

## ARCHITECTURAL SPECS | Prefabricated Stone Panel Master Guide Specs



### GENERAL NOTES TO SPECIFIER:

This Specification Section has been prepared to assist design professionals in the preparation of project or office master Specifications. It follows guidelines established by the Construction Specifications Institute (CSI), and therefore may be used with most master Specification systems with minor editing.

Edit carefully to suit project requirements. Modify as necessary and delete items that are not applicable. Verify that referenced Section titles are correct. (Titles referenced are based on CSI MasterFormat, 2004 edition).

This Section assumes the Project Manual will contain complete Division 1 documents. Close coordination with Division 1 Sections is required. If the Project Manual does not contain the following sections, additional information should be included under the appropriate articles.

Product Substitution Procedures (if substitutions are to be allowed)	Product Options
Submittal Procedures	Cleaning And Waste Management
Product Storage and Handling Requirements	Closeout Submittals
Closeout Procedures	

This is written as a closed proprietary specification.

Notes to the specifier are in highlighted boxes and should be deleted from final copy.

Optional items requiring selection by the specifier are enclosed within brackets, e.g. [Exterior] [Interior]. Make appropriate selections and delete others including the brackets themselves.

Items requiring additional information are enclosed within single Guillemots, e.g. <insert option here>.

Revise header and footer to suit project/office requirements.

Electronic versions of this specification utilize automatic paragraph numbering based on Microsoft Word style formatting. To adjust levels of paragraphs assign appropriate style and numbering will automatically adjust.

When editing is complete, delete all text on this page, then remove the page break at the top of the next page to remove this page from the document.

# SPECIFICATIONS | Architectural Specs

## SECTION 04 42 51 - PREFABRICATED STONE PANELS

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Section Includes the following prefabricated natural stone systems
  1. **[Exterior] [Interior] [Exterior and interior]** stone veneer wall panels.
  2. **[Exterior] [Interior] [Exterior and interior]** stone **[paving] [flooring]** mats.

- B. Related Sections:

Enter Section(s) below that specify substrate for stone panel systems.

Add/delete Sections as appropriate.

Add reference to Division 01 sections containing LEED® requirements.

Delete LEED requirements if project is not registered for LEED Certification.

1. Division 1 Section **["LEED Requirements"]** <Insert Section Reference Here> for additional LEED requirements.
2. Division 7 Section **["Air Barriers"]** <Insert Section Reference Here> for weather resistant barrier over framed walls.
3. Division 7 Section "Sheet Metal Flashing and Trim" for flashing materials.

#### 1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications and descriptive literature. Include data for application materials[, **and weather resistant barrier**].
- B. Samples for Initial Selection: Submit manufacturer's sample panels showing full range of standard colors and patterns available.
- C. Samples for Verification:
  1. Submit **[1] [2] [3]** sample panel[s], approximately 16 by 12 inches, containing full-size samples of specified stone panel system illustrating **[anticipated variation in] [color] [and] [texture] [complete with specified sealants]**.
  2. For each color of pointing mortar required.
- D. Quality Assurance Submittals:
  1. Mix Designs: For mortar.
  2. Qualification Data: Submit data verifying qualifications and years of experience for **[manufacturer] [and] [installer]**. Include list of completed projects having similar scope of Work identified by name, location, date, reference names, and phone numbers.
  3. Manufacturer's Instructions.
- E. Quality Control Submittals: From a qualified independent testing agency, as follows:
  1. Stone Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each stone panel system product.
- F. Closeout Submittals:
  1. Maintenance Data: For stone panel systems to include in maintenance manuals.

## SPECIFICATIONS | Architectural Specs

### 1.03 QUALITY ASSURANCE

#### A. Qualifications:

1. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum **[five]** <Insert Option Here> years **[documented]** experience.
2. Installer Qualifications: A qualified installer who employs experienced stonemasons and stone fitters.

#### B. Source Limitations:

1. Obtain primary products through one source from a single manufacturer for entire Project, unless otherwise acceptable to Architect.
2. Furnish secondary products only of type and from source recommended by manufacturer of primary materials.

#### C. Mockups: Build mockups to **[verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials[ and to set quality standard for installation].**

1. Build mockups of typical **[exterior]** wall with stone panel cladding, approximately **[72 inches (1800 mm) long by 48 inches (1200 mm) high]** **[15 feet (4.5 m) long by 10 feet (3 m) high]**.
2. **[Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.]**

Retain subparagraph above if mockups are erected as part of building rather than separately.

Retain subparagraph below for demolishing and removing temporary mockups.

3. **[Remove mockups prior to Substantial Completion or earlier if directed by the Architect.]**

#### D. Preinstallation Conference: Conduct conference at **[Project site]** <Insert location>.

### 1.04 PROJECT/SITE CONDITIONS

#### A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace stone damaged by frost or freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until mortar has dried, but not less than 7 days after completing cleaning.

#### B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURER

#### A. Basis-of-Design Products: As manufactured by RealStoneSystems; 248-614-6613, [www.realstonesystems.com](http://www.realstonesystems.com).

### 2.02 STONE

Reclaimed stone is the standard material used for panel manufacture, but may also meet LEED requirements for recycled content.

# SPECIFICATIONS | Architectural Specs

- A. Utilize reclaimed stone, recut and uniformly sized.
- B. Sandstone: Comply with ASTM C 616, Classification I Sandstone.
- C. Quartzite: Comply with ASTM C 616, Classification III Quartzite.
- D. Slate: Comply with ASTM C 629, Classification [I Exterior] [II Interior], with a fine, even grain [and unfading color,] from clear, sound stock.
- E. Finish: Natural cleft.

## 2.03 WALL PANELS

Select desired panel stone color from list below. Check manufacturer's website for current product availability.

LEDGESTONE	SHADOWSTONE	ACCENTSTONE	THINSTONE	
Bluestone	Arctic White	Arctic White	Arctic White 12 rows	Sierra Shadowstone 9 rows
Charcoal	Bluestone	Bluestone	Bluestone 12 rows	Terracotta Shadow (9 rows)
Cyan Green	Charcoal	Charcoal	Charcoal 17 rows	Terracotta Ledgestone (9 rows)
Desert Rose	Chiseled Sand	Midnight Sky	Charcoal Ledge 9 rows	
Mountain Rust	Copper	Sierra	Charcoal Shadow 9 rows	
Terracotta	Cyan Green	Terracotta	Copper 12 rows	
	Desert Rose	Chiseled Sand	Cyan Green 12 rows	
DESIGNERSTONE	Emerald	Cyan Green	Desert Rose 12 rows	
Bluestone	Midnight Sky		Midnight Sky 12 rows	
Charcoal	Sierra		Mountain Rust 9 rows	
Sierra	Terracotta		Purple Sandstone 12 rows	
Terracotta			Sierra 14 rows	

- A. Wall Panel Stone Color: [Arctic White] [Blue Stone] [Charcoal Gray] [Chiseled Sand] [Copper Quartzite] [Desert Rose] [Mountain Rust] [Sierra Sandstone] [Terracotta Verde].

Retain paragraph below for added quality control if required.

1. Match Architect's samples for color, finish, and other stone characteristics relating to aesthetic effects.

Panel Type	Avg. Thickness	Length	Height	Avg Weight/Piece
Designer Flat Panels:	1/2-1 inch	24 inches	6 inches	9 lbs.
Shadowstone Flat Panels:	1/2-1-1/2 inch	24 inches	6 inches	10 lbs.
Shadowstone Corner Panels:	1/2-1-1/2 inch	8 / 16 inches*	6 inches	10 lbs.
Ledgestone Flat Panels:	1/2-2-1/2 inch	24 inches	6 inches	14.5 lbs.
Ledgestone Corner Panels:	1/2-2-1/2 inch	8 / 16 inches*	6 inches	14.5 lbs.
Thinstone Flat Panels:	1/2-2-1/2 inch	24 inches	6 inches	11 lbs.
Thinstone Corner Panels:	1/2-2-1/2 inch	8 / 16 inches*	6 inches	11 lbs.
Accentstone Flat Panels:	1/2-1 inch	24 inches	6 inches	10 lbs.

Corner pieces are available for all stone types. Corners have fingered, interlocking ends with one end 8 inches long and the other 16 inches long.

- B. Individual Panel Size: 24 inches (610 mm) long by 6 inches (152 mm) high.
  1. Provide matching factory fabricated corner units with 16 inches (406 mm) and 8 inches (203 mm) long returns by 6 inches (152 mm) high.
- C. Panel Thickness: Varies randomly from [1/2 inch (13 mm)] to [1 inches (25 mm)] [1-1/2 inches (38 mm)] [2-1/2 inches (64 mm)].
- D. Fabricate panels using multiple pieces of stone to same overall rectangular size. Utilize individual stone pieces of heights and lengths and thickness to achieve desired aesthetic effect.

## SPECIFICATIONS | Architectural Specs

1. Adhere individual stones together.
2. Adhere to plastic backing mat of 0.06 to 0.08 inch (1.5 to 2 mm) thickness.

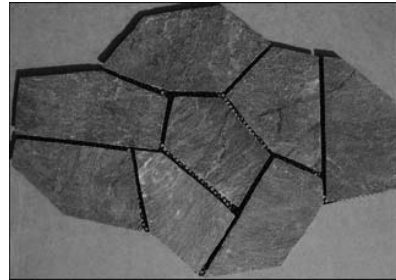
### 2.04 FLOORING MATS

- A. Algoma Flagstone Mat Stone Color: **[Terracotta Verde] [Blue Stone] [Sierra Sandstone] [Charcoal Gray] [Ocean Green] [Black Slate]**.

Retain paragraph below for added quality control if required.

1. Match Architect's samples for color, finish, and other stone characteristics relating to aesthetic effects.

- B. Individual Panel Size: **[Average 30 by 21 inches (762 by 533 mm); 3 square feet per mat (279 sq mm)] [Average 40 by 29 inches (1016 by 737 mm); 5.4 square feet (502 sq mm) per mat]**.



- C. Panel Thickness: Varies from 0.4 to 0.56 inches (10 to 14 mm).

- D. Fabricate mats using 6 to 9 pieces of stone to same overall size and shape to permit interlocking.
1. Space individual stones 0.35 to 0.60 inches (9 to 15 mm) apart.
  2. Adhere to plastic mat of 0.06 to 0.08 inch (1.5 to 2 mm) thickness.

### 2.05 MORTAR MATERIALS

Coordinate requirements in this article with those in "Mortar Mixes" Article. Retain option in paragraph below for colored pointing mortar.

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. **[Provide natural color or white cement as required to produce mortar color indicated.]**
- B. Hydrated Lime: ASTM C 207, Type S or Type N.
- C. Aggregate: ASTM C 144; except for **[joints narrower than 1/4 inch (6 mm)] [and] [pointing mortar]**, use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.

Retain first paragraph below for pigments added at Project site. Verify that pigments have a successful history of use with stone variety selected.

- D. Mortar Pigments: Natural and synthetic iron oxides, compounded for use in mortar mixes. Use pigments with a record of satisfactory performance in mortar and containing no carbon black.

Usually retain first paragraph below for adhered veneer. Model codes do not require latex for either tile-setting or mortar-setting method, but latex improves adhesion and weather resistance. Additive is available prediluted or in concentrated form to be diluted with water.

- E. Latex Additive: **[Manufacturer's standard] [acrylic-resin] [or] [styrene-butadiene-rubber]** water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement mortar bed, and not containing a retarder.
- F. Water: Potable.

## SPECIFICATIONS | Architectural Specs

### 2.06 RELATED MATERIALS

Edit following materials based on local usage and building code requirements. Delete materials specified in separate Sections and include references to related Section as required.

All exterior surfaces require a water/weather resistant barrier before installing stone panels. Barrier must meet local building codes, IBC Section 1404.2, UBC Standard Code 14-1 regarding waterproof building paper, or asphalt saturated building felt.

- A. Weather Resistant Barrier: **[No. 15, Type I, asphalt saturated felt, ASTM D 226]**.
- B. Expanded-Metal Lath: ASTM C 847 with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.
  - 1. Diamond-Mesh Lath: Self-furring.
    - a. Weight: **[2.5 lb/sq. yd. (1.4 kg/sq. m)] [3.4 lb/sq. yd. (1.8 kg/sq. m)]**.
- C. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with **[SMACNA's "Architectural Sheet Metal Manual" [Division 7 Section "Sheet Metal Flashing and Trim"]** and as follows:

Delete first three subparagraphs below if referencing Division 7 Section "Sheet Metal Flashing and Trim." Insert other types of metal if required.

- 1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch (0.4 mm) thick.
  - 2. Copper: ASTM B 370, Temper H00 or H01, cold-rolled copper sheet, 16-oz./sq. ft. (5-kg/sq. m) weight or 0.0216 inch (0.55 mm) thick.
  - 3. Fabricate continuous flashings in sections 96 inches (2400 mm) long minimum, but not exceeding 12 feet (3.6 m). Provide splice plates at joints of formed, smooth metal flashing.
- D. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.
  - E. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.
  - F. Fasteners:
    - 1. Into Wood Studs: Minimum 0.120 inch shank diameter galvanized nails or staples of sufficient length to penetrate 1-3/8 inches minimum into the stud.
    - 2. Into Metal Studs: Minimum 7/16 inch head diameter, corrosion-resistant, self-drilling, self tapping, pancake head screws of sufficient length to penetrate 3/8 inch minimum into the stud.
  - G. Solder for Sheet Metal Flashings:**[ As specified in Division 7 Section "Sheet Metal Flashing and Trim."]**
  - H. Sealants for Sheet Metal Flashings:**[ As specified in Division 7 Section "Joint Sealants."]**

### 2.07 MORTAR MIXES

Refer to the appendix in ASTM C 270 for an in-depth discussion of the considerations for selecting and using mortar and to BIA Technical Note Nos. 8, 8A, and 8B.

Adhered stone veneers are held in place by the adhesive action of a solidly filled collar joint or of similar mortar over metal lath. Adhered veneers are limited by model building codes to a thickness of no more than 1-5/8 inches (41 mm) and are more typically a nominal 1 inch (25 mm) thick. Units are limited to no more than 36 inches (914 mm) in any dimension, no more than 720 sq. in. (0.46 sq. m) in area, and no more than 15 lb/sq. ft. (73 kg/sq. m) in weight. They can be set with a tile-setting method where they are no more than 1 inch (25 mm) thick and less than 81 sq. in. (522 sq. cm) in area, and where they are gaged to true up the backs as RealStone does. Units can also be set by applying

## SPECIFICATIONS | Architectural Specs

A neat cement bond coat to both the stone and backup, applying Type S or Type N mortar to both, and tapping the units into place. Setting beds must be 3/8 to 3/4 inch (10 to 19 mm) thick for the tile-setting method and 1/2 to 1-1/4 inches (13 to 32 mm) thick for the mortar-setting method. The Section Text specifies the mortar-setting method but can easily be modified for the tile-setting method. Refer to section 2.05, pt.E

BIA Technical Notes 8B contains a basic rule for mortar selection: "Never use a mortar that is stronger (in compression) than is required by the structural requirements of the project. Always select the weakest (in compression) mortar that is consistent with the performance requirements of the project." This rule is followed by the advice that good judgment must be exercised in following the rule. The concept embodied in the rule is reinforced in ASTM C 270, which includes the requirement under the proportion specifications that "mortar of known higher strength shall not be indiscriminately substituted where a mortar type of anticipated lower strength is specified." One reason behind this principle is that mortars with a lower compressive strength usually have higher lime contents, which improves other mortar qualities.

- A. Mortar: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortar of uniform quality and with optimum performance characteristics.
1. Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated. Do not use calcium chloride.

Retain first paragraph below for adhered veneer on metal lath.

- B. Mortar for Scratch Coat over Metal Lath: 1 part portland cement, 1/2 part lime, 5 parts loose damp sand, and enough water to produce a workable consistency.

Retain first paragraph below for adhered veneer on concrete masonry units.

- C. Mortar for Scratch Coat over Unit Masonry: 1 part portland cement, 1 part lime, 7 parts loose damp sand, and enough water to produce a workable consistency.

Retain one of the following three paragraphs for adhered veneer. Verify selection of type for application indicated. Mortar should have lower compressive strength than stone.

UBC 1997 and ACI 530.1/ASCE 6/TMS 602 require Type S setting mortar. ACI 530-02/ASCE 5-02/TMS 402-02 requires that adhesion developed between adhered veneer units and backing have a shear strength of at least 50 psi based on gross unit surface area when tested in accordance with ASTM C 482, or shall be adhered in compliance with Article 3.3 C of ACI 530.1/ASCE 6/TMS 602.

- D. Portland Cement-Lime Setting Mortar: Comply with ASTM C 270, Type **[S]** **[N]** **[M]**, Proportion Specification.

Latex additives are often used in setting mortars for adhered veneers. They increase the bond strength and flexibility of hardened mortar and retard evaporation of water from mortar during setting. Because latex additives increase bond strength, extra care must be used to prevent latex mortar from getting on the face of the stone because it will be more difficult to remove.

- E. Latex-Modified Portland Cement Setting Mortar: Proportion and mix portland cement, aggregate, and latex additive to comply with latex-additive manufacturer's written instructions.

Retain paragraph below for adhered veneer.

- F. Cement-Paste Bond Coat: Mix either neat cement and water or cement, sand, and water to a consistency similar to that of thick cream.

Retain subparagraph below if latex-modified portland cement setting-bed mortar is specified.

1. For latex-modified portland cement setting-bed mortar, substitute latex admixture for part or all of water, according to latex-additive manufacturer's written instructions.

## SPECIFICATIONS | Architectural Specs

- G. Pointing Mortar: Comply with ASTM C 270, Type [S] [N] [O], Proportion Specification and the following:

Select one of three subparagraphs below. Ratio in first subparagraph applies only to pigment types listed under materials. Other pigments, if inserted, may require different limitations.

1. Pigmented Pointing Mortar: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1:10, by weight.
2. Colored-Aggregate Pointing Mortar: Produce color required by combining colored aggregates with portland cement of selected color.

### PART 3 - EXECUTION

#### 3.01 PREPARATION

- A. Surface Preparation: Follow manufacturer's instructions for type of stone panel system and substrate.

Retain paragraph below for application over masonry without metal lath. Concrete block needs to be clean and in its original, untreated condition. If the surface has been treated, light sandblasting or waterblasting can be used to restore the wall to a smooth, clean surface. Remove all form-release agents, dust, etc., that may inhibit the mortar bond.

1. Clean concrete block masonry to remove form-release agents, dust, coatings, and other substances that might inhibit mortar bond by light sandblasting or waterblasting.

- B. Install concealed flashing at continuous shelf angles, lintels, ledges, and similar obstructions to downward flow of water to divert water to building exterior.

Retain paragraph and subparagraphs below for installation over stud framing with sheathing panels. Studs should be installed not over 16 inches o.c..

- C. Cover sheathing with weather resistant barrier, lapping vertical joints 6 inches and horizontal joints 2 inches in shingle fashion to shed water.
1. Install lath over weather-resistant barrier by fastening through sheathing into framing to comply with ASTM C 1063. Space fasteners not more than 6 inches o.c. vertically in each stud.
  2. Extend weather-resistant barrier and metal lath a minimum of 16 inches around outside and inside corners terminating over a framing member.

Retain paragraph and subparagraphs below for installation over solid masonry or concrete.

- D. Install lath over unit masonry and concrete to comply with ASTM C 1063.
1. Space fasteners not more than 6 inches o.c. vertically and 16 inches o.c. horizontally.
  2. Extend metal lath a minimum of 4 inches (100 mm) around outside and inside corners terminating over a framing member.

#### 3.02 SETTING OF STONE PANEL SYSTEM, GENERAL

Manufacturer's installation instructions cover normal installation conditions. Unusual conditions may require additional information in this article.

- A. Install products in accordance with manufacturer's installation instructions.
- B. Perform necessary field cutting and trimming as stone panels are set.
1. Use power saws with diamond blades to cut stone panels. Cut lines straight and true, with edges eased slightly to prevent snipping.
- C. Lay out panels prior to setting with mortar to ensure proper fit and alignment.

## SPECIFICATIONS | Architectural Specs

- D. Scribe and field-cut stone as necessary to fit at obstructions. Produce neat joints of size specified or indicated.
- E. Install corner units first.
- F. Install remaining field panels with vertical end joints staggered randomly.

You can start laying stone panels at the top or the bottom of the wall. Working from the top down helps keep mortar droppings from staining stones below, but care must be taken to ensure the mortar is strong enough to hold the suspended stone panels in place.

- G. Install stone panels working from the **[bottom up]** **[top down]** using mortarless joints.
- H. Remove mortar droppings as work progresses.
- I. Rake out perimeter and expansion joints for sealant to full depth of system before setting mortar has hardened. Rake joints with square bottoms and clean sides.
- J. Expansion- and Control-Joint Installation: Locate and install according to Drawings and Shop Drawings.
- K. Provide sealant joints of widths and at locations indicated.
  1. Keep sealant joints free of mortar and other rigid materials.
  2. Sealing joints is specified in Division 7 Section "Joint Sealants."

### 3.03 INSTALLATION OVER METAL LATH

- A. Using a plasterer's or mason's trowel, apply scratch coat over metal lath 1/2 to 3/4 inch (13 to 19 mm) thick to prepared surface area to comply with ASTM C 926. Use a toothed scraper, notched trowel or small piece of lath to lightly rake horizontal grooves in the scratch coat. Allow scratch coat to dry for 24 hours.
- B. Coat backs of stone panel system units and face of scratch coat with cement-paste bond coat, then butter both surfaces with setting mortar at least 1/2 inch (13 mm) thick. Tap units into place, completely filling space between units and scratch coat.

### 3.04 INSTALLATION OVER SOLID **[MASONRY]** **[AND]** **[CEMENT BOARD]**

Adhered veneer can be installed directly over masonry or cement board backup without lath; retain appropriate option in first paragraph below.

- A. Using a plasterer's or mason's trowel, apply scratch coat directly over **[masonry]** **[and]** **[cement board]** backup without lath 1/4 to 1/2 inch (6 to 13 mm) thick to prepared surface area to comply with ASTM C 926. Use a toothed scraper, notched trowel or small piece of lath to lightly rake horizontal grooves in the scratch coat. Allow scratch coat to dry for 24 hours.
- B. Coat backs of stone panel system units and face of **[masonry]** **[and]** **[cement board]** backup with cement-paste bond coat, then butter both surfaces with setting mortar at least 1/2 inch (13 mm) thick. Tap units into place, completely filling space between units and backup.

### 3.05 INSTALLATION ON FLOORS

Stone mats may be installed directly over clean, properly prepared concrete substrates. Cover wood panel substrates with a layer of cement board or install a cementitious topping.

## SPECIFICATIONS | Architectural Specs

- A. Saturate concrete with clean water several hours before placing setting bed. Remove surface water about one hour before placing setting bed.
- B. Apply cement-paste bond coat to damp concrete and broom to provide an even coating that completely covers the concrete. Do not exceed 1/16-inch (1.5-mm) thickness. Limit area of cement-paste bond coat to avoid its drying out before placing setting bed.
- C. Apply mortar bed immediately after applying mortar-bed bond coat. Spread, tamp, and screed to approximately 3/8 inch (9 mm) thickness.
  - 1. Mix and place only that amount of mortar bed that can be covered with stone before initial set. Cut back, bevel edge, and discard material that has reached initial set before stone can be placed.
- D. Place stone before initial set of mortar occurs. Immediately before placing stone on setting bed, apply uniform 1/16-inch- (1.5-mm-) thick cement-paste bond coat to back of each stone unit.
- E. Set stone mats in position and firmly press into mortar bed ensuring mesh backing is embedded and there is bond between the stone and mortar.
- F. Tamp stone with a rubber mallet to obtain full contact with setting bed and to bring finished surfaces within indicated tolerances. Set each unit in a single operation before initial set of mortar; do not return to areas already set and disturb stone for purposes of realigning finished surfaces or adjusting joints.
- G. Rake out joints to depth required to receive grout as units are set.

Some mortar and weather conditions will require more time for the mortar to cure.

- H. Allow setting mortar to dry for at least 24 hours before installing grout.
- I. Prepare grout mixture according to manufacturer's directions. Work grout into spaces between stones. Remove excess grout with a wet sponge, ensuring no grout is left behind on stone surfaces. Tool joints flat, uniform, and smooth, without visible voids and level with surface of stone.

### 3.06 POINTING

Pointing wall stones should only be required where stones do not touch. Flat runs of stone panels properly set will not need pointing mortar between panels or between individual pieces of stone nor will factory corner units properly installed on 90 degree corners. If odd angle corners or other unusual conditions preclude using factory made units, some pointing may be required to fill open joints if stones do not come into close contact with each other.

- A. Prepare stone-joint surfaces for pointing with mortar by removing dust and mortar particles.
- B. Point open stone joints at corners where stones do not touch by placing and compacting pointing mortar in layers not more than 3/8 inch (10 mm) deep. Compact each layer thoroughly and allow to become thumbprint hard before applying next layer.
- C. Tool joints, when pointing mortar is thumbprint hard, with a smooth jointing tool to produce the following joint profile:

Retain one of five options in subparagraph below or revise to suit Project.

- 1. Joint Profile: [**Concave**] [**Smooth, flat face slightly below edges of stone**] [**Smooth, flat face recessed 1/4 inch (6 mm) below edges of stone (raked joint)**] [**As indicated**].

## SPECIFICATIONS | Architectural Specs

### 3.07 JOINT-SEALANT INSTALLATION

Delete this Article if sealing joints is not specified in this Section.

- A. Prepare joints and apply sealants of type and at locations indicated to comply with applicable requirements in Division 7 Section "Joint Sealants."

### 3.08 ADJUSTING AND CLEANING

- A. In-Progress Cleaning: Clean stone panel system as work progresses. Remove mortar fins and smears before tooling joints.
- B. Final Cleaning: Clean stone panel system no fewer than six days after completion of pointing and sealing, using clean water and stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning agents containing caustic compounds or abrasives, or other materials or methods that could damage stone.

END OF SECTION 04 42 51

C:\WDEO\SPEC\PROJECTS\2006\06006 REALSTONE MASTER\04\_42\_51\_WSF.DOC

For additional information or with questions please contact us  
at 1-866-698-5066 or at [realstonesystems.com](http://realstonesystems.com)