

# SPECIFICATIONS



## INFORMATION AT YOUR FINGERTIPS

Environmental Materials LLC specification guideline should be used to assist design professionals in the preparation of projects. Edit and delete items that may not be applicable. Verify all referenced section numbers/titles.

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# SPECIFICATION GUIDELINE

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## SECTION 04 73 00 - Simulated masonry

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### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Mortared manufactured stone veneer and trim.
- B. Mortared manufactured brick veneer and trim.
- C. Mortarless manufactured stone veneer and trim. (ClipStone)

#### 1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 04 20 00 - Unit Masonry.
- C. Section 05 40 00 - Cold-Formed Metal Framing.
- D. Section 06 10 00 - Rough Carpentry.
- E. Section 06 16 36 - Wood Panel Product Sheathing.
- F. Section 07 10 00 - Dampproofing and Waterproofing.
- G. Section 07 60 00 - Flashing and Sheet Metal.
- H. Section 07 90 00 - Joint Protection.
- I. Section 10 30 00 - Fireplaces and Stoves.

#### 1.3 REFERENCES

- A. American National Standards Institute (ANSI): ANSI A118.4 Specification for Latex-Portland Cement Mortar.
- B. ASTM International (ASTM):
  - 1. ASTM A641 - Standard Specification for Zinc-Coated. (Galvanized) Carbon Steel Wire.
  - 2. ASTM C 39 - Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 3. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
  - 4. ASTM C 140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
  - 5. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar.
  - 6. ASTM C 150 - Standard Specification for Portland Cement.
  - 7. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes.
  - 8. ASTM C 270 - Standard Specification for Mortar for Unit Masonry.
  - 9. ASTM C 348 - Standard test Method for Flexural Strength of Hydraulic-Cement Mortars.
  - 10. ASTM C 482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
  - 11. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  - 12. ASTM C 778 - Standard Specification for Standard Sand.
  - 13. ASTM C 847 - Standard Specification for Metal Lath.
  - 14. ASTM C 932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
  - 15. ASTM C 979 - Standard Specification for Pigments for Integally Colored Concrete.



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### 1.3 REFERENCES *(continued)*

16. ASTM C 1032- Standard Specification for Woven Wire Plaster Base.
  17. ASTM C 1059- Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
  18. ASTM C 1262- Standard Test Method for Evaluating the Freeze Thaw Durability of Manufactured Concrete Masonry Units and Related Concrete Units.
  19. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
  20. ASTM F 1667 - Standard Specification for Driven Fasteners, Nails, Spikes and Staples.
  21. ASTM D1761 - Mechanical Fasteners
  22. ASTM D 3498- Construction Adhesive
- C. Building Code Compliance: The International Association of Plumbing and Mechanical Officials (IAPMO).
- D. International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM):
1. RILEM Test No. II.4 - Water Absorption Under Low Pressure (Pipe Method).
- E. US Green Building Council's (USBGC) Leadership in Energy and Environmental Design (LEED).
- F. Masonry Veneer Manufacturers Association (MVMA).
- G. Underwriter's Laboratory (UL) 723 - Standard for Safety for Surface Burning Characteristics of Building Materials.

### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
  2. Storage and handling requirements and recommendations.
  3. Installation methods.
  4. Cleaning instructions and maintenance data.
- C. Qualification Data: Safety and quality documentation for manufacturer and installer.
- D. Test Reports: Certified test reports indicating compliance with specified performance requirements and conformance with specified physical properties.
- E. Evaluation Reports: For metal lath with paper backing in lieu of weather resistive barrier.
- F. Certificates: IAPMO - ER-386.
- G. Certificates: IAPMO - ER-383.
- H. Pre-Installation Conference: Minutes of pre-installation conference.
- I. Warranty Documentation: Product and installation warranties.
- J. Verification Samples: For each product specified, two sample boards, representing colors, patterns, textures, finishes and mortar to be installed.

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### 1.5 QUALITY ASSURANCE

- A. IAMPO Certification: Environmental Stonework's current IAMPO report - ER-383/386, including AC- 51 testing data.
- B. Single Source Responsibility: Obtain primary manufactured stone/brick veneer and trim from a single manufacturer to the greatest extent possible. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.
- C. Manufacturer Qualifications: IAMPO certification and in good standing with the MVMA.
  - 1. Shall have a minimum of 30 years experience in producing manufactured stone veneer.
  - 2. Shall provide documentation that they have completed at least 10 projects of similar size and complexity if requested.
  - 3. Provides field service representative.
- D. Installer Qualifications:
  - 1. Shall have a minimum of 5 years experience installing manufactured stone veneer.
  - 2. Has documented installation procedures and field quality control program.
  - 3. Provides OSHA 10 Hour trained project management.
  - 4. Capable of providing extensive jobsite safety programs including scaffold safety, fall protection and personal protective equipment.
- E. Product Compatibility Documentation: Manufacturers of products and systems certify in writing that products are compatible.

### 1.6 SEQUENCING AND SCHEDULING

- A. Conference: Convene a pre-installation conference to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.
- B. Pre-Installation Conference: Convene not less than 30 days prior to work. Attendees to include Contractor, Architect, manufacturer's representative.

### 1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.



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### 1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards; in manufacturer's unopened packaging with identification labels intact until ready for installation. Protect from damage.

### 1.9 WARRANTY

- A. Manufacturer's standard limited warranty for materials and workmanship.
  - 1. Warranty Period for Installation: 1 year.
  - 2. Warranty Period for Manufactured Product: 50 years.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Environmental Materials LLC, which is located at: 5020 Weston Parkway, Cary, NC 27513; Toll Free Tel: 800-891-5402; Email: request info (arcatacontactus@estoneworks.com); Web: <http://www.estoneworks.com> | <https://www.myclipstone.com>
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 – Product Requirements.

### 2.2 MANUFACTURED STONE/BRICK VENEER AND TRIM

- A. Product: Manufactured stone and brick as manufactured by Environmental Materials LLC.
- B. Manufactured Stone and Brick Veneer Properties:
  - 1. Stone Thickness: 1-1/8 inches (28.5 mm) to 2-1/2 inches (63.5 mm).
  - 2. Thin Brick Size: 5/8 inches (16 mm) to 1 inch (25.4 mm) thick; 2-1/2 inches (63.5 mm) wide by 8 inch (203 mm) length.
  - 3. Weight: Maximum of 15 lbs/ft<sup>2</sup> (73 kg/m<sup>2</sup>).
  - 4. Density: As determined by ASTM C 567.
  - 5. Compressive Strength: Minimum of 1,800 PSI (12.4 Mpa) when tested in accordance with ATSM C 192.
  - 6. Water Absorption: Less than 18 percent when tested in accordance with ASTM C140 or UBC standard 15-5.
  - 7. Freeze-Thaw: Less than 3 percent mass loss when tested in accordance with ASTM C 67.
  - 8. Shear Bond Strength: Minimum of 50 PSI (0.345 MPa) when conducted in accordance with ASTM C 482.



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### 2.2 MANUFACTURED STONE/BRICK VENEER AND TRIM *(continued)*

9. Thermal Resistance: R-value greater than or equal to 0.865 when tested at a thickness of 1.0 inch (25.4 mm) in accordance with ASTM C 518.
  10. Smoke and Fuel Contribution: UL listed 0/0.
  11. Flexural Strength: Tested in accordance with ASTM C 348, Section 4.4.
  12. Tensile Strength: Tested in accordance with ASTM C 190, Section 4.5.
  13. Weather Resistance: Mix design proven by test results to be resistant to degradation by weather.
- C. Architectural Trim:
1. Products: Single source from Environmental Materials LLC.
  2. Wall Capstones:
    - a. Texture: As selected by Architect from manufacturer's full range.
    - b. Color: As selected by Architect from manufacturer's full range.
    - c. Size: As selected by Architect from manufacturer's full range.
  3. Pier Capstones:
    - a. Texture: Chiseled.
    - b. Color: As selected by Architect from manufacturer's full range.
    - c. Size: As selected by Architect from manufacturer's full range.
  4. Watertable/sill:
    - a. Color: As selected by Architect from manufacturer's full range.
    - b. Size: As selected from manufactured full range.
    - c. Provide sloped top surface and drip edge.
  5. Light Fixture Stones:
    - a. Color: As selected by Architect from manufacturer's full range.
    - b. Size: As necessary for light fixture indicated.
    - c. UL approved metal extension box may be provided.
  6. Receptacle Stones:
    - a. Color: As selected by Architect from manufacturer's full range.
    - b. Size: As necessary for light electrical outlet.
    - c. UL approved metal extension box may be provided.
- D. Weather Resistant Barrier: In compliance with ASTM D 226.
1. Description: 2 layers of No. 15 non-perforated asphalt-saturated organic felt paper.
  2. Description: 1 layer of No. 15 non-perforated asphalt-saturated organic felt paper and a house-wrap product supported by a current evaluation report showing equivalency to Grade D building paper.

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### 2.2 MANUFACTURED STONE/BRICK VENEER AND TRIM *(continued)*

- E. Reinforcing (Lath):
1. Materials: Corrosion resistant, minimum 2.5 lbs per square yard (1.36 kg/m<sup>2</sup>) expanded metal lath in compliance with ASTM C 847.
  2. Materials: Corrosion resistant, minimum 18 gauge woven wire mesh that complies with ASTM C 1032.
  3. Materials: \_\_\_\_\_.
- F. Fasteners: Galvanized steel fasteners.
1. For Wood Stud Applications:
    - a. Nails: 11 gage nails having a 7/16 inch (11 mm) head, minimum of 1-1/2 inches (38 mm) long.
    - b. Staples: 7/8 inch long (22 mm), 16 gauge staples.
  2. For Metal Stud Applications:
    - a. Screws: Corrosion resistant screws with 7/16 inch (11 mm) head and of sufficient length to penetrate metal stud a minimum of 3/8 inch (9.5 mm).
- G. Weep Scream: Corrosion resistant, minimum 0.019 inch (0.5 mm with a minimum vertical attachment of 3-1/2 inches (89 mm)).
1. Holes: Minimum diameter of 3/16 inch (4.75 mm), spaced at a maximum of 33 inches (838 mm) on center.
  2. Attachment Flange: Minimum of 3-1/2 inches (89 mm).
  3. Materials: Plastic fabrication.
  4. Materials: Vinyl fabrication.
- H. Mortar: Mixed with potable water clean and free from injurious amounts of oils, acids, alkalis, salts, organic minerals or other deleterious substances.

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### 2.3 MORTARLESS MANUFACTURED STONE VENEER AND TRIM

- A. Product: ClipStone as manufactured by Environmental Materials LLC.
- B. Manufactured Stone Veneer Properties:
  - 1. Stone Thickness: 1-1/8 inches (28.5 mm) to 2-1/2 inches (63.5 mm).
  - 2. Stone Width: 11-1/8 inches (28.5 mm) to 3-1/2 inches (89 mm).
  - 3. Stone Length: 6 inches (152 mm) to 19 inches (483 mm).
  - 4. Weight: Maximum of 15 lbs/ft<sup>2</sup> (73 kg/m<sup>2</sup>).
  - 5. Density: As determined by ASTM C 567.
  - 6. Compressive Strength: Minimum of 1,800 PSI (12.4 Mpa) when tested in accordance with ATSM C 192.
  - 7. Water Absorption: Less than 18 percent when tested in accordance with ASTM C140 or UBC standard 15-5.
  - 8. Freeze-Thaw: Less than 3 percent mass loss when tested in accordance with ASTM C 67.
  - 9. Shear Bond Strength: Minimum of 50 PSI (0.345 MPa) when conducted in accordance with ASTM C 482.
  - 10. Thermal Resistance: R-value greater than or equal to 0.865 when tested at a thickness of 1.0 inch (25.4 mm) in accordance with ASTM C 518.
  - 11. Smoke and Fuel Contribution: UL listed 0/0.
  - 12. Flexural Strength: Tested in accordance with ASTM C 348, Section 4.4.
  - 13. Tensile Strength: Tested in accordance with ASTM C 190, Section 4.5.
  - 14. Weather Resistance: Mix design proven by test results to be resistant to degradation by weather.
- C. Architectural Trim:
  - 1. Products: Single source from Environmental Materials LLC.
  - 2. Water Table/Sill: Provide sloped top surface and drip edge. Color and size as selected from manufacturer's full range.
- D. Weather Resistant Barrier: In compliance with ASTM D 226.
  - 1. Description: 2 layers of No. 15 non-perforated asphalt-saturated organic felt paper.
  - 2. Description: 1 layer of No. 15 non-perforated asphalt-saturated organic felt paper and a house-wrap product supported by a current evaluation report showing equivalency to Grade D building paper.
- E. Fasteners: #8 stainless steel or zinc plated Phillips head screws 1-1/4 inches (32 mm) long.
- F. Starter Strip: Foundation Starter Strip shall be G60 coated hot-dipped galvanized and a minimum 0.012 inch (0.3 mm) (No. 28 gauge material) with a minimum vertical attachment of 3-1/2 inches (89 mm). Starter Strip should have weep holes with a minimum diameter of 3/16 inch (4.8 mm) spaced at a maximum of 12 inches (304 mm) on center.



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### PART 3 – EXECUTION

#### 3.1 PREPARATION

- A. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- B. Do not proceed with installation until substrates have been properly prepared and deviations from manufacturer's recommended tolerances are corrected. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Commencement of installation constitutes acceptance of conditions.

#### 3.2 MORTARED STONE/BRICK VENEER INSTALLATION

- A. Install in accordance with manufacturer's written instructions and recommendations, including the following.
  - 1. Corners: Install pre-manufactured corner units. Field built corners are not permitted.
  - 2. Weather Resistant Barrier:
    - a. Install weather resistive barrier in accordance with weather resistive barrier manufacturer's instructions over all exterior surfaces designated to receive stone veneer.
    - b. Apply weather resistive barrier horizontally with the upper layer lapped over the lower layer at not less than 2 inches (51 mm).
    - c. Lap weather-resistive barrier not less than 6 inches (152 mm) at the vertical joints.
    - d. In the case of applications with two layers, start with two horizontal layers at the bottom of exterior wall or structure.
  - 3. Reinforcing (Lath):
    - a. Lap lath not less than 2 inches (51 mm) around vertically and horizontally.
    - b. Terminate lath a minimum of 2 inches (51 mm) on the foundation and flange of the weep screed or as directed by project specifications and or local building codes.
    - c. Install metal lath with the small cups pointing upward to better capture mortar scratch coat.
  - 4. Fasteners:
    - a. In the case of rigid sheathing, avoid excessive fasteners applied between wall framing. In the case of exterior gypsum sheathing (e.g. DensGlass), fasteners shall only be attached into wall framing unless additional fasteners are approved by the design professional.
    - b. Wood Stud Applications:
      - 1) Penetration Depth: Fasteners shall penetrate stud a minimum depth of 3/4 inch (19 mm). Refer to governing building code for information on specific fastener penetration depth.
      - 2) Spacing: Maximum of 6 inches (152 mm) vertically and 16 inches (406 mm) horizontally.
    - c. Metal Stud Applications:
      - 1) Penetration Depth: Screws shall penetrate stud a minimum depth of 3/8 inch (9.5 mm). Refer to governing building code for information on specific fastener penetration depth.

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### 3.2 MORTARED STONE/BRICK VENEER INSTALLATION *(continued)*

5. Weep Scream: Integrate with weather resistive barrier and metal lath
  - a. Attachment Flanges: Minimum of 3-1/2 inches (89 mm) at or below the foundation plate line on exterior walls in accordance with ASTM C 926. The exterior lath shall cover and terminate on the attachment flange of the weep screed.
  - b. Do not cover weep holes during installation.
6. Clearances:
  - a. Weep Scream and Stone above Finished Grade: Terminates a minimum of 4 inches (102 mm) or per local code and building practices.
  - b. Weep Scream and Stone above Paved Surfaces: Terminates a minimum of 2 inches (51 mm) or as per local code.
  - c. Weep Scream And Stone above Paved Walking Surface Supported By Same Foundation Supporting The Wall: Terminates a minimum of 1/2 inch (13 mm) or as per local code.
7. Mortar: Mix with potable water clean and free from injurious amounts of oils, acids, alkalis, salts, organic minerals or other deleterious substances.

### 3.3 MORTARLESS STONE VENEER INSTALLATION

- A. Install in accordance with manufacturer's written instructions and recommendations, including the following.
  1. Fasteners shall penetrate the OSB a minimum of 3/4 inch (19 mm). There shall be a minimum of 2 (two) screws per stone, for units over 16 inches (406 mm).
  2. Starter Strip: Integrate with weather resistive barrier.
    - a. Attachment Flanges: Minimum of 3-1/2 inches (89 mm) at or below the foundation plate line on exterior walls in accordance with ASTM C 926.
    - b. Do not cover weep holes during installation.
  3. Clearances:
    - a. Starter Strip and Stone above Finished Grade: Terminates a minimum of 4 inches (102 mm) or per local code and building practices.
    - b. Starter Strip and Stone above Paved Surfaces: Terminates a minimum of 2 inches (51 mm) or as per local code.
    - c. Starter Strip And Stone above Paved Walking Surface Supported By Same Foundation Supporting The Wall: Terminates a minimum of 1/2 inch (13 mm) or as per local code.

### 3.4 CLEANING AND PROTECTION

- A. Cleaning: Clean stone veneer in accordance with manufacturer's written instructions and recommendations.
- B. Protection:
  1. Protect in-progress and finished work from rain for 48 hours following installation.
  2. Protect finished work from damage until the date of Substantial Completion.  
Repair damaged components.