

SECTION 04 73 01 MANUFACTURED STONE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Manufactured stone masonry, accessories, and related materials.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For manufactured stone units, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: Show fabrication and installation details for manufactured stone units including dimensions.

C. Samples for Initial Selection: For colored mortar.

D. Samples for Verification:

1. For each color and texture of manufactured stone required, 4 feet by 4 inches in size.
2. For colored mortar. Make Samples using same sand and mortar ingredients to be used on Project. Label Samples to indicated types and amounts of pigments used.

E. Field Panel Samples: For each color, texture and shape of manufactured stone unit required, minimum 4 feet by 4 feet in size.

1. Make available for Architect's review at Project site (or at distributor showroom, if acceptable to Architect).
2. Make Samples from materials to be used for units used on Project.

F. Material Test Reports:

1. Provide IAPMO (International Association of Plumbing and Mechanical Officials) ER-462.
2. Provide IAPMO Acceptance Criteria for Precast Stone (IAPMO-ES AC51) Test Reports for physical properties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Member of the National Concrete Masonry Association ncma.org and the International Association of Plumbing and Mechanical Officials (IAPMO) www.iapmo.org.

B. Source Limitations for Manufactured Stone: Obtain manufactured stone units through single source from single manufacturer.

C. Source Limitations for Raw Materials: Obtain ingredients of a uniform quality, including color, from one manufacturer for each cementitious component and from one source or producer for each raw material.

D. Certification: Manufacturer's IAPMO evaluation report certifying that a qualifying inspection of the facilities manufacturing process has been successfully completed and manufacturer is in compliance with IAPMO operational standards and Acceptance Criteria for Precast Stone (AC 51).

1. Density: ASTM C 567, Standard Test Method for Density of Structural Lightweight Concrete.
2. Freeze/Thaw: ASTM C 666/666M, Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
3. Compressive Strength: ASTM C 39, Standard Test Method Compressive Strength in Cylindrical Concrete Specimens.
4. Flexural Strength: ASTM C 348, Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
5. Tensile Strength: ASTM C 190-85, Method of Test for Tensile Strength of Hydraulic Cement Mortars (Withdrawn 1990).
6. Absorption: IAPMO-ES AC 51 Section 8.2, "Absorption."
7. Thermal Properties: ASTM C518, Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build 4 feet by 4 feet mockup of typical wall area as shown on Drawings in location directed by Architect.
 - 2. Show penetrations, terminations, corner detail, mortar color and tooling.
 - 3. May remain as part of the work once approved by Architect.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Coordinate delivery of manufactured stone to avoid delaying the work and to minimize the need for on-site storage.
- B. Pack, handle, and ship manufactured stone units in suitable handi-packs or crates on 40 by 48 inch wooden pallets.
 - 1. Pack units so that faces do not rub against other units.
 - 2. When using flatbed delivery equipment, use brick boards to securely strap the load to prevent damage to the units.
 - 3. Keep units ventilated under covers to prevent condensation.
- C. Store cementitious materials and metal lath on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- D. Store mortar aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements: Maintain materials and ambient temperature in area of installation at minimum 40 degrees F prior to, during, and for 48 hours following installation.
- B. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Do not use units containing visible frozen moisture. Do not use calcium chloride or anti-freeze admixtures.
- C. Hot-Weather Requirements: If temperature exceeds 80 degrees F, additional water will need to be added on the scratch-coated surface and the backs of the manufactured stone units being applied. Providing shade and/or frequent misting of the wall may be required. Consult with mortar manufacturer to determine if mortar mix hot weather mix options are available. Local building code hot weather methods should be followed.

1.6 WARRANTY

- A. Lifetime Limited Warranty on Materials: Covers stone installed in accordance with manufacturer's written instructions and recommendations.
 - 1. Provide new materials in lieu of defective materials.

1.7 EXTRA MATERIALS

- A. Provide extra units in shapes, colors and sizes employed.
 - 1. Provide 5 percent of the coverage area for corners and flats.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. ProVia, 1550 County Road 140, Sugarcreek, OH 44681, Phone: 877-389-0834,
Fax: 877-786-4971, Email: sales@provia.com, Website: provia.com/stone.

1. No Substitutions.

B. Authorized Distributor: [Contact Information]

2.2 MANUFACTURED STONE

A. Limestone Profiles (with matching corner pieces): Allegheny, Amherst, Baja, Blue Ridge, Buckingham, Buff, Nantucket, Ohio Vintage, Sandusky Shore.

B. LedgeStone Profiles (with matching corner pieces): Brighton, Canyon, Chesapeake, Osage, Rushmore, Saginaw, Santee, Southbriar, Susquehanna.

C. Dry Stack Profiles (with matching corner pieces): Catawba, Colorado, Erie, Huron, Lakepointe, New England, Ottawa, Phoenix, Seneca, Shawnee, Whisperwood.

D. Fieldstone Profiles (with matching corner pieces): Mojave, Old Dominion, Pennsylvania, Shenandoah, Summerwinds, Strathmore, Top Rock.

E. River Rock Profiles (with matching corner pieces): Michigan, Mountain.

F. Natural Cut™ Profiles (with matching corner pieces): Ashworth, Fernwood, Woodbridge

G. Terra Cut™ Profiles (with matching corner pieces): Slate, Russet, Summit

H. PrecisionFit™ Profiles (with matching corner pieces): Adobe Sands, Driftwood, Sage Grey

I. Blended Profiles (with matching corner pieces): [_____] percent [_____] and [_____] percent [_____].

2.3 MANUFACTURED STONE ACCESSORIES

A. Hearthstone:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [19½ inches wide by 19½ inches high by 1¾ inch thickness].

B. Half Hearthstone:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [12 inches by 20 inches by 1¾ inch thickness].

C. Peaked Wall Capstones:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [15½ inches wide by 19¾ inches long] or [11¼ inches wide by 19¾ inches long].

D. Flat Wall Capstones:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [12 inches wide by 24 inches long by 2¼ thickness] or [14 inches wide by 24 inches long by 2¼ thickness] or [16 inches wide by 24 inches long by 2¼ thickness].

E. Hydrant Stone:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [6⅝ inches wide by 7½ inches high by 1¾ inch thickness, 1 inch diameter hole].

F. Keystones:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [11½ inches top width by 11 inches high by 7 inches bottom width by 1¾ inch thickness] or [8⅞ inches top width by 8 inches high by 6 inches bottom width by 1¾ inch thickness].

G. Classic Light Trim:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [7½ inches wide by 10⅝ inches high by 1¾ inch thickness, 4½ inch diameter hole].

H. Contemporary Light Trim:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [10 inches wide by 15 inches long by 1½ inch thickness, 3⅝ inch hole] or [8 inches wide by 10 inches long by 1½ inch thickness, 3⅝ inch hole].

I. Classic Receptacle Stone:

1. Color: Buff, Grey, Brown, Natural, Ivory.

2. Size: [6⅝ inches wide by 7½ inches high by 1¾ inch thickness, 2⅝ inch wide x 4⅛ inch high opening].

- J. Contemporary Receptacle Stone:
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [6 inches wide by 8 inches high by 1½ inch thickness].
 - K. Contemporary Double Receptacle Stone:
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [8 inches wide by 8 inches high by 1½ inch thickness, 4¼ inch square opening].
 - L. Column Caps
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [14 inches wide by 14 inches high by 2⅞ inches deep] or [22 inches wide by 22 inches high by 2⅞ inches deep] or [31 inches wide by 31 inches high by 2⅞ inches deep].
 - M. Water Table/Sill:
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [23⅝ inches long by 3 inches high by 3 inches deep].
 - 3. Provide sloped top surface and drip edge.
 - N. Row Locks
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [5½ inches wide by 7½ inches high by 1¾ inch thickness] or [4 inches wide by 5 inches high by 1¾ inch thickness].
 - O. Flat Window Trim
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [22½ inches wide by 6½ inches high by 1½ inch thickness].
 - P. Shutter Block
 - 1. Color: Buff, Grey.
 - 2. Size: [2 inches wide by 13½ inches high by 2½ inch thickness].
 - Q. Trim Stone
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [6 inches wide by 8 inches high by 1¾ inch thickness].
 - R. Mantle
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [48 inches wide by 10 inches long by 2½ inch thickness] or [60 inches wide by 10 inches long by 2½ inch thickness].
 - S. Mantle Bracket
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [6½ inches wide by 10½ inches long by 2½ inch thickness].
 - T. Window & Door Surround
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [18 inches wide by 6 inches height by 2 inch thickness].
 - U. Window & Door Surround - Corner
 - 1. Color: Buff, Grey, Brown, Natural, Ivory.
 - 2. Size: [13½ inches long by 13½ inches wide by 6 inch height by 2 inch thickness].
- ## 2.4 MANUFACTURED STONE - MATERIALS
- A. Regional Materials: Provide manufactured stone units, accessories, metal lath, and mortar ingredients that have been manufactured within 500 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prevent work from occurring on the opposite side of walls to which stone is applied during and for 48 hours following installation

3.3 INSTALLATION

- A. Install manufactured stone in accordance with the MVMA Installation Guidelines for Adhered Concrete Masonry.
- B. Install metal lath and scratch-coat of mortar in accordance with manufacturer's Installation Guidelines for Adhered Concrete Masonry.
- C. Install manufactured stone as indicated on Drawings.
 - 1. Install units in accordance with manufacturer's Installation Guidelines for Adhered Concrete Masonry.
 - 2. Coordinate installation of manufactured stone with installation of flashing specified in other Sections.
- D. Before tooling the mortar grout, allow mortar to become "thumb-print hard."
- E. Brush joints within 2 hours.

3.4 CLEANING

- A. Clean manufactured stone in accordance with manufacture's recommendations.

3.5 PROTECTION

- A. Protect finished work from rain during and for 48 hours following installation.
- B. Protect finished work from damage during remainder of construction period.