Listing and Technical Evaluation Report™

A Duly Authenticated Report from an Approved Agency

Report No: 1809-01

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Vitrabond®

Trade Secret Report Holder:

Fairview Architectural

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CSI Designations:

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION

Section: 07 42 00 - Wall Panels Section: 07 42 13.23 - Metal Composite Material Wall Panels Section: 07 42 43 - Composite Wall Panels

1 Innovative Product Evaluated[1]

1.1 Vitrabond Metal Composite Material (MCM)

2 Product Description and Materials

2.1 The innovative product evaluated in this report is shown in **Figure 1**.

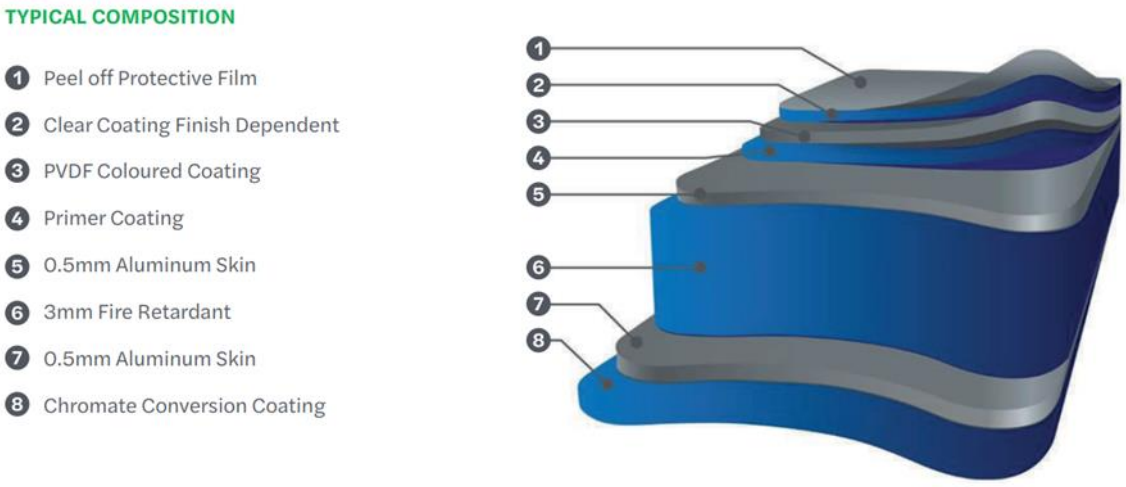


Figure 1. Typical Composition of Vitrabond

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2.2 Vitrabond is a lightweight composite cladding panel manufactured in a continuous coil process by fusing metal skins to a composite core.

2.3 *Material Availability*

2.3.1 *Thickness*:

2.3.1.1 0.118" (3.0 mm)

2.3.1.2 0.157" (4.0 mm)

2.3.1.3 0.236" (6.0 mm)

2.3.2 *Standard Width:*

2.3.2.1 40" (1,016 mm)

2.3.2.2 49.2" (1,250 mm)

2.3.2.3 62" (1,575 mm)

2.3.3 *Standard Length:*

2.3.3.1 122" (3,099 mm)

2.3.3.2 146" (3,708 mm)

2.3.3.3 196" (4,978 mm)

2.3.4 Custom sizes are available in widths between 36" (914 mm) and 62" (1,575 mm) and in lengths up to 256" (6,502 mm).

2.4 See www.fairview-na.com/finishes for available finishes.

2.5 Vitrabond panels are installed using the Arrowhead® Panel System.

2.5.1 The Arrowhead Panel System is outside the scope of this report. For information about Arrowhead, see Report Number 2006-02.

2.6 As needed, review material properties for design in **Section 6** and the regulatory evaluation in **Section 8**.

3 Definitions[2]

3.1 New Materials[3] are defined as building materials, equipment, appliances, systems, or methods of construction, not provided for by prescriptive and/or legislatively adopted regulations, known as alternative materials.[4] The design strength and permissible stresses shall be established by tests[5] and/or engineering analysis.[6]

3.2 Duly authenticated reports[7] and research reports[8] are test reports and related engineering evaluations that are written by an approved agency[9] and/or an approved source.[10]

3.2.1 These reports utilize intellectual property and/or trade secrets to create public domain material properties for commercial end-use.

3.2.1.1 This report protects confidential Intellectual Property and trade secrets under the regulation, 18.US.Code.90, also known as Defend Trade Secrets Act of 2016 (DTSA).[11]

3.3 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited. DrJ Engineering, LLC (DrJ) is accredited and listed in the ANAB directory.

3.4 An approved source is *"approved"* when a professional engineer (i.e., Registered Design Professional, hereinafter RDP) is properly licensed to transact engineering commerce. The regulatory authority governing approved sources is the state legislature via its professional engineering regulations.[12]

3.5 Testing and/or inspections conducted for this duly authenticated report were performed by an ISO/IEC 17025 accredited testing laboratory, an ISO/IEC 17020 accredited inspection body, and/or a licensed RDP.

3.5.1 The Center for Building Innovation (CBI) is ANAB[13] ISO/IEC 17025 and ISO/IEC 17020 accredited.

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3.6 The regulatory authority shall enforce[14] the specific provisions of each legislatively adopted regulation. If there is a non-conformance, the specific regulatory section and language of the non-conformance shall be provided in writing[15] stating the nonconformance and the path to its cure.

3.7 The regulatory authority shall accept duly authenticated reports from an approved agency and/or an approved source with respect to the quality and manner of use of new materials or assemblies as provided for in regulations regarding the use of alternative materials, designs, or methods of construction.[16]

3.8 ANAB is an International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA) signatory. Therefore, recognition of certificates and validation statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA with the appropriate scope shall be approved.[17] Thus, all ANAB ISO/IEC 17065 duly authenticated reports are approval equivalent,[18] and can be used in any country that is an MLA signatory found at this link: https://iaf.nu/en/recognised-abs/.

3.9 Approval equity is a fundamental commercial and legal principle.[19]

4 Applicable Local, State, and Federal Approvals; Standards; Regulations[20]

4.1 *Local, State, and Federal*

4.1.1 Approved in all local jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured local jurisdictions: Austin, Baltimore, Broward County, Chicago, Clark County, Dade County, Dallas, Detroit, Denver, DuPage County, Fort Worth, Houston, Kansas City, King County, Knoxville, Las Vegas, Los Angeles City, Los Angeles County, Miami, Nashville, New York City, Omaha, Philadelphia, Phoenix, Portland, San Antonio, San Diego, San Jose, San Francisco, Seattle, Sioux Falls, South Holland, Texas Department of Insurance, and Wichita.[21]

4.1.2 Approved in all state jurisdictions pursuant to ISO/IEC 17065 duly authenticated report use, which includes, but is not limited to, the following featured states: California, Florida, New Jersey, Oregon, New York, Texas, Washington, and Wisconsin.[22]

4.1.3 Approved by the Code of Federal Regulations Manufactured Home Construction: Pursuant to Title 24, Subtitle B, Chapter XX, Part 3282.14[23] and Part 3280[24] pursuant to the use of ISO/IEC 17065 duly authenticated reports.

4.1.4 Approved means complying with the requirements of local, state, or federal legislation.

4.2 *Standards*

4.2.1 *AAMA 2605: Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix)*

4.2.2 *ASCE/SEI 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures*

4.2.3 *ASTM D1781: Standard Test Method for Climbing Drum Peel for Adhesives*

4.2.4 *ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials*

4.2.5 ASTM E136: Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C

4.2.6 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

4.2.7 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*

4.2.8 *NFPA 285: Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components*

4.2.9 *TAS201: Impact Test Procedures*

4.2.10 *TAS 202: Criteria for Testing Impact and Nonimpact Resistance Building Envelope Components Using Uniform Static Air Pressure*

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4.2.11 *TAS 203: Criteria for Testing Products Subject to Cyclic Wind Pressure Loading*

4.3 *Regulations*

4.3.1 *IBC – 18, 21, 24: International Building Code®*

4.3.2 *IRC – 18, 21, 24: International Residential Code®*

4.3.3 *FBC-B—23, 26: Florida Building Code – Building[25] (FL46016)*

4.3.4 *FBC-R—23, 26: Florida Building Code – Residential[25] (FL46016)*

4.3.5 *CBC—22, 25: California Building Code[26] (Title 24, Part 2)*

4.3.6 *CRC—22, 25: California Residential Code[26] (Title 24, Part 2.5)*

4.3.7 *LABC—23, 26: City of Los Angeles Building Code[27]*

4.3.8 *LARC—23, 26: City of Los Angeles Residential Code[27]*

5 Listed[28]

5.1 Equipment, materials, products, or services included in a List published by a nationally recognized testing laboratory (i.e., CBI), an approved agency (i.e., CBI and DrJ), and/or an approved source (i.e., DrJ), or other organization(s) concerned with product evaluation (i.e., DrJ), that maintains periodic inspection (i.e., CBI) of production of listed equipment or materials, and whose listing states either that the equipment or material meets nationally recognized standards or has been tested and found suitable for use in a specified manner.

6 Tabulated Properties Generated from Nationally Recognized Standards

6.1 *General*

6.1.1 Vitrabond panels are used as exterior wall coverings in accordance with IBC Section 1406.

6.1.2 Vitrabond panels are installed over wood-framed, steel-framed, masonry, or concrete walls capable of supporting the imposed loads in accordance with IBC Section 1609.

6.2 *Structural Design*

6.2.1 Walls incorporating Vitrabond panels shall be designed to resist wind loads per IBC Chapter 16 and ASCE 7 Chapter 30.

6.2.2 Vitrabond panels are capable of resisting the loads shown in **Table 1**.

Table 1. Allowable Wind Load Resistance and Wind Speed[1]

Product[2]	Allowable Wind Pressure, psf (kN/m²)	Components and Cladding Basic Wind Speed[3,4] (V_{ult}), mph (km/h)	
		ASCE 7-16	ASCE 7-22
Vitrabond MCM	50 (2.4)	185 (298)	190 (306)

SI: 1 in = 25.4 mm, 1 psf = 0.0479 kN/m², 1 mph = 1.61 km/h

1. Tested in accordance with ASTM E330.
2. Panels tested were 3' $11\frac{1}{16}$" square.
3. Basic wind speeds are based on the following: Enclosed building, Mean roof height – 30', Exposure B, Zone 5, 10 sq. ft. effective wind area in accordance with ASCE 7-16 and ASCE 7-22.
4. Allowable stress design (ASD) wind speed shall be determined in accordance with IBC Section 1609.3.1: $V_{asd} = V_{ult}\sqrt{0.6}$.

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6.3 *High Velocity Hurricane Zone (HVHZ) – Wind and Impact Testing*

6.3.1 Vitrabond panels were tested in accordance with TAS 201 and meet the missile impact test criteria for wind-borne debris in HVHZ in accordance with FBC-B Section 1626.

6.3.1.1 Vitrabond panels resisted the impact of the 9 lb (4.1 kg) missile propelled at 50 ft/s (15.2 m/s) without penetration, rupture, or opening of the panel.

6.3.2 Vitrabond panels were tested in accordance with TAS 202 and meet the uniform static air pressure criteria for HVHZ in accordance with FBC-B Section 1620.

6.3.2.1 Vitrabond panels resisted a static positive design pressure of +100 psf and a negative design pressure of -150 psf.

6.3.3 Vitrabond panels were tested in accordance with TAS 203 and meet the fatigue load test criteria for HVHZ in accordance with FBC-B Section 1625.

6.3.3.1 Vitrabond panels resisted cyclic loading per the FBC-B Table 1625.4 for a positive design pressure (p_{max}) of +100 psf and a negative design pressure of -150 psf.

6.4 *Weather Resistance*

6.4.1 Vitrabond panels may be used in exterior cladding assemblies in accordance with IBC Section 1402.2 where a Water-Resistive Barrier (WRB) is properly installed behind the Vitrabond panels per IBC Section 1403.2.

6.4.2 The exterior wall envelope shall be flashed per IBC Section 1404.4 prior to the installation of Vitrabond panels using the Arrowhead Panel System.

6.5 *Fire-Resistance*

6.5.1 Use of Vitrabond as part of a fire-rated wall assembly is outside the scope of this report.

6.6 *Surface Burning Characteristics*

6.6.1 Vitrabond was evaluated for surface burning characteristics in accordance with ASTM E84 as specified in IBC Section 1406.9 and IBC Section 1406.10.1.

6.6.2 The flame spread and smoke developed indexes of Vitrabond panels are provided in **Table 2**.

Table 2. Surface Burning Characteristics[1]

Product	Flame Spread	Smoke Developed	Classification
Vitrabond MCM	≤ 25	≤ 450	Class A
1. Tested in accordance with ASTM E84			

6.7 *Full Scale Tests*

6.7.1 Vitrabond panels were tested to assess performance of vertical and lateral fire propagation in accordance with NFPA 285 and IBC Section 1406.10.3.[29]

6.7.2 Engineering analysis to assess substitution of other products within the approved wall assemblies has been conducted.

6.7.3 The wall assemblies in **Table 3**, **Table 4**, and **Table 5** are approved for use in buildings of Type I-IV construction.

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Table 3. Approved NFPA 285-12 Wall Assemblies for use with Rmax Exterior Insulation[1,2]

Wall Component	Materials
Base Wall Use Item 1, 2, or 3 ***Note***: May use Item 4 optionally when FRTW framing is allowed by code	1. Cast Concrete Walls 2. CMU Concrete Walls 3. 20-gauge (min.) 3 5/8" (min.) steel studs spaced 24" o.c. (max.) a. 5/8" Type X Gypsum Wallboard Interior b. Bracing as required by code. 4. Where allowed in Types I, II, III, or IV construction, FRTW (Fire-Retardant Treated Wood) studs complying with IBC Section 2303.2, min. nominal 2 x 4 dimension spaced 24" o.c. (max.) a. 5/8" Type X Gypsum Wallboard Interior b. Bracing as required by code.
Fire-Stopping in Stud Cavity at Floor Lines ***Note***: As an option, use Item 2 with FRTW framing	1. 4-pcf mineral wool installed with z-clips 2. FRTW fire blocking at floor line per applicable code requirements
Cavity Insulation Use any Item 1 – 15 ***Note***: Items 5 – 15 are SPF foam type and may only be used with 5/8" exterior gypsum sheathing. EZ FLO may be used inside the box headers and jamb studs for NFPA 285 assemblies requiring SPF in stud cavities.	1. None 2. Any noncombustible insulation per ASTM E136 3. Any Mineral Fiber (Board Type Class A ASTM E84 faced or unfaced) 4. Any Fiberglass (Batt Type Class A ASTM E84 faced or unfaced) 5. 5 1/2" (max.) Icynene LD-C-50 spray foam in 6" deep studs (max.) Use with 5/8" exterior sheathing. 6. 5 1/2" (max.) Icynene MD-C-200 2-pcf spray foam in 6" deep studs (max.) full fill without an air gap. Use with 5/8" exterior sheathing. 7. 5 1/2" (max.) Icynene MD-R-210 2-pcf spray foam in 6" deep studs (max.) full fill without an air gap. Use with 5/8" exterior sheathing. 8. SWD Urethane QS 112 2-pcf spray foam in 6" deep studs (max.) partial fill with a maximum 2 1/2" air gap or full fill. Use with 5/8" exterior sheathing. 9. Gaco Western 183M (3 1/2" max.) Use with 5/8" exterior sheathing. 10. Gaco Western F1850 (3 1/2" max.) Use with 5/8" exterior sheathing. 11. Demilec Sealection 500 (3 5/8" max.) Use with 5/8" exterior sheathing. 12. Demilec HeatLok Soy 200 Plus (3.4" max.) Use with 5/8" exterior sheathing. 13. Bayer Bayseal (3" max.) Use with 5/8" exterior sheathing. 14. Lapolla FoamLok FL 2000 (3" max.) Use with 5/8" exterior sheathing. 15. BASF SprayTite 81206 or WallTite (US & US-N) (3 5/8" max.) Use with 5/8" exterior sheathing.
Exterior Sheathing Use Item 1, 2, or 3	1. 1/2" or thicker exterior gypsum sheathing 2. 1/2" (min.) FRTW structural panels complying with IBC Section 2303.2 and installed in accordance with code allowances for Types I, II, III, or IV construction 3. None (only with 3" max. Rmax exterior insulation) ***Note:*** Exterior FRTW sheathing or gypsum board is optional for Base Walls 1 and 2. When SPF is used, 5/8" exterior gypsum sheathing must be used.

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Table 3. Approved NFPA 285-12 Wall Assemblies for use with Rmax Exterior Insulation[1,2]

Wall Component	Materials
Water-Resistive Barrier Applied to Exterior Sheathing or Base Wall Surface (under the exterior insulation) Select Item 1 or 2 installed per manufacturer installation instructions. ***Note***: When using Exterior Sheathing Option 3 (no exterior sheathing), Items 2 a-d may be applied directly to studs. NLA = No Longer Available. Replace with Spraywrap MVP	1. None 2. Any WRB tested in accordance with ASTM E1354 (at a minimum of 20 kW/m^2 heat flux) and shown by analysis to be less flammable (improved T_{ign}, Pk. HRR) than the baseline WRB or exterior insulation foam core. The following WRB products are allowed (item t. based on NFPA 285): a. Pactiv Green Guard®Max Building Wrap b. Dupont Tyvek® (Various per ESR 2375) c. DOW WeatherMate™ d. DOW WeatherMate™ Plus e. Carlisle (CCW) Fire Resist 705FR-A f. Carlisle CCW Fire Resist Barritech NP g. Carlisle CCW Fire Resist Barritech VP h. BASF Enershield HP i. BASF Enershield I j. Henry Air Bloc 31MR k. Henry EnviroCap l. Henry Air Bloc 33MR m. Henry Air Bloc 21 FR n. Henry VP 160 o. Henry Air Bloc 17 p. Henry BlueSkin SA q. Henry FoilSkin r. Henry MetalClad s. Henry 32MR t. Soprema Stick VP or Soprasolin HD u. Soprema 1100T or Sopraseal Xpress G v. Prosoco R-Guard Spray Wrap (NLA) w. Prosoco R-Guard MVP (NLA) x. Prosoco Spraywrap MVP y. Prosoco R-Guard VB z. Prosoco R-Guard Cat 5 aa. Vaproshield Revealshield SA bb. Vaproshield Wrapshield SA cc. Pecora XL-Perm^{ULTRA} VP (10 mil DFT) dd. W.R. Grace PAB NPL 10 ee. W.R. Grace PAB VPL ff. W.R. Grace PAB VPL LT gg. W.R. Grace PAB VPS hh. W.R. Grace PAB AWM ii. W.R. Grace PAB VPL 50 jj. Dryvit Backstop NT kk. WR Meadows Air-Shield LMP (Gray) ll. WR Meadows Air-Shield LMP (Black) mm. WR Meadows Air-Shield TMP nn. WR Meadows Air-Shield LSR oo. Sika SikaGard 530

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Table 3. Approved NFPA 285-12 Wall Assemblies for use with Rmax Exterior Insulation[1,2]

Wall Components	Materials
Water-Resistive Barrier Applied to Exterior Sheathing or Base Wall Surface (under the exterior insulation) Select Item 1 or 2 installed per manufacturer installation instructions. ***Note***: When using Exterior Sheathing Option 2 (no exterior sheathing), Items 2 a-d may be applied directly to studs. NLA = No Longer Available. Replace with Spraywrap MVP	***Special Case****:* when exterior insulation #6 is used (2", 4-pcf mineral wool – min.) over the WRB, any WRB can be used on the base wall surface (under the mineral wool).
Exterior Insulation Use any Item 1 – 6 ***IMPORTANT***: When using no exterior sheathing, the maximum allowable Rmax insulation thickness is 3".	1. 4 1/2" (max. consisting of a single panel or multiple thinner panels) Rmax TSX-8500 2. 4 1/2" (max. consisting of a single panel or multiple thinner panels) Rmax ECOMAXci 3. 4 1/2" (max. consisting of a single panel or multiple thinner panels) Rmax TSX-8510 4. None (only with a WRB from the list below with the WRB applied direct to base wall surface) 5. 1" thick (min.), 4-pcf density (min.) unfaced mineral wool meeting ASTM E136 as noncombustible 6. 2" thick (min.), 4-pcf density (minimum) unfaced mineral wool that meets ASTM E136 (for use with any WRB under the mineral wool)
Water-Resistive Barrier Applied Over Exterior Insulation (or FRTW) Use any item 1) a. – n. for cladding 1-6 with non-open joint installation technique. ***Note***: Exterior WRB items 1 b. – d. are not traditional WRB products but are insulation panel joint tapes. The insulation panel joints shall be staggered. These tapes are listed to allow use in both categories 1-6 OR 1-13.	1. For use with all claddings a. None b. 6" (max.) Venture Tape CW over insulation joints c. 6" (max.) Rmax R-SEAL 3000 over insulation joints d. 6" (max.) asphalt or butyl based tape, or liquid flashing over insulation joints e. Pactiv Green Guard®Max Building Wrap f. Dupont Tyvek® (Various per 2375) g. Dow Weathermate™ h. Dow Weathermate™ Plus i. Henry FoilSkin j. Henry MetalClad k. Prosoco Spraywrap MVP l. Soprema Soprasolin HD m. Carlisle (CCW) Fire Resist 705FR-A n. W.R. Grace PAB AWM

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Table 3. Approved NFPA 285-12 Wall Assemblies for use with Rmax Exterior Insulation[1,2]

Wall Component	Materials
Exterior Cladding ACM with maximum air gap as follows: Maximum 2 1/2" air gap between panel and polyiso insulation Maximum 3 5/16" air gap between panel and mineral wool insulation	1. Fairview 4 mm Vitrabond FR ACM a. With optional Arrowhead FlexPanel Attachment b. With optional horizontal or vertical Strongirt (with mineral wool only) c. Metallic Z-girt may be used with polyiso or mineral wool
SI: 1 in = 25.4 mm 1. The assembly combinations created herein are based on testing and professional thermal engineering analysis. 2. All WRBs must be installed at recommended application rates and per the manufacturer installation instructions. Window headers for all assemblies shall incorporate 0.08" (min.) aluminum flashing to cover air gaps between the exterior insulation and exterior veneer. All fenestrations and penetrations shall be flashed in accordance with the applicable code using asphalt, acrylic, or butyl based flashing tape, liquid flashing, or R-SEAL 6000 polyethylene tape up to 12" maximum width.	

Table 4. Approved NFPA 285-19 Wall Assemblies for use with Dupont Thermax™ Exterior Insulation[1]

Wall Component	Materials
Base Wall Use Item 1, 2, 3, or 4	1. Cast Concrete Walls 2. CMU Concrete Walls 3. Standard Clay Brick Walls 4. 20-gauge (min.) 3 5/8" (min.) steel studs spaced 24" o.c. (max.) with lateral bracing every 4' vertically a. 5/8" Type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	1. 4-pcf mineral fiber insulation (mineral wool) installed with z-clips or equivalent
Cavity Insulation Use Item 1, 2, or 3	1. None 2. Full stud depth (max.) Dow Styrofoam Spray Polyurethane Foam CM2030, 2045 or 2060 complying with ESR-2670. Apply to the interior side of exterior sheathing. 3. Any Fiberglass Batt insulation (faced or unfaced) complying with the applicable code
Exterior Sheathing Use either Item 1 or 2	1. 1/2" Exterior Gypsum Sheathing 2. 5/8" Exterior Gypsum Sheathing
Water-Resistive Barrier Applied Over Exterior Sheathing Use either Item 1 or 2 ***Note***: For use under exterior insulation only	1. None 2. Any of the following: a. WEATHERMATE™ - Dow Chemical (ESR-2862) b. WEATHERMATE™ Plus – Dow Chemical (ESR-3401) c. Tyvek® CommercialWrap® - DuPont (ESR-2375) d. Backstop® NT – Dryvit e. Barritech™ VP – Carlisle f. AIR-SHIELD™ LMP (black only) – W.R. Meadows g. Green Guard® Max Building Wrap – Pactiv h. Perm-A-Barrier® VPS – W.R. Grace ***Note:*** All barriers to be installed in accordance with manufacturer installation instructions, the applicable ICC-ES evaluation report, and the applicable code

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Table 4. Approved NFPA 285-19 Wall Assemblies for use with Dupont Thermax™ Exterior Insulation[1]

Wall Component	Materials
Exterior Insulation Use any Item 1, 2, or 3	1. 5/8" (min.) to 3" (max.) DuPont Thermax Insulation 2. 1" thick (min.), 4-pcf density (min.) unfaced mineral wool meeting ASTM E136 as noncombustible 3. 2" thick (min.), 4-pcf density (min.) unfaced mineral wool that meets ASTM E136 (for use with any WRB under the mineral wool) ***Note:*** Flashing tape to cover insulation joints and/or cladding ties and connections consisting of 4" (max.) Dow WEATHERMATE™ Flashing, or 4" (max.) asphalt or butyl based flashing tape.
Window Perimeter Flashing	1. 25-gauge Sheet Steel (with polyiso) 2. 0.040 aluminum (with mineral wool)
Exterior Cladding ACM with air gap as follows: Maximum 1 3/4" air gap between panel and polyiso insulation Maximum 3 5/16" air gap between panel and mineral wool insulation	1. Fairview 4 mm Vitrabond FR ACM a. With optional Arrowhead FlexPanel Attachment b. With optional horizontal or vertical Strongirt (with mineral wool only) c. Metallic Z-girt may be used with polyiso or mineral wool
SI: 1 in = 25.4 mm 1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.	

Table 5. Approved NFPA 285-23 Wall Assemblies[1]

Wall Component	Materials
Base Wall Use Item 1, 2, 3, or 4	1. Cast Concrete Walls 2. CMU Concrete Walls 3. Standard Clay Brick Walls 4. 20-gauge (min.) 3 5/8" (min.) steel studs spaced 24" o.c. (max.) with lateral bracing every 4' vertically a. 5/8" Type X Gypsum Wallboard Interior
Fire-Stopping in Stud Cavity at Floor Lines	1. 4-pcf mineral fiber insulation (mineral wool) installed with z-clips or equivalent
Cavity Insulation Use Item 1, 2, or 3	1. None 2. Full stud depth (max.) Dow Styrofoam Spray Polyurethane Foam CM2030, 2045 or 2060 complying with ESR-2670. Apply to the interior side of exterior sheathing. 3. Any Fiberglass Batt insulation (faced or unfaced) complying with the applicable code
Exterior Sheathing Use either Item 1 or 2	1. 1/2" Exterior Gypsum Sheathing 2. 5/8" Exterior Gypsum Sheathing

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Table 5. Approved NFPA 285-23 Wall Assemblies[1]

Wall Component	Materials
Water-Resistive Barrier Applied Over Exterior Sheathing Use either Item 1 or 2 ***Note:*** For use under exterior insulation only	1. None 2. Any of the following: a. WEATHERMATE™ - Dow Chemical (ESR-2862) b. WEATHERMATE™ Plus – Dow Chemical (ESR-3401) c. Tyvek® CommercialWrap® - DuPont (ESR-2375) d. Backstop® NT – Dryvit e. Barritech™ VP – Carlisle f. AIR-SHIELD™ LMP (black only) – W.R. Meadows g. Green Guard® Max Building Wrap – Pactiv h. Perm-A-Barrier® VPS – W.R. Grace ***Note:*** All barriers to be installed in accordance with manufacturer installation instructions, the applicable ICC-ES evaluation report and the applicable code
Exterior Insulation Use any Item 1, 2, or 3	1. 5/8" (min.) to 3" (max.) DuPont Thermax Insulation 2. 1" thick (min.), 4-pcf density (min.) unfaced mineral wool meeting ASTM E136 as noncombustible 3. 2" thick (min.), 4-pcf density (min.) unfaced mineral wool that meets ASTM E136 (for use with any WRB under the mineral wool) ***Note:*** Flashing tape to cover insulation joints and/or cladding ties and connections consisting of 4" (max.) Dow WEATHERMATE™ Flashing, or 4" (max.) asphalt or butyl based flashing tape.
Window Perimeter Flashing	1. 0.040 aluminum (with mineral wool)
Exterior Cladding ACM with air gap as follows: Maximum 1 3/4" air gap between panel and polyiso insulation Maximum 3 5/16" air gap between panel and mineral wool insulation	1. Fairview 4 mm Vitrabond FR ACM a. With optional Arrowhead FlexPanel Attachment b. With optional horizontal or vertical Strongirt c. Metallic Z-girt

SI: 1 in = 25.4 mm

1. The assembly combinations created herein and the various substitutions of products are based on testing and professional thermal engineering analysis.

6.8 Where the application falls outside of the performance evaluation, conditions of use, and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science, and fire science.

7 Certified Performance[30]

7.1 All construction methods shall conform to accepted engineering practices to ensure durable, livable, and safe construction and shall demonstrate acceptable workmanship reflecting journeyman quality of work of the various trades.[31]

7.2 The strength and rigidity of the component parts and/or the integrated structure shall be determined by engineering analysis or by suitable load tests to simulate the actual loads and conditions of application that occur.[32]

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8 Regulatory Evaluation and Accepted Engineering Practice

8.1 Vitrabond complies with the following legislatively adopted regulations and/or accepted engineering practice for the following reasons:

8.1.1 Vitrabond panels were evaluated to determine the following properties for use as an exterior wall covering in accordance with IBC Section 1406 for Types I-IV construction:

8.1.1.1 Structural design in accordance with IBC Section 1402.3 and IBC Section 1406.4

8.1.1.2 Weather resistance in accordance with IBC Section 1402.2 and IBC Section 1406.6

8.1.1.3 Durability in accordance with IBC Section 1406.7

8.1.1.4 NFPA 285 full scale tests in accordance with IBC Section 1406.10.3 and 2018 IBC Section 1406.10.4

8.1.1.5 Thermal barrier requirement in accordance with IBC Section 1406.10.2

8.1.1.6 Surface burning characteristics in accordance with IBC Section 1406.9 and IBC Section 1406.10.1

8.1.2 Vitrabond panels were tested in accordance with TAS 201, TAS 202, and TAS 203 to determine its suitability for use in the HVHZ in accordance with the FBC-B Section 1626, FBC-B Section 1620, and FBC-B Section 1625, respectively.

8.2 Use of Vitrabond panels for interior applications is outside the scope of this report.

8.3 Use of Vitrabond panels as part of a fire-rated wall assembly is outside the scope of this report.

8.4 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this Listing were performed by DrJ, which is an ISO/IEC 17065 accredited certification body and a professional engineering company operated by RDP or approved sources. DrJ is qualified[33] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[34] respectively.

8.5 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise, which is also its areas of professional engineering competence.

8.6 This report addresses the system-specific requirements expressly identified herein. Compliance with all other applicable code provisions shall be verified as part of the project-specific design and code review.

9 Installation

9.1 Installation shall comply with the approved construction documents, the manufacturer installation instructions, this report, and the applicable building code.

9.2 In the event of a conflict between the manufacturer installation instructions and this report, contact the manufacturer for counsel on the proper installation method.

9.3 *Installation Procedure*

9.3.1 According to the manufacturer installation instructions, Vitrabond panels must be installed using the Arrowhead Panel System.

9.3.2 Components and parts shall be free of defects, including warped, bowed, dented, abraded, and broken members must not be installed. Components or parts that have been damaged during installation or thereafter, before substantial completion of the project, shall be repaired in accordance with **Section 9.3.7** or be removed and replaced.

9.3.3 No cutting, trimming, welding, or brazing of components, which could in any way damage the finish, decrease the strength, or result in visual imperfections or failure in performance shall be executed during installation. Components that require alteration shall be returned to the fabricator. If necessary, replace with new components.

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9.3.4 *Tolerances:*

9.3.4.1 All components shall be installed visually flat, level, and true to line, with uniform joints and reveals.

9.3.4.2 Maximum deviation for vertical members is $^1/_8$" over 18' and $^1/_4$" over 40'.

9.3.4.3 Maximum deviation for horizontal members is $^1/_8$" over 30'.

9.3.5 Anchorage of the cladding substructure to the building structure shall be by approved methods in strict accordance with the specified and approved shop and/or installation drawings. Supporting brackets shall be designed to provide three-dimensional adjustments and accurate location of wall components.

9.3.6 All joints between panels shall be set at widths as shown on the drawings with tolerance of +/- $^1/_{16}$". No two adjacent or perpendicular joints shall have a difference in width of more than $^1/_8$". In addition, the tolerance between adjacent panels across any joint shall be a maximum of $^1/_{16}$" locally.

9.3.7 *Repairs:*

9.3.7.1 Repair panels with minor damage so those repairs are not discernable at a distance of 120" (10 ft. or 3.1 m).

9.3.7.2 Remove and replace panels damaged beyond repair per panel system replacement instructions.

9.3.7.3 Remove protective film immediately after installation of panels to avoid prolonged exposure to sunlight.

9.3.7.4 Remove from project site damaged panels, protective film and other debris attributable to work of this section.

9.3.8 *Protection:*

9.3.8.1 *Final Cleaning:*

9.3.8.1.1 When installation is complete, remove extraneous matter and marks off the façade components in a manner that leaves the completed installation free of any streaking, spotting, or non-uniform appearance.

9.3.8.2 *Protection:*

9.3.8.2.1 Protect as necessary and leave the finished work undamaged on completion.

9.3.8.3 Panels shall be stored in well-ventilated space and out of direct sunlight.

10 Substantiating Data

10.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

10.1.1 Wind load resistance testing in accordance with ASTM E330

10.1.2 Wind and impact testing for use in a HVHZ in accordance with TAS 201, TAS 202, and TAS 203

10.1.3 Weather resistance testing in accordance with AAMA 2605

10.1.4 Durability testing in accordance with ASTM D1781 and AAMA 2605

10.1.5 Surface burning characteristics testing in accordance with ASTM E84

10.1.6 Full scale fire propagation testing and analysis in accordance with NFPA 285

10.2 Information contained herein may include the result of testing and/or data analysis by sources that are approved agencies, approved sources, and/or an RDP. Accuracy of external test data and resulting analysis is relied upon.

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10.3 Where applicable, testing and/or engineering analysis are based upon provisions that have been codified into law through state or local adoption of regulations and standards. The developers of these regulations and standards are responsible for the reliability of published content. DrJ's engineering practice may use a regulation-adopted provision as the control. A regulation-endorsed control versus a simulation of the conditions of application to occur establishes a new material as being equivalent to the regulatory provision in terms of quality, strength, effectiveness, fire resistance, durability, and safety.

10.4 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, or duly authenticated reports from approved agencies and/or approved sources provided by the supplier. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this duly authenticated report, may be dependent upon published design properties by others.

10.5 *Testing and Engineering Analysis*

10.5.1 The strength, rigidity, and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.[35]

10.6 Where additional condition of use and/or regulatory compliance information is required, please search for Vitrabond on the DrJ Certification website.

11 Findings

11.1 As outlined in **Section 6**, Vitrabond has performance characteristics that were tested and/or meet applicable regulations. In addition, it is suitable for use pursuant to its specified purpose.

11.2 When used and installed in accordance with this duly authenticated report and the manufacturer installation instructions, Vitrabond shall be approved for the following applications:

11.2.1 Use as a code-compliant metal composite material in exterior applications of Type I-IV construction.

11.3 Unless exempt by state statute, when Vitrabond is to be used as a structural and/or building envelope component in the design of a specific building, the design shall be performed by an RDP.

11.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from Fairview Architectural.

11.5 IBC Section 104.2.3[36] (IRC Section R104.2.2[37] and IFC Section 104.2.3[38] are similar) in pertinent part state:

> **104.2.3 Alternative Materials, Design and Methods of Construction and Equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative is not specifically prohibited by this code and has been approved.

11.6 **Approved:**[39] Building regulations require that the building official shall accept duly authenticated reports.[40]

11.6.1 An approved agency is *"approved"* when it is ANAB ISO/IEC 17065 accredited.

11.6.2 An approved source is *"approved"* when an RDP is properly licensed to transact engineering commerce.

11.6.3 Federal law, Title 18 US Code Section 242, requires that, where the alternative product, material, service, design, assembly, and/or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved. Denial without written reason deprives a protected right to free and fair competition in the marketplace.

11.7 DrJ is a licensed engineering company, employs licensed RDPs and is an ANAB Accredited Product Certification Body – Accreditation #1131.

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11.8 Through the IAF Multilateral Arrangement (MLA), this duly authenticated report can be used to obtain product approval in any jurisdiction or country because all ANAB ISO/IEC 17065 duly authenticated reports are equivalent.[41]

12 Conditions of Use

12.1 Material properties shall remain within the boundaries defined in **Section 6**.

12.2 As defined in **Section 6**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall be within the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

12.3 As listed herein, Vitrabond shall be:

12.3.1 Separated from the interior of a building by an approved thermal barrier consisting of 1/2" (12.7 mm) gypsum wallboard or a material that is tested in accordance with, and meets the acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275 where required by IBC Section 1406.10.2.[42]

12.3.2 Stored above ground in enclosed spaces, under protective covers. Extreme care shall be taken to avoid contact with moisture, condensation, or materials that might cause staining, such as lime, cement, fresh concrete, or chemicals.

12.4 *Storage and Protection*

12.4.1 Store materials protected from exposure to harmful weather conditions and at temperature condition recommended by the manufacturer/fabricator.

12.4.2 Store panels in well-ventilated space out of direct sunlight.

12.4.3 Protect panels from moisture and condensation with tarpaulins or other suitably ventilated weather-tight covering.

12.4.4 Slope panels to ensure positive drainage and prevent water accumulation.

12.4.5 Maintain storage conditions at ambient temperatures below 120° F (49° C).

12.4.6 Avoid contact with any other material that might cause staining, denting, scratching, or other surface damage.

12.4.7 To prevent adhesive transfer to the finish, store the exterior aluminum/composite wall panels in shaded or temperature-controlled environments. Avoid high heat and limit storage duration prior to installation.

12.5 When required by adopted legislation and enforced by the building official, also known as the Authority Having Jurisdiction (AHJ) in which the project is to be constructed:

12.5.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice and, when prepared by an approved source, shall be approved when signed and sealed.

12.5.2 This report and the installation instructions shall be submitted at the time of permit application.

12.5.3 This innovative product has an internal quality control program and a third-party quality assurance program.

12.5.4 At a minimum, this innovative product shall be installed per **Section 9**.

12.5.5 The review of this report by the AHJ shall comply with IBC Section 104.2.3.2 and IBC Section 105.3.1.

12.5.6 This innovative product has an internal quality control program and a third party quality assurance program in accordance with IBC Section 104.7.2, IBC Section 110.4, IBC Section 1703, IRC Section R104.7.2, and IRC Section R109.2.

12.5.7 The application of this innovative product in the context of this report is dependent upon the accuracy of the construction documents, implementation of installation instructions, inspection as required by IBC Section 110.3, IRC Section R109.2, and any other regulatory requirements that may apply.

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12.6 The approval of this report by the AHJ shall comply with IBC Section 1707.1, where legislation states in part, *"the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies as provided for in Section 104.2.3"*, all of IBC Section 104, and IBC Section 105.3.

12.7 Design loads shall be determined in accordance with the regulations adopted by the jurisdiction in which the project is to be constructed and/or by the building designer (i.e., owner or RDP).

12.8 The actual design, suitability, and use of this report for any particular building, is the responsibility of the owner or the authorized agent of the owner.

13 Identification

13.1 The innovative product listed in **Section 1.1** is identified by a label on the product or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

13.2 Additional technical information can be found at www.fairview-na.com.

14 Review Schedule

14.1 This report is subject to periodic review and revision. For the latest version, visit www.drjcertification.org.

14.2 For information on the status of this report, please contact DrJ Certification.

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Issue Date: December 10, 2021
Supplement Revision Date: November 9, 2026
Subject to Renewal: January 1, 2028

FBC Supplement to Report Number 1809-01

REPORT HOLDER: Fairview Architectural

1 Evaluation Subject

1.1 Vitrabond Metal Composite Material (MCM)

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show Vitrabond, recognized in Report Number 1809-01, has also been evaluated for compliance with the codes listed below as adopted by the Florida Building Commission.

2.2 *Applicable Code Editions*

2.2.1 *FBC-B—23, 26: Florida Building Code – Building (FL46016)*

2.2.2 *FBC-R—23, 26: Florida Building Code – Residential (FL46016)*

3 Conclusions

3.1 Vitrabond, described in Report Number 1809-01, complies with the FBC-B and FBC-R and is subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the FBC-B and FBC-R applicable to this report, they are listed here:

3.2.1 FBC-B Section 104 is reserved.

3.2.2 FBC-B Section 110.4 is reserved and replaces IBC Section 110.4.

3.2.3 FBC-B Section 104.6 is reserved and replaces IBC Section 104.4.

3.2.4 FBC-B Section 104.11 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 FBC-B Section 105.3 replaces IBC Section 105.3.

3.2.6 FBC-B Section 105.3.1 replaces IBC Section 105.3.1.

3.2.7 FBC-B Section 110.3 replaces IBC Section 110.3.

3.2.8 FBC-B Section 1403.2 replaces IBC Section 1402.2.

3.2.9 FBC-B Section 1404.2 replaces IBC Section 1403.2.

3.2.10 FBC-B Section 1405.2 replaces IBC Section 1404.2.

3.2.11 FBC-B Section 1405.4 replaces IBC Section 1404.4.

3.2.12 FBC-B Section 1407 replaces IBC Section 1406.

3.2.13 FBC-B Section 1407.4 replaces IBC Section 1406.4.

3.2.14 FBC-B Section 1407.7 replaces IBC Section 1406.7.

3.2.15 FBC-B Section 1407.10.1 replaces IBC Section 1406.10.1.

3.2.16 FBC-B Section 1407.10.2 replaces IBC Section 1406.10.2.

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3.2.17 FBC-B Section 1407.10.3 replaces IBC Section 1406.10.2.

3.2.18 FBC-B Section 1609 replaces IBC Section 1609.

3.2.19 FBC-B Section 1707.1 replaces IBC Section 1707.1.

3.2.20 FBC-B Section 2306.1 replaces IBC Section 2306.1.

3.2.21 FBC-B Section 2306.3 replaces IBC Section 2306.3.

3.2.22 FBC-R Section R104 and Section R109 are reserved.

4 Conditions of Use

4.1 Vitrabond, described in Report Number 1809-01, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1809-01.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of FBC-B Chapter 16 and Chapter 17, as applicable.

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Issue Date: December 10, 2021
Supplement Revision Date: November 9, 2026
Subject to Renewal: January 1, 2028

CBC and CRC Supplement to Report Number 1809-01

REPORT HOLDER: Fairview Architectural

1 Evaluation Subject

1.1 Vitrabond Metal Composite Material (MCM)

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show Vitrabond, recognized in Report Number 1809-01 has also been evaluated for compliance with the codes listed below.

2.2 *Applicable Code Editions*

2.2.1 *CBC—22, 25: California Building Code (Title 24, Part 2)*

2.2.2 *CRC—22, 25: California Residential Code (Title 24, Part 2.5)*

3 Conclusions

3.1 Vitrabond, described in Report Number 1809-01, complies with the CBC and CRC and is subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the CBC and CRC applicable to this report, they are listed here:

3.2.1 CBC Section 104.4 replaces IBC Section 104.4.

3.2.2 CBC Section 104.2.3 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.3 CBC Section 1404.4 replaces IBC Section 1404.4.

3.2.4 CBC Chapter 16 replaces IBC Chapter 16.

3.2.5 CBC Section 1707.1 replaces IBC Section 1707.1.

3.2.6 CBC Section 2306.3 replaces IBC Section 2306.3.

3.2.7 CRC Section R104.4 replaces IBC Section R104.4.

3.2.8 CRC Section R104.2.2 replaces IRC Section R104.2.2.

4 Conditions of Use

4.1 Vitrabond, described in Report Number 1809-01, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1809-01.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of CBC and CRC, as applicable.

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Issue Date: May 5, 2022
Supplement Revision Date: November 9, 2026
Subject to Renewal: January 1, 2028

LABC and LARC Supplement to Report Number 1809-01

REPORT HOLDER: Fairview Architectural

1 Evaluation Subject

1.1 Vitrabond Metal Composite Material (MCM)

2 Purpose and Scope

2.1 Purpose

2.1.1 The purpose of this Report Supplement is to show Vitrabond, recognized in Report Number 1809-01, has also been evaluated for compliance with the codes listed below as adopted by the Los Angeles Department of Building and Safety (LADBS).

2.2 *Applicable Code Editions*

2.2.1 *LABC—23, 26: Los Angeles Building Code*

2.2.2 *LARC—23, 26: Los Angeles Residential Code*

3 Conclusions

3.1 Vitrabond, described in Report Number 1809-01, complies with the LABC and LARC and is subject to the conditions of use described in this supplement.

3.2 Where there are variations between the IBC and IRC and the LABC and LARC applicable to this report, they are listed here:

3.2.1 LABC Section 104 replaces IBC Section 104.

3.2.2 LABC Section 104.2 replaces IBC Section 104.

3.2.3 LABC Section 104.2.3 replaces IBC Section 104.4.

3.2.4 LABC Section 104.2.6 replaces IBC Section 104.2.3 and Section 104.2.3.2.

3.2.5 LABC Section 106.3.1 replaces IBC Section 105.3.

3.2.6 LABC Section 106.4.3 replaces IBC Section 105.4.

3.2.7 LABC Section 108.1 replaces IBC Section 110.4.

3.2.8 LABC Section 108.3 replaces IBC Section 110.4.

3.2.9 LABC Section 108.5 replaces IBC Section 110.3.

3.2.10 LABC Section 1404.4 replaces IBC Section 1404.4.

3.2.11 LABC Chapter 16 replaces IBC Chapter 16.

3.2.12 LABC Section 1707.1 replaces IBC Section 1707.1.

3.2.13 LABC Section 2303.2 replaces IBC Section 2303.2.

3.2.14 LABC Section 2306.3 replaces IBC Section 2306.3.

3.2.15 LARC Section 104.2.6 replaces IRC Section R104.2.2.

3.2.16 LARC Section 108.1 replaces IRC Section R109.2.

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3.2.17 LARC Section R108.5 replaces IRC Section R104.4.

4 Conditions of Use

4.1 Vitrabond, described in Report Number 1809-01, must comply with all of the following conditions:

4.1.1 All applicable sections in Report Number 1809-01.

4.1.2 The design, installation, and inspections are in accordance with additional requirements of LABC Chapter 16 and Chapter 17, as applicable.

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Notes

1 For more information, visit drjcertification.org or call us at 608-310-6748.

2 Capitalized terms and responsibilities are defined pursuant to the applicable building code, applicable reference standards, the latest edition of TPI 1, the NDS, AISI S202, US professional engineering law, Canadian building code, Canada professional engineering law, Qualtim External Appendix A: Definitions/Commentary, Qualtim External Appendix B: Project/Deliverables, Qualtim External Appendix C: Intellectual Property and Trade Secrets, definitions created within Design Drawings and/or definitions within Reference Sheets. Beyond this, terms not defined shall have ordinarily accepted meanings as the context implies. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

3 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1702

4 Alternative Materials, Design and Methods of Construction and Equipment: The provisions of any regulation code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by a regulation. Please review https://www.justice.gov/atr/mission and https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3

5 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.2:~:text=the%20design%20strengths%20and%20permissible%20stresses%20shall%20be%20established%20by%20tests

6 The design strengths and permissible stresses of any structural material shall conform to the specifications and methods of design of accepted engineering practice. https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1706.1:~:text=Conformance%20to%20Standards-,The%20design%20strengths%20and%20permissible%20stresses,-of%20any%20structural

7 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1:~:text=the%20building%20official%20shall%20make%2C%20or%20cause%20to%20be%20made%2C%20the%20necessary%20tests%20and%20investigations%3B%20or%20the%20building%20official%20shall%20accept%20duly%20authenticated%20reports%20from%20approved%20agencies%20in%20respect%20to%20the%20quality%20and%20manner%20of%20use%20of%20new%20materials%20or%20assemblies%20as%20provided%20for%20in%20Section%20104.2.3.

8 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4.2

9 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_agency_

10 https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#approved_source_

11 https://www.law.cornell.edu/uscode/text/18/1832 (b) Any organization that commits any offense described in subsection (a) shall be fined not more than the greater of $5,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided. The federal government and each state have a public records act. To follow DTSA and comply state public records and trade secret legislation requires approval through ANAB ISO/IEC 17065 accredited certification bodies or approved sources. For more information, please review this website: Intellectual Property and Trade Secrets.

12 https://www.nspe.org/resources/issues-and-advocacy/professional-policies-and-position-statements/regulation-professional AND https://apassociation.org/list-of-engineering-boards-in-each-state-archive/

13 https://www.cbitest.com/accreditation/

14 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.1:~:text=directed%20to%20enforce%20the%20provisions%20of%20this%20code

15 https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#104.2.3 AND https://up.codes/viewer/mississippi/ibc-2024/chapter/1/scope-and-administration#105.3.1

16 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

17 https://iaf.nu/en/about-iaf-mla/#:~:text=Once%20an%20accreditation%20body%20is%20a%20signatory%20of%20the%20IAF%20MLA%2C%20it%20is%20required%20to%20recognise%20certificates%20and%20validation%20and%20verification%20statements%20issued%20by%20conformity%20assessment%20bodies%20accredited%20by%20all%20other%20signatories%20of%20the%20IAF%20MLA%2C%20with%20the%20appropriate%20scope

18 True for all ANAB accredited product evaluation agencies and all International Trade Agreements.

19 https://www.justice.gov/crt/deprivation-rights-under-color-law AND https://www.justice.gov/atr/mission

20 Unless otherwise noted, the links referenced herein use un-amended versions of the 2024 International Code Council (ICC) 2024 International Code Council (ICC) model codes as foundation references. Mississippi versions of the IBC 2024 and the IRC 2024 are un-amended. This material, product, design, service and/or method of construction also complies with the 2000-2012 versions of the referenced codes and the standards referenced therein. As pertinent to this technical and code compliance evaluation, CBI and/or DrJ staff have reviewed any state or local regulatory amendments to assure this report is in compliance.

21 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by the local jurisdiction. https://up.codes/codes/general

22 See Adoptions by Publisher for the latest adoption of a non-amended or amended model code by state. https://up.codes/codes/general

23 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3282/subpart-A/section-3282.14

24 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

25 All references to the FBC-B and FBC-R are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the Florida Supplement at the end of this report.

26 All references to the CBC and CRC are the same as the 2021 IBC and 2021 IRC unless otherwise noted in the supplement at the end of this document.

27 All references to the LABC and LARC are the same as the 2018 IBC and 2021 IRC unless otherwise noted in the supplement at the end of this document.

28 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#p-3280.2(Listed%20or%20certified); https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#listed AND https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#labeled

29 2018 IBC Section 1406.10.4

30 https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1703.4

31 https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=All%20construction%20methods%20shall%20be%20in%20conformance%20with%20accepted%20engineering%20practices%20to%20insure%20durable%2C%20livable%2C%20and%20safe%20housing%20and%20shall%20demonstrate%20acceptable%20workmanship%20reflecting%20journeyman%20quality%20of%20work%20of%20the%20various%20trades

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[32] https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280#:~:text=The%20strength%20and%20rigidity%20of%20the%20component%20parts%20and/or%20the%20integrated%20structure%20shall%20be%20determined%20by%20engineering%20analysis%20or%20by%20suitable%20load%20tests%20to%20simulate%20the%20actual%20loads%20and%20conditions%20of%20application%20that%20occur

[33] Qualification is performed by a legislatively defined Accreditation Body. ANSI National Accreditation Board (ANAB) is the largest independent accreditation body in North America and provides services in more than 75 countries. DrJ is an ANAB accredited product certification body.

[34] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?prgID=1&orgID=2125&statusID=4#:~:text=Bill%20Payment%20Date-,Accredited%20Scopes,-13%20ENVIRONMENT.%20HEALTH

[35] See Code of Federal Regulations (CFR) Title 24 Subtitle B Chapter XX Part 3280 for definition: https://www.ecfr.gov/current/title-24/subtitle-B/chapter-XX/part-3280

[36] 2021 IBC Section 104.11

[37] 2021 IRC Section R104.11

[38] 2018: https://up.codes/viewer/wyoming/ifc-2018/chapter/1/scope-and-administration#104.9 AND 2021: https://up.codes/viewer/wyoming/ibc-2021/chapter/1/scope-and-administration#104.11

[39] Approved is an adjective that modifies the noun after it. For example, Approved Agency means that the Agency is accepted officially as being suitable in a particular situation. This example conforms to IBC/IRC/IFC Section 201.4 (https://up.codes/viewer/mississippi/ibc-2024/chapter/2/definitions#201.4) where the building code authorizes sentences to have an ordinarily accepted meaning such as the context implies.

[40] https://up.codes/viewer/mississippi/ibc-2024/chapter/17/special-inspections-and-tests#1707.1

[41] Multilateral approval is true for all ANAB accredited product evaluation agencies and all International Trade Agreements.

[42] 2018 IBC Section 1406.10.3

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