

3-Part Spec



This guide specification was prepared utilizing 3-part format recommended by the Construction Specifications Institute (CSI), and generally incorporates recommendations from their SectionFormat, and MasterFormat, latest Editions, insofar as practicable.

Carefully review and edit the text to meet the Project requirements and coordinate this Section with the remainder of the Specifications and the Drawings.

Where bracketed text is indicated, e.g. [text], make appropriate selection and delete the remainder of text within additional brackets, highlighting, and bold face type, if any.

Consult the manufacturer for assistance in editing this guide specification for specific Project applications where necessary.

This Specification was current at the time of publication but is subject to change. Please confirm the accuracy of these specifications with the manufacturer prior to use.

SECTION 04 70 00 **MANUFACTURED MASONRY**

PART 1 - GENERAL

1.01 SUMMARY

SPECIFIER: Revise subparagraphs below to suit Project requirements.

A. Section Includes:

1. Manufactured [stone] [thin brick].
2. Accessories (trim).
3. Installation materials.

B. Related Requirements:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

SPECIFIER: Revise section numbers and titles in subparagraphs below per CSI MasterFormat and Project requirements.

2. Section [03 40 00 - Precast Concrete] [other]; for concrete back-up construction.
3. Section [04 20 00 - Unit Masonry] [other]; for masonry back-up construction [including flashing].
4. Section [06 16 00 - Sheathing] [09 21 16 - Gypsum Board Assemblies] [other]; for [sheathing and] weather barrier installation over [metal] [wood] framing.
5. Section [07 62 00 - Sheet Metal Flashing and Trim] [other]; for flashing materials.



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1.02 REFERENCE STANDARDS

SPECIFIER: List ONLY those standards referenced in this Section. Use care when indicating the edition date of the referenced standards; these standards are subject to regular review, and updated accordingly, including their titles.

- AC38 — ICC-ES Acceptance Criteria for Water Resistive Barriers
- AC51 — ICC-ES Acceptance Criteria for Pre-Cast Stone Veneer
- AC191 — ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath)
- AC275 — ICC-ES Acceptance Criteria for Glass Fiber Lath used in Cementitious Exterior Wall Coating or Exterior Cement Plaster (Stucco)
- ANSI Accredited Evaluation Service
- International Code Council — Evaluation Service (ICC-ES)
- International Building Code (IBC)
- International Residential Code (IRC)
- ANSI — American National Standards Institute
- ANSI A118.1 — American National Standards Institute Specifications for Dry-Set Portland Cement Mortar
- ANSI A118.4 — American National Standards Institute Specifications for Modified Dry-Set Cement Mortars
- ANSI A118.15 — American National Standards Institute Specifications for Improved Modified Dry-Set Cement Mortar
- TMS 402 — Building Code Requirements for Masonry Structures (TMS 402/ACI 530/ASCE 5).
- TMS 602 — Specification for Masonry Structures (TMS 602/ACI 530.1/ASCE 6)
- Foam Sheathing Committee of the American Chemistry Council, Guide to Attaching Exterior Wall Coverings Through Form Sheathing to Wood or Steel Wall Framing
- ICRI — International Concrete Repair Institute
- ASTM International
- ASTM C270 — Standard Specification for Mortar for Unit Masonry
- ASTM C482 — Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste
- ASTM C847 — Standard Specification for Metal Lath
- ASTM C932 — Standard Specification for Surface Applied Bonding Compounds for Exterior Plastering
- ASTM C933 — Standard Specification for Welded Wire Lath
- ASTM C979/C979M — Standard Specification for Pigments for Integrally Colored Concrete
- ASTM C1032 — Standard Specification for Woven Wire Plaster Base



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- ASTM C1059/C1059M – Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete
- ASTM C1063 — Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement Based Plaster
- ASTM C1325 — Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
- ASTM C1384 – Standard Specification for Admixtures for Masonry Mortars
- ASTM C1670 – Standard Specification for Adhered Manufactured Stone Masonry Veneer Units
- ASTM C1714/C1714M – Standard Specification for Preblended Dry Mortar Mix for Unit Masonry
- ASTM C1780 – Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer
- ASTM E2556/E2556M — Standard Specification for Vapor Permeance Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment
- ASTM D226/D226M — Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Water Proofing

1.03 ADMINISTRATIVE REQUIREMENTS

SPECIFIER: Select either stone or brick, or both, in the paragraph below.

A. Coordination: Coordinate installation of manufactured [stone] [thin brick] [stone and thin brick] masonry with work of other sections.

SPECIFIER: Revise section number and title in paragraph below per Project requirements

B. Preinstallation Conference: Conduct conference at Project site to verify Project requirements, manufacturer=s installation instructions, and manufacturer=s warranty requirements. Comply with Section [01 31 19 - Project Meetings] [other].

SPECIFIER: Retain Paragraph above if Division 01 Section describes specific requirements for preinstallation conference, or; in the absence of a Division 01 Section, use paragraph below.

B. Preinstallation Conference: Conduct conference at Project site.

SPECIFIER: Retain subparagraphs below and include additional requirements if necessary; revise to include more specific information about conference.

1. Meet with Owner, Architect, Owner's insurer if applicable, manufactured masonry installer, manufactured masonry manufacturer's technical representative, and installers whose work interfaces with or affects manufactured masonry work.
 2. Review construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 3. Review methods and procedures related to manufactured masonry installation, including manufacturer's written instructions.
 4. Review back-up construction including planar conditions, and other surface irregularities, if any.
 5. Review flashings, special details, wall penetrations, openings, and condition of other construction that may affect proper installation of manufactured masonry.
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6. Review temporary protection requirements for manufactured masonry during and after installation.
- C. Sequencing: Comply with written recommendations of masonry materials manufacturer for sequencing construction operations.

1.04 ACTION SUBMITTALS

SPECIFIER: Revise section number and title in paragraph below per Project requirements.

- A. General: Submit the following in accordance with Section [01 33 00 - Submittal Procedures] [other]:
- B. Product Data: Materials description and installation instructions for each product specified.
- C. Samples:

1. Masonry Units:

SPECIFIER: Select number and size of samples in subparagraph below.

- a. [Two] [other] pieces of manufactured masonry units including accessories (trim), [3-inch (76.20-mm) square (minimum)] [full size] [other], in each style and color specified.
2. Other Samples:
- a. Water-Resistive Barrier: One 12-inch (305-mm) square or larger piece of water-resistive barrier specified.
- b. Lath: One 12-inch (305-mm) square or larger piece of lath specified.
- c. Grout: Full range of exposed color and texture; furnish 2 grout keys in each color selected.

1.05 INFORMATIONAL SUBMITTALS

SPECIFIER: Revise section number and title in paragraph below per Project requirements.

- A. General: Submit the following in accordance with Section [01 33 00 - Submittal Procedures] [other]:
1. Certificates: Product certificates signed by manufacturer, certifying materials comply with specified criteria, performance characteristics, and physical requirements.
2. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
3. Other Reports: Manufacturer's current ICC-ES Evaluation Report.
4. Manufacturer's Instructions: Manufacturer's installation and mixing instructions for mortar and grout.
5. Letters of Verification:
- a. Submit only if requested:
- 1) Manufacturer's qualifications.
- 2) Installer's qualifications.



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1.06 CLOSEOUT SUBMITTALS

SPECIFIER: Revise section number and title in paragraph below per Project requirements.

A. General: Submit the following in accordance with Section [01 78 00 - Closeout Submittals] [other]:

1. Operation and Maintenance Data: Submit Operation and Maintenance data for installed products.
 - a. Include: Manufacturer's instructions covering maintenance requirements.
2. Warranty Documentation: Submit warranty documents specified.

1.07 QUALITY ASSURANCE

A. Compliance:

1. Comply with the provisions of the Building Code, these specifications, and standards referenced in Article 1.02 REFERENCE STANDARDS, except where more stringent requirements are shown on the Drawings or specified herein.

B. Qualifications:

1. Manufacturer Qualifications:

- a. A firm regularly involved with the manufacture of simulated masonry products, with not less than 25 years of successful experience producing manufactured masonry units similar to those specified.
- b. Manufacturer must be capable of providing field service representation during construction.

2. Installer Qualifications: A firm experienced in performing work of this Section with crews specializing in the installation of work similar to that required for this Project.

C. Source Limitations for Color Pigments: Obtain color pigments used in the manufacturing of masonry units and for mortar from a single manufacturer.

SPECIFIER: If a mock-up is required, retain paragraph below; manufacturer strongly recommends mock-ups to determine product acceptance and installation procedures are followed.

Select location of mock-up and controlling authority in paragraph below; revise section number and title per Project requirements if included in the Project Manual, otherwise delete this reference.

C. Mock-Up: Construct mock-up where [indicated] [directed] by [Owner] [Architect] [Consultant] in accordance with Section [01 45 00 - Quality Control].

1. Construct panel showing finished product installation work.

SPECIFIER: Select panel size in subparagraph below; size indicated may not be large enough or detailed enough for complex projects. Additional information may include such conditions as back-up construction, corners, trim, building fenestration, etc.

2. Dimensions and Process: Construct panel [4 feet by 4 feet (1.2 m by 1.2 m)] [other size] using proposed procedures, colors, textures, and quality of work.
3. Purpose: To judge quality of work, substrate preparation and material application.
4. When accepted, mock-up will demonstrate minimum standard of quality required for this work.



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SPECIFIER: Select controlling authority in subparagraph below.

5. Do not proceed with work prior to receipt of written acceptance of mock-up by [Owner] [Architect] [Consultant].

SPECIFIER: Select controlling authority in subparagraph below.

6. Remove mock-up(s) at Substantial Completion or when requested by the [Owner] [Architect] [Consultant], and properly dispose of materials.

SPECIFIER: Select subparagraph above for removal of mock-up from Project site and controlling authority, or select subparagraph below for incorporation of mock-up in Project.

6. Approved mockup(s) may become part of completed Work if undisturbed at time of Substantial Completion.

1.08 DELIVERY, STORAGE, AND HANDLING

SPECIFIER: Revise section numbers and titles in paragraph below per Project requirements.

A. General: Comply with Section 01 65 00 - Product Delivery Requirements, and Section 01 66 00 - Product Storage and Handling Requirements] [other].

B. Delivery:

1. Deliver materials in manufacturer=s original packaging with identification labels intact.

C. Storage and Protection:

1. Manufactured Masonry:

- a. Protect product from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer.
- b. Store product off-ground on material that will not stain manufactured units. Cover product with polyethylene or other nonstaining waterproof material when storing long-term.

2. Other Materials:

- a. Properly store cementitious materials. Do not use damp cementitious materials.
- b. Store installation materials, including metal items, to prevent corrosion and contamination.

SPECIFIER: The disposal of packaging waste into landfill sites demonstrates an inefficient use of natural resources and consumes valuable landfill space. Specifying appropriate packaging and construction waste management and disposal procedures may contribute to points required for USGBC=s LEED7 construction project certification.

D. Waste Management and Disposal:

SPECIFIER: Select reuse and/or recycling in subparagraph below, and revise section number and title per Project requirements.

1. Separate waste packaging materials for [reuse] [and] [recycling] in accordance with [Section 01 74 19 - Construction Waste Management and Disposal] [other].



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SPECIFIER: USGBC=s LEED7 certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials. Select packaging material and indicate if on-site collection containers are provided in subparagraph below.

2. Collect and separate for disposal [paper] [plastic] [corrugated cardboard] packaging material [in appropriate on-site bins] for recycling.
3. Remove packaging materials from site and dispose of at appropriate recycling facilities.

1.09 PROJECT AMBIENT CONDITIONS

A. Hot and Cold Weather Requirements: Comply with ACI 530.1.

1. Precondition materials when temperature of outside air is below 40 degrees F (4.4 degrees C).
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen substrates.
4. In hot weather, protect masonry construction from direct exposure to wind and sun.
5. Erect masonry in shade when ambient air temperature is 99 degrees F (37 degrees C) and relative humidity is less than 50 percent.

1.10 SPECIAL WARRANTY

A. Manufacturer's Warranty:

SPECIFIER: Select either stone or brick, or both, in the subparagraph below.

1. The manufacturer warrants that the [stone] [thin brick] [stone and thin brick] will be free of manufacturing defects in accordance with the General Conditions.
 - a. Defects include, but are not limited to:
 - 1) Inconsistent color or texture which differs from the product characteristics specified, those reviewed for acceptance and subsequently approved during the submittal process, and those approved as part of the Project mock-up.
 - b. Warranty does not extend to or cover damage resulting from:
 - 1) Settlement of building or other wall movement.
 - 2) Contact with chemicals, paint or staining.
 - 3) Discoloration from airborne contaminants, oxidation or fading associated with normal aging process.
 - 4) Faulty installation.
 - c. Warranty Period: Fifty years from the date of Substantial Completion.



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PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers:

Boulder Creek Stone
8282 Arthur Street N.E.
Spring Lake Park, MN 55432

(800)762-5902

(763)786-7138

(763)786-7276 (FAX)

Email: info@bouldercreekstone.com

www.bouldercreekstone.com

www.bouldercreekarchitect.com

B. Substitutions: Manufacturers seeking approval of their products are required to comply with the Owner's Instructions to Bidders, generally contained in the Project Manual.

SPECIFIER: Use paragraph above for semi-proprietary specification, or; use paragraph below for proprietary specification.

B. Substitutions: NOT permitted.

2.02 MATERIALS

A. Manufactured Masonry Materials:

1. Masonry Sand: ASTM C144.
2. Portland Cement: ASTM C150, Types I, II, and III; white; blended by masonry manufacturer to meet stone mix requirements.
3. Lightweight Aggregate: ASTM C331, produced using rotary kiln process and refined in accordance with masonry manufacturer=s requirements.
4. Masonry Pigment: ASTM C979, inorganic, natural or synthetic iron oxide pigments.

B. Installation Materials:

SPECIFIER: Use first subparagraph 1 below for field-mixed mortar, or; use second subparagraph 1 below for prepackaged mortar.

1. Mortar Materials (Field-Mixed):

- a. Cement: ASTM C270.
- b. Lime: ASTM C207.
- c. Sand: ASTM C144, natural or manufactured sand.

SPECIFIER: Retain subparagraph below for colored mortar; indicate color selection.

- d. Mortar Pigment: ASTM C979, mineral oxide pigments.

1) Color: [Selected by Architect] [Match Architect's sample] [insert color].



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1. Mortar Materials (Prepackaged):

SPECIFIER: Select natural or colored mortar in subparagraph below; if retaining colored mortar, indicate color selection.

- a. Factory premixed mortar, complying with ASTM C270, Type S, [natural] [colored], and with masonry manufacturer's installation instructions.

- 1) Color: [Selected by Architect] [Match Architect's sample] [insert color].

2. Water: Potable.

3. Expanded Metal Lath: ASTM C847 with ASTM A653/A653M, G60 (Z180, hot dip galvanized zinc coating.

- a. Diamond Mesh Lath: [Flat] [Self furring], [2.5 lb/sq. yd. (1.4 kg/sq. m)] [3.4 lb/sq. yd. (1.8 kg/sq. m)].

SPECIFIER: Select type of metal lath and weight in subparagraph above, or; select glass fiber lath in subparagraph below.

- b. Glass Fiber Lath: Self-furring, 3-dimensional glass fiber lath complying with ICC-ES AC275, and acceptable to the manufacturer of the manufactured masonry units.

SPECIFIER: Check local building codes for specific moisture barrier requirements in area of installation and edit subparagraph below accordingly.

4. Water-Resistive Barrier: Sheet material(s) complying with and defined in ICC-ES AC38 as a water-resistive barrier.

- a. [Two layers of asphalt-saturated, nonperforated felt complying with ASTM D226, Type I (No. 15)] [Two layers Grade D Kraft Waterproofing Building Paper complying with ASTM E2556 and ASTM F1249] [Base layer of building wrap complying with ASTM E1677, Type I, and second or top layer of Grade D Kraft Waterproofing Building Paper complying with ASTM E2556 and ASTM F1249] [Other].

5. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C1063.

- a. For Metal Framing: Corrosion-resistant, No. 8 self-tapping metal screws; length as necessary to penetrate 3/8 inch (9.525 mm) through metal studs.
- b. For Wood Framing and Wood Sheathing: Galvanized roofing nails or staples; length as necessary to penetrate 3/4 inch (19.00 mm) into framing members.

6. Casing Beads and Weeps:

- a. General: Fabricated from hot dip galvanized steel sheet, ASTM A653/A653M, G60 (Z180) zinc coating.
- b. Casing Bead: Prefabricated, one piece type, square-edge style with expanded flanges.
- c. Weep Screed/Track: Prefabricated, one piece type with perforated face leg extended to form a drip and weep holes in track bottom; designed to drain incidental moisture that gets into wall construction to the exterior.

7. Flashing:

SPECIFIER: Revise section number and title in subparagraph below per Project requirements.



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a. General: Refer to Section [04 20 00 - Unit Masonry] [07 62 00 - Sheet Metal Flashing and Trim] [other]; for flashing materials installed by the manufactured masonry installer under this Section.

SPECIFIER: Retain subparagraph above for flashing materials specified elsewhere, or; delete and retain subparagraph below with actual material specifications.

a. Materials: [Insert flashing materials if not specified elsewhere].

SPECIFIER: Boulder Creek Stone strongly urges you to consider the specified attributes which result in a superior product and installation for your project, based on in service performance, including physical and technical properties, and on their appearance and other characteristics.

2.03 MANUFACTURED MASONRY UNITS

SPECIFIER: Select stone and/or thin brick in subparagraph below; physical and technical properties are identical for both unless otherwise indicated..

A. Manufactured [Stone] [and] [Thin Brick] Veneer:

1. Physical and Technical Properties: Tested in accordance with AC51.

- a. Density: 90.04 pcf (1442.3 kg/m3).
- b. Freeze/Thaw: 0.9 percent loss.
- c. Compressive Strength: 5500 psi (37.92 MN/m2).
- d. Flexural Strength: 660 psi (4.55 MN/m2).
- e. Tensile Strength: 319.9 psi (2.21 MN/m2).
- f. Shear Bond With Scratch Coat: 55.3 psi (381 kN/m2).

SPECIFIER: Select first option in subparagraph below for stone; select second option for thin brick.

g. Absorption: [17.20 percent] [12.90 percent].

SPECIFIER: Boulder Creek Stone products are available in a variety of styles and colors including:

STONE

- Bavarian Castle
- Bluff Stone
- Cliffstone
- Country Ledge
- Eastern Fieldstone
- Fast Stak™
- Italian Fieldstone
- Long Island Stak™
- Montana Ledge
- Mountain Blend

- Nuggets
- Ohio Rubble
- Pebblestone
- Prairie Buff
- River Rock
- Sangria
- Southeastern Ledgestone
- Splitface
- Venetian Cobble
- Weathered Edge
- Western Ledge Stak™

THIN BRICK

- Clinker Brick
- Estate
- New Brick
- Stonebrick
- Travertine
- Used Brick



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SPECIFIER: Colors are particular to the chosen style; refer to Boulder Creek Stone product literature to select and match color with stone or thin brick style.

Insert styles and colors in the subparagraphs below based on review and acceptance of actual product(s) submitted for preliminary review; expand as necessary.

2. Style: [insert selection(s)].

3. Color: [insert selection(s)].

B. Accessories (Trim):

SPECIFIER: Boulder Creek Stone accessory (trim) products are available in a variety of shapes and sizes, including:

- Standard Hearthstones
- Large Hearthstones 16", 20"
- Chisel Face Sills
- Large Flat Sill
- Heavy Duty Sill
- Castle Accents 6x6, 6x10
- Base Piece
- Keystone - Chisel Face – Small, Large
- Octagon Light Trim
- Rectangle Light Trim
- Outlet Trim
- Keystone - Sand Finish – Small, Large
- Post Cap Flat - 16", 18", 20", 24", 32"
- Post Cap - Peaked – Small, Large
- Wall Cap - Peaked - 12x20, 12x24, 16x20, 16x24,
- Wall Cap - Flat - 12x20, 12x24, 16x20, 16x24

SPECIFIER: Colors are particular to the chosen accessory (trim); refer to Boulder Creek Stone product literature to select and match color with stone or thin brick style.

Insert accessory (trim) names and colors in the subparagraphs below based on review and acceptance of actual product(s) submitted for preliminary review; expand as necessary.

1. Accessory Name: [insert selection].

a. Size: [insert size].

b. Color: [insert color].



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PART 3 - EXECUTION

3.01 EXAMINATION

A. Site Verification of Conditions:

1. Verify that conditions of substrates previously installed under other sections or contracts are acceptable for product installation in accordance with manufacturer=s instructions prior to commencing work.
2. Surface Preparation:
 - a. Check local building codes for specific water-resistive barrier requirements for exterior applications.

SPECIFIER: Select controlling authority in subparagraph below.

2. Inform [Owner] [Architect] [Consultant] of unacceptable conditions immediately upon discovery.
3. Proceed with installation only after unacceptable conditions have been remedied.

3.02 INSTALLATION

A. General:

SPECIFIER: Specified products are designed for application over wood-framed construction with surfaces of interior plaster, interior drywall, plywood, or exterior sheathing for portland cement plaster (stucco). It may also be direct-applied to a masonry surface, to metal stud construction, or to a No. 18 gage galvanized sheet metal wall surface.

1. Perform installation of manufactured masonry in accordance with MVMA "Installation Guide for Adhered Concrete Masonry Veneer", unless more stringent requirements are specified herein.
2. Comply with masonry manufacturer=s written data, including product technical bulletins, product catalog installation instructions, and product carton installation instructions.

B. Flashing: Install related flashing in accordance with manufacturer's instructions to promote proper moisture management and uninterrupted drainage planes.

C. Casing Beads and Weep Screed/Track:

1. Casing Bead: Install at perimeter of mortar scratch coat, EXCEPT where weep screed/tracks are specified.
2. Weep Screed/Track: Install at bottom termination edges of mortar scratch coat, at base of wall, window and door heads, at floor line expansion joints, and elsewhere as shown.

D. Water-Resistive Barrier:

1. Install in accordance with barrier manufacturer's instructions in 2 separate layers beginning at the base of the wall over the weep screed/track, shingle style with minimum overlap of 2 inches (50.80 mm) horizontally and minimum sidelap of 6 inches (152.40 mm) vertically, and continue to top of wall. Overlap inside and outside corners minimum 16 inches (406.40 mm) past the corner in both directions.
 - a. Install the first or inner layer in conjunction with flashings to create the draiage plane.
 - b. Install the second or outer layer to prevent the mortar scratch coat from contacting the inner layer.
2. Coordinate installation of water-resistive barrier with flashing accessories, adjacent barriers if any, doors, windows, and other penetrations, and cladding transitions.



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SPECIFIER: Retain the following Article when manufacturer=s field services are desired to verify the quality and appearance of the installed components for complex or difficult installations, or for high profile projects. Establish the number and duration of periodic site visits required by the manufacturer and specify below. Consult with the manufacturer for services required; there are additional costs involved with this service which can be prohibitive; VERIFY prior to specifying to determine need and frequency.

3.03 FIELD QUALITY CONTROL

A. Manufacturer's Field Services:

1. Schedule a site visit by the manufacturer's technical representative prior to acceptance of mock-up. Coordinate site visit with preinstallation conference and review of mock-up.
2. Schedule additional site visits commensurate with the complexity of the Project.

3.04 ADJUSTING AND CLEANING

A. Adjusting:

1. Remove stained and otherwise damaged units and units not matching approved samples.

SPECIFIER: Select controlling authority in subparagraph below.

2. Masonry units may be repaired if methods and results are approved by [Owner] [Architect] [Consultant]. Use only workers and techniques approved by manufacturer
3. Replace units which cannot be satisfactorily repaired, in a manner that results in new masonry units matching approved samples, complying with other requirements, and showing no evidence of replacement.

B. Cleaning:

1. In-Progress Cleaning: Clean masonry units using fiber brushes and clean water. Do not use acid or commercial cleaners unless specifically approved by the manufacturer. Do not allow cementitious materials to harden on masonry surfaces not intended to receive mortar or grout; clean not later than the end of each day.
2. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry units as follows:
 - a. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.

SPECIFIER: Revise section number and title in paragraph below per Project requirements.

C. Perform final cleanup in accordance with Section [01 74 23 - Final Cleaning].

D. Upon completion, remove surplus materials, rubbish, tools and equipment.

SPECIFIER: USGBC=s LEED7 certification includes credits for the diversion of construction waste from landfill. Diversion can be tracked by either weight or volume but must be consistent for all materials.

E. Divert damaged, unused or leftover masonry units from landfill to recycling facilities.



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3.05 PROTECTION

SPECIFIER: Revise section number and title in paragraph below per Project requirements.

Coordinate the following paragraph with Section 01 76 00 - Protecting Installed Construction; delete paragraph if this is adequately described herein and referenced Section is not used.

- A. Protect installed masonry in accordance with Section [01 76 00 - Protecting Installed Construction].
- B. Protect installed units from mud, dirt, cement, paint, sealant and other materials until completion of Project.
Clean soiled units as specified above.

END OF SECTION



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1. Product Name

Boulder Creek® Stone, Thin Brick and Accessories

2. Manufacturer

Boulder Creek® Stone
8282 Arthur Street
Minneapolis, MN 55432
(800) 762-5902
(763) 786-7276
Fax: (763) 786-7276

info@bouldercreekstone.com
(E-Mail)
www.bouldercreekstone.com
www.bouldercreekarchitect.com

3. Product Description

BASIC USE

Stone:

Boulder Creek® Stone offers a full line of cost effective manufactured stone in a variety of designs, textures, and colors. Crafted of all natural materials to replicate the appearance and feel of natural stone, this manufactured stone is lightweight, yet durable to withstand harsh weather conditions. It can be installed onto interior and exterior wall surfaces without requiring extra foundational support and is ideal for all systems, fireplaces, entries, retaining walls, and other applications where natural stone may be too heavy or costly.

Thin Brick:

Boulder Creek® Stone manufactures maintenance-free thin brick to complement both exterior and interior applications.



Venetian Cobble - Molise

They range from ½" (12.7 mm) to 1" (25.4 mm) and mirror the classic look and feel of traditional full size bricks. Thin Brick is lightweight and requires no special brick ledges or ties for installation. They are cost-effective and can be used where fill brick cannot be installed.

COMPOSITION & MATERIALS

Boulder Creek® Stone products are manufactured simulated stone and brick products, engineered using all natural materials to achieve the strength, texture and weather resistant characteristics of natural stone and full-size bricks.

SIZES

Sizes, shapes and textures vary according to pattern selection. Manufactured stone products have random, varying sizes, shapes and textures with the appearance of natural stone.

TYPES, COLORS

STONE

Boulder Creek® Stone products are produced in flat (field) pieces and 90 degree outside corner pieces.

- **Bavarian Castle** - Antique Buff, Liverpool, Norwich, Nottingham, Westwood, York Gray
- **Bluff Stone** - Easton, Outback, Seneca, Sunset
- **Cliffstone** - Apache, Bradford, Montour, Sheridan
- **Country Ledge** - Brown, Fossil Beige, Glacier Buff, Loveland, Vancouver, West Chester
- **Eastern Fieldstone** - Burnt Hollow, Englewood, Hampton, Stonehill, Tishbury, Walden
- **Fast Stak™** - Ancona, Black Onyx, Cashmere, Cheyenne Ridge, Gunflint Gray, Jaffa Beige, Mirage Gray, Nema, Russet Brown, Sable, Velarde



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- Italian Fieldstone - Bergamo, Tivoli, Toscana, Venice
- Long Island Stak™ - Alden, Aurora, Hempstead, Manhattan, Niagara, Woodridge
- Montana Ledge - Chesapeake, Cameron, Jasper, Leather Brown, Pendleton, Rocky Mountain, Ronan, Suede Gray
- Mountain Blend - Athena, Barton, Comforts of Home
- Nuggets - Superior
- Ohio Rubble - Hudson Bay, Monroe, Oklahoma Crème, Prairie Mountain, St. Claire, Smokey Hollow, Stonehenge
- Pebblestone - River Bed
- Prairie Buff - Chandler, Laner, Mesquite, Mojave, Navajo, Newbury, Prescott, Red Mountain, Winslow, Verena, Yuma
- River Rock - Comfort Blend, Desert Rust, Northern Blend, Minnesota Blend, Mission, Natures Blend
- Sangria - Castano, Pueblo, Saddle, Tolono
- Southeastern LedgeStone - Barrington, Bitternut, Cajun, Crimson Mountain, Quincy, Tenor, Wilmington
- Splitface - Buckeye Blend, Great Lakes, Mansfield, Michigan, Westin Willows, Willows
- Venetian Cobble - Biella, Florence, Genoa, Milan, Molise, Napoli, Salerno
- Weathered Edge - Bristol, Fon-Du-Lac, Kodiak, Portage, Sun Prairie, Trenton

- Western Ledge Stak™ - Appaloosa, Belgian, Burnt Hollow, Lasino, Moroccan, Mustang

THIN BRICK

- Clinker Brick - Red
- Estate - Shelby
- New Brick - Chicago Blend, Dover, Red Colonial, Sienna Blend
- Stonebrick - Beringer, Ferrara, Linden
- Travertine - Crane, Elmwood, Mesa, Pima
- Used Brick - Buff, Chicago Used, Essex, Lexington, Old World, Talbot

ACCESSORIES

Boulder Creek® Stone has a full line of accessories to add architectural detail and accents to manufactured stone and thin brick projects.

- Standard Hearthstones
- Large Hearthstones 16", 20"
- Chisel Face Sills
- Large Flat Sill
- Heavy Duty Sill
- Castle Accents 6x6, 6x10
- Base Piece
- Keystone - Chisel Face – Small, Large
- Octagon Light Trim
- Rectangle Light Trim
- Outlet Trim
- Keystone - Sand Finish – Small, Large
- Post Cap Flat - 16", 18", 20", 24", 32"

- Post Cap - Peaked – Small, Large
- Wall Cap - Peaked - 12x20, 12x24, 16x20, 16x24,
- Wall Cap - Flat - 12x20, 12x24, 16x20, 16x24

BENEFITS

- Manufactured Stone and Thin Brick are durable, lightweight and attractive alternatives to natural stone and full-size brick.
- Products mirror the look and feel of natural stone and brick without inherent cost
- Consistent sizes and edges simplify installation
- Can be installed on interior or exterior walls without the need for extra foundational or structural support
- Large selection of styles, colors and accessories make it easy to create or match a particular design or ambience

LIMITATIONS

Boulder Creek® Stone products should be installed at least 4" (101 mm) above grade or 2" (50 mm) above hard surface.

It is important to follow all manufacturer installation instructions and local codes to ensure and maintain proper weather resistance and durability.

Installations where salt and/or chemical contact may occur could lead to the need for sealer or other protection. Acid must not be used on Boulder Creek® products in any circumstance.

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4. Technical Data

APPLICABLE STANDARDS

- AC38 — ICC-ES Acceptance Criteria for Water Resistive Barriers
- AC51 — ICC-ES Acceptance Criteria for Pre-Cast Stone Veneer
- AC191 — ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath)
- AC275 — ICC-ES Acceptance Criteria for Glass Fiber Lath used in Cementitious Exterior Wall Coating or Exterior Cement Plaster (Stucco)
- ANSI Accredited Evaluation Service
- International Code Council — Evaluation Service (ICC-ES)
- International Building Code (IBC)
- International Residential Code (IRC)
- ANSI — American National Standards Institute
- ANSI A118.1 — American National Standards Institute Specifications for Dry-Set Portland Cement Mortar
- ANSI A118.4 — American National Standards Institute Specifications for Modified Dry-Set Cement Mortars
- ANSI A118.15 — American National Standards Institute Specifications for Improved Modified Dry-Set Cement Mortar
- TMS 402 — Building Code

Requirements for Masonry Structures (TMS 402/ACI 530/ASCE 5).

- TMS 602 — Specification for Masonry Structures (TMS 602/ACI 530.1/ASCE 6)
- Foam Sheathing Committee of the American Chemistry Council, Guide to Attaching Exterior Wall Coverings Through Form Sheathing to Wood or Steel Wall Framing
- ICRI — International Concrete Repair Institute
- ASTM International
- ASTM C270 — Standard Specification for Mortar for Unit Masonry
- ASTM C482 — Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste
- ASTM C847 — Standard Specification for Metal Lath
- ASTM C932 — Standard Specification for Surface Applied Bonding Compounds for Exterior Plastering
- ASTM C933 — Standard Specification for Welded Wire Lath
- ASTM C979/C979M — Standard Specification for Pigments for Integrally Colored Concrete
- ASTM C1032 — Standard Specification for Woven Wire Plaster Base

- ASTM C1059/C1059M — Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete
- ASTM C1063 — Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement Based Plaster
- ASTM C1325 — Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units
- ASTM C1384 — Standard Specification for Admixtures for Masonry Mortars
- ASTM C1670 — Standard Specification for Adhered Manufactured Stone Masonry Veneer Units
- ASTM C1714/C1714M — Standard Specification for Preblended Dry Mortar Mix for Unit Masonry
- ASTM C1780 — Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer
- ASTM E2556/E2556M — Standard Specification for Vapor Permeance Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment
- ASTM D226/D226M — Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Water Proofing

PHYSICAL/CHEMICAL PROPERTIES

See Table 1.

TABLE 1 - PHYSICAL AND TECHNICAL PROPERTIES

Test	Brick Veneer	Stone Veneer	AC51 Requirements
Density, pcf	90.04	90.04	N/A
Freeze/thaw, (loss) %	0.9	0.9	3 max.
Compressive strength, psi	5710	5710	1800
Flexural strength, psi	663	663	N/A
Tensile strength, psi	319.9	319.9	N/A
Shear bond with scratch coat, psi	55.3	55.3	50
Conductivity, Btu x in/(h x ft ² x °F)	1.987	1.987	N/A
Conductance, Btu/(h x ft ² x °F)	1.159	1.159	N/A
Resistivity, °F x ft ² x h/btu/in	0.505	0.505	N/A
Resistance, °F x ft ² x h/btu	0.865	0.865	N/A
Flamespread Index	0	0	N/A
Absorption	17.2%	17.2%	N/A



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5. Installation

Boulder Creek® Stone may be applied over various substrates including wood framing, metal framing, open stud framing, concrete block, poured concrete and tilt-up wall panels. For complete procedures, consult www.boulder creek stone.com or www.boulder creek architect.com.

PREPARATORY WORK

Deliver and store the product protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer. Store the product off-ground on material that will not stain the brick or stone. If long-term storage is required, cover the product with polyethylene or another nonstaining waterproof material.

Installations in extreme weather conditions should reference ACI 530.1, Section 1.8 for materials and jobsite environmental conditions guidelines.

METHOD

Preparing the surface:
Apply water resistive barrier to exterior surfaces from the bottom up and a metal lath to interior and exterior surfaces. Hand the lath horizontally. Overlap the lath 6" (152 mm) on vertical seams and

2" (51 mm) on horizontal seams. Wrap the lath around the corners.

Mixing the Cement:

For the scratch coat, use 1 part Portland cement or Type S to 2.25 parts sand. For mortar, use 1 part Type N cement to 2.25 parts sand. Dry mix the sand and cement in a wheelbarrow or mud box. Continue mixing and add water slowly until the mixture achieves an applesauce-like consistency.

Scratch Coat:

Use masonry trowel to spread an even layer of cement over and into the holes of the wire lath. Scrape off any excess and use a soft bristled brush to lightly roughen the scratch coat. Drying time ranges from 2 – 24 hours.

Applying Stone:

Install corners first, working from the top down or, if working with groutless patterns, work from the bottom up. Apply ½" (12.7 mm) layer of mortar to the back of the stone. Lay it against the wall and work it gently into place. Cut the stone using a power saw with a masonry blade. Be sure to wear safety glasses and a dust mask.

Applying Brick:

Course out the brick using a chalk line. Install every other row, and then fill the adjacent rows. Install corners first, working from the top

down. Apply ½" (12.7 mm) layer of mortar to the back of the brick; lay it against the wall and work it gently into place. Cut the brick using a power saw with masonry blade. Be sure to wear safety glasses and a dust mask.

Applying Grout:

The stone may be grouted on the same day that it is laid. If grouting is to be delayed to the following day, make sure that all joints are left clean of excess mortar and that the surface of the stone is free of any splashed mortar. Use a grout bag for grouting. When grout joints become firm, they should be raked to achieve the desired effect.

BUILDING CODES

Installation must comply with the requirements of all applicable local; and federal code jurisdictions.

6. Availability & Cost

AVAILABILITY

Boulder Creek® Stone products are made in the USA and are available worldwide.

COST

Cost information may be obtained from the manufacturer or any reseller of Boulder Creek® Stone products.

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7. Warranty

Products manufactured and sold by Boulder Creek® Stone are warranted against defects after completion and final acceptance of work for a period of 50 years. The manufacturer shall furnish, free of charge, new materials and replace materials determined to be defective. This material warranty shall cover only manufacturing defects of the manufactured products and does not extend to or cover damaged resulting from:

- Settlement of the building or other wall movement
- Contact with chemicals, paint or staining
- Discoloration from airborne contaminants, oxidation or fading associated with the normal aging process
- Faulty installation

8. Maintenance

When properly installed Boulder Creek® Products are maintenance free. Should the need arise, it is important to not use acid or acid based products for cleaning.

Installations where salt and/or chemical contact may occur could lead to the need for a sealer or other protection.

9. Technical Services

Detailed information, product literature, test results or questions about usage or installation is available through Boulder Creek® Stone.

10. Filing System

- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.



Bavarian Castle



Bluff Stone



Clinker Brick



Country Ledge



Cliffstone



Estate Brick



Eastern Fieldstone



Fast Stak™



Italian Fieldstone



Long Island Stak™

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Boulder CREEK® Stone Products



Mountain Blend



Montana Ledge



New Brick



Nuggets



Ohio Rubble



Prairie Bluff



Pebblestone



River Rock



Stonebrick



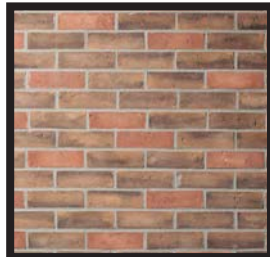
Southeastern
Ledgestone



Splitface



Sangria



Travertine



Used Brick



Venetian Cobble



Weathered Edge



Western Ledge Stak™