



CODE EVALUATION REPORT

CERus-1014

PUBLISHED: August 2022
REVISED: July 2024
EXPIRATION: July 2027

PRODUCT: Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile, Brava Flat Tile

REPORT HOLDER: Wildhawk Investments, LLC dba
Brava Roof Tile

CONTACT DETAILS: 915 E Tyler Street
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<https://www.bravarooftile.com>

CSI DIVISION: 07 00 00 - Thermal and Moisture Protection

CSI SECTION: 07 32 26 – Plastic Roof Tiles

APPLICABLE CODES: 2021, 2018, 2015 International Building Code (IBC)
2021, 2018, 2015 International Residential Code (IRC)
2023, 2020, 2017 Florida Building Code, Building
2023, 2020, 2017 Florida Building Code, Residential

EVALUATED: Weather Resistance
Wind Resistance
Roof Fire-Classification
Hail-Impact Resistance



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1.0 APPROVED FOR FOLLOWING:

APPROVED TYPES OF CONSTRUCTION:	Type I-V/ AB
APPROVED USE:	Roof coverings for use in Class A and Class C roof assemblies.
APPROVED INSTALLATIONS:	New and existing roofs where existing roof is removed, including fire-classified assemblies as detailed in Section 4 of this report, including areas prone to hail impact.

2.0 DESCRIPTION:

2.1 General:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are composite polymeric based roof coverings including accessories molded from proprietary formulations to create the look of slate, cedar, Spanish clay tile and concrete roof tiles for use on slopes $\geq 4:12$. Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile, and Flat Tile are a durable exterior roof covering available in various colors and two product formulations, Class A and Brava One. When installed in accordance with this report, Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products provide Class A or Class C roof-assemblies determined in accordance with Section 1505.1 of the 2021 / 2018 / 2015 IBC and Section R902.1 of the 2021 / 2018 / 2015 IRC with Class 4 resistance to hail and impact per UL 2218.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile roof covering products have a spontaneous ignition temperature $\geq 650^{\circ}\text{F}$ (343°C) when tested to ASTM D1929 and are classified as CC2 when tested to ASTM D635.

See Table 1 below for recognized models of Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Flat Tile products. See Section 2.2 of this report for applications of the described products. See Figures 2-5 in Section 9.1 of this report for drawings of the products listed in Table 1.

Table 1. BRAVA TILE COMPOSITE ROOF COVERING PRODUCT DIMENSIONS

PRODUCT	LENGTH		WIDTH		INSTALLED EXPOSURE		INSTALLED WEIGHT	
	inches	mm	inches	mm	inches	mm	lbs/ft ²	kg/m ²
Brava Slate	22	559	6 9 12	152 229 305	10	254	3.3	16.3
Brava Cedar Shake	22	559	5 7 12	127 178 305	10	254	2.9	14.0
Brava Spanish Barrel Tile	16.5	419	13	330	13.5	343	2.6	12.7
Brava Flat Tile	17.5	445	13.75	349	14	356	2.16	10.5

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products have various accessory elements including starter tiles, preformed hip/ridge caps, rake, bullnose, closure pieces, and solid back tiles.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile Class A and Brava One products comply for use as roof coverings, including use in *High Velocity Hurricane Zones* as defined by the 2023 / 2020 Florida Building Code, Building and 2023 / 2020 Florida Building Code, Residential. See Section 10 of this report for further details.



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2.2 PRODUCTS

2.2.1 BRAVA SLATE:

Brava Slate products are supplied with dimensions of 22 inches (559 mm) x 6 inches (152 mm), 9 inches (229 mm), or 12 inches (305 mm) with an installed exposure of 10 inches (254 mm). Brava Slate have weights of 1.4 lbs (0.6 kg) (6-inch width), 1.8 lbs (0.8 kg) (9-inch width) and 2.7 lbs (1.2 kg) (12-inch width) per tile. Brava Slate products include designated fastener locators across the width of panel. Brava Slate are molded to create a slate style finish. Brava Slate products are available in a variety of colors.

2.2.2 BRAVA CEDAR SHAKE:

Brava Cedar Shake products are supplied with dimensions of 22 inches (559 mm) x 5 inches (127 mm), 7 inches (179 mm), or 12 inches (305 mm) with an installed exposure of 10 inches (254 mm). Brava Cedar Shake products have weights of 1.1 lbs (0.5 kg) (5-inch width), 1.4 lbs (0.6 kg) (7-inch width), and 2.6 lbs (1.2 kg) (12-inch width) per tile. Brava Cedar Shake products include designated fastener locators across the width of the product. Brava Cedar Shake are molded to create a wood shake style finish. Brava Cedar Shake products are available in a variety of colors.

2.2.3 BRAVA SPANISH BARREL TILE:

Brava Spanish Barrel Tile products are supplied with dimensions of 16.5 inches length x 13 inches (330 mm) width with an installed exposure of 13.5 inches (343 mm) weight of 2.9 lbs (1.3 kg) per tile. Brava Spanish Barrel Tile products include designated fastener locators across the width of the product. Brava Spanish Barrel Tile are molded to create a clay tile style finish. Brava Spanish Barrel Tile products are available in a variety of colors.

2.2.4 BRAVA FLAT TILE:

Brava Flat Tile products are supplied with dimensions of 17.5 inches (445 mm) length x 13.75 inches (349 mm) width with an installed exposure of 14 inches (356 mm) weight of 2.7 lbs (1.2 kg) per tile. Brava Flat Tile products include designated fastener locators across the width of the product. Brava Flat Tile are molded to create a concrete tile style finish. Brava Flat Tile products are available in a variety of colors.

3.0 DESIGN:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are roof coverings for installation over code complying roof sheathings and underlayment. Use of Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products do not require professional design when installed in accordance with Sections 4.1 through 4.6 of this report. Use in applications outside those described in this report requires approval by the authority having jurisdiction.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile are intended for use as the finished roof covering on new and over existing construction where existing roof coverings have been removed in accordance with Section 4.2 and 4.3 of this report as applicable.



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Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile are approved for use in areas of maximum wind uplift for installations as outlined in Section 8.1 of this report. Use of Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products in applications of wind resistance greater than those described in Section 8.1 are outside the scope of this report and requires approval by the authority having jurisdiction.

When used in applications requiring roof fire classified assemblies, installation shall be in accordance with Section 4.4 and Table 3 of this report.

When installed in areas defined as hail-prone, installation shall be in accordance with Section 4.6 Table 4 of this report for the hail-impact classification levels described.

4.0 INSTALLATIONS:

4.1 General:

Installation of Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products must comply with the manufacturer's published installation instructions, this report, and the applicable code(s). Where differences are found, this report and the applicable building code shall be followed.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile product's require installation over solid wood panel or lumber sheathing of minimum ½ inch (13 mm) thickness complying with the applicable code. Attachment of the sheathing to underlying framing elements is to be in accordance with applicable code, and Table 2 found in Section 8.1 of this report and shall be sufficient to resist service wind loads. Roof slopes are to be $\geq 4:12$ (33%) slope.

Flashing, counterflashing, and valley flashing shall be sheet metal complying with the applicable code, where the sheet metal is G90 galvanized of minimum 0.0179 inches (0.455 mm) uncoated thickness. Valley flashing shall be a minimum 15 inches (381 mm) wide sheet metal of minimum 0.0179 inches (0.455 mm) uncoated thickness. Flashing including fasteners shall not be in contact with dissimilar metals to avoid corrosion. Flashing shall prevent moisture from entering the wall and roof in accordance with Section 1503.2 of the 2021 / 2018 / 2015 IBC and Section R903.2 of the 2021 / 2018 / 2015 IRC.

While not required, drip edge flashings and rake edge flashings are recommended installed with good roofing practice.



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4.1.1 Underlayment:

Underlayment must comply with and be installed in accordance with the applicable code and the manufacturer's published installation instructions. For fire-classified roof assemblies underlayment shall be installed in accordance with Section 4.4 and Table 3 of this report.

In areas where there is potential for or has been a history of ice forming along eaves causing the backup of water an ice barrier is required. The ice barrier may consist of:

- a) Two layers of ASTM D226 Type I, ASTM D4869 Type I or ASTM D6757 underlayment cemented together or
- b) A self-adhering polymer modified bitumen sheet complying to ASTM D1970.

Alternate ice barriers are outside the scope of this report but may be used where approved by the authority having jurisdiction.

The ice barrier shall be used as an alternative to the normal underlayment, extending from the lowest edges of all roof surfaces to a point at least 24 inches (610 mm) inside the exterior wall line of the structure. Following, the standard underlayment shall be lapped over the ice barrier and shall overlap a minimum of 4 inches (102 mm). Attachment and overlapping of the ice barrier to underlayment are outside the scope of this report and is to be in accordance with the applicable code and the ice barrier manufacturer's published installation instructions.

4.2 New Construction:

Starter tiles are installed with a 1-inch (25 mm) overhang at the gable end fascia board and ½ inch (13 mm) overhang at eaves fascia boards across the roof deck. Alternatively, starter and field tiles may be installed flush with the D-Style drip edge when the drip edge overhang is not less than ½-inch. Subsequent Brava Tile products are installed at the exposures described in Table 1 of this report, with tile joints staggered between alternating rows and a 3/8-inch (10 mm) keyway spacing between adjacent tiles (Brava Slate and Brava Cedar Shake only). Approved fasteners as outlined in Table 2 found in Section 8.2, are installed through designated fastener locators on the respective product as illustrated in Figures 2-5 in Section 8.2 of this report. Upon reaching the roof peak, the last row of tiles are trimmed flush with the peak to accommodate the ridge and hip caps. All penetrations and chimneys are to be flashed in accordance with the appropriate code to prevent water ingress with compatible sheet metal complying with Section 4.1 of this report.

Ridge caps, hip caps and valleys are to be installed in accordance with the manufacturer's installation instructions and the applicable codes.

4.3 Reroofing Applications:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are not intended for installation over existing roof systems. Existing roof coverings and underlayment are to be removed, and roof sheathing and penetrations as appropriate are to be inspected to ensure the roof structure is free of rot and damage prior to installation of the Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products. All past existing roof coverings shall be completely removed, following all installation conditions noted in Section 4.1 and 4.2 shall apply.



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4.4. Roof Fire Classified Assemblies:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products comply for use as Class A or Class C roof-assemblies per 2021 / 2018 / 2015 IBC Section 1505.1 and 2021 / 2018 / 2015 IRC Section R902.1 as outlined in Table 3 of this report. Installation including maximum roof slope is to be in accordance with Section 8.2 Table 3 of this report.

4.6 Hail-Impact Resistant Assemblies:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are Class IV impact resistance rated evaluated following UL 2218. Installation is to be in accordance with Section 8.3 Table 4 of this report.

5.0 LIMITATIONS

- Installation of Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are to comply with the applicable codes, this report and the manufacturer's installation instructions. Where differences are found, the applicable code and this report govern.
- Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are intended for use on roof slopes $\geq 4:12$ (33%).
- Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are approved for use in areas where maximum uplift pressures are as stated in Section 3.0 and Section 8.1 Table 2 of this report. Use in applications greater than those stated require approval by a registered design professional and approval by the authority having jurisdiction.
- Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products used in Class A or Class C roof-assemblies are to be installed in accordance with Sections 4.4 and 8.2 Table 3 of this report.
- Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products used in hail-prone areas are to be installed in accordance with Sections 4.5 and 8.3, Table 4 of this report.
- Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products are manufactured in Washington, Iowa with inspections by QAI Laboratories.

6.0 SUPPORTING INFORMATION:

The following data has been evaluated for Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile products:

- Data for use in roof fire classified assemblies determined in accordance with ASTM E108.
- Data outlining $< 10\%$ loss of tensile strength after aging to ASTM G155 or 4500 hours.
- Data outlining CC2 rate of burning determined in accordance with ASTM D635.
- Data outlining spontaneous ignition temperature $> 650^{\circ}\text{F}$ (343°C) determined in accordance with ASTM D1929.
- Data for Wind Uplift evaluated in accordance with TAS 125.
- Data outlining compliance for wind driven rain per TAS 100.
- Data for outlining Class IV impact resistance per UL 2218.
- Data outlining compliance with ICC-ES AC07.



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7.0 MARKINGS:

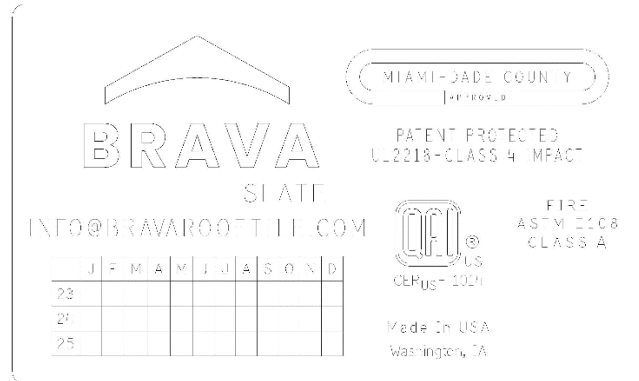


Figure 1a. Example of Brava Slate Approved Product Stamps

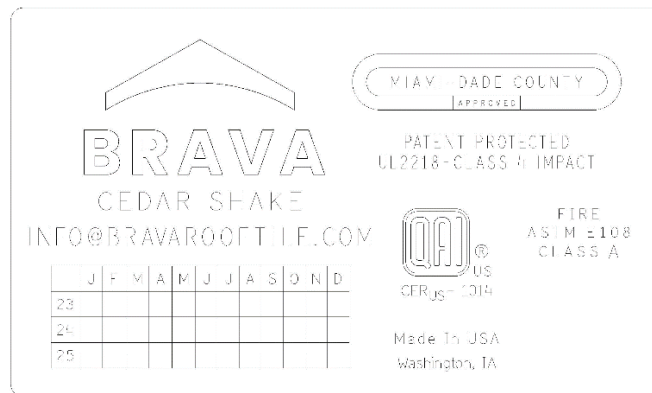


Figure 1b. Example of Brava Cedar Shake Approved Product Stamps

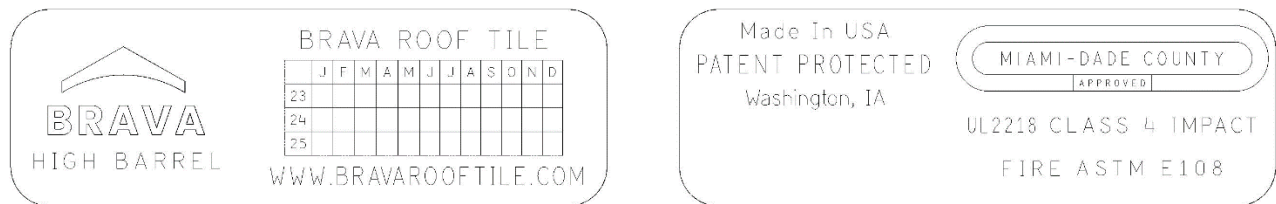


Figure 1c. Example of Brava Spanish Barrel Tile Approved Product Stamps

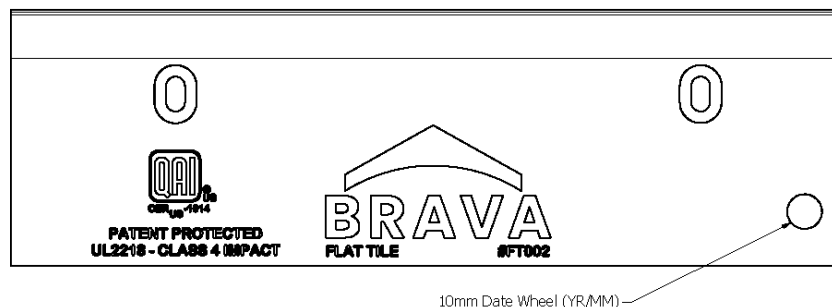


Figure 1d. Example of Brava Flat Tile Approved Product Stamps



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8.0 RATINGS:

8.1 Wind Uplift Resistance:

Table 2 – Maximum Allowable Wind Uplift Pressures on Roofing Panels

Product	Substrate ¹	Installation	Allowable Wind Uplift ² psf (kPa)
Brava Slate Class A or Brava One	Minimum 15/32-inch-thick (12 mm) plywood attached to deck with 8d ring shank nails of minimum 2-1/2- inch (64 mm) length	Brava Slate installation is to be a maximum of 10" (254 mm) exposure, with each tile anchored into the sheathing with two (2) minimum 0.120- inch (3 mm) x 2-inch (51 mm) length ring shank nails applied at fastener locators.	81 (3.9)
		Brava Slate installation is to be a maximum of 10" (254 mm) exposure, with each tile anchored into the sheathing with two (2) minimum #8 x 2- inch (51 mm) length coarse thread wood screws applied at fastener locators.	206 (9.9)
Brava Cedar Shake Class A or Brava One	Minimum 15/32-inch-thick (12 mm) plywood, anchored with galvanized 8d ring shank nails of minimum 2-1/2-inch (64 mm) length	Brava Cedar Shake installation is to be a maximum of 10" (254 mm) exposure, with each tile anchored into the sheathing with two (2) minimum #8 x 2-inch (51 mm) length flat head screws applied at fastener locators.	104 (5.0)
		Brava Cedar Shake installation is to be a maximum of 10" (254 mm) exposure, with each tile anchored into the sheathing with two (2) minimum #8 x 2-inch (51 mm) length coarse thread wood screws applied at fastener locators.	196 (9.4)
Brava Spanish Barrel Tile Class A or Brava One	Minimum 15/32-inch-thick (12 mm) plywood, anchored with galvanized 8d ring shank nails of minimum 2-1/2-inch (64 mm) length	Brava Spanish Barrel Tile installation is to be a maximum of 13.5" (343 mm) exposure, with each tile anchored into the sheathing with two (2) minimum 0.120-inch (3 mm) x 2-inch (51 mm) length ring shank nails applied at fastener locators.	91 (4.4)
		Brava Spanish Barrel Tile installation is to be a maximum of 13.5" (343 mm) exposure, with each tile anchored into the sheathing with two (2) minimum #8 x 2-inch (51 mm) length coarse thread wood screws applied at fastener locators.	202 (9.7)
Brava Flat Tile Brava One	Minimum 15/32-inch-thick (12 mm) plywood, anchored with galvanized 8d ring shank nails of minimum 2-1/2-inch (64 mm) length	Brava Flat Tile installation is to be a maximum of 14" (356 mm) exposure, with each tile anchored into the sheathing with two (2) minimum 0.120-inch (3 mm) x 2-inch (51 mm) length ring shank nails applied at fastener locators.	109 (5.3)

Note 1: Attachment of sheathing to framing is outlined per tested assembly as the minimum required for allowable loads noted.

Anchorage of the framing elements to structure is to be capable of resisting noted uplift pressures and is outside the scope of this report.

Note 2: Maximum uplift pressure was determined in accordance with method TAS 125 with a factor of safety 2.0 applied to ultimate pressure achieved.



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8.2 Roof Fire Classified Assemblies:

Table 3 – Roof Fire Classified Assemblies

System	Substrate	Approved Underlayment	Approved Roof Coverings	Installation Guidelines	Maximum Slope	Class
New Construction Or Reroof when existing roof is removed ¹	Minimum 15/32-inch-thick plywood	1 layer of ASTM D226 Type II asphalt felt installed over the sheathing with offset joints minimum 6-inches (152 mm).	Brava Slate Class A Brava Cedar Shake Class A Brava Spanish Barrel Tile Class A	See Sections 2.2, 4.1, 4.2, 4.3	Unlimited	A
	Minimum 15/32" (12mm) Exposure 1 Plywood	1 layer of Eco Chief Solarhide underlayment with joints overlapped minimum 4 inches (102 mm).	Brava Slate Brava One Brava Cedar Shake Brava One		Unlimited	A
	Minimum 15/32" (12mm) Exposure 1 Plywood	1 layer of 4LMPX Low-E Therma Sheet underlayment with joints overlapped minimum 4 inches (102 mm).	Brava Slate Brava One Brava Cedar Shake Brava One		Unlimited	A
	Minimum 15/32-inch-thick plywood	1 layer of ASTM D226 Type II asphalt felt installed over the sheathing with offset joints minimum 6-inches (152 mm).	Brava Slate Brava One Brava Cedar Shake Brava One Brava Spanish Barrel Tile Brava One		Unlimited	C
	Minimum 15/32" (12mm) Exposure 1 Plywood	1 layer of Intertape Polymer Group® Palisade® synthetic underlayment, overlapped minimum 4 inches (102 mm).	Brava Flat Tile Brava One		Unlimited	C

Note 1: Installation of the Brava Slate, Brava Cedar Shake Brava Spanish Barrel Tile and Brava Flat Tile products requires complete removal of existing roof coverings and underlayment and inspection prior to installation in accordance with Section 4.3 of this report.

8.3 Hail Impact Resistant Assemblies:

Table 3 – Impact Rated Assemblies

Substrate	Approved Underlayment	Approved Roof Coverings	Installation Guidelines	Hail-Impact Classification ¹
Minimum 15/32-inch-thick plywood	Unrestricted	Brava Slate Class A Brava Cedar Shake Class A Brava Spanish Barrel Tile Class A Brava Slate Brava One Brava Cedar Shake Brava One Brava Spanish Barrel Tile Brava One Brava Flat Tile Brava One	See Sections 2.2, 4.1, 4.2 and 4.3	Class IV

Note 1: Hail-impact classification determined in accordance with UL 2218.

9.0 PRODUCT DETAILS:

9.1 Profile Drawings

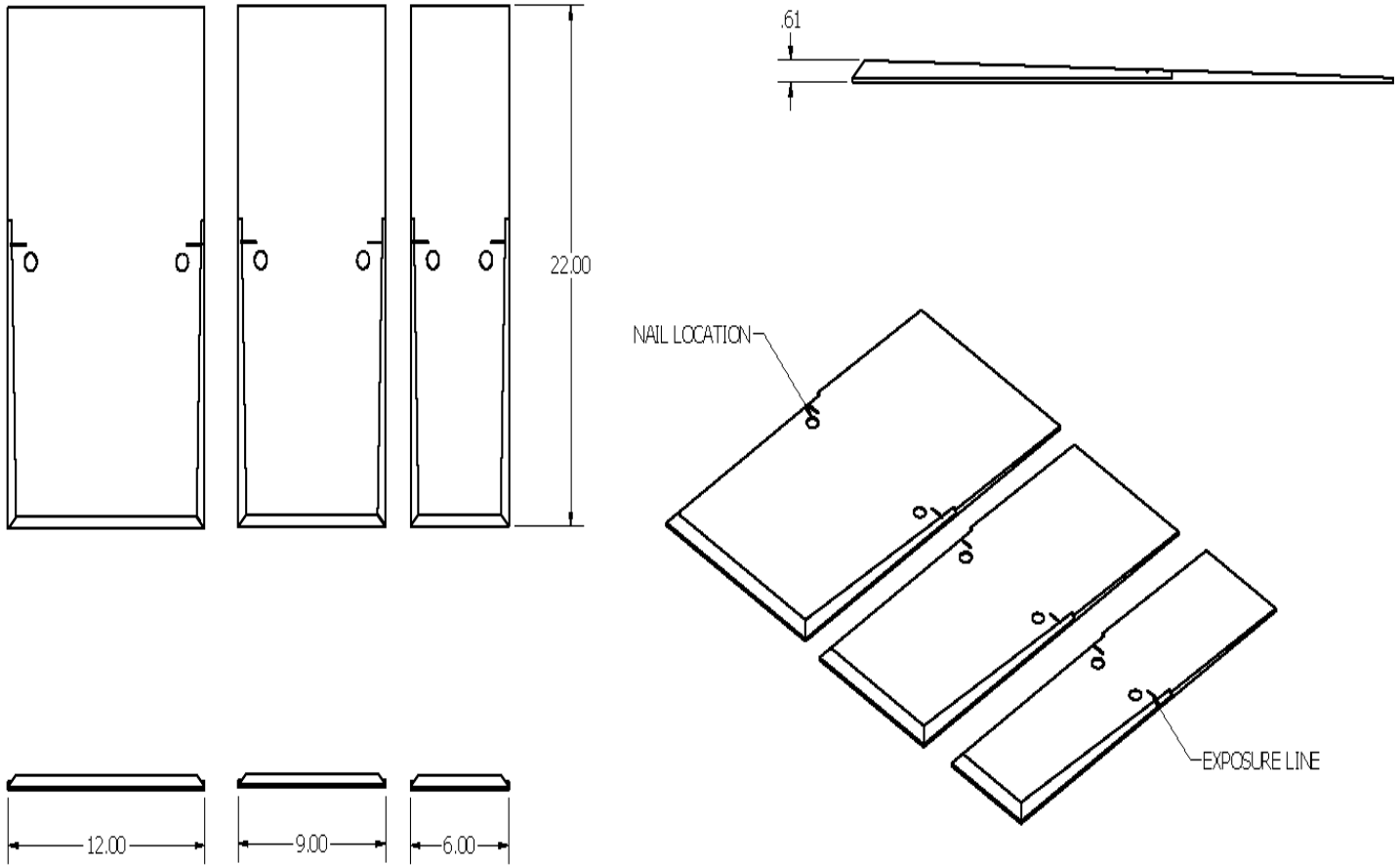


Figure 2. Brava Slate Product Drawings



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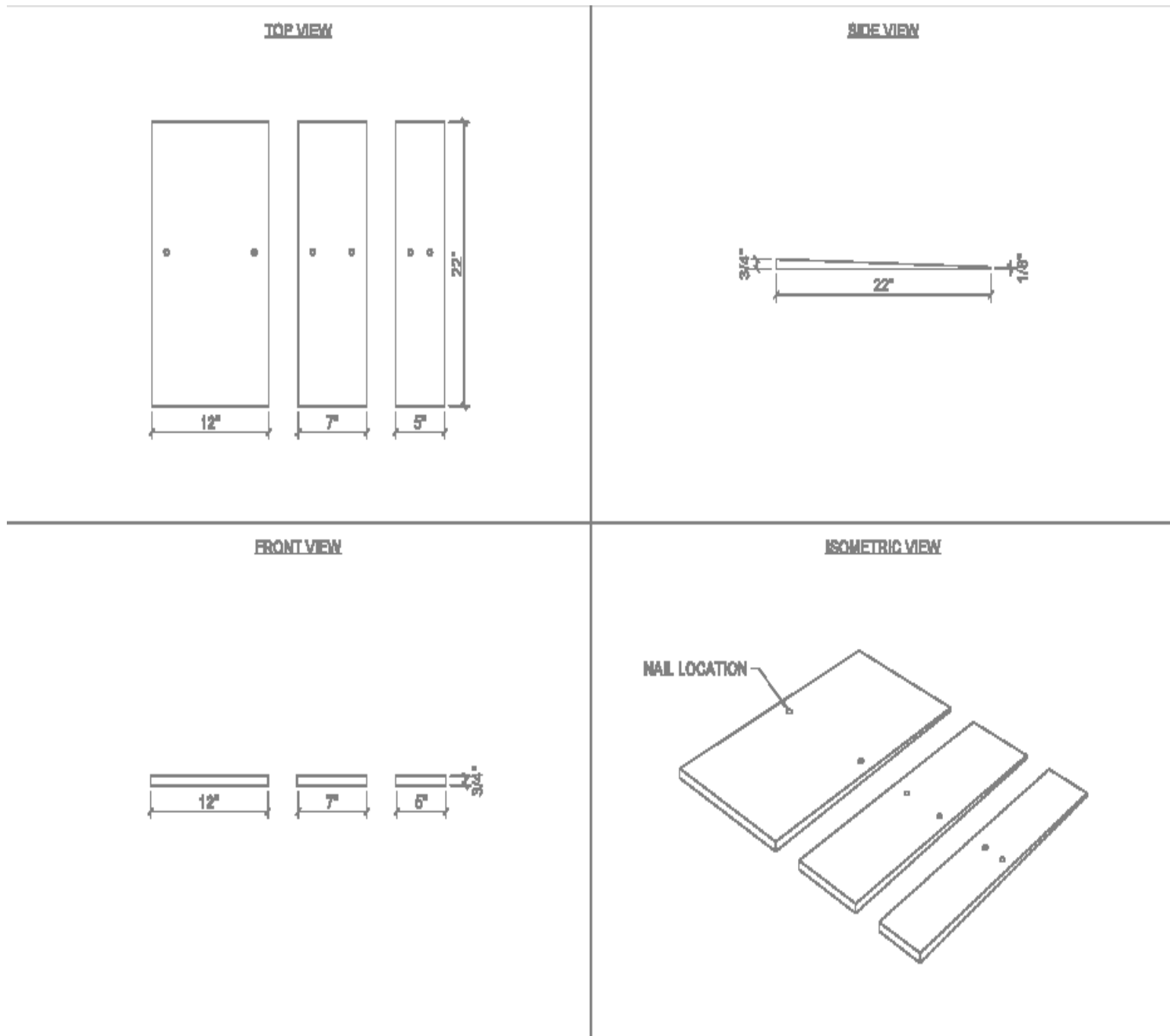


Figure 3. Brava Cedar Shake Product Drawings



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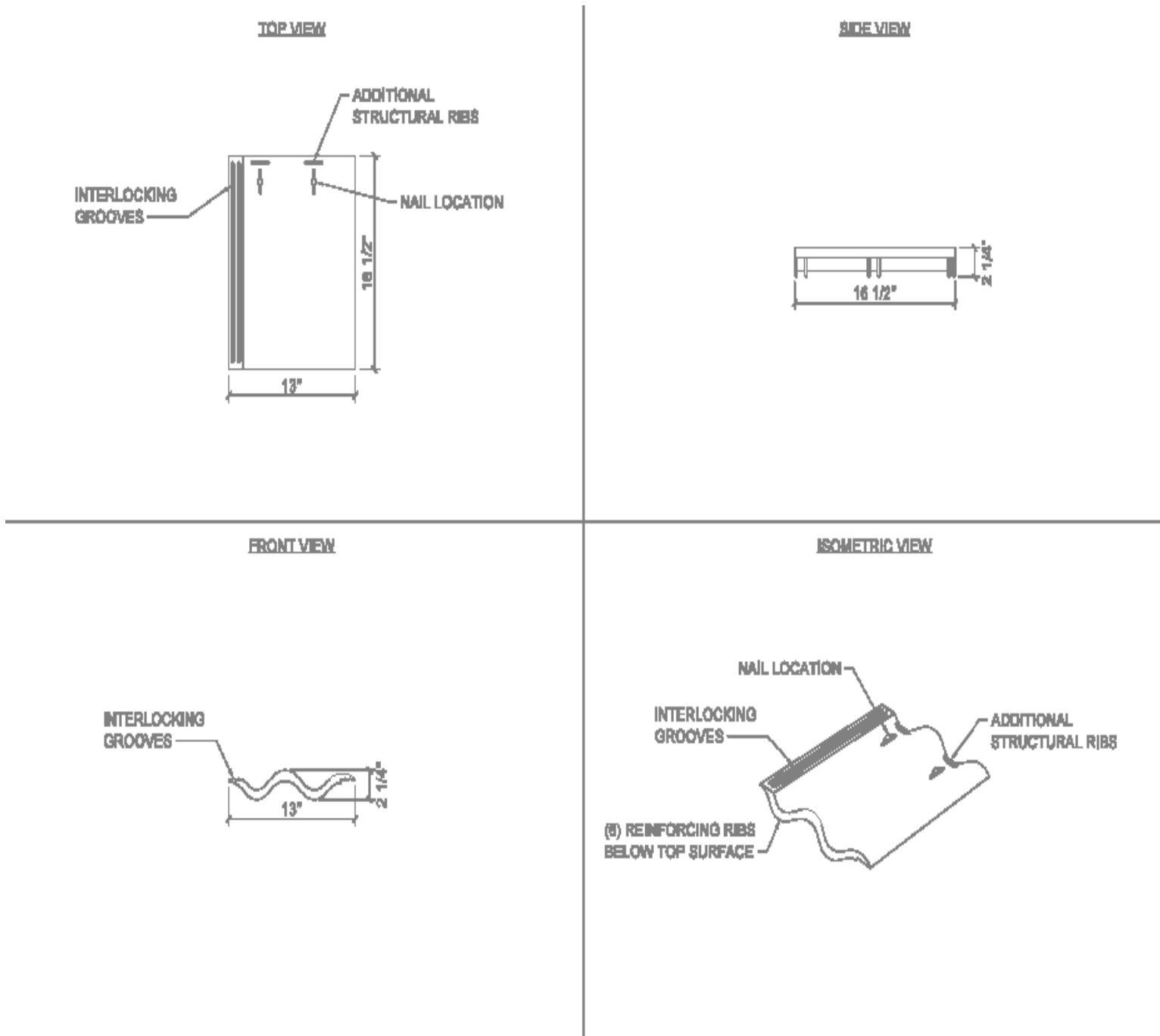


Figure 4. Brava Spanish Barrel Tile Product Drawings

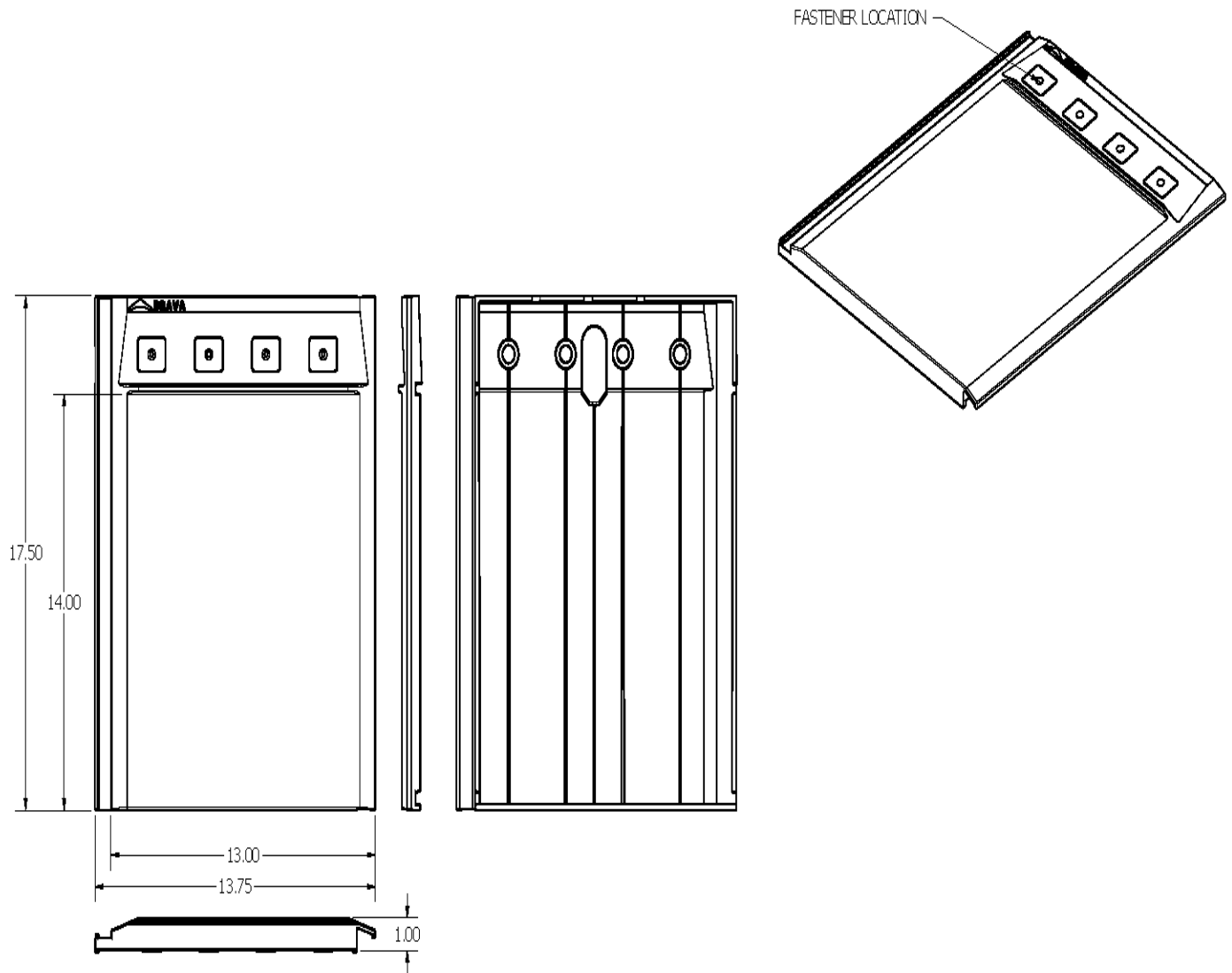


Figure 5. Brava Flat Tile Product Drawings



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10.0 SUPPLEMENTAL CODES

10.1 2020 Florida Building Code:

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile Class A and Class C products as detailed in Sections 2.0 through 9.0 of QAI CERus-1014 comply with the 2023, 2020, 2017 Florida Building Code, Building and 2023, 2020, 2017 Florida Building Code, Residential when installed in accordance with the applicable building codes and this report.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile Class A and Class C products comply with Section 1516 *High Velocity Hurricane Zones Fire Classification* of the 2023, 2020, 2017 Florida Building Code, Building when installed in accordance with Section 4.4 and Table 3 of this report.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile Class A and Class C products comply with Section 1523 *High Velocity Hurricane Zones – Testing* of the 2023, 2020, 2017 Florida Building Code, Building when installed in accordance with Section 4 of this report for the maximum design wind pressures outlined in Table 2.

Brava Slate, Brava Cedar Shake, Brava Spanish Barrel Tile and Brava Flat Tile Class A and Class C polymer based composite products comply with Section 2615 *High Velocity Hurricane Zones – Plastics* of the 2023, 2020, 2017 Florida Building Code.



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11.0 ELIGIBILITY OF REPORT

QAI's Code Evaluation Report complies with the 2021 / 2018 / 2015 IBC Section 104.11 *Alternative materials, design and methods of construction and equipment* subsection 104.11.1 *Research Reports*. QAI's Code Evaluation Report complies with the 2024 IBC Section 104.2.3.6.1 *Evaluation Reports*. Supporting data has been evaluated by QAI for compliance of the noted materials and assemblies to the applicable code by QAI, and *approved* source as detailed below.

Per section 1703 of the IBC, QAI is an independent third-party testing, inspection and certification agency accredited by the International Accreditation Service, Inc. (IAS) for this specific scope (see IAS PCA-118). QAI can confirm that based on its IAS accreditation it meets IBC Section 1703.1 on Independence, Section 1703.1.2 on Equipment and Section 1703.1 on Personnel.

This Evaluation report has been designed to meet the performance requirements of IBC Section 1703.4 and contains the required information to show the product, material or assembly meets the applicable code requirements.

The product is labeled per section IBC 1703 and subject to follow-up inspection per IBC 1703.6 using QAI IAS accredited ISO/IEC 17020 inspection program (see IAS AA-723).

For more information regarding QAI Laboratories, please visit www.qai.org.



The above is an example of the QAI registered Listing mark. The Listing mark may only be used by the Report Holder per the QAI service agreement on products defined in this report. The 'us' indicator in the 4 o'clock position indicates the product complies with the properties evaluated with limitations outlined in this report for use in the US market. A 'c' indicator in the 8 o'clock position indicates the product has been evaluated for use in the Canadian market.

11.0 REFERENCED STANDARDS

ASTM E108 *Standard Test Methods for Fire Tests of Roof Coverings*.

ASTM G155 *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*.

ASTM D635 *Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position*.

ASTM D1929 *Test Method for Determining Ignition Temperature of Plastics*.

TAS 125 *Standard Requirements for Metal Roofing Systems*.

TAS 100 *Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems*.

UL 2218 *Standard for Safety Impact Resistance of prepared Roof Covering Materials*.

ICC-ES AC07 *Acceptance Criteria for Special Roofing Systems*.

