



**04 4300
Stone Masonry**

Page 1 of 4

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A. GENERAL

1. Aesthetic Considerations:
 - a. Stone Masonry: Use stone masonry that matches the general color and texture of stone used on campus, particularly in the vicinity of the project.
 - 1) Indiana limestone shall generally be used for wall accents, trim, and sills.
 - 2) Stone used for dutchmen shall match the color and texture of the existing stone to the greatest extent possible.
 - 3) Granite is preferred for stone in locations subject to deicing salts and adjacent to landscaping. Install a 4-to-8-inch granite base below limestone to avoid salt damage, water stains, and damage from landscaping maintenance procedures.
 - b. Indiana limestone shall be used as the primary material for site walls and landscaping features.
 - c. Use standard size and profile trim to the greatest extent possible.
 - d. Natural Stone Masonry shall be used only with approval by the Owner.
2. Exterior site walls and / or landscaping features:
 - a. Indiana Limestone shall be used as the "main" material for these items.
 - b. Color: Buff
 - c. Surface texture: Combination of smooth and split-faced
 - d. Exposed Edged: Cant or rounded
 - e. At all low walls and / or benches:
 - 1) Install anti-skateboard notches within the top surface of limestone. The use of surface applied metal anti-skated board devices is discouraged.
 - 2) Install above 4-to-8-inch granite base to avoid salt damage, water stains, and damaged from landscaping maintenance procedures.
3. Locations:
 - a. Provide limestone sills for punched window openings or between glazing sill and unit masonry.
 - b. Do not use stone masonry for wall copings without approval of the Owner.
4. Performance/Design Criteria:
 - a. Stone Masonry:
 - 1) Limestone Masonry: Comply with the recommendations of the Indiana Limestone Institute of America (ILI) *The Indiana Limestone Handbook*.



04 4300
Stone Masonry

Page 2 of 4

- 2) Natural Stone Masonry: Comply with the recommendations of the Marble Institute of America (MIA) *Dimension Stone Design Manual*.
- b. Load-Bearing Masonry (including veneer subjected to lateral loads): Comply with the requirements of TMS 402/ACI 530/ASCE 5 or the prescriptive requirements of the Indiana Building Code (IBC).
- c. Expansion and Control Joints: Provide horizontal and vertical joints in accordance with the recommendations of the corresponding technical resources. Joints shall be sealant filled.

B. QUALITY ASSURANCE

1. MOCK-UPS:

- a. For new exterior wall construction, erect full thickness wall assemblies, including proposed backup, representative of the typical construction and of sufficient size to include:
 1. Minimum one glazed opening, if applicable, including perimeter insulation and sealant, lintels, termination of water-resistant membranes, air barriers, and/or vapor retarders.
 2. Base of wall and intermediate level flashing, weep system, cavity drainage system, vertical compression relief, and shelf angles. Include at least one sealant joint at each interface between different materials.
 3. Top of wall including coping, termination of water-resistant membranes, air barriers, and/or vapor retarders and connection to roofing system.
 4. Step back mock-up construction in layers at one side to reveal relationships between the various layers in the assembly.
 5. Clean one half of the exposed faces of the mock-up with the specified cleaner.
- b. Protect mock-up from weather with vapor-permeable moisture-resistant covering.
- c. Mock-up may be used for verification testing during erection, in accordance with Enclosure Commissioning requirements.

C. PRODUCTS:

1. Oolitic Indiana limestone:
 - a. Comply with ASTM C568, Class II Medium-Density
 - b. Grade and Color: Select Standard buff, according to grade and color classification established by ILI,
 - c. Surface texture: Smooth
 - d. Exposed Edges: Cant



**04 4300
Stone Masonry**

Page 3 of 4

- e. Install anti-skateboard niches within the top surface of limestone. The use of surface applied metal anti-skated board devices is discouraged.
2. Granite:
 - a. Source: Provide stone quarried in the United States.
 - b. Comply with ASTM C615
 - c. Surface Texture: Smooth or polished.
3. Interior Embedded Anchors, Ties, and Wire Reinforcement: Hot-dipped galvanized steel.
4. Exterior Embedded Anchors: Type 304 Stainless Steel, type and configuration suitable for conditions indicated.
5. Exterior Wythe Ties and Anchors: Type 304 Stainless Steel, unless otherwise acceptable to the Owner.
6. Masonry Veneer Anchors and Ties: Vertically adjustable type suitable to minimize heat-loss through continuous cavity insulation and capable of providing a minimum of 100 lbf load in tension or compression without deformation or play greater than 0.05 inches.
 - a. Screws for Attachment of Veneer Anchors: Stainless steel or Organic polymer coated to provide a minimum of 800 hours of salt-spray resistance per ASTM B117.
7. Flashing: Type 304 Stainless Steel. 0.016 inch (26 gage) thick minimum with soldered seams. Provide fabricated 1/2 inch drip edge, with outer edge hemmed and bent down 30 degrees. Anchor and seal top edge to wall construction.

D. INSTALLATION

1. Limestone fabrication, anchorage, installation, and cleaning shall comply with the recommendations of the Indiana Limestone Handbook and appropriate Technotes published by the Indiana Limestone Institute.
2. Tie size, type and spacing shall provide sufficient strength for the design lateral loads. Ties and anchors shall extend to 1/2 inch from the face of the finished wall.
3. Bond: Running, except where other patterns needed to match existing bond pattern or for approved decorative effects.
4. Exterior mortar joints shall be concave tooled. Exposed interior mortar joints shall be concave tooled unless otherwise approved by the Owner.
5. Provide control and expansion joints as recommended by the Indiana Limestone Institute. Indicate locations on elevations and describe criteria in specifications.
 - a. Control and expansion joints should match mortar color.



04 4300
Stone Masonry

Page 4 of 4

6. Flashing and Weep Installation:

- a. Fabricate flashing with 1/2-inch drip edge, with outer edge hemmed and bent down 30 to 45 degrees.
 1. Anchor and seal top edge to wall construction.
 2. In masonry cavity walls, extend interior termination an minimum of 2 inches into the backup masonry bed joint a minimum of 8 inches above the level where flashing extends to the exterior.
 3. Ensure flashing has positive slope towards the exterior face of the wall.
 4. Fabricate corners to form a
- d. Vents/Weeps: Install at 16 inches o.c., above flashing and at top of veneer wall cavities.

END OF SECTION