F | Comfortboard® 80 | 5.0" | R 21 | 35 | 36 | 35 | 36 | 43 | 44 | 43 | 44 | NOMINAL R-VALUE |
| | | | | 31.96 | 32.66 | 32.36 | 33.06 | 37.14 | 37.84 | 37.77 | 38.42 | EFFECTIVE R-VALUE |
| G | NONE | | | 14 | 15 | 14.00 | 15.00 | 22.00 | 23.00 | 22.00 | 23.00 | NOMINAL R-VALUE |
| | | | | 10.96 | 11.66 | 11.36 | 12.06 | 16.14 | 16.84 | 16.77 | 17.42 | EFFECTIVE R-VALUE |

Bridging The Gap Between Stated R-Value Vs Effective R-Value

A material’s R-value is the measure of its resistance to heat flow. The higher the R-value, the more the material insulates. Stated R-value tests measure only thermal resistance, not taking into account factors such as:

- Air infiltration due to leakage through gaps
- Permeability of system components
- Convection flows within the wall system
- Thermal mass of components
- Thermal bridging across the building envelope

While the stated or nominal R-value of an insulation product is important, excluding factors such as those listed will alter the effective R-value of the wall system.

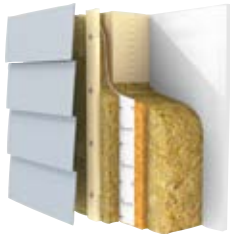
In real-world performance, the installation of ROCKWOOL Comfortboard® 80 as the sheathing and Comfortbatt® as the wall cavity insulation results in a building envelope that is less susceptible to air infiltration, slumping, and internal convection, especially when compared to fiberglass, plastic foams and other insulation products.

ROCKWOOL Wall Assemblies: Applications and Installation

Wall Applications (Outside Wall to Interior Wall)

Vinyl Wall Components

- 1 Vinyl Siding
- 2 Fasteners
- 3 1 x 3 Furring Strips
- 4 1.25" (R5.2) to 5" (R21) of Insulating ROCKWOOL Comfortboard® 80 Sheathing
- 5 Exterior Air/Moisture Barrier Membrane
- 6 Structural Sheathing
- 7 (2 x 6) Stud Wall @ 24" o.c.
- 8 ROCKWOOL Comfortbatt® R22/R23 Stud Cavity
- 9 Vapor Control Layer
- 10 Gypsum Wall Board



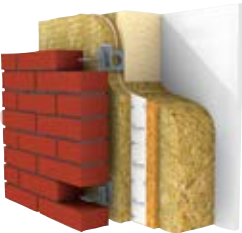
Wood Fiber Wall Components

- 1 Wood Lay Siding
- 2 Fasteners
- 3 1 x 3 Furring Strips,
- 4 1.25" (R5.2) to 5" (R21) of Insulating ROCKWOOL Comfortboard® 80 Sheathing
- 5 Exterior Air/Moisture Barrier Membrane
- 6 Structural Sheathing
- 7 (2 x 6) Stud Wall @ 24" o.c.
- 8 ROCKWOOL Comfortbatt® R22/R23 Stud Cavity
- 9 Vapor Control Layer
- 10 Gypsum Wall Board



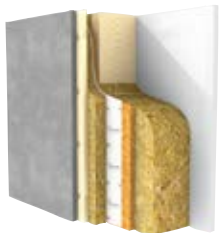
Brick Wall Components

- 1 Brick
- 2 Air Space
- 3 Metal Brick Ties
- 4 1.25" (R5.2) to 5" (R21) of Insulating ROCKWOOL Comfortboard® 80 Sheathing
- 5 Exterior Air/Moisture Barrier Membrane
- 6 Structural Sheathing
- 7 (2x6) Stud Wall @ 24" o.c.
- 8 ROCKWOOL Comfortbatt® R22/R23 Stud Cavity
- 9 Vapor Control Layer
- 10 Gypsum Wall Board



Cement Board Wall Components

- 1 Cement Board
- 2 Fasteners
- 3 1 x 3 Furring Strips
- 4 1.25" (R5.2) to 5" (R21) of Insulating ROCKWOOL Comfortboard® 80 Sheathing
- 5 Exterior Air/Moisture Barrier Membrane
- 6 Structural Sheathing
- 7 (2 x 6) Stud Wall @ 24" o.c.
- 8 ROCKWOOL Comfortbatt® R22/R23 Stud Cavity
- 9 Vapor Control Layer
- 10 Gypsum Wall Board



Installation Recommendations

ROCKWOOL Comfortboard® 80 high-performance residential wall system boards should be installed on the exterior wood stud frame in combination with Comfortbatt® insulation within the wood stud cavity.

How to Attach the Insulation Boards

Comfortboard® 80 should be attached to wood studs using roofing nails (or wood screws) with heads/ washers with a minimum diameter of 1" (25 mm) at spacing no more than 12" on center along the perimeter of the board and along the studs. When properly installed, the product's rigid, yet flexible edges allow for a tightly butted edge where boards meet on the wall, further increasing the building's thermal performance.

Vinyl and Wood Siding

| Available Sizes | | | | | | | | |
|-----------------|------|-------|------|------|-------|-------|-------|------|
| Thickness | 1.0" | 1.25" | 1.5" | 2.0" | 2.5" | 3.0" | 4.0" | 5.0" |
| R-value | R4.2 | R5.2 | R6.3 | R8.4 | R10.5 | R12.6 | R16.8 | R21 |

Board sizes 2' x 4', 4' x 6' and 4' x 8" available depending on thickness. Check with dealer for non-standard board sizes.

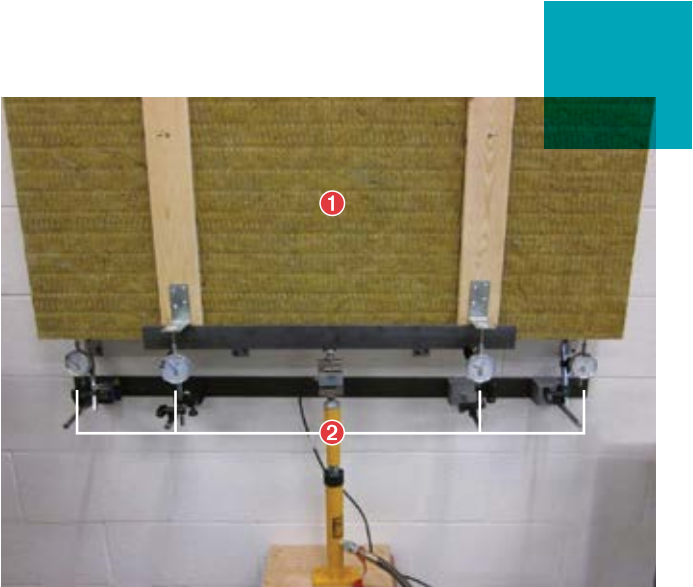
ROCKWOOL Comfortboard® 80: Superior Cladding Load Performance

Exterior Insulation Deflection Test Results

World-renowned Building Science Corporation (BSC) performed load and deflection testing of Comfortboard® 80 under various fastener embedded situations with the results shown below.

Under common cladding loads, all the insulations tested showed very little deflection (<0.01" [0.25 mm]) up to 12 pounds per square foot (psf) at the loads imposed by lap siding (of wood, vinyl, or fiber cement).

The testing also showed no significant difference at various fastener embedment (in framing, in OSB or combination) at loads less than 20 psf. The tests assumed studs at 24" o.c. and fasteners at a maximum of 16" vertical spacing through 1 x 3 furring strips to simulate worst-case scenario.



- 1 ROCKWOOL Comfortboard® 80 attached to wall frame.
- 2 Hydraulic ram with load cell and deflection gauges measuring strapping movement.

The purpose of the study was to quantify the relationship between cladding gravity loads and deflection under cladding weights up to 30 pounds PSF. Results: All insulations showed minimal load deflection.

Exterior Insulation Load and Deflection Performance

| Summary of Deflection Results at 1000 lbs | | | | | Est Deflection (inches) in Service for Typical Cladding Loads | |
|---|---|----------------------|----------------------|----------------------|---|-----------------------------|
| Test Series | Test Description | 1st Loading [inches] | 2nd Loading [inches] | 3rd Loading [inches] | Vinyl Siding [1 PSF] | Fiber Cement Siding [4 PSF] |
| 1 | 1 ¼" Comfortboard® 80, #8 3" screws, all embedded in framing | .034 | .018 | 0.19 | < 0.01 | < 0.01 |
| 2 | 1 ¼" Comfortboard® 80, #8 3" screws, none embedded in framing | .050 | .026 | .026 | < 0.01 | < 0.01 |
| 3 | 1 ¼" Comfortboard® 80, #8 3" screws, embedded in top & bottom plate | 0.90 | 0.36 | .032 | < 0.01 | < 0.01 |
| 4 | 1 ¼" Comfortboard® 80, #10 3" screws, all embedded in framing | .030 | .016 | .016 | < 0.01 | < 0.01 |
| 5 | 1 ¼" Comfortboard® 80, 16d 3.5" nails, all embedded in framing | .043 | .026 | .027 | < 0.01 | < 0.01 |
| 6 | 3" Comfortboard® 80, #10 5" screws, all embedded in framing | .047 | .023 | .023 | < 0.01 | < 0.01 |



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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Comfortboard® 80

Exterior Continuous Insulation

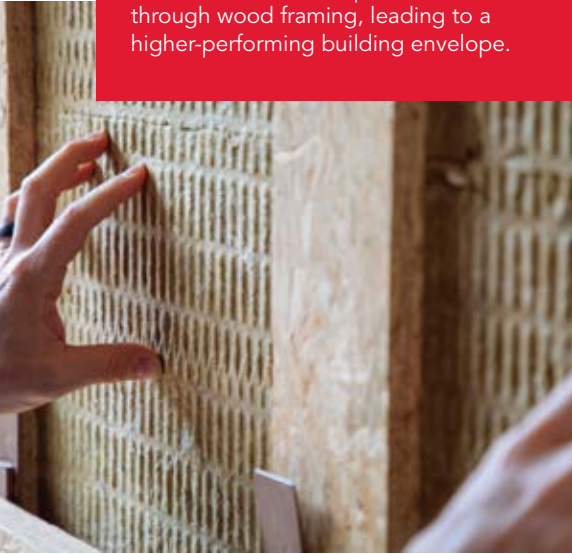


ROCKWOOL Comfortboard® 80 thermal insulated sheathing is a rigid stone wool insulation board designed for use as an exterior continuous insulation. Comfortboard® 80 does not produce smoke or propagate flames, keeping occupants safe and reducing property damage in the event of a fire. Vapor permeable, this solution allows fast outward drying, keeping moisture out of your wall assembly.

Certified by the California State Fire Marshall's Building Materials Listing Program (BML), Comfortboard® 80 has also received ICC-ES (CCMC 12718-R & 13573-L) validated product acceptance for the following uses:

- Non-structural thermal insulation in non-fire-resistive rated dwellings
- Exterior perimeter insulation around foundation
- Under flat concrete slab
- A component of residential wood-framed cathedral ceilings
- In areas where probability of termite infestation is 'very heavy'

Learn more at rockwool.com/products/comfortboard-80



Improved Thermal Performance
Comfortboard® 80 helps reduce thermal bridging through wood framing, leading to a higher-performing building envelope.

Comfortboard® 80

Exterior Continuous Insulation

Technical Data Sheet
Board Insulation 07210*
Board Insulation 07 21 13**

ROCKWOOL Comfortboard® 80 is a rigid stone wool board designed for continuous insulation applications. A non-structural sheathing product, Comfortboard® 80 provides increased thermal performance to the building envelope.

| | Performance | | | | | | | | Test Standard |
|------------------------|---|--------|--------------------------------|--------|---------|--------|---------|-----|--|
| Compliance | Mineral Fiber Block and Board Thermal Insulation - Type IVB Compliant Mineral Fiber Thermal Insulation for Buildings - Type 1 Compliant | | | | | | | | ASTM C612 CAN/ULC S702 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non-combustibility of Building Materials - Non-combustible Behaviour of materials at 750°C - Non Combustible | | | | | | | | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 ASTM E136 |
| Density | Actual Density - 8 lbs/ft³ (128 kg/m³) | | | | | | | | ASTM C303 |
| Dimensional Stability | Linear Shrinkage = <0.5% @ 1200°F (650°C) | | | | | | | | ASTM C356 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | | | | | | | | ASTM C795 ASTM C665 |
| Thermal Resistance | R-Value / inch @ 75°F RSI value / 25.4 mm @ 24°C | | 4.2 hr.ft².F/Btu 0.72 m²K/W | | | | | | ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.05% Water Vapor Transmission, Desiccant Method - 1768ng/Pa.s.m² (31 perm) Determination of Fungi Resistance - Passed | | | | | | | | ASTM C1104 ASTM E96 ASTM C1338 |
| Compressive Strength | 439psf (21kPa) @ 10% compression 1065psf (50kPa) @ 25% compression | | | | | | | | ASTM C165 |
| Dimensions | Thicknesses: 1" (25.4 mm), 1.25" (31.8 mm), 1.5" (38.1 mm), 2" (50.8 mm), 2.5" (63.5 mm), 3" (76.2 mm), 4" (101.6 mm), 5" (127 mm) Lengths and widths*: 24" x 48" (610 x 1219 mm), 36" x 48" (914 x 1219 mm), 48" x 72" (1219 x 1829 mm), 48" x 96" (1219 x 2438 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 1.5" | 0.21 | 0.64 | 0.92 | 1 | 0.95 | 1.01 | 0.9 | |
| | 2" | 0.43 | 0.78 | 0.9 | 0.97 | 0.97 | 1 | 0.9 | |
| | 3" | 0.75 | 0.82 | 0.89 | 0.94 | 1 | 1 | 0.9 | |



For more information regarding the certifications and listings of our stone wool insulation products, please visit:
rockwool.com/north-america/about-us/sustainability/certifications-and-listings/

Issued 04-10-2020
Supersedes 08-23-17

NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.



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rockwool.com



Roofing Applications

**Low Slope
Roofing Brochure**

Toprock® DD
Flat Roof Technical Data Sheet

Toprock® DD Plus
Bitumen-coated Flat Roof Technical Data Sheet

Multifix™
Flat Roof Technical Data Sheet



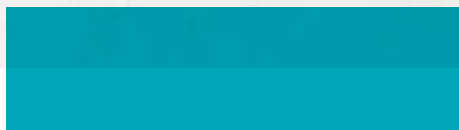
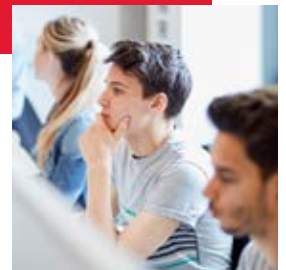
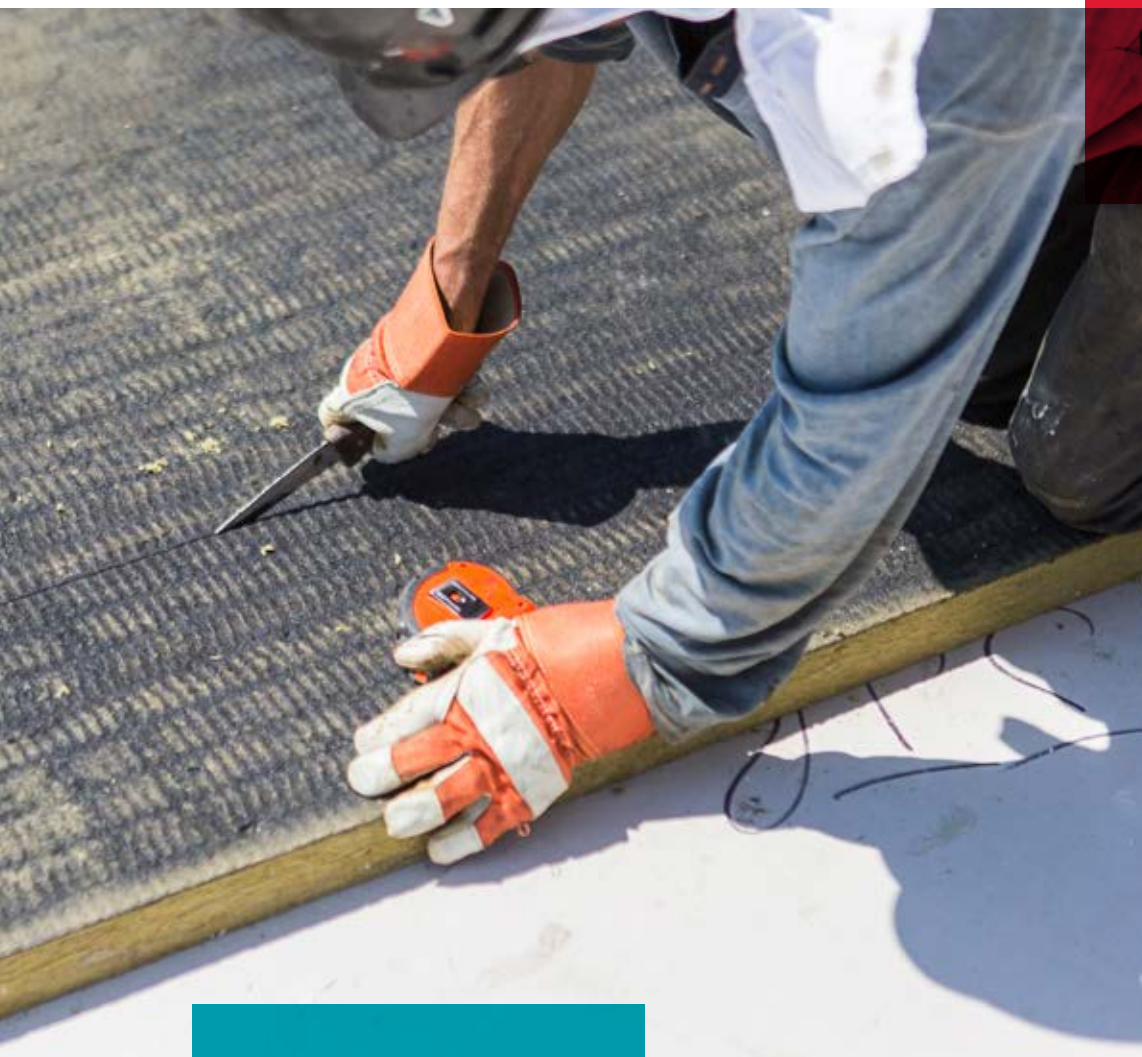
Click on any of the above brochures or data sheets to be directed to that specific document.

Visit www.rockwool.com for our full
Product Documentation Library.



Low Slope Roofing

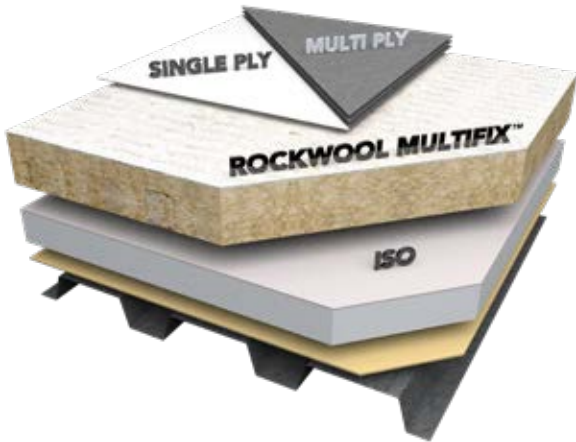
Improving Value with Stone Wool Roof Systems



The Value in Stone Wool Roofing Insulation

Our stone wool roof boards provide increased value to low-slope roofing projects due to the inherent benefits offered by stone wool insulation. By utilizing a layer of stone wool above the rest of the thermal insulation in a hybrid system, the stone wool provides added resilience and energy efficiency to improve the overall system. The positive effects of the hybrid solution can begin with as little as 2” of stone wool insulation added and based on energy modeling can be incremental up to 50% of the required R-value before showing decreasing effects in performance benefits.

This layer acts as a thermal buffer between the extreme temperature of the exterior and the thermal insulation, as well as providing added mass for acoustics, increased dimensional stability, fire resistance and impact resistance that can lengthen the life of the roof assembly.



Thermal resistance of stone wool increases at colder temperatures and does not decrease over time, allowing for more predictable, longer-lasting energy performance that provides increased ROI. [Read more pg. 7](#)

Why it matters:
More predictable energy performance allows for properly designed mechanical equipment and longer-lasting performance means saving money.

TOPROCK® DD has a high-density upper layer and a lower-density bottom layer. The high-density upper layer allows for increased compressive strength while the lower-density bottom layer allows for loads to be shared across the entire board. [Read more pg. 10](#)

Why it matters:
Point load resistance is key on flat roofs during construction and maintenance work where occasional foot traffic impacts the boards. The TOPROCK® DD boards also return to their original state once the load is removed.

Made from basalt rock and steel slag, stone wool products are naturally fire resistant, meet the FM 4470 NCC rating requirements and have 0/0 flame and smoke spread ratings. [Read more pg. 10](#)

Why it matters:
Increased fire resistance reduces the risk of a fire event causing damages, loss of business or increased insurance costs. Toxic smoke can cause additional environmental and health concerns.

Non-directional fiber structure and increased mass lead to improved acoustic performance over traditional foam plastic insulations. [Read more pg. 9](#)

Why it matters:
When used in combination with other mass layers, such as gypsum, high sound reduction can be achieved, critical for areas subject to increased noise pollution.

Lower co-efficient of expansion means increased dimensional stability over temperature changes and less gapping between boards. [Read more pg. 8](#)

Why it matters:
Over time, gaps between other insulation products become large and decrease effective thermal resistance.

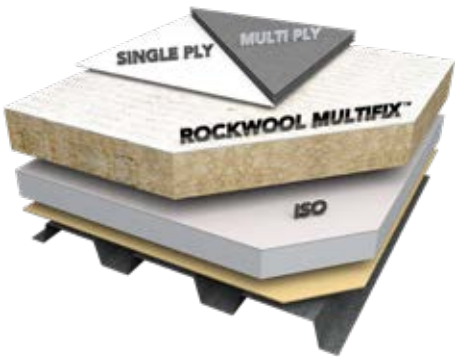
ROCKWOOL MULTIFIX™

ROCKWOOL MULTIFIX™ is a dual-density, rigid roofing insulation faced with a high-performance mineral coated glass fiber layer.

ROCKWOOL MULTIFIX™ has all the product qualities of our TOPROCK® DD product:

- Insulation and coverboard in one
- Suitable for new building, re-roofing and re-covering applications
- Fire, impact and hail resistant

The glass fiber coating allows the product to be used with a number of different bonding methods for conventional roofing systems.



| Bonding Method | TOPROCK® DD | TOPROCK® DD Plus | ROCKWOOL MULTIFIX™ |
|---------------------------------------|-------------|-------------------------------------|--------------------|
| Mechanically Fastened | • | | • |
| Torch Applied Membranes | | • | • |
| Hot Mopped Membranes | | • | • |
| Cold Applied Membranes | | Some applications, consult ROCKWOOL | • |
| Self-Adhered/Peel and Stick Membranes | | | • |

Better Adhesion, Better Performance
ROCKWOOL MULTIFIX™ has been tested for compliance with a number of membrane systems in order to prove the performance of this mineral-coated product.

ROCKWOOL MULTIFIX™ has received approval from a number of membrane manufacturers for use in their systems. Better adhesion between the insulation or coverboard and membrane can improve performance in high-wind areas and reduce potential for leaks and moisture in a system.



Roofing Products

TOPROCK® DD

Thermal Roofing Insulation and Coverboard

TOPROCK® DD is a dual-density rigid stone wool roof board available unfaced or with facing for improved adhesion. TOPROCK® DD Plus has a bitumen coating for hot adhered systems. ROCKWOOL MULTIFIX™ has a mineral coated fiber glass facer that is approved for use with hot and cold adhered systems.

- Insulation and coverboard in one
- Suitable for new building, re-roofing and re-covering applications
- Also used in tapered systems for positive drainage
- Standard thicknesses: 2 – 6", .5" increments
- R-value of 3.8 per inch as tested at 75°F per ASTM C518 standard



TOPROCK® DD products are available with two different facing options: bitumen or mineralcoated fiberglass. The bitumen-coated TOPROCK® DD Plus products are used in hot adhered applications such as torch or hot-mopped asphalt. The mineral-coated fiberglass facing used on ROCKWOOL MULTIFIX™ can be used with both hot and cold adhesives.

Building Better With Building Science

Building science research is continuously being conducted to improve the performance of the buildings in order to achieve more effective performance in the building enclosure. The performance of the roof enclosure can have a significant effect on the overall building, especially on large one-story buildings.

Building science research allows for increased building modeling to better reflect the performance of the building once it is in use. For walls, research has shown that the nominal R-value of the insulation is not what you should expect due to the effects of thermal drift, thermal bridging and other factors, and exterior walls have begun to move to an "effective R-value" for the wall rather than nominal. For low-slope roofs, energy codes still rely on nominal R-values; however, better performance can be achieved by looking at the effective performance of the roof system.

More than Just R-value

Modeling the system components together allows additional factors to be considered in the performance of the roof system such as temperature changes, thermal drift, thermal bridging and gaps occurring.

While it never guarantees results, it can allow the owner to better understand the expected performance of their building and not experience sticker shock once the energy bills start to add up.

ROCKWOOL BUILDING SCIENCE (RBS)

We offer building science resources for architects, designers, specifiers, consultants and owners who are looking for information on how to efficiently design or improve their building enclosure systems, including their low-slope roof systems. These knowledgeable building science specialists can review building assemblies and provide quantitative feedback and recommendations that can be implemented into your project.

RBS Team work is completed on an individual project basis and will include good, better and best recommendations that can provide assistance to make informed, educated decisions to increase the overall performance of the building.



Building Science



R-Value Calculations



Thermal Bridging Modeling



Hygrothermal Modeling



Full Building Modeling



Our Solutions

Hybrid Insulation System

A hybrid insulation system utilizes the benefits of two different insulating materials to achieve increased performance. Polyisocyanurate insulation is the most widely used insulation in the low-slope roofing industry due to its high published R-value per inch and its lightweight boards. Using a layer of stone wool insulation as a coverboard on top of the polyiso allows the roof system performance to improve. The stone wool layer moderates the temperature the polyiso is subject to and provides increased dimensional stability for the membrane.

The hybrid system also reduces the need for hard-to use coverboard materials and the number of fasteners or amount of adhesive required in certain systems in order to reduce the installed cost. When exposed to colder temperatures, such as during the winter in northern climates or during the night, the stone wool layer moderates the temperature, keeping it nears its optimum temperature range.

In the system shown before, the polyiso is subjected to a 40°F temperature average and a 10°F temperature at the top of the layer. Increasing the thickness of the stone wool increases both the average temperature and the temperature at the face of the polyiso layer.

Stone Wool System

Utilizing a full height stone wool system can increase the overall thickness of the roof system, due to the lower R-value per inch, but it can also provide additional benefits over a hybrid system. By utilizing non-combustible materials in the roof system, the risk of a fire event is reduced and insurance premiums may be decreased.

In addition, the stone wool roof system has increased acoustic properties due to the fibers and mass of the stone wool roof boards. Finally, a smart membrane layer on the bottom of the roof system can be used to allow vapor to diffuse through the roof system, allowing the roof to dry any trapped moisture in the roof enclosure.



Thermal Insulation That Won't Degrade

Thermal Resistance Across Temperatures

The ASTM C518 (C177) standard is conducted at mean temperatures of 25°F (-4°C), 40°F (4°C) , 75°F (24°C) and 110°F (43°C), but most R-values are published based on 75°F (24°C). Our roof boards provide increased performance at cold temperatures and drop slightly at warmer temperatures.

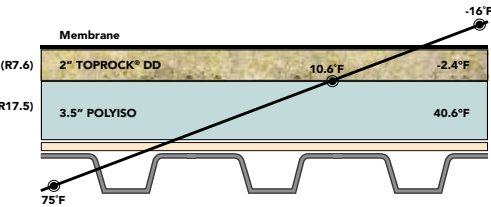
The graph below shows the values of an average polyisocyanurate board from testing conducted by the National Roofing Contractors Association (NRCA) and TOPROCK® DD from a third party test.

At colder temperatures, the polyisocyanurate boards perform worse, reducing the overall effectiveness of their thermal resistance. This is most prevalent in cold climates, but can also be seen at night in all climates as the temperature drops. The NRCA has recommended that a design R-value of R5.0/in be used for polyiso in all climates based on their testing published in early 2016.

Effects of Aging

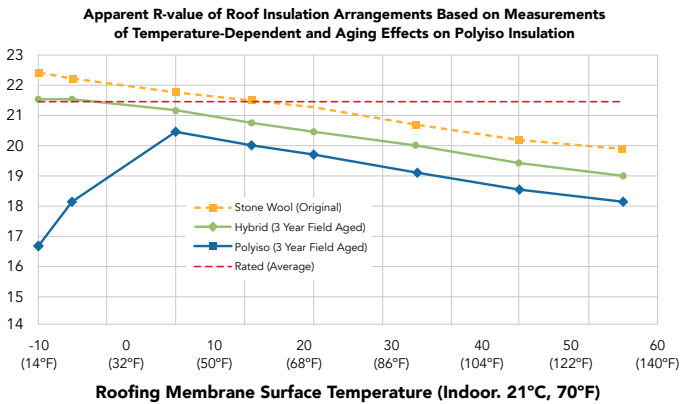
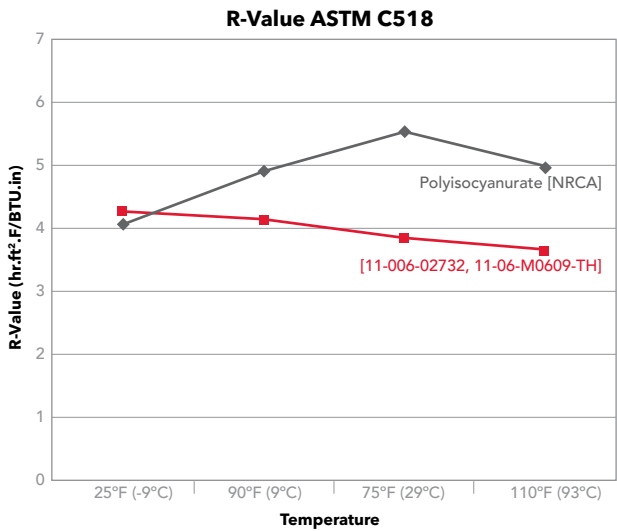
In a third party in-situ test conducted by RDH Building Science, polyisocyanurate lost 10% of its nominal R-value at mean 75°F and showed decreases of up to 20% after being aged in the field for three years. The stone wool system showed no decrease in overall thermal performance over the three-year period in the RDH study. As the product is exposed to air, the blowing agents are replaced with the higher conductive air, reducing overall thermal performance of the boards. The rate of expansion depends on many factors of the roof board but has shown to happen rapidly in the first five years of use of the board before finding an equilibrium level. Polyiso products typically report their R-value as an LTTR value, which is a timeweighted average meant to emulate the 180-day R-value of other foam plastic products. However, this means that they will be deficient after that point and they will continue to drop until they reach an equilibrium point.

Our stone wool and other inorganic products do not use blowing agents, so there is no change in the composition of the product over time due to offgassing and stone wool shows no drop in R-value performance. We even provide a Limited 100% Thermal Warranty on our products, guaranteeing that they will not drop in thermal resistance over time.



Polyisocyanurate provides an increased R-value per inch, allowing for decreased thickness of the roof system, which can affect the total cost and effective performance of the system.

Stone wool roof boards provide added fireresistance and dimensional stability to the roof system for added resiliency and longevity. The mass of the boards also moderate the temperature of the roof and do not decrease in thermal resistance over time.



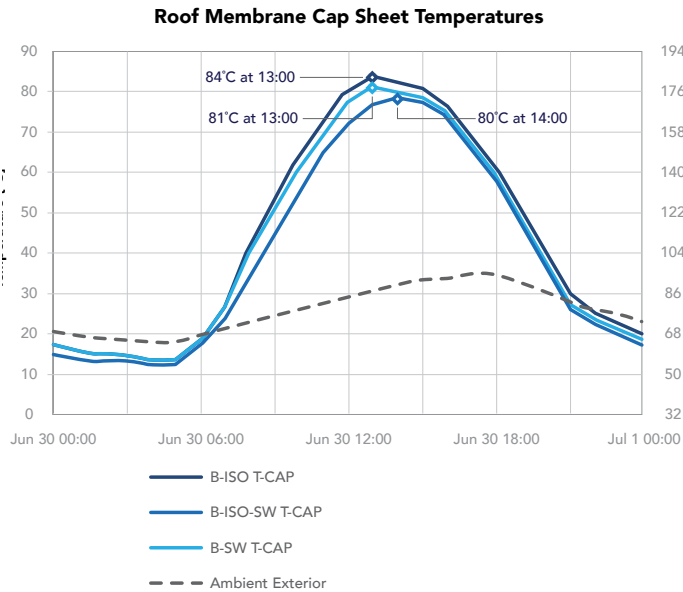


Dimensionally Stable Year after Year

Our stone wool is inherently dimensionally stable, as its co-efficient of linear expansion is small compared to other materials like foam plastics. The larger the co-efficient the more products will expand and contract.

Over time and temperature cycling, some insulating materials never return to their original size, causing gaps to form between the boards. These gaps can significantly affect the thermal performance of roof systems. Oakridge National Laboratory found that 1" gaps between boards (1/2" gaps from each board) caused a 10-15% drop in thermal performance even when two layers of insulation were used.¹

This drop in thermal performance is in addition to the drop expected from the temperature and the effects of aging of the roof boards, therefore the effective performance differs from expected performance based on the design R-value.



¹Reference: Oakridge National Laboratory. "Effects of Mechanical Fasteners and Gaps between Insulation Boards on Thermal Performance of Low-Slope Roofs"

Dimensional Stability and Membranes

As the roof boards expand and contract, membranes that are secured directly to those boards move along with them, putting additional stresses on the membrane. Climates that experience great variance in temperatures seen throughout the day and night, as well as seasonally, are at greater risk of seeing membranes fail prematurely due to unnecessary stress caused by the roof boards.

Stone wool roof boards not only have superior dimensional stability to foam plastic insulations, they also increase the thermal capacity of the roof system. This reduces the peaks and valleys that the second thermal insulation layer is exposed to. It also moderates the temperature of the membrane layer, helping to provide additional relief to the stresses membranes are exposed to.

In a third-party study by RDH Building Science, three systems were tested in-situ in Chilliwack, BC to monitor their performance over time. This graph, taken in the first year of the study, highlights the thermal capacity of the stone wool and hybrid systems. In the hybrid system, the peak temperature of the membrane cap sheet is reduced by 3°C and in the stone wool system, the peak is reduced by 4°C and pushed an hour later. This snapshot taken of one day is representative of the moderating effects stone wool can have over time to improve the performance of the roof membrane and help extend the service life of the roof.

For more information on this study, visit rockwool.com or rdh.com



Sound Absorbent to Improve Comfort

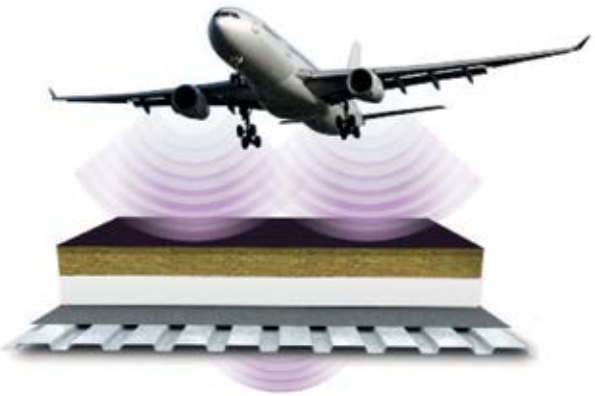
Sound Absorbency Reduces Distractions and Can Improve Health

TOPROCK® DD roof boards are able to provide sound attenuation benefits to low-slope roof systems. TOPROCK® DD roof boards are dual-density, providing increased mass, and their non-directional fibers allow for improved sound-absorbent properties.

Sound absorbency is a key attribute for a number of low-slope roof assemblies. Certain buildings, such as hospitals or schools, request additional sound absorption in order to protect the health of the occupants. Others, such as offices or buildings near airports or other noise polluters, desire additional sound properties in order to limit distractions or interruptions during the course of the day.

TOPROCK® DD products can provide additional sound reduction in combination with the other components of the roof system and work well to provide additional benefits for STC, OITC and other sound reduction ratings for low-slope roofing applications.

TOPROCK® DD products also work well in metal roofing systems where rain driven and impact noise are a large concern.

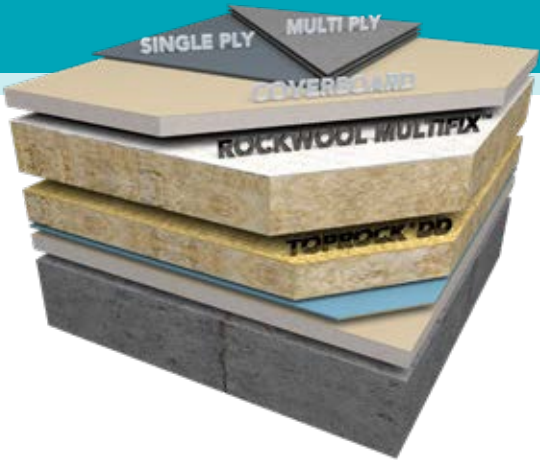


High-performance Roof Enclosures

To meet performance requirements of clients and owners, high-performance roof enclosures require additional layers and resilience. Utilizing alternating layers of gypsum and stone wool creates additional benefits in the roof enclosures. The gypsum coverboards provide reflectance of sound while the fibrous nature of the stone wool provides sound absorbency, allowing for high STC or OITC requirements to be met.

In addition, these systems provide added resiliency by creating redundancy in the roof system to limit damage in the case of roof leaks, a fire event or hail storms. Resilient designs seek to provide more than the minimum to help owners feel comfortable that their roof enclosure will withstand external forces out of their control.

We have tested acoustic assemblies to meet a variety of performance criteria. For information on acoustic designs, contact your local ROCKWOOL roofing or specifications representative or contact our Technical Innovations team via phone at 1-877-823-9790 or by email at contactus@rockwool.com





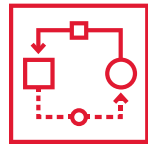
Fire Resistant Insulation

Our stone wool insulation has a melting point that exceeds the temperatures of most commercial fires, stone wool roofing insulation is non-combustible and will not develop toxic smoke or promote flame spread, even when directly exposed to fire. It meets the requirements for FM 4470 NCC (Non-Combustible Core) rating. Therefore it will not add fuel to an existing fire, making it ideal for high occupancy buildings or those with particular fire concerns. Manufacturing facilities and critical facilities that cannot be disrupted may also desire added fire protection.

Stone wool provides passive fire protection – a strong complement to active systems such as sprinklers. This is important while a building is operational and just as important in the construction and maintenance stages.

Learn More:

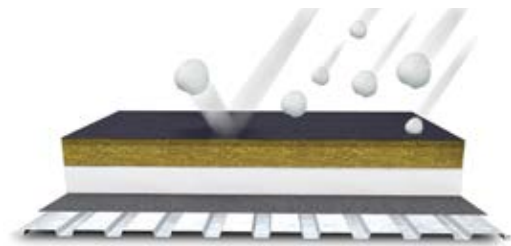
Search “Comparative Roof Insulation Fire Test with Tony Crimi” online or go to rockwool.com to see a comparison of common flat roof insulation types with the ASTM E119 fire test.



Impact and Hail Resistant

TOPROCK® DD roof boards have two different densities built into the product. This allows the product to withstand both loads asserted onto the product as well as impact loads (such as hail or foot traffic).

The upper layer of the TOPROCK® DD products is a higher-density, allowing it to deal with heavy loads, and the lower-density layer allows the loads to be spread out across the rest of the board with foot traffic. In addition, the lower-density layer allows the board to return to its original form over time after a load is removed for temporary loading such as construction materials or foot traffic. For areas of heavy traffic or constant loading such as paving stones, an additional coverboard layer is recommended based on good roofing practice.



For more information on the impact resistance of our TOPROCK® products, search for our technical bulletin on the subject or contact our Technical Innovations:

Phone: 1-877-823-9790
Email: contactus@rockwool.com

Roofing Projects

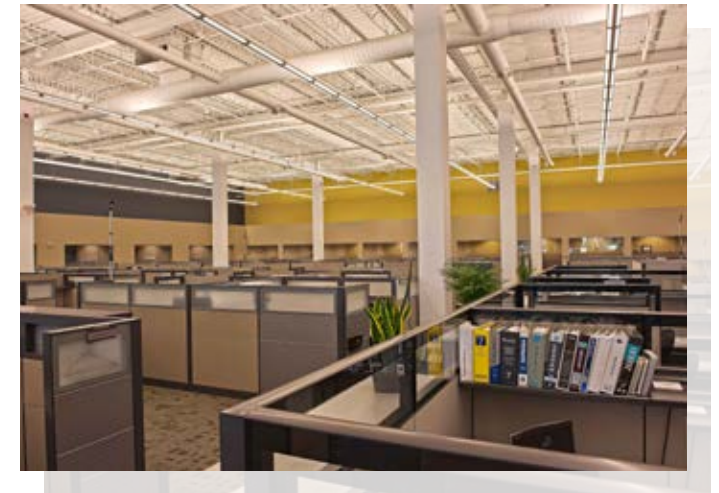
Wayne State University – Detroit, MI

In order to meet the energy demands of a growing campus, Wayne State University wanted to reduce the energy usage of their existing buildings by improving their roof systems. They utilized TOPROCK® DD Plus on top of the existing systems or in combination with other insulations to meet their energy requirements.



Flynn Canada Office Building – Toronto, ON

This office building was located near Toronto Pearson International Airport in Toronto, ON. To improve the comfort of their office staff, Flynn Canada decided to improve their roof enclosure with TOPROCK® DD. The new roof system reduced the sound transfer between the nearby air traffic and the interior space, allowing for improved occupant comfort.



Distribution Warehouse – Quebec City, QC

This warehouse chose to perform a re-cover of their existing roof in order to improve the overall energy efficiency of their building. In order to do so they added 2” of ROCKWOOL MULTIFIX™ to the existing roof system and installed a new membrane over top. This re-cover of their existing roof allows them to increase performance and extend the life of the roof system without tearing off the existing roof or disturbing the use of the building.



GW Williams Secondary School – Aurora, ON

This high school in Aurora, ON was part of a school board initiative to reduce the energy usage of their buildings. In order to do so, they chose to use TOPROCK® DD Plus as part of a hybrid roof system in combination with polyisocyanurate. The polyiso has a high initial R-value that decreases over time which is offset by TOPROCK® DD Plus, providing added dimensional stability and increased thermal capacity.



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With more than 11,000 employees in 39 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine and offshore.

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Publication date - edition: 01/2018



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Milton, ON L9T 6W3
Tel: 1 800 265 6878
rockwool.com

Toprock® DD

Flat Roof Insulation

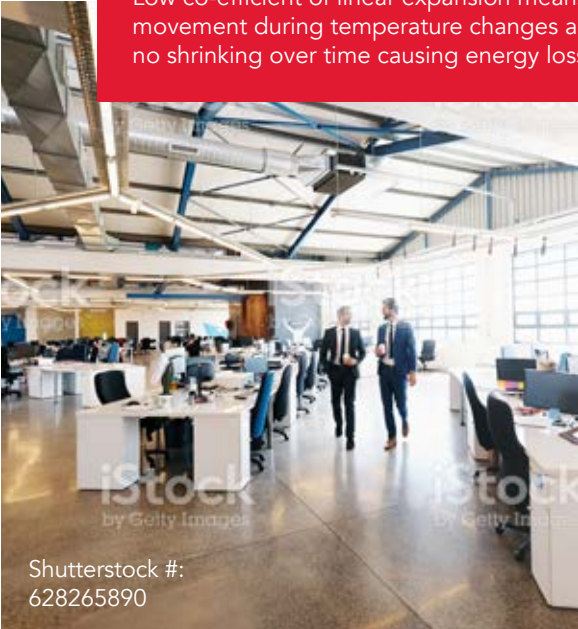


ROCKWOOL TOPROCK® DD is a high-density, uncoated stone wool insulation board for low-slope roof applications. TOPROCK® DD is a suitable substrate board for all low-slope roof decks and is compatible as the substrate for mechanically attached membrane systems.

TOPROCK® DD is non-combustible and will not develop toxic smoke or promote flame spread, even when directly exposed to fire. It can be used either as a base layer of thermal insulation in an assembly with TOPROCK® DD Plus or as the top layer of a hybrid roof assembly with polyisocyanurate or other roof insulations.

TOPROCK® DD has exclusive stone wool dual-density properties that feature a higher-density top layer, providing strong point load resistance and effective load distribution to minimize puncture damage to the membrane – particularly during installation.

Learn more at rockwool.com



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Dimensionally Stable

Low co-efficient of linear expansion means less movement during temperature changes and no shrinking over time causing energy loss.

Toprock® DD

Flat Roof Insulation

Technical Data Sheet
Roof Insulation 07220* • Roof Insulation 07 22 00**
Mineral Wool Board Insulation 07 21 13**

ROCKWOOL TOPROCK® DD is a dual-density, mineral wool insulation board for flat roofing applications.

| | Performance | | | | | | | | Test Standard |
|------------------------|---|--------|---|--------|---------|---|---------|------------------|---|
| Compliance | Standard Specification for Mineral Fiber Roof Insulation Boards Approval Standard for Single Ply, Polymer Modified Bitumen Sheet, Built-Up Roof and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction NCC (Non Combustible Core) Rated Roof Insulation | | | | | | | | ASTM C726 FM 4470 FM 4470 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Standard Method of Fire Tests for Determining Heat Release Rate of Roofing Assemblies with Combustible Above Deck Roofing Components - Class 1 Fire Tests of Roof Coverings - Class A Fire Spread under Roof Deck Assemblies - See ULC Directory Standard Test Methods for Fire Tests of Roof Coverings - Class A Fire Tests of Building Construction and Materials - See UL Directory | | | | | | | | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 NFPA 276 CAN/ULC S107-03 CAN/ULC S126-06 UL 790 (ASTM E108) UL 263 (ASTM E119) |
| Density | Top Layer - 13.75 lb/ft³ (220 kg/m³) Bottom Layer - 10 lb/ft³ (160 kg/m³) - for 2" (50.8 mm) and 2.5" (63.5 mm) thickness Bottom Layer - 9.36 lb/ft³ (150 kg/m³) - for >2.5" (63.5 mm) thicknesses | | | | | | | | ASTM C303 ASTM C303 ASTM C303 |
| Dimensional Stability | Linear Shrinkage - 0.71% @ 1200°F (650°C) Linear Change 7 days @ -40°F (-40°C), ambient RH - 0.1% Linear Change 7 days @ 200°F (93°C), ambient RH - 0.1% Linear Change 7 days @ 158°F (70°C), 97% RH - 0.0% | | | | | | | | ASTM C356 ASTM D2126 |
| Hail Performance | Test Standard for Susceptibility to Hail Damage - Class 1 - SH (Severe Hail) Impact Resistance by Impacting with Freezer Ice Balls - Class 4 Impact Resistance of Prepared Roof Covering Materials - Class 4 | | | | | | | | FM 4470 FM 4473 UL 2218 |
| Thermal Resistance | Mean Temperature 75°F (24°C) 25°F (-4°C) 40°F (4°C) 110°F (43°C) | | R-Value 3.8 hr.ft².F/Btu 4.3 hr.ft².F/Btu 4.2 hr.ft².F/Btu 3.6 hr.ft².F/Btu | | | RSI Value 0.68 m²K/W 0.74 m²K/W 0.72 m²K/W 0.64 m²K/W | | ASTM C518 (C177) | |
| Reaction to Moisture | Moisture Sorption - 0.15% Water Absorption - <1.0% Water Vapor Transmission, Desiccant Method - 2330 ng/Pa.s.m² (41 perm) | | | | | | | | ASTM C1104 ASTM C209 ASTM E96 |
| Compressive Strength | Top Layer - 20psi (140kPa) @ 10%, 37psi (250kPa) @ 25% Entire Board - 11psi (75kPa) @ 10%, 15psi (105kPa) @ 25% Point Load @ 5 mm Compression - 30psi (205 kPa) | | | | | | | | ASTM C165 EN 12430 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | | | | | | | | ASTM C795 ASTM C665 |
| Thickness Dimensions | Product available in 2" - 6" (50.8 mm - 152.4 mm) in 1/2" (12.7 mm) increments 48" x 48" (1219 mm x 1219 mm) | | | | | | | | |
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 2' | 0.5 | 0.71 | 0.85 | 0.9 | 0.96 | 1.01 | 0.85 | |
| | Contact ROCKWOOL for STC rated assemblies | | | | | | | | ASTM E90 |



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NOTE: *Master Format 1995 Edition **Master Format 2004 Edition. As ROCKWOOL has no control over installation design and workmanship, accessory materials or application conditions, ROCKWOOL does not warranty the performance or results of any installation containing ROCKWOOL's products. ROCKWOOL's overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.



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Toprock® DD PLUS

Bitumen-coated Flat Roof Insulation

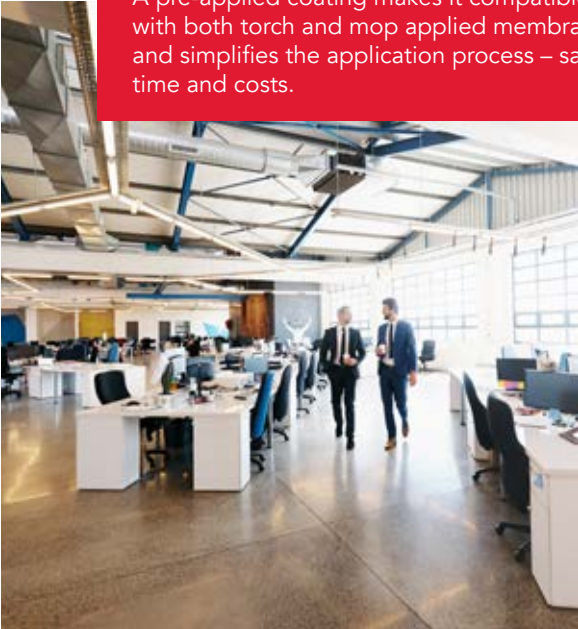


ROCKWOOL TOPROCK® DD Plus is a high-density, bitumen-coated stone wool insulation board for low-slope roof applications. It is compatible as the substrate for the following membrane attachment types: torched and hot mopped.

It has excellent acoustic properties and can be used either as a top layer of thermal insulation in an assembly with TOPROCK® DD or as the top layer of a hybrid roof assembly with polyisocyanurate or other roof insulations.

TOPROCK® DD Plus has exclusive stone wool dual-density properties that feature a higher-density top layer, providing strong point load resistance and effective load distribution to minimize puncture damage to the membrane – particularly during installation.

Learn more at rockwool.com



Simplified Application

A pre-applied coating makes it compatible with both torch and mop applied membranes and simplifies the application process – saving time and costs.

Toprock® DD PLUS

Bitumen-coated Flat Roof Insulation

Technical Data Sheet
Roof Insulation 07220* • Roof Insulation 07 22 00**
Mineral Wool Board Insulation 07 21 13**

ROCKWOOL TOPROCK® DD PLUS is a dual-density, bitumen-coated, mineral wool insulation board for flat roofing applications.

| | Performance | Test Standard |
|-----------------------|---|---|
| Compliance | Standard Specification for Mineral Fiber Roof Insulation Boards Approval Standard for Single Ply, Polymer Modified Bitumen Sheet, Built-Up Roof and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction NCC (Non Combustible Core) Rated Roof Insulation | ASTM C726*** FM 4470 FM 4470 |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Standard Method of Fire Tests for Determining Heat Release Rate of Roofing Assemblies with Combustible Above Deck Roofing Components - Class 1 Fire Tests of Roof Coverings - Class A Fire Spread under Roof Deck Assemblies - See ULC Directory Standard Test Methods for Fire Tests of Roof Coverings - Class A Fire Tests of Building Construction and Materials - See UL Directory | ASTM E84 (UL 723)*** CAN/ULC S102*** CAN/ULC S114 NFPA 276 CAN/ULC S107-03 CAN/ULC S126-06 UL 790 (ASTM E108) UL 263 (ASTM E119) |
| Density | Top Layer - 13.75 lb/ft³ (220 kg/m³) Bottom Layer - 10 lb/ft³ (160 kg/m³) - for 2" (50.8mm) and 2.5" (63.5mm) thickness Bottom Layer - 9.36 lb/ft³ (150 kg/m³) - for >2.5" (63.5mm) thicknesses | ASTM C303 ASTM C303 ASTM C303 |
| Dimensional Stability | Linear Shrinkage - 0.71% @ 1200°F (650°C) Linear Change 7 days @ -40°F (-40°C), ambient RH - 0.1% Linear Change 7 days @ 200°F (93°C), ambient RH - 0.1% Linear Change 7 days @ 158°F (70°C), 97% RH - 0.0% | ASTM C356 ASTM D2126 |
| Hail Performance | Test Standard for Susceptibility to Hail Damage - Class 1 - SH (Severe Hail) Impact Resistance by Impacting with Freezer Ice Balls - Class 4 Impact Resistance of Prepared Roof Covering Materials - Class 4 | FM 4470 FM 4473 UL 2218 |
| Thermal Resistance | Mean Temperature 75°F (24°C) 25°F (-4°C) 40°F (4°C) 110°F (43°C) R-Value 3.8 hr.ft².F/Btu 4.3 hr.ft².F/Btu 4.2 hr.ft².F/Btu 3.6 hr.ft².F/Btu RSI Value 0.68 m²K/W 0.74 m²K/W 0.72 m²K/W 0.64 m²K/W | ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.15% Water Absorption - <1.0% Water Vapor Transmission, Desiccant Method - 2330 ng/Pa.s.m² (41 perm) | ASTM C1104 ASTM C209 ASTM E96 |
| Compressive Strength | Top Layer - 20psi (140kPa) @ 10%, 37psi (250kPa) @ 25% Entire Board - 11psi (75kPa) @ 10%, 15psi (105kPa) @ 25% Point Load @ 5 mm Compression - 30psi (205 kPa) | ASTM C165 EN 12430 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | ASTM C795 ASTM C665 |
| Thickness Dimensions | Product available in 2" - 4" (50.8 mm - 101.6 mm) in 1/2" (12.7 mm) increments 48" x 48" (1219 mm x 1219 mm) | |

| | | | | | | | | | |
|------------------------|---|--------|--------|--------|---------|--------|---------|------|-----------|
| Acoustical Performance | Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| | 2' | 0.5 | 0.71 | 0.85 | 0.9 | 0.96 | 1.01 | 0.85 | |
| | Contact ROCKWOOL for STC rated assemblies | | | | | | | | ASTM E90 |



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Multifix™

Flat Roof Insulation



ROCKWOOL TOPROCK® DD MULTIFIX™ is the first stone wool insulation product with a mineral-coated fiberglass facer that is compatible with multiple attachment methods including torched, hot-mopped, cold-adhered and liquid systems.

It can be used as an insulating coverboard over other insulations. In these cases, it improves performance by regulating the temperature of the thermal insulation. In fact, just one layer improves the performance of the entire assembly.

TOPROCK® DD MULTIFIX™ has exclusive stone wool dual-density properties that feature a higher-density top layer, providing strong point load resistance and effective load distribution to minimize puncture damage to the membrane – particularly during installation.

Learn more at rockwool.com



Energy-saving Performance

Low co-efficient of thermal expansion provides for overall dimensional stability, resulting in optimal thermal performance.

Toprock® DD Multifix™

Flat Roof Insulating Coverboard

Technical Data Sheet
Roof Insulation 07220* • Roof Insulation 07 22 00**
Mineral Wool Board Insulation 07 21 13**

ROCKWOOL TOPROCK® DD MULTIFIX is a dual-density, mineral wool insulation board with a glass fiber coating for flat roofing applications.

| | Performance | Test Standard | | |
|-----------------------|---|---|---|-------------------------------------|
| Compliance | Standard Specification for Mineral Fiber Roof Insulation Boards Approval Standard for Single Ply, Polymer Modified Bitumen Sheet, Built-Up Roof and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction NCC (Non Combustible Core) Rated Roof Insulation | ASTM C726 FM 4470 FM 4470 | | |
| Reaction to Fire | Flame spread index = 0; Smoke developed index = 0 Flame spread index = 0; Smoke developed index = 0 Determination of Non Combustibility of Building Materials - Non Combustible Standard Method of Fire Tests for Determining Heat Release Rate of Roofing Assemblies with Combustible Above Deck Roofing Components - Class 1 Fire Tests of Roof Coverings - Class A Fire Spread under Roof Deck Assemblies - See ULC Directory Standard Test Methods for Fire Tests of Roof Coverings - Class A Fire Tests of Building Construction and Materials - See UL Directory | ASTM E84 (UL 723) CAN/ULC S102 CAN/ULC S114 NFPA 276 CAN/ULC S107-03 CAN/ULC S126-06 UL 790 (ASTM E108) UL 263 (ASTM E119) | | |
| Density | Top Layer - 13.75 lb/ft³ (220 kg/m³) Bottom Layer - 10 lb/ft³ (160 kg/m³) - for 2" (50.8mm) and 2.5" (63.5mm) thickness Bottom Layer - 9.36 lb/ft³ (150 kg/m³) - for >2.5" (63.5mm) thicknesses | ASTM C303 ASTM C303 ASTM C303 | | |
| Dimensional Stability | Linear Shrinkage - 0.71% @ 1200°F (650°C) Linear Change 7 days @ -40°F (-40°C), ambient RH - 0.1% Linear Change 7 days @ 200°F (93°C), ambient RH - 0.1% Linear Change 7 days @ 158°F (70°C), 97% RH - 0.0% | ASTM C356 ASTM D2126 | | |
| Hail Performance | Test Standard for Susceptibility to Hail Damage - Class 1 - SH (Severe Hail) Impact Resistance by Impacting with Freezer Ice Balls - Class 4 Impact Resistance of Prepared Roof Covering Materials - Class 4 | FM 4470 FM 4473 UL 2218 | | |
| Thermal Resistance | Mean Temperature 75°F (24°C) 25°F (-4°C) 40°F (4°C) 110°F (43°C) | R-Value 3.8 hr.ft².F/Btu 4.3 hr.ft².F/Btu 4.2 hr.ft².F/Btu 3.6 hr.ft².F/Btu | RSI Value 0.68 m²K/W 0.74 m²K/W 0.72 m²K/W 0.64 m²K/W | ASTM C518 (C177) |
| Reaction to Moisture | Moisture Sorption - 0.15% Water Absorption - <1.0% Water Vapor Transmission, Desiccant Method - 2330 ng/Pa.s.m² (41 perm) | | | ASTM C1104 ASTM C209 ASTM E96 |
| Compressive Strength | Top Layer - 20psi (140kPa) @ 10%, 37psi (250kPa) @ 25% Entire Board - 11psi (75kPa) @ 10%, 15psi (105kPa) @ 25% Point Load @ 5 mm Compression - 30psi (205 kPa) | | | ASTM C165 EN 12430 |
| Corrosion Resistance | Stress Corrosion Cracking Tendency of Austenitic Stainless Steel - Passed Corrosion of Steel - Passed | | | ASTM C795 ASTM C665 |
| Thickness Dimensions | Product available in 2" - 4" (50.8 mm - 101.6 mm) in 1/2" (12.7 mm) increments 48" x 48" (1219 mm x 1219 mm) | | | |

| | | | | | | | | |
|------------------------|---|--------|--------|---------|--------|---------|------|-----------|
| Thickness | 125 Hz | 250 Hz | 500 Hz | 1000 Hz | 2000Hz | 4000 Hz | NRC | ASTM C423 |
| 2' | 0.5 | 0.71 | 0.85 | 0.9 | 0.96 | 1.01 | 0.85 | |
| Acoustical Performance | Contact ROCKWOOL for STC rated assemblies | | | | | | | ASTM E90 |



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Master Guide Specs

07 21 13 – Board Insulation

07 21 16 – Blanket Insulations

07 22 00 – Roof and Deck Insulation

23 07 16 – Equipment Insulation

23 07 19 – Piping Insulation



Stone wool insulation • Isolant en laine de roche



Fire Resistant
Résistant au feu



Sound Absorbent
Absorption sonore



Saves Energy
Écoénergétique



Water Repellent
Résistant à l'eau



Made From Stone
Fabriqué à partir de roche

