Technical Evaluation Report™ - Canada

A Duly Authenticated Report from an Approved Agency

Report No: 1905-04

Issue Date: February 5, 2020

Revision Date: October 20, 2025

Subject to Renewal: January 1, 2027

Vitrabond® - Canada

Trade Secret Report Holder:

Fairview Architectural

75 Peters Rd
Bloomfield, CT 06002-1332
Phone: 860-242-2711
Website: fairview-na.com

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**.

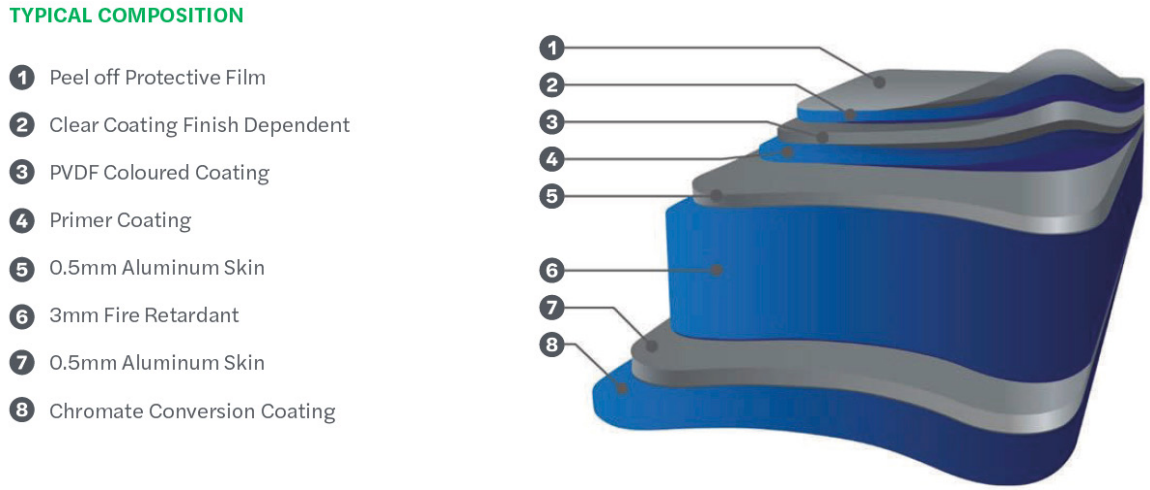


Figure 1. Typical Composition of Vitrabond MCM Panel

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

2.2 *Material Availability*

2.2.1 *Thickness:*

2.2.1.1 3 mm (0.118")

2.2.1.2 4 mm (0.157")

2.2.1.3 6 mm (0.236")

2.2.2 *Standard Width:*

2.2.2.1 100 cm (39.4")

2.2.2.2 125 cm (49.2")

2.2.2.3 157 cm (61.8")

2.2.3 *Length:*

2.2.3.1 310 cm (122")

2.2.3.2 371 cm (146")

2.2.3.3 498 cm (196")

2.2.4 Custom sizes are available in widths between 91 cm (35.8") and 203 cm (79.9"), in addition to lengths up to 6.50 m (255.9").

2.3 For available finishes, see fairview-na.com/finishes-2.

2.4 Vitrabond Metal Composite Material panels are installed using the Arrowhead® Panel System, which is outside the scope of this report. For more information, please see Report Number 2006-02.

2.5 As needed, review material properties for design in **Section 4** and the regulatory evaluation in **Section 5**.

3 Applicable Codes and Standards[2]

3.1 *Standards and Referenced Documents*

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

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

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

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

3.1.5 *CAN/ULC-S102: Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*

3.1.6 *CAN/ULC-S134: Fire Test of Exterior Wall Assemblies*

3.2 *Codes*

3.2.1 *NBC—10, 15, 20: National Building Code of Canada*

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

4 Tabulated Properties Generated from Nationally Recognized Standards

4.1 *General*

4.1.1 Vitrabond MCM panels are used as a cladding material in accordance with NBC Article 3.2.3.7 and NBC Section 9.27. The panels are installed over wood-framed, steel-framed, masonry, or concrete walls capable of supporting the imposed loads in accordance with NBC Division B Subsection 4.1.7.

4.1.2 Building occupancy classification should be determined in accordance with NBC Table 3.1.2.1.

4.1.3 Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience, and technical judgment.

4.2 *Structural Design*

4.2.1 Walls incorporating Vitrabond MCM panels shall be designed to resist wind loads in accordance with NBC Division B Part 4.

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

Table 1. Specified Wind Pressure Resistance[1,2]

Product	Specified Wind Pressure (kPa)
Vitrabond	2.5

Imperial: 1 m = 3.28 ft, 1 mm = 0.0394 in, 1 kPa = 20.88 psf
1. Tested in accordance with ASTM E330.
2. Panels tested were 1.2 m (3' $11^{1}/_{16}$") square.

4.3 *Weather Resistance*

4.3.1 Vitrabond may be used in exterior cladding assemblies in accordance with NBC Division B Section 5.5 and Section 5.6, where a protective material is properly installed behind the Vitrabond per NBC Sentence 5.6.1.2.(1) and sealed per NBC Article 5.6.2.1 and Note A-5.6.2.1.

4.3.2 The protective material shall be installed and sealed prior to the installation of Vitrabond MCM using the Arrowhead Panel System.

4.4 *Fire Resistance*

4.4.1 Vitrabond has not been evaluated for use as part of fire separation.

4.5 *Surface Burning Characteristics*

4.5.1 Vitrabond has the surface burning characteristics shown in **Table 2** and is approved for use as an interior finish in noncombustible construction.

Table 2. Surface Burning Characteristics[1]

Product	Flame Spread Rating	Smoke Developed Classification
Vitrabond	≤ 25	≤ 50

1. Tested in accordance with CAN/ULC-S102.

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

4.6 *Full Scale Tests*

4.6.1 Vitrabond was tested to assess performance of vertical and lateral fire propagation in accordance with CAN/ULC-S134 and NBC Division B Article 3.1.5.5 for use as a combustible cladding on exterior walls in noncombustible construction (see **Table 3**).

Table 3. Combustible Cladding on Exterior Walls Conditions of Acceptance[1]

Product	Flame Spread (m)	Heat Flux (kW/m²)
Vitrabond	≤ 5	≤ 35

Imperial: 1 m = 3.28 ft, 1kW/m² = 317 Btu/(hr·ft²)
1. Tested in accordance with CAN/ULC-S134.

4.7 The wall assemblies in **Table 4** are approved for use in buildings of noncombustible construction.

Table 4. Approved CAN/ULC S-134 Wall Assemblies[1]

Wall Component	Materials
Base Wall	CMU Concrete Walls
Exterior Sheathing	15.9 mm (5/8") thick exterior gypsum sheathing
Weather Barrier Applied to Exterior Sheathing or Base Wall Surface (under the wall insulation)	SOPREMA® SOPRASEAL® Stick VP
Wall Brackets	ACS Clips spaced horizontally 610 mm (24") o.c. with 18-gauge galvanized Z-girts
Wall Insulation	152 mm (6") nominal thick ROCKWOOL™ Cavityrock® Mineral Wool
Window Header and Floor Line Insulation	25.4 mm (1") nominal thick ROCKWOOL™ AFB®, 305 mm (12") wide x 1220 mm (48") length behind all horizontal base extrusions
Cavity Insulation	None
Weather-Resistive Barrier Applied over Exterior Insulation (or FRTW)	None
Exterior Cladding MCM with maximum 64 mm (2 1/2") air gap between panel and insulation	4 mm (0.16") Fairview Vitrabond FR Core MCM

Imperial: 1 mm = 0.0394 in
1. The assembly was tested in accordance with CAN/ULC S-134.

4.8 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.

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

5 Regulatory Evaluation and Accepted Engineering Practice

5.1 Vitrabond was evaluated to determine the following properties for use as a cladding material in accordance with NBC Division B for combustible and noncombustible construction:

5.1.1 Structural design in accordance with NBC Division B Part 4 and Article 9.4.1.1

5.1.2 Wind resistance in accordance with NBC Division B Subsection 4.1.7 and Article 4.1.7.3

5.1.3 Weather resistance in accordance with NBC Division B Section 5.5 and Section 5.6 and Article 9.27.1.1

5.1.4 Durability in accordance with NBC Division B Article 5.1.4.2

5.1.5 Use in combustible and noncombustible construction in accordance with NBC Division B Article 3.1.5.1, Article 3.1.5.5 and Section 9.10

5.1.6 Use as an interior finish in noncombustible construction in accordance with NBC Division B Article 3.1.5.12

5.1.7 Surface burning characteristics in accordance with NBC Division B Subsection 3.1.12 and Article 9.10.3.2

5.2 Use of Vitrabond as part of a fire separation is outside the scope of this report.

5.3 Any building code, regulation and/or accepted engineering evaluations (i.e., research reports, duly authenticated reports, etc.) that are conducted for this report 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[3] to practice product and regulatory compliance services within its scope of accreditation and engineering expertise,[4] respectively.

5.4 Testing and related engineering evaluations are defined as intellectual property and/or trade secrets.[5]

5.5 Engineering evaluations are conducted with DrJ's ANAB accredited ICS code scope of expertise that is also its areas of professional engineering competence.[6]

5.6 Any code specific issues not addressed in this section are outside the scope of this report.

6 Installation

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

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

6.3 Component parts that are observed to be defective in any way, including warped, bowed, dented, abraded, and broken members, must not be installed. Members or parts that have been damaged during installation or thereafter, before substantial completion of the project, shall be removed and replaced.

6.4 No cutting, trimming, welding, or brazing of components that 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.

6.5 *Tolerances*

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

6.5.2 Maximum deviation for vertical members is 3 mm (1/8") over 5.5 m (18') and 6 mm (1/4") over 12.2 m (40').

6.5.3 Maximum deviation for horizontal members is 3 mm (1/8") over 9.1 m (30').

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

6.5.4 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.

6.5.5 All joints between panels shall be set at widths as shown on the drawings with tolerance of +/- 1.5 mm ($^1/_{16}$"). No two adjacent or perpendicular joints shall have a difference in width of more than 3 mm ($^1/_8$"). In addition, the tolerance between adjacent panels across any joint shall not exceed 1.5 mm ($^1/_{16}$") locally.

6.6 *Repairs*

6.6.1 Repair panels with minor damage so that those repairs are not discernable at a distance of 3.1 m (122", or 10').

6.6.2 Remove and replace panels damaged beyond repair per Arrowhead Panel System's replacement instructions.

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

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

6.7 *Protection*

6.7.1 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.

6.7.2 Protect as necessary and leave the finished work undamaged upon completion.

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

7 Substantiating Data

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

7.1.1 Wind load resistance testing in accordance with ASTM E330

7.1.2 Weather resistance testing in accordance with AAMA 2605

7.1.3 Durability testing in accordance with ASTM D1781

7.1.4 Surface burning characteristics testing in accordance with CAN/ULC S102

7.1.5 Full-scale fire resistance testing in accordance with CAN/ULC S134

7.2 Information contained herein is the result of testing and/or data analysis by sources that conform to the evaluation requirements of NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment and/or professional engineering regulations. DrJ relies upon accurate data to perform its ISO/IEC 17065 evaluations.

7.3 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through provincial, territorial, or local adoption of codes and standards. The developers of these codes and standards are responsible for the reliability of published content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a product as being equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

7.4 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, listings, certified reports, duly authenticated reports from approved agencies, and research reports prepared by approved agencies and/or approved sources provided by the suppliers of products, materials, designs, assemblies and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this report, may be dependent upon published design properties by others.

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

7.5 *Testing and Engineering Analysis*

7.5.1 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.

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

8 Findings

8.1 As outlined in **Section 4**, Vitrabond has performance characteristics that were tested and/or meet applicable regulations. In addition, they are suitable for use pursuant to its specified purpose.

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

8.2.1 Use as a code-compliant combustible cladding material in exterior applications of combustible and noncombustible construction.

8.2.2 Use as a code-compliant finish material in interior applications of combustible and noncombustible construction.

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

8.4 This innovative product has been evaluated in the context of the codes listed in **Section 3** and is compliant with all known provincial, territorial, and local building codes. Where there are known variations in provincial, territorial, or local codes applicable to this report, they are listed here:

8.4.1 No known variations

8.5 NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment:

> **Certification**
>
> Certification is the confirmation by an independent organization that a product, service, or system meets a requirement…Certification bodies publish lists of certified products and companies…Several organizations, including the Canadian Construction Materials Centre (CCMC), offer such evaluation services.
>
> **Evaluation**
>
> An evaluation is a written opinion by an independent professional organization that a product will perform its intended function. An evaluation is very often done to determine the ability of an innovative product, for which no standards exist, to satisfy the intent of the Code requirement...

8.6 ISO/IEC 17065 accredited third-party certification bodies,[7] including but not limited to, Standards Council of Canada (SCC)[8] and ANSI National Accreditation Board (ANAB),[9] confirm that product certification bodies have the expertise to provide technical evaluation services within their scope of accreditation. All SCC and ANAB product certification bodies meet NBC requirements to offer evaluation services for alternative solutions.[10]

8.6.1 DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131[11] and employs professional engineers.[12]

8.7 Through ANAB accreditation and the IAF Multilateral Agreements, this report can be used to obtain product approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – "*certified once, accepted everywhere*." IAF specifically says, "*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope*."[13]

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

8.8 Product certification organizations, accredited by the SCC and ANAB, are defined as equivalent evaluation services:

8.8.1 Canada-United States-Mexico Agreement (CUSMA), Article 11.6 Conformity Assessment confirms mutual recognition by stating, "*...each Party shall accord to conformity assessment bodies located in the territory of another Party treatment no less favorable than that it accords to conformity assessment bodies located in its own territory or in the territory of the other Party*."

8.8.2 The SCC National Conformity Assessment Principles states, "*SCC is a member of a number of international organizations developing voluntary conformity assessment agreements that help ensure the international acceptance of Canadian conformity assessment results. Signatories to these agreements (like SCC) recognize each other's accreditations as being equivalent to their own*."[14]

8.9 Building official approval of a licensed professional engineer is performed by verifying the professional engineer and/or their business entity are listed by the engineering regulators of the relevant jurisdiction.

9 Conditions of Use

9.1 Material properties shall not fall outside the boundaries defined in **Section 4**.

9.2 As defined in **Section 4**, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.

9.3 As listed herein, Vitrabond shall be:

9.3.1 Separated from the interior of a building by an approved thermal barrier in accordance with NBC Division B Section 5.3.

9.3.2 Stored in enclosed spaces, above ground, 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.

9.4 *Storage and Protection*

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

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

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

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

9.4.5 Do not store panels in any space where ambient temperatures can exceed 49° C (120° F).

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

9.4.7 To prevent adhesive transfer to the finish, exterior aluminum/composite wall panels must not be stored for prolonged periods of time, be stored in direct sunlight, or be subjected to high heat prior to installation.

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

9.5.1 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.

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

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

9.5.4 At a minimum, this innovative product shall be installed per **Section 6** of this report.

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

9.5.5 This report shall be reviewed for code compliance by the AHJ in concert with the duties and powers granted to the building official by the provincial regulations governing such duties and powers.

9.5.6 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, inspections, and any other regulatory requirements that may apply.

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

9.7 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.

10 Identification

10.1 Vitrabond Metal Composite Material (MCM), as listed in **Section 1.1**, is identified by a label on the board or packaging material bearing the manufacturer name, product name, this report number, and other information to confirm code compliance.

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

11 Review Schedule

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

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

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC

Notes

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

[2] Unless otherwise noted, all references in this report are from the 2020 version of the NBC. This alternative solution is also approved for use with the 2010 and 2015 NBC and the standards referenced therein.

[3] 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.

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

[5] 18 U.S. Code § 1831 - Economic espionage - Whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a trade secret shall be fined not more than $5,000,000 or imprisoned not more than 15 years, or both. Any organization that commits any offense described shall be fined not more than the greater of $10,000,000 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. https://www.law.cornell.edu/uscode/text/18/part-I/chapter-90.

[6] ANAB is part of the USMCA and IAF MLA, where the purpose of these agreements are to ensure mutual recognition of accredited certification and validation/verification statements between agreement signatories, and subsequent acceptance of ANAB accredited certification and validation/verification statements by professional engineers based upon having one universal approval process for the timely approval of innovative materials, products, designs, services, assemblies and/or methods of construction.

[7] https://anabpd.ansi.org/Accreditation/product-certification/DirectoryListingAccredited?menuID=1&prgID=1

[8] https://iaf.nu/en/member-details/?member_id=91

[9] https://iaf.nu/en/member-details/?member_id=14

[10] NBC Division A Clause A-1.2.1.1.(1)(b) provides information on code compliance via alternative solutions and defines alternative solutions as *"...achiev[ing] at least the minimum level of performance required by Division B."* NBC Division C Section 2.3 includes additional guidance for documentation of alternative solutions.

[11] https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?&prgID=1&OrgId=2125&statusID=4

[12] Through ANAB accreditation and the IAF MLA, DrJ certification can be used to obtain material, product, design, or method of construction approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – "*certified once, accepted everywhere*".

[13] https://iaf.nu/en/about-iaf-mla/#:~:text=required%20to%20recognise

[14] The National Conformity Assessment Principles states, "*Product regulations and standards may vary from country to country. If these are set arbitrarily, they could be deemed as protectionist. The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement) is intended to ensure that technical regulations, standards and conformity assessment procedures of member countries do not create unnecessary obstacles to trade. Under the TBT Agreement, members of the WTO agree to use international standards, including conformity assessment standards and guides, as a basis for their technical requirements.*"

Information contained in this report was developed using report holder's confidential intellectual property (IP) and trade secrets (TS), which is protected by Defend Trade Secrets Act 2016, © DrJ Engineering, LLC