



**SPECIFIER'S RESPONSIBILITY FOR EDITING GUIDE SPECIFICATIONS:** This is a general specification guide, intended to be used by experienced construction professionals, in conjunction with good construction practice and professional judgment. This guide is to aid in the creation of a building specification that is to be fully reviewed and edited by the architect or engineer. Sections of this guide should be included, edited, or omitted based on the requirements of a specific project. It is the responsibility of both the specifier and the purchaser to determine if a product or system is suitable for its intended use. **Neither ROCKWOOL or, nor any of its subsidiary or affiliated companies,** assume any responsibility for the content of this specification guide relative to actual projects and specifically disclaim any and all liability for any errors or omissions in design, detail, structural capability, attachment details, shop drawings or other construction related details, whether based upon the information provided by **ROCKWOOL or otherwise.**

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## SECTION 07 21 00

### MINERAL WOOL INSULATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Mineral wool insulation for the following applications:
  - 1. Thermal and acoustical insulation.
  - 2. Perimeter fire containment systems.
  - 3. Fire resistive joint systems in rated assemblies.
  - 4. Firestopping of through penetrations in rated assemblies.
- B. Related Sections:
  - 1. Section 07 10 00 - Damp proofing and Waterproofing Systems:
  - 2. Section 07 24 00 - Exterior Insulation and Finish Systems: Insulation for EIFS systems.
  - 3. Section 07 50 00 - Membrane Roofing: Insulation in low-slope roofing applications.
  - 4. Section 07 84 00 – Penetration Firestopping.
  - 5. Section 23 07 00 - HVAC Insulation: Insulation for HVAC ductwork.
  - 6. Section 09 21 16 – Gypsum Board assemblies.

##### 1.2 SUBMITTALS

- A. Product Data: Submit product data including manufacturer's literature for insulation, including preparation instructions and recommendations, installation methods, and storage and handling requirements.
- B. Recycled Content: For projects looking for LEED certification or other sustainable design program, submit letter from material supplier indicating, thermal value of insulation contributing to overall energy performance of building, recycled content of insulation indicating percentages by weight of preconsumer and postconsumer recycled content, location where insulation is extracted, processed and manufactured.
- C. Regionally Manufactured Materials: For projects looking for LEED certification, submit documentation indicating location of manufacturer and percent of raw materials. Include cost and distance from the manufacturer to project for each regionally manufactured material and percent of raw materials used to make product within 100 miles of project site.
- D. Verification Samples: Submit sample of insulation in thickness used on Project.

##### 1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Work experience of 2 years minimum with work similar to work on this Section.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials and accessories in insulation manufacturer's original packaging with identification labels intact and in sizes to suit project. Ensure insulation materials are not exposed to moisture during delivery. Replace wet or damaged insulation materials.
- B. Storage and Handling: Store materials off ground in dry location and protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacture. Store in original packaging until installed.
- C. Packaging Waste Management: Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities. Collect and separate for disposal paper and plastic material in appropriate on-site storage containers for recycle.

#### **1.5 WARRANTY**

- A. Warranty: Refer to Contract Conditions for project warranty provisions.

### **PART 2 - PRODUCTS**

#### **2.1 MANUFACTURER**

- 1. Basis-of-Design Manufacturer: ROCKWOOL (Canada) 8024 Esquesing Line, Milton, ON L9T 6W3. 1-877-823-9790 or at [www.rockwool.com](http://www.rockwool.com)

#### **2.2 THERMAL AND ACOUSTICAL INSULATION**

- A. Thermal / Acoustical Insulation:
  - 1. Product: ROCKWOOL Comfortbatt for Wood Stud; unfaced.
    - a. R-Value: R-14, R-22, R-24, R-28, R-32
    - b. Density: > 2 lbs/ft<sup>3</sup> (>32 kg/m<sup>3</sup>) nominal.
    - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
      - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - d. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
    - e. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - f. Fungi resistance: Zero mold growth to ASTM C1338
    - g. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - h. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025
    - i. GREENGUARD Gold Certified
  - 2. Product: ROCKWOOL Comfortbatt for Steel Stud; unfaced.
    - a. R-Value: R-10, R-14, R-22.5, R24
    - b. Density: > 2 lbs/ft<sup>3</sup> (>32 kg/m<sup>3</sup>) nominal.
    - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
      - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - d. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
    - e. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - f. Fungi resistance: Zero mold growth to ASTM C1338

- g. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - h. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025
  - i. GREENGUARD Gold Certified
3. Product: ROCKWOOL Acoustical Fire Batts (AFB); unfaced.
- a. Density: >2.5 lbs/ft<sup>3</sup> (>40 kg/m<sup>3</sup>), nominal.
  - b. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - d. Non-combustible: classified non-combustible per CAN/ULC S114
  - e. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - f. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
  - g. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - h. Fungi resistance: Zero mold growth to ASTM C1338
  - i. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - j. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - k. Air Erosion: maximum air velocity of 1,000 fpm (5.08 m/s) per UL 181
  - l. UL Classification Code: BZJZ
  - m. ULC Classification Code: BZJZC
  - n. GREENGUARD Gold Certified
4. Product: ROCKWOOL Safe'N'Sound for Wood Studs; unfaced.
- a. Density: 2.4 lbs/ft<sup>3</sup> (38 kg/m<sup>3</sup>), actual.
  - b. Thickness: 3" and 6"
  - c. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - d. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - e. Non-combustible: classified non-combustible per CAN/ULC S114
  - f. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - g. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
  - h. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - i. Fungi resistance: Zero mold growth to ASTM C1338
  - j. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - k. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - l. UL Classification Code: BZJZ
  - m. ULC Classification Code: BZJZC
  - n. GREENGUARD Gold Certified
5. Product: ROCKWOOL Acoustical Fire Batts evo (AFB evo Formaldehyde Free) for Steel Studs; unfaced
- a. Density (nominal):
    - 1) Less than 3", density 2.5 lbs/ft<sup>3</sup> (40 kg/m<sup>3</sup>).
    - 2) Greater than 3", density 2.2 lbs/ft<sup>3</sup> (38 kg/m<sup>3</sup>).
  - b. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - d. Non-combustible: classified non-combustible per CAN/ULC S114
  - e. Non-combustible: classified non-combustible per ASTM E136 at 750°C

- f. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
- g. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
- h. Fungi resistance: Zero mold growth to ASTM C1338
- i. Linear Shrinkage at 1472°F (800°C): Average linear shrinkage in all dimensions not to exceed 15% when tested to ASTM C356 at 1472°F (800°C).
- j. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
- k. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
- l. Formaldehyde Free (FF) - certified by UL Environment (ULE) Claim Validation
- m. UL Classification Code: BZJZ
- n. ULC Classification Code: BZJZC
- o. GREENGUARD Gold Certified
- p. DECLARE Certified
- q. ULE Validated Formaldehyde Free

**B. Rain Screen / Cavity Wall Continuous Insulation**

1. Product: ROCKWOOL Cavityrock and Cavityrock Black, semi-rigid stone wool insulation boards designed for exterior cavity wall and rainscreen applications
  - a. R-value: 4.3 /inch at 75°F.
  - b. Facing (Cavityrock): Unfaced
  - c. Facing (Cavityrock Black): Black Mat
  - d. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - e. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - 2) Faced: Flame Spread 10 and Smoke Developed 10
  - f. Monolithic Density (Thickness: 1", 1.5", 2"): > 4.3 lbs/ft³ (>69 kg/m³), nominal.
  - g. Dual Density (Thickness: ≥ 2.5"): 6.2 lbs/ft³ (100 kg/m³) outer layer and 3.8 lbs/ft³ (61 kg/m³) inner layer, nominal.
  - h. Dual Density: Must have dual densities for all thicknesses greater than or equal to 2.5".
  - i. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
  - j. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - k. Fungi resistance: Zero mold growth to ASTM C1338
  - l. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 1200°F (650°C).
  - m. Tumbling Friability: Material loss not to exceed 15% when tested to ASTM C421 – Standard Test Method for Tumbling Friability of Preformed Block-Type Thermal Insulation.
  - n. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - o. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - p. DECLARE Certified
2. Product: ROCKWOOL Comfortboard 80, rigid exterior non-structural mineral wool insulation sheathing board that is non-combustible, water-repellent, fire-resistant and sound absorbent and provides a continuous layer of insulation around the commercial or residential building envelope.
  - a. R-value: 4.2 /inch at 75°F.
  - b. Cladding Attachment Method: Screw-through Method.
  - c. Cladding Weight: Refer to Manufacturer's [Cladding Attachment and Support Guidelines](#)
  - d. Facing: Unfaced.
  - e. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - f. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - g. Density: 8.0 lbs/ft³ (128 kg/m³), actual.

- h. Compressive Strength: 439 lbs./ft<sup>2</sup> (21kPa) @ 10% compression; 1065 lbs./ft<sup>2</sup> (50kPa) @ 25% compression
  - i. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
  - j. Vapor Permeability: 31 perm when tested in accordance with ASTM E96.
  - k. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - l. Fungi resistance: Zero mold growth to ASTM C1338
  - m. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 1200°F (650°C).
  - n. Listed with California Office of the State Fire Marshal (Cal Fire) Building Material Listing Service
  - o. Breaking Load and Flexural Strength (Thickness: 2"): Minimum 200 kPa when tested to ASTM C203.
  - p. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - q. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - r. DECLARE Certified
3. Product: ROCKWOOL Comfortboard 110, rigid, high density exterior non-structural mineral wool insulation sheathing board that is non-combustible, water-repellent, fire-resistant and sound absorbent and provides a continuous layer of insulation around the commercial or residential building envelope.
- a. R-value: 4.0 /inch at 75°F.
  - b. Cladding Attachment Method: Screw-through Method.
  - c. Cladding Weight: Refer to Manufacturer's [Cladding Attachment and Support Guidelines](#)
  - d. Facing: Unfaced.
  - e. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - f. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - g. Density: 11.0 lbs/ft<sup>3</sup> (176 kg/m<sup>3</sup>), actual.
  - h. Compressive Strength: 584 lbs./ft<sup>2</sup> (28kPa) @ 10% compression; 1566 lbs./ft<sup>2</sup> (75kPa) @ 25% compression
  - i. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
  - j. Vapor Permeability: 35 perm when tested in accordance with ASTM E96.
  - k. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - l. Fungi resistance: Zero mold growth to ASTM C1338
  - m. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - n. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - o. DECLARE Certified

C. Multi-Purpose Thermal and Acoustical Insulation Products:

- 1. Product: ROCKWOOL ROCKBOARD 40, non-combustible, semi-rigid, multi-purpose mineral wool insulation board, water repellent.
  - a. R-value: 4.2 /inch at 75°F.
  - b. Facing: Unfaced
  - c. Facing: Black Mat
  - d. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - e. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - 2) Faced: Flame Spread 25 and Smoke Developed 10

- f. Complies with ASTM C612 Type IVA
  - g. Density: 4.0 lbs/ft<sup>3</sup> (64 kg/m<sup>3</sup>), actual.
  - h. Compressive Strength: 90 lbs./ft<sup>2</sup> (4.3kPa) @ 10% compression; 225 lbs./ft<sup>2</sup> (10.8kPa) @ 25% compression
  - i. Air Erosion: Maximum Air Velocity 1000 fpm (5.08 m/s) per UL 181
  - j. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
  - k. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - l. Fungi resistance: Zero mold growth to ASTM C1338
  - m. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 1% when tested to ASTM C356 at 1200°F (650°C).
  - n. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - o. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
2. Product: ROCKWOOL ROCKBOARD 60, non-combustible, rigid, multi-purpose mineral wool insulation board, water repellent.
- a. R-value: 4.3 /inch at 75°F.
  - b. Facing: Unfaced
  - c. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - d. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - e. Complies with ASTM C612 Type IVB
  - f. Density: 6.0 lbs/ft<sup>3</sup> (96 kg/m<sup>3</sup>), actual.
  - g. Compressive Strength: 355 lbs./ft<sup>2</sup> (17kPa) @ 10% compression; 585 lbs./ft<sup>2</sup> (28kPa) @ 25% compression
  - h. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
  - i. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - j. Fungi resistance: Zero mold growth to ASTM C1338
  - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 1% when tested to ASTM C356 at 1200°F (650°C).
  - l. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - m. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025
3. Product: ROCKWOOL ROCKBOARD 80, non-combustible, rigid, multi-purpose mineral wool insulation board, water repellent.
- a. R-value: 4.0 /inch at 75°F.
  - b. Facing: Unfaced
  - c. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - d. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - e. Complies with ASTM C612 Type IVB
  - f. Density: 8.0 lbs/ft<sup>3</sup> (128 kg/m<sup>3</sup>), actual.
  - g. Compressive Strength: 439 lbs./ft<sup>2</sup> (21kPa) @ 10% compression; 1065 lbs./ft<sup>2</sup> (50kPa) @ 25% compression
  - h. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
  - i. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - j. Fungi resistance: Zero mold growth to ASTM C1338
  - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 1% when tested to ASTM C356 at 1200°F (650°C).





- I. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - m. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
- D. Below-Grade and Basement Applications:
  - 1. Product: ROCKWOOL Comfortboard 80, rigid exterior non-structural mineral wool insulation sheathing board that is non-combustible, water-repellent, fire-resistant and sound absorbent and provides a continuous layer of insulation around the commercial or residential building envelope.
    - a. R-value: 4.2 /inch at 75°F.
    - b. Facing: Unfaced.
    - c. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
    - d. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102  
1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - e. Density: 8.0 lbs./ft<sup>3</sup> (128 kg/m<sup>3</sup>), actual.
    - f. Compressive Strength: 439 lbs./ft<sup>2</sup> (21kPa) @ 10% compression; 1065 lbs./ft<sup>2</sup> (50kPa) @ 25% compression
    - g. Moisture Resistance: Absorption of less than 0.05% by volume when tested in accordance with ASTM C1104
    - h. Vapor Permeability: 31 perm when tested in accordance with ASTM E96.
    - i. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - j. Fungi resistance: Zero mold growth to ASTM C1338
    - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 1200°F (650°C).
    - l. Listed with California Office of the State Fire Marshal (Cal Fire) Building Material Listing Service
    - m. Breaking Load and Flexural Strength (Thickness: 2"): Minimum 200 kPa when tested to ASTM C203.
    - n. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - o. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
    - p. DECLARE Certified
- E. Acoustical Insulation for Fire Rated Interior Partition Walls and Ceilings (can be incorporated in Section 09 21 16) : Unfaced.
  - 1. Product: ROCKWOOL Acoustical Fire Batts (AFB); unfaced.
    - a. Density: >2.5 lbs./ft<sup>3</sup> (>40 kg/m<sup>3</sup>), nominal.
    - b. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
    - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102  
1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - d. Non-combustible: classified non-combustible per CAN/ULC S114
    - e. Non-combustible: classified non-combustible per ASTM E136 at 750°C
    - f. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
    - g. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - h. Fungi resistance: Zero mold growth to ASTM C1338
    - i. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - j. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
    - k. Air Erosion: maximum air velocity of 1,000 fpm (5.08 m/s) per UL 181
    - l. UL Classification Code: BJZJ
    - m. ULC Classification Code: BJZJC

- n. GREENGUARD Gold Certified
2. Product: ROCKWOOL Safe'N'Sound for Wood Studs; unfaced.
    - a. Density: 2.4 lbs/ft<sup>3</sup> (38 kg/m<sup>3</sup>), actual.
    - b. Thickness: 3" and 6"
    - c. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
    - d. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
      - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - e. Non-combustible: classified non-combustible per CAN/ULC S114
    - f. Non-combustible: classified non-combustible per ASTM E136 at 750°C
    - g. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
    - h. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - i. Fungi resistance: Zero mold growth to ASTM C1338
    - j. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - k. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
    - l. UL Classification Code: BZJZ
    - m. ULC Classification Code: BZJZC
    - n. GREENGUARD Gold Certified
  3. Product: ROCKWOOL Acoustical Fire Batts evo (AFB evo Formaldehyde Free); unfaced
    - a. Density(nominal): >2.2 lbs/ft<sup>3</sup> (>38 kg/m<sup>3</sup>)
      - 1) Less than 3", density 2.5 lbs/ft<sup>3</sup> (40 kg/m<sup>3</sup>).
      - 2) Greater than 3", density 2.2 lbs/ft<sup>3</sup> (38 kg/m<sup>3</sup>).
    - b. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
    - c. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
      - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - d. Non-combustible: classified non-combustible per CAN/ULC S114
    - e. Non-combustible: classified non-combustible per ASTM E136 at 750°C
    - f. Moisture Resistance: Absorption of less than 0.03 percent by volume, when tested in accordance with ASTM C1104.
    - g. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - h. Fungi resistance: Zero mold growth to ASTM C1338
    - i. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - j. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
    - k. Formaldehyde Free (FF) - certified by UL Environment (ULE) Claim Validation
    - l. UL Classification Code: BZJZ
    - m. ULC Classification Code: BZJZC
    - n. GREENGUARD Gold Certified
    - o. DECLARE Certified
    - p. ULE Validated Formaldehyde Free

## 2.3 PERIMETER FIRE CONTAINMENT SYSTEMS

- A. General: Provide where indicated for gaps between the perimeter edge of fire-resistance-rated floor assemblies and non-fire-resistance-rated exterior curtain walls.
1. Provide a perimeter fire-containment system with the fire test response characteristics indicated, as determined by testing identical systems per the Underwriters Laboratories or Intertek (OPL) Laboratories, or another testing and inspecting agency accountable to authorities having jurisdiction.





2. If no tested system exists, an engineering judgment provided by the manufacturer, 3<sup>rd</sup> party testing lab, or fire protection engineering firm that follows guidelines established by the International Firestop Council must accompany the design.
3. For non-fire resistance rated floor assemblies add an approved material or assembly for retarding the passage of flame and hot gasses.

B. Curtain Wall Insulation:

1. Product: ROCKWOOL CURTAINROCK 80 Insulation, rigid mineral wool insulation board designed for fire rated curtain wall applications.
  - a. Minimum Thickness and Density as noted in tested and listed design.
  - b. Density: 8.0 lbs/ft<sup>3</sup> (128 kg/m<sup>3</sup>), nominal.
  - c. R-value: 4.3 /inch at 75°F.
  - d. Facing: Unfaced
  - e. Facing: Foil Faced
  - f. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - g. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - 2) Faced: Flame Spread 25 and Smoke Developed 10
  - h. Non-combustible: classified non-combustible per CAN/ULC S114
  - i. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - j. Corrosivity: Non-corrosive, when tested in accordance with ASTM C665.
  - k. Moisture Resistance: Absorption of less than 0.05 percent by volume, when tested in accordance with ASTM C1104.
  - l. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 1% when tested to ASTM C356 at 1200°F (650°C).
  - m. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - n. Fungi resistance: Zero mold growth to ASTM C1338
  - o. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - p. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - q. UL Classification Code: XHGU
  - r. DECLARE Certified
  - s. INTERTEK Certified
2. Product: ROCKWOOL CURTAINROCK 40 Insulation, semi-rigid mineral wool insulation board designed for fire rated curtain wall applications.
  - a. Minimum Thickness and Density as noted in tested and listed design.
  - b. Density: 4.0 lbs/ft<sup>3</sup> (64 kg/m<sup>3</sup>), nominal.
  - c. R-value: 4.3 /inch at 75°F.
  - d. Facing: Unfaced
  - e. Facing: Foil Faced
  - f. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - g. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - 2) Faced: Flame Spread 25 and Smoke Developed 10
  - h. Non-combustible: classified non-combustible per CAN/ULC S114
  - i. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - j. Corrosivity: Non-corrosive, when tested in accordance with ASTM C665.
  - k. Moisture Resistance: Absorption of less than 0.05 percent by volume, when tested in accordance with ASTM C1104.
  - l. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 1% when tested to ASTM C356 at 1200°F (650°C).
  - m. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.

- n. Fungi resistance: Zero mold growth to ASTM C1338
  - o. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - p. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - q. UL Classification Code: XHGU
  - r. DECLARE Certified
3. Product: ROCKWOOL CURTAINROCK Insulation, semi-rigid mineral wool insulation board designed for fire rated curtain wall applications.
- a. Minimum Thickness and Density as noted in tested and listed design.
  - b. Density: 3.5 lbs/ft<sup>3</sup> (56 kg/m<sup>3</sup>), actual.
  - c. R-value: 4.2 /inch at 75°F.
  - d. Facing: Unfaced
  - e. Facing: Foil Faced
  - f. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - g. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - 2) Faced: Flame Spread 25 and Smoke Developed 10
  - h. Non-combustible: classified non-combustible per CAN/ULC S114
  - i. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - j. Corrosivity: Non-corrosive, when tested in accordance with ASTM C665.
  - k. Moisture Resistance: Absorption of less than 0.05 percent by volume, when tested in accordance with ASTM C1104.
  - l. Vapor Permeability: 32 perm when tested in accordance with ASTM E96.
  - m. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions not to exceed 2% when tested to ASTM C356 at 1200°F (650°C).
  - n. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - o. Fungi resistance: Zero mold growth to ASTM C1338
  - p. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
  - q. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - r. UL Classification Code: XHGU
  - s. DECLARE Certified
  - t. INTERTEK Certified

C. Safing Insulation:

1. Product: ROCKWOOL ROXUL Safe™ Insulation. Designated Type Safe in UL Fire Resistance Directory.
- a. Minimum Thickness and Density as noted in tested and listed design.
  - b. Density: 4.0 lbs/ft<sup>3</sup> (64 kg/m<sup>3</sup>), actual.
  - c. Facing: Unfaced
  - d. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
  - e. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
    - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
  - f. Non-combustible: classified non-combustible per CAN/ULC S114
  - g. Non-combustible: classified non-combustible per ASTM E136 at 750°C
  - h. Corrosivity: Non-corrosive, when tested in accordance with ASTM C665.
  - i. Moisture Resistance: Absorption of less than 0.05 percent by volume, when tested in accordance with ASTM C1104.
  - j. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
  - k. Fungi resistance: Zero mold growth to ASTM C1338
  - l. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.

- m. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
  - n. UL Classification Code: XHJZC
  - o. DECLARE Certified
  - p. INTERTEK Certified
- D. When ROXUL SAFET™ is used with CURTAINROCK®, CURTAINROCK® 40/80, it provides a comprehensive fire-stopping system that has been UL/ULC/Intertek tested and approved for perimeter fire containment systems, please contact manufacturer for specific listings.

## **2.4 FIRE RESISTIVE JOINT SYSTEMS IN RATED ASSEMBLIES / FIRESTOPPING OF THROUGH PENETRATIONS IN RATED ASSEMBLIES**

- A. Insulation for Joint Packing and Through Penetrations:
1. Product: ROCKWOOL ROXUL Safe™ Insulation. Designated Type Safe in UL Fire Resistance Directory.
    - a. Minimum Thickness and Density as noted in tested and listed design.
    - b. Density: 4.0 lbs/ft<sup>3</sup> (64 kg/m<sup>3</sup>), actual.
    - c. Facing: Unfaced
    - d. Melting Point – Minimum melting point temperature of 1177°C (2150°F).
    - e. Surface Burning Characteristics: Tested in accordance with CAN/ULC S102
      - 1) Unfaced: Flame Spread 0 and Smoke Developed 0
    - f. Non-combustible: classified non-combustible per CAN/ULC S114
    - g. Non-combustible: classified non-combustible per ASTM E136 at 750°C
    - h. Corrosivity: Non-corrosive, when tested in accordance with ASTM C665.
    - i. Moisture Resistance: Absorption of less than 0.05 percent by volume, when tested in accordance with ASTM C1104.
    - j. Corrosion Resistance: Non-corrosive/Passed, when tested in accordance with ASTM C665 for Steel & ASTM C795 for Stress Corrosion Cracking Tendency of Austenitic Stainless Steel.
    - k. Fungi resistance: Zero mold growth to ASTM C1338
    - l. Recyclability: Material to be capable of being fully recyclable at end of life with the intention of sending zero waste to landfill.
    - m. Environmental Product Declaration (EPD): Material must be included on a UL Certified EPD in accordance with EN 15804 and ISO 14025.
    - n. UL Classification Code: XHJZC
    - o. DECLARE Certified
    - p. INTERTEK Certified
- B. Smoke Barrier Sealant: Smoke sealant as listed in the appropriate fire tested assembly.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine the areas and conditions under which work of this section will be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

1. Install insulation in accordance with manufacturer's written recommendations and guidelines.
2. Install insulation to maintain continuity of thermal protection to building elements and spaces.
3. Do not compress insulation to fit into spaces.
4. Co-ordinate installation of firestopping insulation with Section [07 84 00 - Firestopping].
5. Fit insulation closely around electrical boxes, pipes, ducts, frames and other objects in or passing through insulation.
6. Keep insulation minimum 3" from heat emitting devices such as recessed light fixtures, and minimum 2" from sidewalls of chimneys and vents.

### **3.3 PROTECTION**

- A. Store the material to protect against weathering and physical damage, including humidity. Unpack the material at the installation site. Open a door or open a window to ensure good ventilation during installation on the construction site. Cover open ventilation ducts to reduce particulate in the ducts.

END OF SECTION