



MINERAL WOOL INSULATION

Guide Specification **Section 07 21 00** **Mineral Wool Insulation**

SPECIFIER'S RESPONSIBILITY: 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 complete building specification that is to be fully reviewed and edited by the project architect or engineer of record. 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 Owens Corning, 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 Owens Corning 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. Rainscreen/cavity wall continuous insulation.
 - 3. Multi-purpose thermal and acoustical insulation product used where fire-rated assembly is not required.
 - 4. Acoustical insulation for fire-rated interior partition walls and ceilings, unfaced.
 - 5. Perimeter fire-containment systems.
 - 6. Fire-resistant joint systems in between rated assemblies.
 - 7. Firestopping of through penetrations in rated assemblies.
- B. Related Sections:
 - 1. Section 07 21 16 - Glass Fiber Batt Insulation.
 - 2. Section 07 21 18 - Glass Fiber Blanket Insulation.
 - 3. Section 09 81 16 - Acoustic Blanket Insulation

1.3 SUBMITTALS

- A. Submit product characteristics, performance criteria, and limitations, including installation instructions.
- B. Sustainable Design: Submit manufacturer's sustainable design certifications as specified with each product.
- C. Verification Samples: Submit sample of insulation in thickness used on Project.

1.4 QUALITY ASSURANCE

- A. Mock-Up: If requested, provide a mock-up of materials proposed for use for review of workmanship. Accepted mock-ups may remain in place.
- B. Preconstruction Meeting: Convene a minimum of two weeks prior to commencing work of this section. Agenda shall include materials proposed for use, sequence of construction and coordination with installation of adjacent and covering materials.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials and accessories to the job site in manufacturer's original packaging, containers, or bundles bearing the brand name and manufacturer's identification.
- B. Storage: Store materials in dry locations with adequate ventilation, free from water, and in such a manner to permit easy access for inspection and handling.
- C. Handling: Handle using procedures recommended by the manufacturer for materials and personnel.

1.6 LIMITED WARRANTY

- A. Warranty: Provide manufacturer's standard limited warranty against manufacturing defects.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Basis-of-Design Manufacturer: Thermafiber, Inc. (an Owens Corning company), One Owens Corning Parkway, Toledo, OH 43659. Toll free 888-834-2371, Fax 260-563-8979, or www.owenscorning.com.

2.2 THERMAL AND ACOUSTICAL INSULATION

- A. Product: Thermafiber® Fire & Sound Guard® Plus* mineral wool insulation thermal batt designed for use in exterior and interior cavity wall applications
 - 1. R-Value:
 - a. Wood Stud: R-11, R-13, R-15, R-21, R-23, R-30 as applicable.
 - b. Steel Stud: R-10, R-11, R-13, R-15, R-21, R-24 as applicable.
 - 2. Density: 2.5 pcf (nominal).
 - 3. Facing: Unfaced.
 - 4. ASTM C665, Type 1 Compliant.

5. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
6. Combustibility: Non-combustible as tested in accordance with ASTM E136.
7. Vapor Permeance: 50 perms as tested in accordance with ASTM E96.
8. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
9. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
10. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
11. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
12. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
13. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
14. Published Health Product Declaration (HPD).³
15. Formaldehyde-Free (FF) option also includes the following certifications:
 - a. UL® Validated Formaldehyde-Free.⁴
 - b. UL® GREENGUARD Gold Certified.⁴
 - c. Declare Label is Living Building Challenge Red-list Approved.⁵

*Thermafiber® Fire & Sound Guard® Plus replaced Thermafiber® UltraBatt™ and Thermafiber® Fire & Sound Guard® as of August 2022.

- B. Product: Thermafiber® SAFB™ (Sound Attenuation Fire Blanket) mineral wool insulation acoustic batt designed for use in interior cavity wall applications
1. Density:
 - a. 1-inch Thick: 4 pcf (nominal).
 - b. Greater than 1-inch Thick: 2.5 pcf (nominal).
 2. Facing: Unfaced.
 3. ASTM C665, Type 1 Compliant.
 4. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 5. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 6. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 7. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0.
 8. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 9. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 10. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer

- recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
11. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 12. Published Health Product Declaration (HPD).³
 13. Formaldehyde-Free (FF) option also includes the following certifications:
 - a. UL® Validated Formaldehyde-Free.⁴
 - b. UL® GREENGUARD Gold Certified.⁴
 - c. Declare Label is Living Building Challenge Red-list Approved.⁵
 14. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.

2.3 RAIN SCREEN / CAVITY WALL CONTINUOUS INSULATION

- A. Product: Thermafiber® RainBarrier® mineral wool insulation semi-rigid board designed for exterior cavity walls and rainscreen applications**
 1. R-value: 4.3 per inch.
 2. Density: 6.0 pcf (nominal).
 3. Facing: Unfaced.
 4. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.
 5. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 6. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C796 for Austenitic Stainless Steel.
 7. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 8. Vapor Permeance: 25-50 perms as tested in accordance with ASTM E96.
 9. Moisture Resistance: Absorption of less than 0.03 percent by volume, as tested in accordance with ASTM C1104.
 10. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% when tested in accordance with ASTM C356.
 11. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 1. Unfaced: Flame Spread 0 and Smoke Developed 0
 12. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 13. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 14. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 15. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 16. Health Product Declaration (HPD).³
 17. Declare Label is Living Building Challenge Red-list Approved.⁵
 18. Hardware: RainBarrier® Clip, insulation retaining clip, for securing RainBarrier® continuous

insulation to exterior substrate; recommended by manufacturer as compatible with multiple types of masonry and façade tie systems.

19. Hardware: Impasse® Hangers and Impasse® Locking Washers used to secure RainBarrier® continuous insulation directly to Z-Furring channels.

**The latest Thermafiber® RainBarrier® products combine the benefits of Thermafiber® RainBarrier® 45 and Thermafiber® RainBarrier® HD as of May 2024.

- B. Product: Thermafiber® RainBarrier® Dark™ mineral wool insulation semi-rigid board designed for exterior cavity walls and rainscreen applications
1. R-value: 4.3 per inch.
 2. Density: 6.0 pcf (nominal).
 3. Facing: Black Fiberglass Veil.
 4. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.
 5. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 6. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C796 for Austenitic Stainless Steel.
 7. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 8. Vapor Permeance: 25-50 perms as tested in accordance with ASTM E96.
 9. Moisture Resistance: Absorption of less than 0.06 percent by volume, as tested in accordance with ASTM C1104.
 10. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 11. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 1. Faced: Flame Spread 20 and Smoke Developed 15
 12. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 13. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 14. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 15. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 16. Published Health Product Declaration (HPD).³
 17. Declare Label is Living Building Challenge Red-list Approved.⁵
 18. Hardware: RainBarrier® Clip, insulation retaining clip, for securing RainBarrier® continuous insulation to exterior substrate; recommended by manufacturer as compatible with multiple types of masonry and façade tie systems.
 19. Hardware: Impasse® Hangers and Impasse® Locking Washers used to secure RainBarrier® continuous insulation directly to Z-Furring channels.
- C. Product: Thermafiber® RainBarrier® ci High Compressive (80) mineral wool insulation rigid, high-compressive strength board designed to provide a continuous layer of insulation around the

commercial or residential building envelope

1. R-Value: 4.2 per inch.
 2. Density: 8.0 pcf (nominal).
 3. Facing: Unfaced.
 4. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.
 5. Compressive Strength: 475 lbs./ft.² at 10% compression.
 6. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 7. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C796 for Austenitic Stainless Steel.
 8. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 9. Vapor Permeance: 24 perms as tested in accordance with ASTM E96.
 10. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 11. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 12. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 13. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 14. Odor: Passed as tested in accordance with ASTM C1304.
 15. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 16. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 17. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 18. Published Health Product Declaration (HPD).³
 19. Declare Label is Living Building Challenge Red-list Approved.⁵
 20. Hardware: RainBarrier® Clip, insulation retaining clip, for securing RainBarrier® continuous insulation to exterior substrate; recommended by manufacturer as compatible with multiple types of masonry and façade tie systems.
 21. Hardware: Impasse® Hangers and Impasse® Locking Washers used to secure RainBarrier® continuous insulation directly to Z-Furring channels.
- D. Product: Thermafiber® RainBarrier® ci High Compressive Plus (110) mineral wool insulation rigid, high-compressive strength board designed to provide a continuous layer of insulation around the commercial or residential building envelope
1. R-Value: 4.2 per inch.
 2. Density: 11.0 pcf (nominal).
 3. Facing: Unfaced.
 4. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.

5. Compressive Strength: 720 lbs./ft.² at 10% compression.
 6. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 7. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C796 for Austenitic Stainless Steel.
 8. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 9. Vapor Permeance: 46 perms as tested in accordance with ASTM E96.
 10. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 11. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 12. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 13. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 14. Odor: Passed as tested in accordance with ASTM C1304.
 15. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 16. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 17. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 18. Published Health Product Declaration (HPD).³
 19. Declare Label is Living Building Challenge Red-list Approved.⁵
 20. Hardware: RainBarrier[®] Clip, insulation retaining clip, for securing RainBarrier[®] continuous insulation to exterior substrate; recommended by manufacturer as compatible with multiple types of masonry and façade tie systems.
 21. Hardware: Impasse[®] Hangers and Impasse[®] Locking Washers used to secure RainBarrier[®] continuous insulation directly to Z-Furring channels.
- E. Product: Thermafiber[®] RainBarrier[®] ci High Compressive Max (140) mineral wool insulation rigid, high-compressive strength board designed to provide a continuous layer of insulation around the commercial or residential building envelope
1. R-Value: 4.2 per inch.
 2. Density: 14.0 pcf (nominal).
 3. Facing: Unfaced.
 4. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.
 5. Compressive Strength: 1296 lbs./ft.² at 10% compression.
 6. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 7. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C796 for Austenitic Stainless Steel.

8. Combustibility: Non-combustible as tested in accordance with ASTM E136.
9. Vapor Permeance: 57 perms as tested in accordance with ASTM E96.
10. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
11. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
12. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
13. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
14. Odor: Passed as tested in accordance with ASTM C1304.
15. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
16. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
17. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
18. Published Health Product Declaration (HPD).³
19. Declare Label is Living Building Challenge Red-list Approved.⁵
20. Hardware: RainBarrier® Clip, insulation retaining clip, for securing RainBarrier® continuous insulation to exterior substrate; recommended by manufacturer as compatible with multiple types of masonry and façade tie systems.
21. Hardware: Impasse® Hangers and Impasse® Locking Washers used to secure RainBarrier® continuous insulation directly to Z-Furring channels.

2.4 MULTI-PURPOSE THERMAL AND ACOUSTICAL INSULATION PRODUCT USED WHERE FIRE-RATED ASSEMBLY IS NOT REQUIRED

- A. Product: Thermafiber® VersaBoard® 35 mineral wool insulation semi-rigid, multi-purpose board designed to provide thermal and acoustical performance in various commercial construction applications
 1. R-value: 4.2 per inch.
 2. Density: 3.5 pcf (actual).
 3. Facing: Unfaced.
 4. Facing: Black Veil.
 5. Facing: Aluminum FSP.
 6. Facing: White Aluminum FSP.
 7. ASTM C612, Type 1A Compliant.
 8. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 9. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 10. Vapor Permeance: 0.02 perms as tested in accordance with ASTM E96, excluding black mat.
 11. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance

with ASTM C1104.

12. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 13. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 - b. Aluminum FSP: Flame Spread 25 and Smoke Developed 0
 14. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 15. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 16. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 17. Published Health Product Declaration (HPD).³
- B. Product: Thermafiber® VersaBoard® 40 mineral wool insulation semi-rigid, multi-purpose board designed to provide thermal and acoustical performance in various commercial construction applications
1. R-value: 4.3 per inch.
 2. Density: 4.0 pcf (actual).
 3. Facing: Unfaced.
 4. Facing: Black Veil.
 5. Facing: Aluminum FSP.
 6. Facing: White Aluminum FSP.
 7. ASTM C612, Types IA, IB, II, III, IVA Compliant.
 8. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 9. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 10. Vapor Permeance: 0.02 perms as tested in accordance with ASTM E96, excluding black mat.
 11. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 12. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 13. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 - b. Aluminum FSP: Flame Spread 25 and Smoke Developed 0
 14. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 15. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 16. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²

17. Published Health Product Declaration (HPD).³

- C. Product: Thermafiber® VersaBoard® 60 mineral wool insulation semi-rigid, multi-purpose board designed to provide thermal and acoustical performance in various commercial construction applications
1. R-value: 4.3 per inch.
 2. Density: 6.0 pcf (actual).
 3. Facing: Unfaced.
 4. Facing: Black Veil.
 5. Facing: Aluminum FSP.
 6. Facing: White Aluminum FSP.
 7. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.
 8. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 9. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 10. Vapor Permeance: 0.02 perms as tested in accordance with ASTM E96, excluding black mat.
 11. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 12. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
 13. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 - b. Aluminum FSP: Flame Spread 25 and Smoke Developed 0
 14. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 15. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 16. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 17. Published Health Product Declaration (HPD).³
- D. Product: Thermafiber® VersaBoard® 80 mineral wool insulation semi-rigid, multi-purpose board designed to provide thermal and acoustical performance in various commercial construction applications
1. R-value: 4.3 per inch.
 2. Density: 8.0 pcf (actual).
 3. Facing: Unfaced.
 4. Facing: Black Veil.
 5. Facing: Aluminum FSP.
 6. Facing: White Aluminum FSP.
 7. ASTM C612, Types IA, IB, II, III, IVA, IVB Compliant.

8. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
9. Combustibility: Non-combustible as tested in accordance with ASTM E136.
10. Vapor Permeance: 0.02 perms as tested in accordance with ASTM E96, excluding black mat.
11. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
12. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% as tested in accordance with ASTM C356.
13. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0
 - b. Aluminum FSP: Flame Spread 25 and Smoke Developed 0
14. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
15. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
16. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
17. Published Health Product Declaration (HPD).³

2.5 ACOUSTICAL INSULATION FOR FIRE-RATED INTERIOR PARTITION WALLS AND FLOOR/CEILINGS, UNFACED

- A. Product: Thermafiber[®] SAFB[™] (Sound Attenuation Fire Blanket) mineral wool insulation acoustic batt designed for use in interior cavity wall applications
 1. Density:
 - a. 1-inch Thick: 4 pcf (nominal).
 - b. Greater than 1-inch Thick: 2.5 pcf (nominal).
 2. Facing: Unfaced.
 3. ASTM C665, Type 1 Compliant.
 4. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 5. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 6. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 7. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - a. Unfaced: Flame Spread 0 and Smoke Developed 0.
 8. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
 9. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.
 10. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 11. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO

21920:2017, AND EN 15804.²

12. Published Health Product Declaration (HPD).³

13. Formaldehyde-Free (FF) option also includes the following certifications:

- a. UL® Validated Formaldehyde-Free.⁴
- b. UL® GREENGUARD Gold Certified.⁴
- c. Declare Label is Living Building Challenge Red-list Approved.⁵

14. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.

2.6 PERIMETER FIRE CONTAINMENT SYSTEMS

- A. General: Provide where indicated for joints 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 (UL®) or Intertek® Laboratories, per ASTM E 2307. If no tested system exists, an engineering judgment provided by the manufacturer, third-party testing lab, or fire protection engineering firm that follows guidelines established by the International Firestop Council must accompany the design.
 - 2. For non-fire-resistance-rated floor assemblies, add an approved material or assembly for retarding the passage of flames and hot gasses.
- B. Curtain Wall Insulation:
 - 1. Product: Thermafiber® FireSpan® 90 mineral wool insulation semi-rigid board designed for fire rated curtain wall applications
 - a. R-Value: 4.3 per inch.
 - b. Density: 8.0 pcf (nominal).
 - c. Facing: Unfaced.
 - d. Facing: Foil-faced.
 - e. ASTM C612 Types IA, IB, II, III, IVA, IVB Compliant.
 - f. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - g. Corrosivity: Non-corrosive, Types I, II (Class A, Category 1) as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - h. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - i. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: Permeable
 - Faced: Impermeable
 - j. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% when tested in accordance with ASTM C356.
 - l. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0

- Faced: Flame Spread 25 and Smoke Developed 0
 - m. Fungi Resistance: Zero mold growth as tested in accordance with ASTM C1338.
 - n. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 - o. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - p. Published Health Product Declaration (HPD).³
 - q. Intertek certified to ASTM E2307 and E84.
 - r. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL® Validated Formaldehyde-Free.⁴
 - UL® GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - s. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
2. Product: Thermafiber® FireSpan® 40 mineral wool insulation semi-rigid board designed for fire rated curtain wall applications
- a. R-Value: 4.3 per inch.
 - b. Density: 4.0 pcf (nominal).
 - c. Facing: Unfaced.
 - d. Facing: Foil-faced.
 - e. ASTM C612 Types IA, IB, II, III, IVA Compliant.
 - f. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - g. Corrosivity: Non-corrosive, Types I, II (Class A, Category 1) as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - h. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - i. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: Permeable
 - Faced: Impermeable
 - j. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% when tested in accordance with ASTM C356.
 - l. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0
 - Faced: Flame Spread 25 and Smoke Developed 0
 - m. Fungi Resistance: Zero mold growth as tested in accordance with ASTM C1338.
 - n. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹

- o. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - p. Published Health Product Declaration (HPD).³
 - q. Intertek Certified.
 - r. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL[®] Validated Formaldehyde-Free.⁴
 - UL[®] GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - s. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
3. Product: Thermafiber[®] FireSpan[®] 120 mineral wool insulation semi-rigid board designed for fire rated curtain wall applications
- a. R-Value: 4.1 per inch.
 - b. Density: 12.0 pcf (nominal).
 - c. Facing: Unfaced.
 - d. Facing: Foil-faced.
 - e. ASTM C612 Types IA, IB, II, III, IVA Compliant.
 - f. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - g. Corrosivity: Non-corrosive, Types I, II (Class A, Category 1) as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - h. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - i. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: Permeable
 - Faced: Impermeable
 - j. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions <2% when tested in accordance with ASTM C356.
 - l. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0
 - Faced: Flame Spread 25 and Smoke Developed 0
 - m. Fungi Resistance: Zero mold growth as tested in accordance with ASTM C1338.
 - n. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 - o. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - p. Published Health Product Declaration (HPD).³

- q. Intertek certified to ASTM E2307 and E84.
 - r. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL® Validated Formaldehyde-Free.⁴
 - UL® GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - s. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
- C. Safing Insulation:
- 1. Product: Thermafiber® Safing mineral wool insulation board designed for fire rated curtain wall applications floor and wall penetrations, construction joints, and other firestopping applications; Designated Type SAF in UL® Fire-Resistance Directory
 - a. Minimum Thickness and Density as noted in tested and listed design.
 - b. R-Value: 4.3 per inch.
 - c. Density:
 - 4.0 pcf (actual).
 - 6.0 pcf (actual).
 - d. Facing: Unfaced.
 - e. Facing: Foil-faced.
 - f. ASTM C612, Types IA, IB, II, III, IVA Compliant.
 - g. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - h. Penetration Firestop Systems: Complies as tested in accordance with ASTM E814 or UL 1479.
 - i. Fire Resistance of Building Joint Systems: Complies as tested in accordance with UL 2079.
 - j. Corrosivity: Non-corrosive, Types I, II as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - k. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - l. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: 50 perms as tested.
 - Faced: 0.02 perms as tested.
 - m. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - n. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0
 - Faced: Flame Spread 25 and Smoke Developed 0
 - o. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹

- p. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - q. Published Health Product Declaration (HPD).³
 - r. Intertek Certified (4.0 pcf only).
 - s. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL® Validated Formaldehyde-Free.⁴
 - UL® GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - t. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
- D. Safing Clips: Z-shaped galvanized steel clips formed from 1-inch-wide strips of 20-gauge galvanized steel; 3 inches high with 2-inch and 3-inch upper and lower horizontal legs. Use where required by specific UL® or Intertek® design listings.
- E. Hardware: Thermafiber® Impasse® hardware for attaching curtain wall insulation or other mechanical fasteners as approved by the tested and listed system per ASTM E2307.
- F. Mullion Covers: Thermafiber® FireSpan® 90 insulation for protection of vertical mullions. Refer to specific UL® or Intertek® designs for size of mullion covers.
- G. Hardware: Thermafiber® Spiral Anchors are used to secure mullion covers.
- H. Hardware: Thermafiber® Mullion Cover Brackets are an alternative method for securing mullion covers.
- I. Backer/Reinforcement Member: Thermafiber® Impasse® T-bar or galvanized steel channel or angle (see specific listing for appropriate gauge of steel) approved by the perimeter fire-containment system manufacturer. Place horizontally at the safe-off line to support the curtain wall insulation to prevent bowing of curtain wall insulation caused by compression fitting of the Safing insulation. See specific listed design for system requirements.
- J. Smoke Barrier: When required apply approved smoke sealant as listed in the appropriate tested and listed assembly per ASTM E2307.
- K. Vapor Retarder Tape: Compatible with specified facer and comparable perm rating. For taping insulation joints and repairing tears.

2.7 FIRE-RESISTANT JOINT SYSTEMS IN BETWEEN RATED ASSEMBLIES

- A. Insulation for Joint Forming Material:
- 1. Product: Thermafiber® Safing mineral wool insulation board designed for fire rated curtain wall applications floor and wall penetrations, construction joints, and other firestopping applications; Designated Type SAF in UL® Fire-Resistance Directory
 - a. Minimum Thickness and Density as noted in tested and listed design.
 - b. R-Value: 4.3 per inch.
 - c. Density:
 - 4.0 pcf (actual).
 - 6.0 pcf (actual).

- d. Facing: Unfaced.
 - e. Facing: Foil-faced (6.0 pcf only).
 - f. ASTM C612, Types IA, IB, II, III, IVA Compliant.
 - g. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - h. Penetration Firestop Systems: Complies as tested in accordance with ASTM E814 or UL 1479.
 - i. Fire Resistance of Building Joint Systems: Complies as tested in accordance with UL 2079.
 - j. Corrosivity: Non-corrosive, Types I, II as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - k. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - l. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: 50 perms as tested.
 - Faced: 0.02 perms as tested.
 - m. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - n. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0
 - Faced: Flame Spread 25 and Smoke Developed 0
 - o. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 - p. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - q. Published Health Product Declaration (HPD).³
 - r. Intertek certified to ASTM E2307 and E84. (4.0 pcf only).
 - s. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL[®] Validated Formaldehyde-Free.⁴
 - UL[®] GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - t. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
- B. Head-of-Wall Applications:
- 1. Product: Thermafiber[®] TopStop[®] mineral wool insulation board provides fire containment in head-of-wall construction applications
 - a. R-Value: 4.3 per inch.
 - b. Density: 6.0 pcf (actual).
 - c. Facing: Unfaced.

- d. Corrosivity: Non-corrosive, Types I, as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - e. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - f. Vapor Permeance: Tested in accordance with ASTM E96.
 - Unfaced: 50 perms as tested.
 - Faced: 0.02 perms as tested.
 - g. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - h. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - Unfaced: Flame Spread 0 and Smoke Developed 0
 - Faced: Flame Spread 25 and Smoke Developed 0
 - i. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - j. Penetration Firestop Systems: Complies as tested in accordance with ASTM E814 or UL 1479.
 - k. Fire Resistance of Building Joint Systems: Complies as tested in accordance with UL 2079.
 - l. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 - m. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - n. Formaldehyde-Free (FF) option also includes the following certifications:
 - UL[®] Validated Formaldehyde-Free.⁴
 - UL[®] GREENGUARD Gold Certified.⁴
 - Declare Label is Living Building Challenge Red-list Approved.⁵
 - o. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
- C. Smoke Barrier Sealant: Smoke sealant as listed in the appropriate fire-tested assembly.

2.8 FIRESTOPPING OF THROUGH PENETRATIONS IN RATED ASSEMBLIES

- A. Product: Thermafiber[®] Safing mineral wool insulation board designed for fire rated curtain wall applications floor and wall penetrations, construction joints, and other firestopping applications; Designated Type SAFE in UL[®] Fire-Resistance Directory.
- a. Minimum Thickness and Density as noted in tested and listed design.
 - b. R-Value: 4.3 per inch.
 - c. Density:
 - 1. 4.0 pcf (actual).
 - 2. 6.0 pcf (actual).
 - d. Facing: Unfaced.
 - e. Facing: Foil-faced (6.0 pcf only).

- f. ASTM C612, Types IA, IB, II, III, IVA Compliant.
 - g. Perimeter Fire Containment: Complies as tested in accordance with ASTM E2307.
 - h. Penetration Firestop Systems: Complies as tested in accordance with ASTM E814 or UL 1479.
 - i. Fire Resistance of Building Joint Systems: Complies as tested in accordance with UL 2079.
 - j. Corrosivity: Non-corrosive, Types I, II as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
 - k. Combustibility: Non-combustible as tested in accordance with ASTM E136.
 - l. Vapor Permeance: Tested in accordance with ASTM E96.
 - 1. Unfaced: 50 perms as tested.
 - 2. Faced: 0.02 perms as tested.
 - m. Moisture Resistance: Absorption of less than 0.01 percent by volume, as tested in accordance with ASTM C1104.
 - n. Surface Burning Characteristics: Tested in accordance with ASTM E84
 - 1. Unfaced: Flame Spread 0 and Smoke Developed 0
 - 2. Faced: Flame Spread 25 and Smoke Developed 0
 - o. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
 - p. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
 - q. UL[®] Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²
 - r. Published Health Product Declaration (HPD).³
 - s. Intertek certified to ASTM E2307 and E84.
 - t. Formaldehyde-Free (FF) option also includes the following certifications:
 - 1. UL[®] Validated Formaldehyde-Free.⁴
 - 2. UL[®] GREENGUARD Gold Certified.⁴
 - 3. Declare Label is Living Building Challenge Red-list Approved.⁵
 - u. This product qualifies under the Department of Homeland Security SAFETY Act designation, which provides commercial building professions and building owners liability protection in the event of a domestic act of terrorism.
- B. Smoke Barrier Sealant: Smoke sealant as listed in the appropriate fire-tested assembly.

2.9 FIRE-RESISTANT THERMAL CONTROL LAYER IN EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)

- A. Product: Thermafiber[®] EIFS mineral wool insulation rigid board provides thermal and acoustical performance in exterior building applications and meets
 - a. R-Value: 4.0 per inch.
 - b. Density: 7.0 pcf (actual).
 - c. Facing: Unfaced.

- d. ASTM C612, Type IA, IB, II, III, IVA Compliant.
- e. Compressive Strength: 648 lbs./ft² at 10% compression.
- f. Corrosivity: Non-corrosive as tested in accordance with ASTM C1936 and ASTM C665 for Steel, Aluminum, and Copper.
- g. Stress Corrosivity: Non-corrosive as tested in accordance with ASTM C795 for Austenitic Stainless Steel.
- h. Combustibility: Non-combustible as tested in accordance with ASTM E136.
- i. Vapor Permeance: >50 perms as tested in accordance with ASTM E96.
- j. Moisture Resistance: Absorption of less than 0.05 percent by volume, as tested in accordance with ASTM C1104.
- k. Linear Shrinkage at 1200°F (650°C): Average linear shrinkage in all dimensions 1% as tested in accordance with ASTM C356.
- l. Surface Burning Characteristics: Tested in accordance with ASTM E84.
 - Unfaced: Flame Spread 0 and Smoke Developed 0.
- m. Fungi Resistance: Zero mold growth as tested in accordance ASTM C1338.
- n. Fiber Type: Standard Fiber: 70% pre-consumer recycled content; 0% post-consumer recycled content.¹
- o. Fiber Type: EPA Choice Fiber: 75% minimum pre-consumer recycled content; 0% post-consumer recycled content; Complies with EPA's Comprehensive Procurement Guideline Program.¹
- p. UL® Certified Environmental Product Declaration (EPD) in accordance with ISO 14025, ISO 21920:2017, AND EN 15804.²

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

- A. Install insulation in accordance with approved submittals, manufacturer's written recommendations and guidelines.
- B. Install insulation to maintain continuity of thermal protection to building elements and spaces.
- C. Comply with tested and listed systems.
- D. Install products in proper relationship with each other and adjacent construction, and as follows:
 - 1. Backer Reinforcement Members for Perimeter Fire Containment System:
 - a. Where required, install backer reinforcement member in accordance with the UL® or Intertek® listed and tested system, per ASTM E2307.
 - b. Install Thermafiber® Impasse® T-bar or an approved light steel angle or channels (see specific listing for appropriate gauge of steel), placed horizontally at the sifting line,

attached to the vertical mullions, either within the insulation at a horizontal splice, or behind the insulation and mechanically attached to vertical mullions.

- c. Install to prevent the bowing of the curtain wall insulation due to the compression fit of the safing insulation.
2. Curtain Wall Insulation:
 - a. Install curtain wall insulation in accordance with the UL® or Intertek® listed system and manufacturer's instructions.
 - b. Install backer reinforcement assembly in accordance with the UL® or Intertek® listed and tested design. Not applicable when the Thermafiber® No Backer Bar™ system is specified.
 - c. Fasten insulation in place with mechanical fasteners within the mullions and transoms (spandrel area), spaced at intervals recommended by the UL® or Intertek® listed and tested assembly to hold insulation securely in place without touching the exterior wall. One-inch air space must be maintained.
 - d. Provide Thermafiber® Impasse® Hangers or mechanical fasteners as approved by architect and manufacturer.
 - e. Comply with specific listed and tested assemblies per ASTM E2307 for mechanical fastener requirements.
3. Safing Insulation – Type SAF Forming Material:
 - a. Install safing insulation of proper size in safe-off area between curtain wall insulation and floor slab as prescribed by the UL® or Intertek® listed and tested assembly per ASTM E2307. Safing insulation direction and compression, as well as the absence of safing Z-clips, are prescribed by the UL® or Intertek® listed and tested assembly.
 - b. Install safing insulation of proper density, thickness, depth, compression, and orientation into perimeter joint, construction joints (head-of-wall, floor-to-floor, floor-to-wall, etc.) as prescribed by the UL® or Intertek® or other third-party testing laboratory listed and tested assembly.
 - c. Install safing insulation of proper density, thickness, and compression into poke-throughs and penetrations as prescribed by the UL® or Intertek® listed and tested assembly.
4. Smoke Barrier System:
 - a. Utilize foil-faced Thermafiber® FireSpan® curtain wall Insulation with Thermafiber® Safing insulation.
 - b. Apply approved smoke sealant in accordance with the third-party laboratory tested and listed assembly.
 - c. Install safing insulation of proper density, thickness, compression, and orientation as prescribed by the third-party laboratory listed and tested assembly.
 - d. Install safing insulation of proper density, thickness, and compression into poke-throughs and penetrations as prescribed by the tested assembly.
5. Vapor Retarders:
 - a. Seal all seams in curtain wall insulation or exterior wall insulation with vapor retarder tape.
 - b. Application of vapor retarder must be directed by the architect or engineer of record.
 - c. For continuous vapor barrier, repair all tears in insulation foil-facing with vapor retarder tape.

3.3 PROTECTION

- A. Protect installed products from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

End of Section 07 21 00

Sources:

¹See ICC-ES Evaluation Report VAR-1025 at icc-es.org.

²See UL EPD 4790011847.101.3 at ul.com/epd.

³Health Product Declarations (HPDs)

- [Thermafiber® Fire & Sound Guard® Plus](#)
- [Thermafiber® SAFB™](#)
- [Thermafiber® RainBarrier®, RainBarrier® Dark®, and RainBarrier® High Compressive 80, Plus \(110\) & Max \(140\)](#)
- [Thermafiber® VersaBoard® 35, 40, 60 & 80](#)
- [Thermafiber® FireSpan® 40, 90 & 120](#)
- [Thermafiber® Safing](#)

⁴See UL Formaldehyde-Free and GREENGUARD Gold Certifications at spot.ul.com.

- [Thermafiber® Fire & Sound Guard® Plus FF](#)
- [Thermafiber® SAFB™ FF](#)
- [Thermafiber® FireSpan® 40 FF](#)
- [Thermafiber® FireSpan® 90 FF](#)
- [Thermafiber® FireSpan® 120 FF](#)
- [Thermafiber® Safing FF](#)

⁵See Declare Label at declare.living-future.org.

- [Thermafiber® Mineral Wool Insulation – Formaldehyde-Free – Unfaced](#)
- [Thermafiber® Mineral Wool Insulation – Formaldehyde-Free – Faced](#)
- [Thermafiber® RainBarrier® Continuous Insulation – Mineral Wool Insulation](#)

For more information regarding recycled content, certifications, HPDs, and EPDs, visit our Product Transparency page:
<https://www.owenscorning.com/en-us/corporate/sustainability/product-sustainability/product-transparency-standards>

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Pub. No. 10022177-J. August 2026.
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