EVALUATION REPORT Number: 337

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ENVIRONMENTAL MATERIALS, LLC
5020 Weston Parkway
Cary, NC 27513
800-891-5402
www.plygem.com

PLY GEM STONE (AND CANYON STONE) MANUFACTURED STONE AND BRICK VENEER

CSI Sections:

04 71 00 Manufactured Brick Masonry
04 73 00 Manufactured Stone Masonry

1.0 RECOGNITION

Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer has been evaluated for use as a wall covering in compliance with Section 1404.2 of the 2021 and 2018 IBC [Section 1405.2 of the 2015 IBC] and Section R703.7 of the IRC over exterior or interior walls of wood studs, cold-formed steel framing, or concrete masonry. The adhered manufactured stone masonry veneer (AMSMV) has been evaluated for composition, strength, durability, thermal resistance, and installation. The Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer evaluated in this report is a satisfactory alternative to the following codes and regulations:

- 2021, 2018, and 2015 International Building Code® (IBC)
- 2021, 2018, and 2015 International Residential Code® (IRC)
- 2022 California Building Code – attached Supplement
- 2022 California Residential Code – attached Supplement
- 2020 Florida Building Code—Building - attached Supplement
- 2020 Florida Building Code—Residential - attached Supplement

2.0 LIMITATIONS

Use of Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer recognized in this report is subject to the following limitations:

2.1 "Expansion or control joints used to limit the effect of differential movement of AMSMV supports shall be specified by the architect, designer, or veneer manufacturer, in that order. Consideration shall be given to movement caused by temperature changes, shrinkage, creep, and deflection." [AC51]

2.2 "For installation in accordance with the IBC, supporting wall construction shall be designed to support the weight of the veneer system. Horizontal framing members, such as lintels and headers, which support AMSMV, shall be designed to limit deflection to $^{1}/_{600}$ of the span." [AC51]

2.3 "In jurisdictions adopting the IRC, where the seismic provisions of Section R301.2.2 apply, the average weight of the wall supporting AMSMV, including the weight of the veneer system shall be determined. When this weight exceeds the applicable limits of IRC Section R301.2.2.2, an engineered design of the wall construction shall be performed in accordance with IRC Section R301.1.3." [AC51]

2.4 When installed on exterior stud walls, the veneer units shall be installed a minimum of 4 inches (102 mm) above the earth, or a minimum of 2 inches (51 mm) above paved areas, or a minimum of ½ inch (12 mm) above exterior walking surfaces which are supported by the same foundation that supports the exterior wall in accordance with 2021 and 2018 IBC Section 1404, 2015 IBC Section 1405.10.1.3 or 2021, 2018, and 2015 IRC Section R703.12.1, as applicable.

2.5 When applied to a concrete wall or concrete masonry unit wall, the allowable wind load for the adhered veneer is limited to the allowable wind load for the wall. Allowable wind load for the adhered veneer applied to wood stud or cold-formed steel framing walls is outside the scope of this report.

2.6 Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer is manufactured in Selinsgrove, PA**.**

3.0 PRODUCT USE

3.1 The backing for Ply Gem Stone's and Canyon Stone's "adhered veneer shall be of concrete, masonry, steel framing or wood framing." [Section 1403.4 of the 2021 and 2018 IBC (Section 1404.4 of the 2015 IBC)]. The veneer units shall be adhered to cement plaster, concrete, or concrete masonry backings. Lath, lath accessories, and fasteners shall be corrosion-resistant, as applicable.

3.2 Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer shall be installed in accordance with Section 1404.10.1 of the 2021 and 2018 IBC and Section 1405.10.1 of the 2015 IBC, Section R703.12 of the IRC, as applicable, ASTM C1780, and the report holder's published installation instructions. Where there is a conflict between the documents, the more restrictive shall govern. The manufacturer's installation instructions shall be available at the job site during veneer application.

3.3 Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer units may be applied over the assemblies described in Table 1 of this report when installed in accordance with the referenced code sections and this report.

3.4 Interior Use: The veneer units have a Class A rating in accordance with Section 803.1.2 of the 2021 and 2018 IBC and Section 803.1.1 of the 2015 IBC. The veneer has a flame spread index and smoke-developed index that conforms to Section R302.9 of the IRC when tested in accordance with ASTM E84.

4.0 PRODUCT DESCRIPTION

4.1 Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer units are manufactured concrete products formed to resemble natural stone or brick in both texture and color.

The individual masonry veneer units shall be a minimum of ⅝ inch (15.9 mm) thick and a maximum of $2^5/_8$ inches (67 mm) thick with an average compressive strength of 2100 psi with no individual specimen having a compressive strength less than 1,800 psi (12,410 kPa). The installed products' "average saturated weight shall not exceed 15 pounds per square foot (73 kg/m^2)" [AC51]. The recognized veneer styles are listed in Table 2 of this report.

TABLE 2 – Recognized Veneer Style Names
Canyon Ledge, Cascade Ledge, Colonial Brick, Cut Cobblestone, Fieldstone, Manorstone, Shadow Ledgestone, True Stack

4.2 The veneer, at an average thickness of 0.952 inches (24.2 mm), has a thermal resistance (R-value) of 0.20 hr.ft^2°F/Btu per inch (0.0016 Km^2/W per mm) when tested in accordance with ASTM C518.

5.0 IDENTIFICATION

Boxes of Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer are identified with the manufacturer's name, the pattern/style name, manufacturing date, manufacturing location, and evaluation report number (ER-337). Either Uniform Evaluation Service Mark of Conformity may also be used as shown:

IAPMO ES ® or UES ®

IAPMO UES ER-337

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with ASTM C1670, and the Acceptance Criteria for Precast Stone Veneer (ICC-ES AC51), approved June 2018, editorially revised January 2021.

6.2 Manufacturer's descriptive literature and installation instructions.

6.3 Reports of Thermal Transmission Properties testing in accordance with ASTM C518.

6.4 Reports of Surface Burning Characteristics testing in accordance with ASTM E84.

6.5 Test results are from laboratories in compliance with ISO/IEC 17025.

7.0 REFERENCE CODE SECTIONS

The code references apply to the recognition provided in this report but may not include every code section related to the use of this product. Sections numbers that differ from the 2021 Code are shown in parenthesis.

7.1 International Building Code®:

- Section 104.11 - Alternative materials, design, and methods of construction and equipment.
- Section 202 – DEFINITIONS. (Adhered Masonry Veneer)
- Section 803.1.2 – Interior wall and ceiling finish materials tested in accordance with ASTM E84 or UL 723.
  (2015 IBC Section 803.1.1 – Interior wall and ceiling finish materials.)
- Section 1403.4 – Masonry.
  (2015 Section 1404.4 – Masonry.)
- Section 1404.10 – Adhered masonry veneer.
  (2015 IBC Section 1405.10)

7.2 International Residential Code®:

- Section R104.11 – Alternative materials, design, and methods of construction and equipment.
- Section R202 – DEFINITIONS. (Adhered Stone or Masonry Veneer)
- Section R302.9 – Flame spread index and smoke-developed index for wall and ceiling finishes.
- Section R703.3 – Wall covering nominal thickness and attachments.
- Section R703.12 – Adhered masonry veneer installation.
- Section N1101.6 – Defined terms. (R-Value)
- Section N1101.10.4 – Insulation product rating.

8.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer to assess its conformance to the codes and standards shown in Section 1.0 of this report and serves as documentation of the product certification. The stone veneer is manufactured at the location noted in Section 2.6 of this report under a quality control program with periodic inspection under the surveillance of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email at info@uniform-es.org

TABLE 1 – Application of Masonry Veneer Units

Item	Code Section	Notes
1. Cement Plaster	2021 and 2018 IBC Section 1404.10 (2015 IBC Section 1405.10.1); IRC Section R703.7.2	½-inch to ¾-inch scratch coat of Type S mortar complying with ASTM C270, scored horizontally in accordance with IBC Section 2512.6.
2. Water Resistive Barrier	2021 and 2018 IBC Section 1404.10.1.1 (2015 IBC Section 1405.10.1.1); IRC Section R703.7.3	
3. Flashing	2021 and 2018 IBC Section 14.04.4, (2015 IBC Section 1405.4) and Section 1405.10.1.2; IRC Section R703.4 and IRC Section R703.12.2	
4. Weep Screed	2021 and 2018 IBC Section 14.04.10.1.2 (2015 IBC Section 1405.10.1.2); IRC Section R703.12.1; and TMS 402-16 and TMS 402-13 Section 12.1.6.2	
5. Lath and Fasteners	IBC Section 2510.3 (ASTM C926 and ASTM C1063); 2018 and 2015 IRC Section R703.7.1	For proprietary fasteners, shear and pull-out capacities shall be justified to the satisfaction of the building official.
6. Over Wood-Based or Gypsum Sheathing Supported by Steel or Wood Framing	As described in **Items 1, 2, 3, 4,** and **5** and **Notes**	**Items 1, 2, 3, 4** and **5** with framing spaced at 16 inches on-center maximum, lath shall be 2.5 lb/yd^2 self-furring diamond metal lath complying with ASTM C847 or 1.4 lb/yd^2 galvanized woven wire mesh complying with ASTM C1032, fastened in accordance with the requirements of ASTM C1063, Section 7.10.2, and Section R703.7.1 of the IRC with fasteners spaced a maximum of 6 inches on-center.
7. Open Studs	See **Items 1, 2, 3, 4, 5,** and **6** and **Notes**	**Items 1, 2, 3, 4, 5,** and **6** except with 3.4 lb/yd^2, ⅜" rib lath complying with ASTM C847.
8. Over concrete or concrete masonry	Surfaces shall be prepared in accordance with IBC Section 2510.7 and Section 5.2 of ASTM C926.	**Items 1, 3, 4, 5,** and **6** except with metal lath complying with ASTM C847; or 1.4 lb/yd^2 woven wire plaster base complying with ASTM C1032. The veneer may also be adhered to backings of clean concrete masonry without lath, in accordance with Section 2510.7 of the IBC and Section 5.2 of the ASTM C926.
9. Application of Veneer Units	IBC Section 2103.2.4	Nominal ½-inch thick setting bed of Type S mortar applied to the back of the veneer units in accordance with Environmental Stonework's installation instructions.
10. For the Florida Building Code, including High-Velocity Hurricane Zones (HVHZ), the attached Florida Building Code supplement shall apply.		

SI conversions: 1 inch = 25.4 mm, 1 lb/yd^2 = 0.54 kg/m^2

CALIFORNIA SUPPLEMENT

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04 71 00 Manufactured Brick Masonry
04 73 00 Manufactured Stone Masonry

1.0 RECOGNITION

Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer, as evaluated and represented in IAPMO UES Evaluation Report ER-337 and with changes as noted in this supplement, is a satisfactory alternative for use in buildings built under the following codes (and regulations):

- 2022 California Building Code (CBC)
- 2022 California Residential Code (CRC)

2.0 LIMITATIONS

Use of the Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer recognized in this report is subject to the following limitations:

2.1 Use in construction of new building located in a Fire Hazard Severity Zone within State Responsibility Areas or a Wildland-Urban Interface Fire Area is outside the scope of this report.

2.2 This supplement expires concurrently with ER-337.

FLORIDA SUPPLEMENT

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1.0 RECOGNITION

Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer, evaluated in IAPMO UES ER-337, is a satisfactory alternative exterior wall covering in accordance with the following codes and regulations:

- 2020 Florida Building Code—Building
- 2020 Florida Building Code—Residential

The wall systems described in Section 2.3 of this supplement, clad with Ply Gem Stone and Canyon Stone Manufactured Stone Veneer, comply with the TAS 201, TAS 202, and TAS 203 testing requirements for wind pressure loading resistance (38 psf design load) and impact resistance described in Sections 1625 and 1626 of the Florida Building Code—Building, for High-Velocity Hurricane Zones.

2.0 LIMITATIONS

Use of Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer recognized in this report supplement is subject to the following limitations:

2.1 Design requirements shall be determined in accordance with the applicable code.

2.2 Installation of Ply Gem Stone and Canyon Stone Manufactured Stone and Brick Veneer shall be in accordance with Florida Building Code—Building Sections 1403.8, 2114.2, and 2603.8 or Florida Building Code—Residential Section R318.4, as applicable.

2.3 For use in High-Velocity Hurricane Zones (HVHZ), the Manufactured Stone Veneer shall be installed over minimum $^{15}/_{32}$-inch-thick (11.9 mm) 4-ply Exterior Underlayment Plywood sheathing complying with DOC PS 1 or minimum ½-inch-thick (12.7 mm) 24/16 Rated Structural 1 OSB sheathing complying with DOC PS-2, over minimum nominally 2x4 SPF No. 2 wood studs spaced 16 inches (406 mm) on center and constructed in accordance with the provisions of Florida Building Code—Building Chapter 23 for HVHZ.

Sheathing shall be fastened to studs with #10-10 x 2½-inch-long (64 mm) coarse thread bugle head drywall screws spaced 6 inches (152 mm) apart at sheathing panel perimeters and 12 inches (305 mm) on center in the sheathing panels field. A 30 lb felt water resistive barrier shall be installed on top of the wood sheathing [2 sheets with a 2-inch (50 mm) overlap] fastened with 0.115-inch (3 mm) diameter x $1^1/_4$-inch (32 mm) long, roofing nails spaced 12-inches (305 mm) on center along the perimeter and 48-inches (1220 mm) on center in the field. Lath shall be fastened to the sheathing with 0.120-inch by 1-¼-inch-long (31.7 mm) roofing nails spaced 6 inches (152 mm) apart at sheathing panel perimeters and 12 inches (305 mm) on center in the sheathing panels field.

Alternatively, the Manufactured Stone Veneer may be applied over CMU walls constructed in accordance with the provisions of Florida Building Code—Building Chapter 21 for HVHZ, and the manufacturer's published installation instructions. The wood or masonry walls, as applicable, shall be designed in accordance with the provisions of the Florida Building code to withstand the design loads applicable to the building location.

2.4 Wall bracing shall be provided in accordance with Florida Building Code—Building and Florida Building Code—Residential when required.

2.5 Verification that the report holder's quality assurance program is audited by a quality assurance entity, approved by the Florida Building Commission (or the building official when the report holder does not possess an approval by the Commission), to provide oversight and determine that the products are being manufactured as described in this evaluation report to establish continual product performance shall be provided for products falling under Section (5)(d) of Florida Rule 61G20-3.008.

2.6 This supplement expires concurrently with ER-337.

3.0 SUBSTANTIATING DATA

The following data was submitted in addition to the data listed in Section 6.0 of IAPMO UES ER-337:

3.1 Report of Large Missile Impact Tests in accordance with TAS 201.

3.2 Report of Static Wind Pressure Loading tests in accordance with TAS 202.

3.3 Report of Cyclic Wind Pressure Loading tests in accordance with TAS 203.