

SPEC NOTE: This Section is to be used as a medium scope thin stone panel Section and includes units used in veneer and cavity wall construction.

Section 04 42 00
Dimension Stone Cladding

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Design Services: Provide a Proprietary Design/Build thin stone panel, modified curtain wall cladding system for project use which includes all materials and labor as required to provide a completed system including, but not limited to the following:
 - 1. Design, Coordinate, and provide the Precision Walls System's proprietary aluminum anchor installation system styled Gridworx, complete with all anchors, sealants, and components as required for a complete installation that is watertight and designed to withstand applicable building code wind loads.
 - 2. Provide the services of a registered professional engineer in the State of [_____], to provide engineering approval for the system in the form of a system suitability review and compliance document. This project specific document will include an evaluation of wind pressures, anchoring system dead load and fastener pull out analysis. Subject compliance document will be signed and stamped by a registered professional engineer in the project State.

1.02 RELATED SECTIONS

- A. [Section 04220 - Concrete Masonry Units: Structural substrate.]
- B. [Section 04435 - Dimension Stone: Limestone veneer].
- C. [Section 05410 - Load-Bearing Metal Studs: Structural substrate.]
- D. Section 07210 - Building Insulation: Insulation for cavity spaces.
- E. Section 07620 - Sheet Metal Flashing and Trim: Reglets for flashing.
- F. Section 07900 - Joint Sealers: Rod and sealant.

1.03 DESIGN REQUIREMENTS:

- A. The Gridworx extruded aluminum channels are a design/build system. The anchors and stone are designed to attach to the substrate at [16"][_____] centers. Precision Wall Systems, Inc. is responsible for providing engineering approval for the system. Engineering for the exterior building wall support system is the structural engineer of record's responsibility.
- B. The thin stone panels veneer shall be anchored at spacings to meet all Building Codes governing this project, including wind load requirements and wind pressures design loads as required

1.04 QUALITY ASSURANCE

- A. Installer: Company or person specializing in commercial masonry or stone work [with _____] years [documented] experience].

1.05 TESTS

SPEC NOTE: Request analysis and testing reports only for larger projects, or where special conditions warrant the additional cost of such testing.

- A. Submit [analysis] [and] [testing] of thin stone panels to requirements of Section [01001] [_____].
- B. Test samples in accordance with indicated standards.

1.06 PRODUCT DATA

- A. Submit manufacturers' data sheets for the extruded aluminum channels, installation components, and sealant materials.

1.07 SAMPLES

SPEC NOTE: Edit the following two paragraphs for submission of physical samples for selection of finish, color, and/or texture.

- A. Submit samples to requirements of Section [01001] [_____].
- B. Submit [one] [____] sample of thin stone panels to illustrate color and texture.

1.08 SHOP DRAWINGS

- A. Provide project submittal drawings for architect's approval.

1.09 MOCKUPS

- A. Construct mockup of thin stone panels to requirements of Section [01001] [_____].
- B. Construct typical mockup panel to illustrate units, coursing, sealant joints , and extruded aluminum support channels.
- C. Construct mockup to illustrate [backup wall,] [exterior sheathing,] [air barrier,] [moisture barrier] [wall insulation,] [weep vents,] [and] [through wall flashing].
- D. Mockup may [not] remain part of the finished Work.
- E. The approved jobsite mockup panel shall be used to determine the level of workmanship expected on the buildings veneer installation.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section [01001] [01600] [_____].
- B. Deliver thin stone panels to the site in approved protective film. Prevent damage to units.
- C. Lift skids with proper and sufficiently long slings or forks with protection to prevent damage to units. Protect edges and corners.
- D. Store units in a manner designed to prevent damage and staining of units.
- E. Stack units on timbers or platforms at least 3" above grade.
- F. Place polyethylene or other plastic film between wood and other finished surfaces of units when stored for extended periods of time.
- G. Cover stored units with protective enclosure if exposed to weather.
- H. Do not use salt or calcium-chloride to remove ice from unit surfaces.

PART II. PRODUCTS

2.01 MANUFACTURERS:

SPEC NOTE: In this Article, list the manufacturers acceptable to the specifier. Consider including the name and telephone number of a local distributor to assist bidders with product sourcing. Also consider listing the acceptable Product adjacent to each manufacturer's listing.

- A. Supplier of thin stone panels having products considered acceptable for use: N/A

B. Manufacturers of extruded aluminum channels having products considered acceptable for use; Precision Wall Systems, Inc. 10980 Alder Circle, Dallas, TX 75238 phone: (214) 774.4502 email: info@gridworxwalls.com website: www.gridworxwalls.com

2.02 MATERIALS

A. Exterior Stone

- 1. Stone panels: Provide stone of soundness (hardness and density), texture, graining, color, and tone, matching the samples in the Architect's field office and subject to the Architect's acceptance. Stone shall not be less than ___", unless otherwise noted. Stone shall be sound and free from defects which will impair strength, durability or appearance, and provided from a single quarry source to satisfy the total requirements of the project. Quarry and fabrication plant facilities shall be available for the Architect's inspection at any time. Physical properties shall comply with applicable ASTM standards. All Limestone is to meet the minimum criteria of a Classification Type II or III limestone as per ASTM C568.

2. Provide stones of type, color and finish as scheduled below. Finish all exposed edges as scheduled.

a. Stone Name and Supplier

- 1) Density: ___ pcf (or greater), to ASTM C97.
- 2) Flexural Strength: ___ psi (or greater), to ASTM C880.
- 3) Modulus of Rupture: ___ psi (or greater), to ASTM C99.

B. Aluminum alloy extrusions with a composition of 6005 alloy with a T5 temper. Channels provided in twelve foot (12') lengths. Weep holes punched 12" oc. Screw slots punched 8" oc.

C. "L Brackets" are specified in length by the curtain wall engineer and set at 1 per linear foot of panel, with a minimum of 2 L-Brackets per panel. Aluminum components of the Gridworx system are anodized with a clear coat or with colored finishes of AA M12C22A21 meeting the standards of AAMA 611-98.

D. Subframe components (if applicable) - vertical mullions provided in twelve-foot (12') lengths. Thermally broken discrete clips are specified in length by the curtain wall engineer. Insulation is not provided by Precision Wall Systems and is the responsibility of others.

E. Gridworx Mechanical Kerf (for blind connections) – Fork support with serrated washer, 6005-T5 aluminum with a T5 temper. 3/16" max slot tolerance. Fork backplate punched 4" oc.

F. Threaded Fasteners:

1. Steel Stud

a. Elco Drill-Flex or HILTI Kwik-Flex fasteners, 1/4-20 X 2 1/2" self drilling structural fasteners – SAE J 429 / Grade 5 with a Stalgard Coating. Installation to be on studs with a minimum of 18 gauge set on 16" centers.

2. Concrete or CMU

a. Elco Con-flex #14x2 1/4" Dual Hardened with Stalgard Coating, 1" Minimum thread engagement. Installation of fasteners for the "Intermediate T" to be on 24" centers with top and bottom screw to alternate so as to not have both invading the same cavity of the CMU block. "Top J" and "Starter J" to be installed on 24" centers.

3. Wood

a. SPAX Powerlag 1/4"x3" HWH Wood Fastener. 1 1/2" Minimum thread engagement, To be installed on minimum 2"X6" studs set on 16" centers.

G. Undercut anchors (if applicable)

1. 20mm stone: Fischer FZP II 13x15 M8/15A4 – part number 512 137. 2" from top and bottom edge of panel for typical conditions.

2. 30mm stone: Fischer FZP II 13x17 M8/17A4 – part number 512 140. Located per anchor shop drawings.

3. Type 31 anchor: Stainless Steel 1/4" shank. Located per anchor shop drawings.

2.03 ACCESSORIES

SPEC NOTE: The following paragraph indicates several types of through-wall or drip flashing. Select type on basis of intended function. Delete paragraph all together if flashing is not required.

A. Shims - Full bearing (3 1/2" or greater vertical dimension) hi-impact resistant plastic shims.

B. Sealant for kerfs and joints - Low modulus silicone expansion joint sealant meeting ASTM 719, SWRI validation and manufacturer's 20-year weather seal warranty such as Dow Corning 790. Prior to installation of the low modulus silicone joint sealant, installer should contact the sealant manufacturer for proper application and compatibility guidelines.

2.04 FABRICATION TOLERANCES

A. Fabricate thin stone panels to the following tolerances:

1. Unit Length: plus or minus 1/16".
2. Unit Height: plus or minus 1/16".
3. Unit Thickness: plus or minus 1/8"
4. Kerf Depth: plus 1/16" minus 0"
5. Kerf Width: plus 1/16" minus 0"
6. Deviation from Square: plus or minus 1/16", with measurement taken using the longest edge as the base.
7. Unit Face Deviations: plus or minus 1/16".

B. Safety Factor

1. Limestone
 - a. Minimum safety factor of 8

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that site conditions are ready to receive work.
- B. Beginning of installation means acceptance of site conditions.

3.02 INSTALLATION:

A. The Gridworx extruded aluminum channels are a design/build system. Installer will be familiar with the procedures and recommendations and held to the requirements of the Gridworx Mechanical Stone Cladding System Installation Guide furnished by Precision Wall Systems, Inc.

3.03 CUTTING OF THIN STONE PANNEL UNITS

- A. Cut thin stone panels with a wet-saw.

- B. Pre-soak units using clean water prior to cutting.
- C. Clean cut units using a stiff fiber brush and clean water. Allow units to surface dry prior to placement.
- D. All thin stone panels shall be cut accurately to shape and dimensions and full to the square, with jointing as shown on drawings
- E. Any miscellaneous cutting and drilling of thin stone panels necessary to accommodate other trades will be the responsibility of the installer.
- F. Incidental cutting such as for window frame clips, etc., which is normally not considered to be the responsibility of the thin stone panels supplier, will be provided only by arrangement by the contractor with the thin stone panels supplier.

3.04 COURSING

- A. Place masonry to lines and levels indicated.
- B. Maintain thin masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness.
- C. Place thin masonry units in [half-running] [third-running] [stack] [_____] bond.
- D. Maintain sealant joint thickness of 3/8".

3.05 TOLERANCES

- A. Variation in Alignment from Unit to Adjacent Unit: 1/16" maximum.
- B. Variation of Sealant Joint Thickness: 1/16" every 144".

3.06 FLASHING

3.07 Extend flashing under veneer system, turn up structural back-up [under the moisture barrier] and [bed into mortar joint of masonry] [seal to concrete] [seal into sheathing over [wood] [steel stud] framed] back-up.

3.08 Lap end joints and seal watertight.

3.09 INTERFACE WITH OTHER WORK

- A. Thin stone panels coming in contact with structural work shall be back-checked.
- B. Thin stone panels resting on structural work shall have beds shaped to fit the supports as required. Maintain a minimum of 1" clearance, minimum at metal studs and sheathing board) between stone backs and adjacent structure. (Note: some bolted connections may require more space than this. Subcontractor shall verify and make provision for these conditions.

3.10 CLEANING

- A. Clean the thin stone panels as work progresses.

- B. Post-Construction: Clean [a 100 sq. ft. area of wall designated by Consultant] [mock-up panel] as directed below and leave for one week. If no harmful effects appear clean thin stone panels veneer as follows:
1. Protect windows, sills, doors, trim and other work from damage.
 2. Remove large particles with [stiff fiber brushes] [wood paddles] without damaging surface. Saturate thin units with clean water and flush off loose dust and dirt.
 3. Scrub with solution of 1 tsp. trisodium phosphate and 1 tsp. household detergent dissolved in 4 cups of clean water using stiff fiber brushes, and then clean off immediately with clean water using a hose.
 4. Repeat cleaning process as often as necessary to remove any stains.
- C. Acids are not permitted without written approval. Protect stonework from rundown or splash when using acid on adjacent materials.
- D. Use alternative cleaning solutions and methods for difficult to clean units only after consultation with thin unit manufacturer.

3.11 PROTECTION

- A. Protect thin units from damage resulting from subsequent construction operations.
- B. Use protection materials and methods which will not stain or damage the thin stone panels.
- C. During construction, tops of walls shall be carefully covered at night, and especially during any precipitation or other inclement weather.
- D. Remove protection materials upon Substantial Performance of the Work, or when risk of damage is no longer present.
- E. At all times, walls shall be adequately protected from droppings.

3.01 SCHEDULE

- A. Following is a schedule of shapes, sizes and finishes to be used on this Project:
1. Type A: [], [] x [] modular size; [] finish; [] color.
 2. Type B: [], [] x [] modular size; [] finish; [] color.

END OF SECTION