



**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.

## SECTION 04851 – STACKED STONE VENEER / PREFABRICATED ROCK PANELS

Note to SPECIFIER: 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:

1. Prefabricated natural stone veneer Rock Panel Wall Systems for **[Exterior]**, **[Interior]**, **[Exterior and interior]** use.

##### B. Related Sections:

Note to SPECIFIER: DELETE any sections not relevant to this project; ADD others as required.

1. Section 03310 – Structural Cast-In-Place Concrete.
2. Section 04800 – Masonry Assemblies.
3. Section 05400 – Cold-Formed Metal Framing: Formed steel framed supporting wall.
3. Section 06112 – Framing and Sheathing: Wood frame supporting wall.
4. Section 07600 – Flashing and Sheet Metal.
6. Section 09220 – Cement Plaster: Metal lath and scratch coat back-up over supporting walls.

#### 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 6 by 6 inches, containing full-size samples of specified Rock 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 Norstone Rock Panel system product.

F. Closeout Submittals:

1. Maintenance Data: For Norstone Rock Panel systems to include in maintenance manuals.

### 1.03 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer Qualifications: Company specializing in manufacturing Products specified in this Section with minimum **five years [documented]** experience.

2. Installer Qualifications: A qualified installer who employs experience as a tile setter. Other qualified installers may be 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 Rock 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.]**

Note to SPECIFIER: 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 Norstone Pty Ltd of Australia +612 9944 6711, [www.norstoneusa.com](http://www.norstoneusa.com).

##### 2.02 STONE

A. Slate: Comply with ASTM C 629, Classification **[I Exterior]** **[II Interior]**, with a fine, even grain **[and unfading color,]** from clear, sound stock.

B. Quartzite: Comply with ASTM C 616.

C. Feldspar: Comply with ASTM C 616.

C. Finish: Natural cleft.

##### 2.03 WALL ROCK PANELS

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

Ochre Blend

Charcoal

Ivory

White Quartz

Chalk USA

A. Rock Panel Stone Color: **[Ochre Blend]** **[Charcoal]** **[Ivory]** **[White]** **[Chalk USA]**.

Note to SPECIFIER: 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.Depth	Length	Height	Avg Weight/Piece
Field Panels:	3/4" – 1 3/4"	24"	6"	12 lbs
Corner Units:	3/4" – 1 3/4"	8" & 16" returns	6"	12 lbs

\* Corner units are available in all Rock Panels. Formed corner is an interlocking fingered-joint where one end of the Rock Panel Corner Unit wraps 8 inches along one side and the other wraps 16 inches along the other.

B. Individual Rock 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. Rock Panel Thickness: Varies randomly from 5/8 (15 mm) inch to 1 1/2 (40 mm) inch.

D. Panels fabricated using multiple pieces of stone to different rectangular sizes. Utilize individual stone pieces of varying heights and lengths and thickness to achieve desired 3 dimensional aesthetic effects.

1. Adhere individual stones together using two part epoxy adhesive.

## 2.04 SETTING MATERIALS

Note to SPECIFIER: Coordinate requirements in this article with those in "Mortar Mixes" Article.

Manufacturer approved and recommended thinset shall be Laticrete 254 Platinum for all exterior applications; Laticrete 255 recommended for interior applications for quick installations.

A. Polymer Modified Thinset

1. Polymer Modified Thinset for tile-set applications: meeting or exceeding ANSI 118.4 & ANSI 118.11 standards; required for use in wet or dry applications.

2. Water: Potable

## 2.05 RELATED MATERIALS

Note to SPECIFIER: 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 Rock 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:

Note to SPECIFIER: 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."**]

Note to SPECIFIER: Retain following paragraph for all Exterior or Wet Area Applications.

I. Anti Fracture Membrane and Waterproofing Membrane: Select per ANSI A118.10-2005 as required; Manufacturer recommended Laticrete 9235 or Laticrete Hydroban.

## 2.06 MORTAR MIXES

Note to SPECIFIER: A polymer modified thinset, as specifically recommended by the manufacturer, shall be Laticrete 254 Platinum in conjunction with Laticrete 9235 Waterproofing Membrane for exterior, freeze-thaw environments and/or water feature/wet area environments; Laticrete 255 is recommended only for interior applications. If another polymer modified thinset is to be specified, it shall meet ANSI 118.4 & ANSI 118.11 standards for natural stone tile.

For exterior applications over (a) stud framing with sheathing panels, or (b) concrete masonry units, an adhesive mortar for scratch coat and waterproofing membrane is required.

Retain first paragraph below for adhered veneer on metal lath.

**A. Adhesive Mortar for Scratch Coat over Metal Lath:** Laticrete 226 mixed with Laticrete 3701 Admix and enough water to produce a workable consistency.

Note to SPECIFIER: Retain first paragraph below for adhered veneer on concrete masonry units.

**B. Adhesive Mortar for Scratch Coat over Unit Masonry:** Laticrete 226 mixed with Laticrete 3701 Admix and enough water to produce a workable consistency.

**C. Polymer Modified Thinset Setting Mortar:** Comply with ANSI 118.4 & ANSI 118.11; Manufacturer recommended Laticrete 254 Platinum for wet areas, exterior and exterior freeze/thaw applications.

Note to SPECIFIER: Retain first paragraph above for adhered stone veneer in exterior, freeze – thaw environments, and or water feature wet area environments. Retain first paragraph below for adhered stone veneer in interior applications only.

**D. Polymer Modified Thinset Setting Mortar:** Comply with ANSI 118.4 & ANSI 118.11; Manufacturer recommended Laticrete 255 for interior, dry applications only.

## PART 3 – EXECUTION

### 3.01 PREPARATION

**A. Surface Preparation:** Follow manufacturer's instructions for type of Rock Panel system and substrate.

Note to SPECIFIER: 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 water blasting 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 water blasting.

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

Note to SPECIFIER: 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.

Note to SPECIFIER: 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.

Note to SPECIFIER: Retain paragraph below for Exterior or Wet Area Applications.

E. Install Waterproofing / Anti fracture membrane to form water proof barrier between prepared surface and rock panel system.

### 3.02 SETTING OF ROCK PANEL SYSTEM, GENERAL

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

A. Install stone veneer panels in accordance with manufacturer's installation instructions.

B. Perform necessary field cutting and trimming as Norstone Rock Panels are set.

1. Use wet tile saws with diamond blades to cut Rock Panels. Cut lines straight and true, with edges eased slightly to prevent snipping.

C. Lay out stone veneer panels prior to setting with mortar to ensure proper fit and alignment.

D. Scribe and field-cut stone veneer as necessary to fit at obstructions. Produce neat joints of size specified or indicated. Fix stone veneer panels as tight as possible to eliminate any visible gaps or unsightly joints

E. Install corner units first.



F. Install remaining stone veneer panels with vertical end joints staggered randomly to form an offset pattern. Never stack bond Norstone rock panels.

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

G. Install Rock Panels working from the **[bottom up] [top down]** using mortarless joints.

H. Remove mortar or thin set 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

Note to SPECIFIER: All exterior applications over Metal Lath, Solid Masonry, Concrete Masonry, Poured Concrete, and Cement Board require the application of a good waterproofing membrane. Manufacturer recommended is Laticrete 9235 or Laticrete Hydroban.

A. Using a plasterer's or tile setter'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 then apply Laticrete 9235 or Laticrete Hydroban Waterproofing Membrane.

B. Coat backs of stone veneer Rock Panel system units and face of scratch coat with cement-paste bond coat, then butter both surfaces with setting mortar at least 3/8 inch (10 mm) thick. Tap stone veneer Rock Panels into place, completely filling space between the stone veneer and scratch coat.

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

Note to SPECIFIER: For interior applications, cement board applications do not require additional scratch coat.

Adhered stone veneer "rock panels" can be installed as a tile directly over masonry or cement board backup without lath; retain appropriate option in first paragraph below.

A. Using a plasterer's or tile setter'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 then apply Laticrete 9235 or Laticrete Hydroban Waterproofing Membrane.

B. Coat backs of Rock 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 3/8inch (10mm) thick. Tap units into place, completely filling space between units and backup.

### 3.05 POINTING

Note to SPECIFIER: Pointing wall stones should only be required where stones do not touch. Flat runs of Rock Panels properly set will not need pointing mortar between panels or between individual pieces of stone, nor will properly installed factory corner units 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:

Note to SPECIFIER: Retain one of four 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].**

### 3.06 JOINT-SEALANT INSTALLATION

Note to SPECIFIER: 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."

### 3.07 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean Rock Panel system as work progresses. Remove mortar fins and smears before tooling joints.

B. Final Cleaning: Clean Rock Panel system no fewer than six days after completion of pointing and sealing, using clean water and stiff-bristle fiber brushes. **WARNING** 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 04851 Stacked Stone Veneer / Prefabricated Rock Panels

