

Natural Stone Veneers International, Inc.  
PO Box 347  
Fond du Lac, Wisconsin 54936  
Toll Free 877-923-2800  
Phone 920-923-2800  
Fax 920-923-3800  
Website www.nsvi.com  
Email info@nsvi.com

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Fond du Lac Stone, Inc.  
N4224 Hwy 175  
Fond du Lac, Wisconsin 54937  
Toll Free 877-297-8663  
Phone 920-921-8280  
Fax 920-921-4405  
Website www.fdlstone.com  
Email info@fdlstone.com

### Guide Specification

Specifier Notes: This guide specification is written in Construction Specifications Institute (CSI) 3-Part Format in accordance with *The CSI Construction Specifications Practice Guide, MasterFormat, SectionFormat, and PageFormat.*

This Section must be carefully reviewed and edited by the Architect to meet the requirements of the Project and local building code. Coordinate this Section with Conditions of the Contract, Division 01, other specification sections, and the Drawings. Delete all Specifier Notes after editing this Section.

Section numbers and titles are based on *CSI MasterFormat 2018 Edition.*

## SECTION 04 40 00

### NATURAL THIN VENEER STONE

Specifier Notes: This Section covers Natural Stone Veneers International, Inc. and Fond du Lac Stone, Inc. natural thin veneer stone for exterior and interior vertical surfaces. Consult Natural Stone Veneers International, Inc. or Fond du Lac Stone, Inc. for assistance in editing this Section as required for the Project.

#### PART 1 GENERAL

## 1.1 SECTION INCLUDES

Specifier Notes: Edit the following sentence as required.

- A. Natural thin veneer stone for [exterior] [and] [interior] vertical surfaces.

## 1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required for the Project. Limit the list to sections with specific information that the reader might expect to find in this Section, but is specified elsewhere.

- A. Section 04 22 00 – Concrete Unit Masonry: Masonry supporting walls.
- B. Section 05 40 00 – Cold-Formed Metal Framing: Formed steel-framed supporting walls.
- C. Section 05 50 00 – Metal Fabrications: Galvanized shelf angles, structural supports, anchors, and other built-in components for building into natural thin veneer stone.
- D. Section 06 11 00 – Wood Framing: Wood frame supporting walls.
- E. Section 06 16 00 – Sheathing: Wood frame supporting walls.
- F. Section 07 21 00 – Thermal Insulation.
- G. Section 07 90 00 – Joint Protection: Sealant and joint filler for perimeter and control joints.
- H. Section 09 24 00 – Cement Plastering: Metal lath and scratch coat back-up over supporting walls.
- I. Section 09 63 40 – Stone Flooring: Natural thin veneer stone used for flooring.

## 1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this Section, complete with designations and titles. Delete reference standards from the following list not used in the edited Section.

- A. ACI 530.1/ASCE 6/TMS 602 – Specifications for Masonry Structures.
- B. ANSI A118.4 – Specifications for Modified Dry-Set Cement Mortar.
- C. ANSI A118.15 – Specifications for Improved Modified Dry-Set Cement Mortar.
- D. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar.
- E. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes.
- F. ASTM C 270 – Standard Specification for Mortar for Unit Masonry.

- G. ASTM C 503 / C 503M – Standard Specification for Marble Dimension Stone.
- H. ASTM C 568 / C 568M – Standard Specification for Limestone Dimension Stone.
- I. ASTM C 615 / C 615M – Standard Specification for Granite Dimension Stone.
- J. ASTM C 616 / C 616M – Standard Specification for Quartz-Based Dimension Stone.
- K. ASTM C 847 – Standard Specification for Metal Lath.
- L. ASTM C 979 / C 979M – Standard Specification for Pigments for Integrally Colored Concrete.
- M. ASTM C 1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
- N. PCA Portland Cement Plaster (Stucco) Manual.

#### **1.4 PREINSTALLATION MEETINGS**

Specifier Notes: Edit the Preinstallation Meetings article as required for the Project. Delete this article if not required.

- A. Convene preinstallation meeting [1 week] [2 weeks] before start of Work of this Section.
- B. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, installer, and manufacturer's representative.
- C. Review the Following:
  - 1. Mock-ups.
  - 2. Materials.
  - 3. Protection of in-place conditions.
  - 4. Surface preparation.
  - 5. Installation.
  - 6. Cleaning.
  - 7. Protection.
  - 8. Coordination with other Work.

#### **1.5 SUBMITTALS**

Specifier Notes: Edit the Submittals article as required for the Project. Delete submittals not required.

- A. Submittals: Comply with Division 01.
- B. Product Data: Submit manufacturer's product data for natural thin veneer stone, mortar products, and sealant products, including:
  - 1. Surface preparation and installation instructions.
  - 2. Storage and handling instructions.

- C. Shop Drawings: Submit manufacturer's shop drawings, including plans, elevations, sections, and details, indicating layout, dimensions, anchorages, and jointing methods.
- D. Selection Samples: Submit mortar color samples.
- E. Verification Samples: Submit 2 manufacturer's full-size samples of natural thin veneer stone for each pattern specified.
- F. Warranty: Submit manufacturer's standard warranty for natural thin veneer stone.

## **1.6 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for preceding 10 years, in the manufacturing of natural thin veneer stone of similar type to that specified.

Specifier Notes: Include a mock-up if the project size or quality warrants. Edit mock-ups as required. Delete mock-ups if not required.
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- B. Mock-Ups: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  1. Finish areas designated by Architect.
  2. Construct mock-ups using same materials for use in the Work.
  3. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
  4. Refinish mock-up area as required to produce acceptable work.

## **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
  1. Store materials in accordance with manufacturer's instructions.
  2. Store materials in manufacturer's unopened packaging until ready for installation.
  3. Store stone materials on pallets on dry, level surface and cover with tarps.
  4. Do not stack pallets.
  5. Mortar Materials: Store mortar materials under cover in area where air temperature is maintained between 40 degrees F and 110 degrees F (4 degrees C and 43 degrees C).
- C. Handling: Protect materials during handling and installation to prevent damage or contamination.

## **1.8 AMBIENT CONDITIONS**

- A. Maintain temperature, humidity, and ventilation within limits recommended by manufacturer for optimum results.
- B. Do not install natural thin veneer stone under ambient conditions outside manufacturer's limits.
- C. Hot and Cold Weather Requirements: ACI 530.1/ASCE 6/TMS 602.

- D. Air Temperature: 40 degrees F (4 degrees C) or above during installation of natural thin veneer stone.
- E. Mortar Mixing Water: Heat mortar mixing water when air temperature falls below 50 degrees F (10 degrees C).

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURERS**

Specifier Notes: Natural Stone Veneers International, Inc. (NSVI) purchased Fond du Lac Stone, Inc. (FDL) in 2017. Stone products described in this Section are manufactured by either company. Consult NSVI or FDL for information regarding the ONE manufacturer to include in this Section.

Specify ONE of the following TWO manufacturers.

- A. Manufacturer: Natural Stone Veneers International, Inc., PO Box 347, Fond du Lac, Wisconsin 54936. Toll Free 877-923-2800. Phone 920-923-2800. Fax 920-923-3800. www.nsvi.com. info@nsvi.com.
- B. Manufacturer: Fond du Lac Stone, Inc., N4224 Hwy 175, Fond du Lac, Wisconsin 54937. Toll Free 877-297-8663. Phone 920-921-8280. Fax 920-921-4405. www.fdlstone.com. info@fdlstone.com.

Specifier Notes: Specify if substitutions will be permitted.

- C. Substitutions: [Not permitted] [Comply with Division 01].
- D. Single Source: Provide stone from single manufacturer.

### **2.2 NATURAL THIN VENEER STONE**

Specifier Notes: Natural thin veneer stone collections and patterns are listed alphabetically. Specify required collections and patterns. Delete collections and patterns not required. Consult Natural Stone Veneers International, Inc. or Fond du Lac Stone, Inc. for more information.

- A. Collection: "Biltmore".
  - 1. Pattern: "Big Timber".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Buff, browns, grays, black, sage, some moss and lichens possible.
    - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
  - 2. Pattern: "Camelback".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).

- c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38mm).
  - d. Color: Brown tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
3. Pattern: "Canyon Creek".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Brown tones.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  4. Pattern: "Fond du Lac Manor".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Shades of light and warm medium grays.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  5. Pattern: "Graphite Manor".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Grays to black.
    - e. Material: Limestone, rated as high density, ASTM C 568.
  6. Pattern: "Heritage Manor".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light brown and buff tones.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  7. Pattern: "Old Harbor".
    - a. Height: 3 inches to 12 inches (76 mm to 305 mm).
    - b. Length: 6 inches to 18 inches (152 mm to 457 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Gray tones.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  8. Pattern: "Princeton".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38mm).
    - d. Color: Brown and gray hues.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  9. Pattern: "Summit".
    - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38mm).
    - d. Color: Gray tones.

- e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
- 10. Pattern: "Warwick".
  - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
  - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
- 11. Pattern: "Woodland".
  - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
  - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Brown and gray hues.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.

B. Collection: "Country".

- 1. Pattern: "Charcoal Country".
  - a. Height: 2 inches to 6 inches (51 mm to 152 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light to medium grays, silver buff.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 2. Pattern: "Fond du Lac Country".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light to medium grays.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 3. Pattern: "Graphite Country".
  - a. Height: 2 inches to 6 inches (51 mm to 152 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light to dark gray, graphite tones, silver buff.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 4. Pattern: "Hamilton Country".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Creamy white to buff yellow, light gray.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 5. Pattern: "Heritage Country".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Medium gray-blue, and buff to gold tones.

- e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
6. Pattern: "Tundra Country".
    - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
    - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Buff, tan, and gray hues.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- C. Collection: "Dimensional".
1. Pattern: "Fond du Lac Dimensional".
    - a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
    - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light to medium warm grays.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  2. Pattern: "Fond du Lac Dimensional Clean-Split".
    - a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
    - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light grays.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  3. Pattern: "Fond du Lac Dimensional with Splitface".
    - a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
    - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light grays and medium warm grays.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  4. Pattern: "Graphite Dimensional".
    - a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
    - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Grays to black.
    - e. Material: Limestone, rated as high density, ASTM C 568.
  5. Pattern: "Hamilton Dimensional".
    - a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
    - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Cream, lavender, tan, and buff hues.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  6. Pattern: "Heritage Dimensional".

- a. Height: 2-1/4 inches, 5 inches, 7-3/4 inches, and 10-1/2 inches (57 mm, 127 mm, 197 mm, and 267 mm).
  - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray and buff tones.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
7. Pattern: "Lakewood".
- a. Height: 2-1/4 inches, 5 inches, and 7-3/4 inches (57 mm, 127 mm, and 197 mm).
  - b. Length: 6 inches to 18 inches (152 mm to 457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: White and cream tones with soft-aged appearance.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
8. Pattern: "Olympia".
- a. Height: 2-1/4 inches, 5 inches, and 7-3/4 inches (57 mm, 127 mm, and 197 mm).
  - b. Length: 8 inches to 18 inches (203 mm to 457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: White and cream tones.
  - e. Material: Limestone, rated as high density, ASTM C 568.
9. Pattern: "Santa Barbara".
- a. Height: 2-1/4 inches, 5 inches, and 7-3/4 inches (57 mm, 127 mm, and 197 mm).
  - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Desert colors - tans, salmon, and brown tones.
  - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
- D. Collection: "Dimensional LedgeStone".
1. Pattern: "Apollo LedgeStone".
- a. Height: 2-1/2 inches and 5 inches (63.5 mm and 127 mm).
  - b. Length: 6 inches to 24 inches (152 mm to 607 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: White and cream tones.
  - e. Material: Limestone, rated as high density, ASTM C 568.
2. Pattern: "Athena LedgeStone".
- a. Height: 2-1/2 inches (63.5 mm).
  - b. Length: 6 inches to 24 inches (152 mm to 607 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: White and cream tones.
  - e. Material: Limestone, rated as high density, ASTM C 568.
3. Pattern: "Bronze LedgeStone".
- a. Height: 2 1/2 inches (63.5 mm).
  - b. Length: 4 inches to 12 inches (102 mm to 305 mm).
  - c. Nominal Thickness: 1/2 inch to 3/4 inch (13 mm to 19 mm).
  - d. Color: Brown, mocha, and tan.
  - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
4. Pattern: "Copper LedgeStone".
- a. Height: 2-1/2 inches and 5 inches (63.5 mm and 127 mm).
  - b. Length: 4 inches to 12 inches (102 mm to 305 mm).

- c. Nominal Thickness: 1/2 inch to 3/4 inch (13 mm to 19 mm).
  - d. Color: Brown, mocha, and tan.
  - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
5. Pattern: "Iris Ledge".
    - a. Height: 2-1/2 inches and 5 inches (63.5 mm and 127 mm).
    - b. Length: 3 inches to 26 inches (76 mm to 660 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/4 inches (19 mm to 32 mm).
    - d. Color: Gray tones.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  6. Pattern: "Nickel Ledge".
    - a. Height: 2-1/2 inches and 5 inches (63.5 mm and 127 mm).
    - b. Length: 4 inches to 12 inches (102 mm to 305 mm).
    - c. Nominal Thickness: 1/2 inch to 3/4 inch (13 mm to 19 mm).
    - d. Color: Silver and gray.
    - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
  7. Pattern: "Platinum Ledge".
    - a. Height: 2 1/2 inches (63.5 mm).
    - b. Length: 4 inches to 12 inches (102 mm to 305 mm).
    - c. Nominal Thickness: 1/2 inch to 3/4 inch (13 mm to 19 mm).
    - d. Color: Silver and gray.
    - e. Material: Quartzitic sandstone, rated as Type-III when tested in accordance with ASTM C 616.
  8. Pattern: "Taurus Ledge".
    - a. Height: 2 1/2 inches (63.5 mm).
    - b. Length: 3 inches to 26 inches (76 mm to 660 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/4 inches (19 mm to 32 mm).
    - d. Color: Gray tones.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.

E. Collection: "Falls".

1. Pattern: "Charcoal Falls".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light to dark gray, graphite tones, silver buff.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
2. Pattern: "Fond du Lac Falls".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light to medium warm grays, and graphite tones.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
3. Pattern: "Graphite Falls".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).

- c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
- d. Color: Light to dark gray, graphite tones, silver buff.
- e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.

F. Collection: "Fieldstone".

1. Pattern: "Aspen".
  - a. Height: Irregular shapes.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Earth tones.
  - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
2. Pattern: "Cobblestone".
  - a. Height: Irregular-shaped stones.
  - b. Length: 3 inches to 10 inches (76 mm to 254 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Multi-colored.
  - e. Material: Granite, when tested in accordance with ASTM C 615.
3. Pattern: "New England Fieldstone".
  - a. Height: Irregular shapes.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Earth tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
4. Pattern: "Split Fieldstone".
  - a. Height: Irregular-shaped stones.
  - b. Length: 3 inches to 10 inches (76 mm to 254 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Multi-colored.
  - e. Material: Granite, when tested in accordance with ASTM C 615.

G. Collection: "Ledgestone".

1. Pattern: "Cliffton Ledge".
  - a. Height: 1 inch to 4 inches (25 mm to 102 mm).
  - b. Length: 3 inches to 8 inches (76 mm to 203 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Beige, black, brown, buff, charcoal, gray, and tan.
  - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
2. Pattern: "Diamond Ridge".
  - a. Height, Mixed Blend:
    - 1) 50 Percent: 1 inch to 2 inches (25 mm to 51 mm).
    - 2) 50 percent: 3-1/2 inches to 5-1/2 inches (89 mm to 140 mm).
  - b. Length: 4 inches to 14 inches (102 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Silver and gray.
  - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
3. Pattern: "Hudson Ledgestone".

- a. Height, Mixed Blend:
    - 1) 50 Percent: 1 inch to 2 inches (25 mm to 51 mm).
    - 2) 50 percent: 3-1/2 inches to 5-1/2 inches (89 mm to 140 mm).
  - b. Length: 4 inches to 14 inches (102 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Silver and brown.
  - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
- 4. Pattern: "Juneau Ledge".
    - a. Height: 2 inches and 4 inches (51mm and 102mm).
    - b. Length: 4 inches to 12 inches (102 mm to 305 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Beige, black, brown, buff, charcoal, gray, and tan.
    - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
  - 5. Pattern: "Rockford".
    - a. Height: 2 inches and 4 inches (51 mm and 102 mm).
    - b. Length: 4 inches to 16 inches (152 mm to 406 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Beige, brown, buff, charcoal, and tan.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  - 6. Pattern: "Silver Ledge".
    - a. Height: 1 inch to 2 inches (25 mm to 102 mm).
    - b. Length: 4 inches to 14 inches (102 mm to 356 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Silver and gray.
    - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.
  - 7. Pattern: "Tungsten Ledge".
    - a. Height: 2 inches to 4 inches (51 mm to 305 mm).
    - b. Length: 6 inches to 23 inches (152 mm to 584 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/4 inches (19 mm to 32 mm).
    - d. Color: Gray tones.
    - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
  - 8. Pattern: "Virginia Ledge".
    - a. Height: 1 inch to 2 inches (25 mm to 51 mm).
    - b. Length: 4 inches to 14 inches (102 mm to 356 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Silver and brown.
    - e. Material: Quartzitic sandstone, rated as Type III when tested in accordance with ASTM C 616.

H. Collection: "LedgeStone Panels".

- 1. Pattern: "Ironwood - Panel".
  - a. Height: 8 inches (203 mm).
  - b. Length: 18 inches (457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Beige, brown, buff, tan, and gray.

- e. Material: Quartzitic sandstone, rated as Type III High Density when tested in accordance with ASTM C 616.
  - 2. Pattern: "London - Panel".
    - a. Height: 8 inches (203 mm).
    - b. Length: 18 inches (457 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Gray and silver.
    - e. Material: Quartzitic sandstone, rated as Type III High Density when tested in accordance with ASTM C 616.
  - 3. Pattern: "Silver Ledgestone - Panel".
    - a. Height: 8 inches (203 mm).
    - b. Length: 18 inches (457 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Gray and silver.
    - e. Material: Quartzitic sandstone, rated as Type III High Density when tested in accordance with ASTM C 616.
  - 4. Pattern: "Virginia Ledgestone - Panel".
    - a. Height: 8 inches (203 mm).
    - b. Length: 18 inches (457 mm).
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Beige, brown, buff, gray, and silver.
    - e. Material: Quartzitic sandstone, rated as Type III High Density when tested in accordance with ASTM C 616.
- I. Collection: "Mosaic".
- 1. Pattern: "Bluewater".
    - a. Height: Irregular shapes.
    - b. Length: Irregular to 16 inches (406 mm) across.
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Gray tones.
    - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
  - 2. Pattern: "Fond du Lac Mosaic".
    - a. Height: Irregular shapes.
    - b. Length: Irregular to 16 inches (406 mm) across.
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light and warm medium grays.
    - e. Material: Limestone, rated as Type II High Density when tested in accordance with ASTM C 568.
  - 3. Pattern: "Graphite Mosaic".
    - a. Height: Irregular shapes.
    - b. Length: Irregular to 16 inches (406 mm) across.
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Gray to black tones.
    - e. Material: Limestone, rated as high density, ASTM C 568.
  - 4. Pattern: "Heritage Mosaic".
    - a. Height: Irregular shapes.
    - b. Length: Irregular to 16 inches (406 mm) across.
    - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
    - d. Color: Light brown and buff tones.

- e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 5. Pattern: "Litchfield".
  - a. Height: Irregular shapes.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Brown tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.
- 6. Pattern: "Pembroke".
  - a. Height: Irregular shapes.
  - b. Length: Irregular to 21 inches (533 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.

J. Collection: "Old World".

- 1. Pattern: "Glenwood".
  - a. Height: Irregular-shaped tumbled stone.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Buff tones with soft-aged appearance.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 2. Pattern: "Prescott".
  - a. Height: Irregular-shaped tumbled stones.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light gray and buff tones.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
- 3. Pattern: "Santa Cruz".
  - a. Height: Irregular shapes.
  - b. Length: Irregular to 16 inches (406 mm) across.
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Brown tones.
  - e. Material: Quartzitic sandstone, rated as Type II when tested in accordance with ASTM C 616.

K. Collection: "Stone Jewel".

- 1. Pattern: "Kingston".
  - a. Height: 8 inches to 16 inches (203 mm to 406 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/8 inch (9.5 mm).
  - d. Color: Carmel.
  - e. Material: Marble, ASTM C 503.
- 2. Pattern: "Windsor".
  - a. Height: 8 inches to 16 inches (203 mm to 406 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/8 inch (9.5 mm).

- d. Color: Buff and light brown colors.
- e. Material: Marble, ASTM C 503.

L. Collection: "Traditional".

1. Pattern: "Belmont".
  - a. Height: 4 inches to 12 inches (102 mm to 305 mm).
  - b. Length: 8 inches to 14 inches (203 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Buff and gray tones.
  - e. Material: Limestone, rated as Type II High Density when tested in accordance with ASTM C 568.
2. Pattern: "Chandler".
  - a. Height: 2 inches to 8 inches (51 mm to 203 mm).
  - b. Length: 6 inches to 20 inches (152 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray tones.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
3. Pattern: "Columbia".
  - a. Height: 2 inches to 8 inches (51 mm to 203 mm).
  - b. Length: 6 inches to 18 inches (152 mm to 457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Light gray and buff tones with soft-aged appearance.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
4. Pattern: "Fond du Lac Harvest".
  - a. Height: 2 inches to 9 inches (51 mm to 229 mm).
  - b. Length: 8 inches to 24 inches (203 mm to 610 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray, buff, gold.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
5. Pattern: "Shady Canyon".
  - a. Height: 3 inches to 6 inches (76 mm to 127 mm).
  - b. Length: 8 inches to 20 inches (203 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Golden brown tones with gray.
  - e. Material: Quartzitic sandstone, rated as Type II Medium Density when tested in accordance with ASTM C 616.
6. Pattern: "Westminster".
  - a. Height: 2 inches to 8 inches (51 mm to 203 mm).
  - b. Length: 6 inches to 18 inches (152 mm to 457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray tones with soft-aged appearance.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
7. Pattern: "Winchester".
  - a. Height: 3 inches to 10 inches (76 mm to 254 mm).
  - b. Length: 4 inches to 18 inches (101 mm to 457 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Beige, black, brown, buff, charcoal, gray, and tan.

- e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.

M. Collection: "Tuscan".

1. Pattern: "Brookwood".
  - a. Height: 2 inches to 8 inches (51 mm to 203 mm).
  - b. Length: 6 inches to 14 inches (152 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Beige, black, brown, buff, charcoal, gray, and tan.
  - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
2. Pattern: "Chardonnay".
  - a. Height: 4 inches to 8 inches (102 mm to 203 mm).
  - b. Length: 6 inches to 14 inches (152 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Buff tones with red.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
3. Pattern: "Concord".
  - a. Height: 4 inches to 8 inches (102 mm to 203 mm).
  - b. Length: 6 inches to 14 inches (152 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Buff with blue vein.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
4. Pattern: "Keywest".
  - a. Height: 4 inches to 8 inches (102 mm to 203 mm).
  - b. Length: 6 inches to 14 inches (152 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Gray to cool blues.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.
5. Pattern: "Palmer".
  - a. Height: 2 inches to 8 inches (51 mm to 203 mm).
  - b. Length: 6 inches to 20 inches (152 mm to 508 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Earth tones, golds, browns, tan, rust, and salmon.
  - e. Material: Quartzitic sandstone, rated as Type I when tested in accordance with ASTM C 616.
6. Pattern: "Sydney".
  - a. Height: 4 inches to 8 inches (102 mm to 203 mm).
  - b. Length: 6 inches to 14 inches (152 mm to 356 mm).
  - c. Nominal Thickness: 3/4 inch to 1-1/2 inches (19 mm to 38 mm).
  - d. Color: Buff colors.
  - e. Material: Limestone, rated as Type III High Density when tested in accordance with ASTM C 568.

## 2.3 SPECIAL SHAPES

Specifier Notes: Specify special shapes as required. Delete special shapes not required. Indicate location and sizes of special shapes on the Drawings.

- A. Provide special shapes as indicated on the Drawings and as follows:
  - 1. Trimstones.
  - 2. Hearthstones.
  - 3. Keystones.
  - 4. Rockface sills.
  - 5. \_\_\_\_\_.
- B. Color:

Specifier Notes: Specify color of special shapes as required. Delete colors not required.

- 1. Cream.
- 2. Golden.
- 3. Buff.
- 4. Indiana Rock Gray.
- 5. Desert Rock.

## 2.4 MORTAR

- A. Mortar:
  - 1. Cement: ASTM C 270.
  - 2. Lime: ASTM C 207.
  - 3. Sand: ASTM C 144, natural or manufactured.
  - 4. Color Pigments: ASTM C 979, mineral oxide.
  - 5. Water: Potable.
  - 6. Pre-Packaged Latex-Portland Cement Mortar: ANSI A118.4 or ANSI A118.15.
- B. Bonding Agent: Acrylic additive.
- C. Mortar Mixes:

Specifier Notes: Specify mortar mixes for grouted joints or jointless dry-stack installation.

- 1. Grouted Joints:
  - a. Mortar Mix: ASTM C 270, Type S.
  - b. Add color pigments to mortar in accordance with pigment manufacturer's instructions.
- 2. Jointless Dry-Stack Installation:
  - a. Mortar Mix: ANSI A118.4 or ANSI A118.15.
  - b. Add color pigments to mortar in accordance with pigment manufacturer's instructions.

## 2.5 ACCESSORIES

Specifier Notes: Edit the first two paragraphs as required. Delete if not required.

- A. Expanded Metal Lath: ASTM C 847; galvanized, self-furring.
- B. Lath Anchorage: Nails, screws, and other metal supports.
  - 1. Galvanized.
  - 2. Type and size to suit application and to rigidly secure materials in place.
- C. Weather Resistant Barrier: Provide weather resistant barrier in accordance with local building code and authorities having jurisdiction within wall assembly to control condensation and other moisture in walls.
- D. Drainage Plane: Provide rigid drainage plane in accordance with local building code and authorities having jurisdiction within wall assembly to allow moisture to flow downward and out weep system, providing rapid drying capacity.
  - 1. Thickness: 3/16 inch to 3/4 inch (5 mm to 19 mm).
- E. Joint Sealants and Joint Fillers: As specified in Section 07 90 00.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine surfaces to receive natural thin veneer stone.
- B. Notify Architect of conditions that would adversely affect installation.
- C. Do not begin surface preparation or installation until unacceptable conditions are corrected.
- D. Do not begin installation until backing structure is plumb, bearing surfaces are level, and substrates are clean and properly prepared.
- E. Verify location and secure installation if shelf angles are required.

### 3.2 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturer's instructions.
- B. Clean surfaces thoroughly before installation.
- C. Prepare surfaces using methods for achieving best results for substrate under project conditions.

Specifier Notes: Edit the following paragraphs as required. Delete paragraphs not required.

- D. Prepare for Installation Over Plywood, Gypsum, or Other Exterior-Grade Sheathing:

1. Water Resistant Barriers: Cover plywood sheathing with combination of house wrap (first) and building paper, with joints lapped shingle style a minimum of 4 inches (102 mm).
  2. Metal Lath:
    - a. Install metal lath in accordance with ASTM C 1063.
    - b. Apply metal lath with long dimension perpendicular to supports and with joints lapped a minimum of 1 inch (25 mm).
    - c. Secure laps with tie wire where they occur between supports.
  3. Fastening Metal Lath:
    - a. Fasten lath to wood supports using galvanized nails at maximum 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally.
    - b. Fasten with a minimum of 1-inch (25-mm) penetration of wood studs.
    - c. Stop lath 1 inch (25 mm) from finished edges.
  4. Veneer Wall Sheathing (Cement Board) [and] [Tile Backer Wallboard, Interior]:
    - a. Provide exterior-rated cement board for exterior applications.
    - b. Provide cement board for exterior applications over primary protected wall sheathing in accordance with building code and authorities having jurisdiction.
    - c. Prepare movement joints in wall assembly as recommended by sheathing manufacturer for both interior and exterior cement board sheathing.
    - d. Dampen cement board before applying adhesion layer.
- E. Prepare for Installation Over Continuous Insulation: As indicated on the Drawings and specified in Section 07 21 00.
- F. Prepare for Installation Over Formed Concrete Surfaces:
1. Metal Lath:
    - a. Install metal lath in accordance with ASTM C 1063.
    - b. Apply metal lath with long dimension perpendicular to supports and with joints lapped a minimum of 1 inch (25 mm).
    - c. Secure laps with tie wire where they occur between supports.
  2. Fastening Metal Lath:
    - a. Attach lath to concrete using galvanized concrete nails at maximum 6 inches (152 mm) on center vertically and 16 inches (406 mm) on center horizontally.
    - b. Stop lath 1 inch (25 mm) from finished edges.
- G. Prepare for Installation Over Concrete Walls: Ensure concrete wall assembly is sound, without defects, and properly cured to accept adhered masonry veneer setting material.
1. Examine and remove contaminants including dirt, dust, stains, paint, organic matter, form-release agents, and other substances that may inhibit mortar bond.
  2. Mortar: ANSI A118.4 or ANSI A118.15 to adhere stone to concrete walls.
- H. Prepare for Installation Over Concrete Masonry Units: Ensure concrete masonry unit wall assembly is sound, without defects, and properly cured to accept adhered masonry veneer setting material.
1. Examine and remove contaminants including dirt, dust, stains, paint, organic matter, form-release agents, and other substances that may inhibit mortar bond.
  2. Mortar: ANSI A118.4 or ANSI A118.15 to adhere stone to concrete masonry unit wall assembly.
- I. Application of Base Coat Stucco:
1. Apply scratch coat in accordance with PCA Portland Cement Plaster (Stucco) Manual.

2. Apply scratch coat to nominal thickness of 1/2 inch to 3/4 inch (13 mm to 19 mm) over metal lath surfaces.
  3. If weather is hot or surface is dry, dampen previous coat before applying mortar and natural thin veneer stone.
  4. If scratch coat is done in advance, use notch trowel to create texture for better bond.
- J. Prepare for Installation of Natural Thin Veneer Stone:
1. Coordination: Coordinate placement of reinforcement, anchors, accessories, flashings, weep holes, and other moisture-control products specified in other sections.
  2. Cleaning: Clean built-in items of loose rust, ice, mud, and other foreign matter before incorporating into wall.
  3. Prime or galvanize ferrous metal built into wall.
  4. Temporary Bracing:
    - a. Provide temporary bracing as required during installation of masonry.
    - b. Maintain bracing in place until building structure provides permanent support.

### 3.3 INSTALLATION

Specifier Notes: The following paragraphs cover typical natural thin veneer stone installation with mortared joints. Edit as required.

- A. Install natural thin veneer stone and mortar in accordance with manufacturer's instructions and ACI 530.1/ASCE 6/TMS 602.
- B. Maintain masonry courses to uniform dimensions. Form vertical and horizontal joints of uniform thickness.
- C. Pattern Bond:
  1. Lay out work in advance and distribute color range of stone uniformly over total work area.
  2. Lay stone with face exposed.
  3. Avoid concentration of any 1 color to any 1 wall surface.
  4. Maintain approximate 1/2-inch (13-mm) joint, as stone allows.
  5. Do not use stacked vertical joints.
- D. Placing and Bonding:
  1. Dampen substrate as required to reduce excessive suction.
  2. Apply mortar in accordance with PCA Portland Cement Plaster (Stucco) Manual to thickness of 1/2 inch to 3/4 inch (13 mm to 19 mm).
  3. Press firmly to seat each stone as placed.
  4. Lay natural thin veneer stone in full bed of mortar with full head joints.
  5. Work from bottom up, laying corner pieces first.
  6. Remove excessive mortar as work progresses.
  7. Do not shift or tap veneer stone after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
  8. Isolate top of veneer stone from horizontal structural framing members and slabs or decks with compressible joint filler and sealant as specified in Section 07 90 00.
- E. Joining Work: Where fresh masonry joins partially set masonry.
  1. Remove loose stone and mortar.
  2. Clean and lightly wet surface of set masonry.

3. To avoid horizontal run of masonry, rack back 1/2 the length of stone in each course.
4. Tothing: Not permitted.

F. Joints:

1. Lay stone with approximate 1/2-inch (13-mm) mortar joints, as stone allows.
2. Tool joints when "thumb-print" hard with round jointer, slightly larger than width of joint.
3. Trowel point or concave tool exterior joints below grade.
4. Finish flush-cut joints with soft brush only.
5. Retempering of Mortar: Not permitted.
6. Use non-corrosive stone shims as required to maintain uniform joint thickness.

Specifier Notes: Verify control and expansion joints are correctly indicated and detailed on the Drawings. Design control joints in accordance with National Concrete Masonry Association TEK 10-2B for control joint design and locations.

G. Control and Expansion Joints:

1. Keep joints open and free of debris.
2. Coordinate control joints as specified in Section 07 90 00 for sealant performance.

H. Sealant Recesses:

1. Provide open joints 3/4 inch (19 mm) deep and 1/4 inch (6 mm) wide, where masonry meets doors, windows, and other exterior openings.
2. Coordinate sealant joints as specified in Section 07 90 00 for sealant performance.

I. Cutting and Fitting:

1. Cut and fit natural thin veneer stone for chases, pipes, conduit, sleeves, grounds, and other penetrations and adjacent materials.
2. Coordinate with other work to provide correct size, shape, and location.

J. During progress of the Work, cover top of unfinished stone masonry for protection from weather.

Specifier Notes: The following paragraphs cover dry-stack thin natural thin veneer stone installation with no visible mortar joints. This method of installation is used for the "Ledgestone" and "Dimensional Ledgestone" collections. Edit the following as required. Delete if not required.

### 3.4 DRY-STACK INSTALLATION

- A. Install thin veneer stone and mortar in accordance with manufacturer's instructions and ACI 530.1/ASCE 6/TMS 602.
- B. Maintain masonry courses to uniform dimensions. Form vertical and horizontal joints of uniform thickness.
- C. Pattern Bond:
1. Lay out work in advance and distribute color range of stone uniformly over total work area.
  2. Lay stone with face exposed.
  3. Avoid concentration of any 1 color to any 1 wall surface.
  4. Maintain squared and uniform profile.
  5. Do not use stacked vertical joints.

- D. Placing and Bonding:
1. Dampen substrate as required to reduce excessive suction.
  2. Use thin-set mortar in accordance with ANSI A118.4 or ANSI A118.15 for interior or exterior dry-stack installation.
  3. Apply mortar to thickness of 1/4 inch (6 mm) to back of stone.
  4. Press firmly to seat each stone as placed.
  5. Work from bottom up, laying corner pieces first.
  6. Remove excessive mortar as work progresses.
  7. Do not shift or tap veneer stone after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
  8. Isolate top of veneer stone from horizontal structural framing members and slabs or decks with compressible joint filler and sealant as specified in Section 07 90 00.
- E. Joints:
1. Lay stone with reasonably uniform joints, as stone allows.
  2. Remove excess mortar as stone is pressed into position.
  3. Use non-corrosive stone shims as required to maintain joint thickness.

Specifier Notes: Verify control and expansion joints are correctly indicated and detailed on the Drawings. Design control joints in accordance with National Concrete Masonry Association TEK 10-2B for control joint design and locations.

- F. Control and Expansion Joints:
1. Keep joints open and free of debris.
  2. Coordinate control joints as specified in Section 07 90 00 for sealant performance.
- G. Sealant Recesses:
1. Provide open joints 3/4 inch (19 mm) deep and 1/4 inch (6 mm) wide, where masonry meets doors, windows, and other exterior openings.
  2. Coordinate sealant joints as specified in Section 07 90 00 for sealant performance.
- H. Cutting and Fitting:
1. Cut and fit natural thin veneer stone for chases, pipes, conduit, sleeves, grounds, and other penetrations and adjacent materials.
  2. Coordinate with other work to provide correct size, shape, and locations.
- I. During progress of the Work, cover top of unfinished stone masonry for protection from weather.

### **3.5 CLEANING**

- A. Keep face of stone free of mortar as work progresses.
- B. If residual mortar is on face of stone, allow to dry partially and brush mortar off surface and sponge off residue.
- C. When work is completed and mortar has set for 2 to 3 days, clean surface from top to bottom using mild masonry detergent acceptable to natural thin veneer stone manufacturer.
- D. Do not use harsh cleaning materials or methods that could damage stone.

- E. Do not use metal brushes or acids for cleaning.

### **3.6 PROTECTION**

- A. Protect installed natural thin veneer stone to ensure that, except for normal weathering, stone will be without damage or deterioration at time of Substantial Completion.
- B. Touch-up, repair, or replace damaged stone before Substantial Completion.

**END OF SECTION**