

**SECTION 04221**

**REFLECTIVE FACE CONCRETE MASONRY UNITS**

**\*\*\*\*\* E. Dillon & Company manufactures the following high quality, custom produced, architectural concrete masonry units (CMU) using superior colored aggregates from its own quarry and state-of-the art polishing, grinding, and other equipment:**

**Premier Line Reflective Face CMU**

**Premier Line Ground Face CMU**

**Premier Line Split Face CMU**

**This guide specification section can be used to specify Premier Line Reflective Face CMU, a highly polished ground face masonry unit which provides a high sheen finish similar to polished granite. SECTION 04222 - GROUND FACE CONCRETE MASONRY UNITS can be used to specify Premier Line Ground Face CMU and SECTION 04223 - SPLIT FACE CONCRETE MASONRY UNITS can be used to specify Premier Line Split Face CMU. For projects using more than one Premier Line CMU, these sections can be combined into a single SECTION 04220 - CONCRETE MASONRY UNITS.**

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**PART 1 - GENERAL**

**1.1 SUMMARY**

**This guide specification section contains only minimal requirements for constructing CMU assemblies. Reinforcement, mortar, and grout are not included and this section needs to be cross referenced to the section containing installation requirements. However, if this section is to be a stand-alone, all inclusive masonry section; reinforcement, mortar, grout, and installation requirements will need to be added by the specifier. \*\*\*\*\***

- A. Section includes: Reflective face concrete masonry units highly polished to produce a high sheen resembling polished granite [Section includes reinforcement, mortar, and grout].
- B. Related sections:

**\*\*\*\*\* List other specification sections dealing with work directly related to this section such as the following. \*\*\*\*\***

- 1. Section 07212 - Foamed-in-Place Insulation: Insulation placed in CMU cavities either during or after erection of masonry walls.
- 2. Section 07600 - Flashing and Sheet Metal: Sheet metal flashing embedded in

masonry joints.

3. Section 04810 - Unit Masonry Assemblies: Construction of masonry walls using polished face masonry units specified in this Section.

## **1.2 REFERENCES**

**\*\*\*\* List by number and full title reference standards referred to in remainder of specification section. Delete non-applicable references. \*\*\*\***

A. America Society for Testing and Materials:

1. ASTM C25 - Chemical Analysis of Limestone, Quicklime, and Hydrated Lime.
2. ASTM C33 - Concrete Aggregates.
3. ASTM C67 - Sampling and Testing Brick and Structural Clay Tile.
4. ASTM C88 - Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
5. ASTM C90 - Load-Bearing Concrete Masonry Units.
6. ASTM C127 - Specific Gravity and Absorption of Coarse Aggregates.
7. ASTM C744 - Prefaced Concrete and Calcium Silicate Masonry Units.
8. ASTM C1372 - Segmented Retaining Wall Units.

## **1.3 SUBMITTALS**

A. Provide in accordance with Section 01330 - Submittal Procedures:

1. Product data for CMU types indicating composition, shape, surfaces, and dimensions.
2. Copies of test reports and certificates showing compliance with Paragraph 2.2.A and Paragraph 2.3.
3. Samples of Reflective face CMU illustrating color range, gloss of reflective surface, and texture.
4. Installation instructions.

## **1.4 MOCK-UP**

**\*\*\*\* Appearance is a key attribute of masonry walls constructed with Premier Line \*\*\*\***

**Reflective Face CMU. To ensure quality is achieved, a mock-up is recommended. Use this article to specify a reflective face CMU sample wall panel constructed at site for approval by architect. \*\*\*\*\***

- A. In accordance with Section 01400 - Quality Control, prepare mock-up of reflective face CMU wall illustrating color, finish, texture, and joints and to establish standard of quality for completed work.
- B. Mock-up shall be building corner [with [window] [door] opening] illustrating reflective face CMU and mortar combination, coursing, and pattern. Mock-up shall be constructed with:
  - 1. Reflective face CMU as specified in this Section.
  - 2. Mortar, grout, and reinforcement specified in Section 04810 - Unit Masonry Assemblies.
- C. Size: Approximately [4 feet] [1.2 m] [\_\_\_\_\_] high by [6 feet] [1.8 m] [\_\_\_\_\_] long.
- D. Provide slab or foundation support as required by size of mock-up.
- E. Retain mock-up during construction as quality standard. Completely remove when work is accepted.

## **1.5 HANDLING**

- A. Deliver, store, and handle masonry units in manner to avoid chipping, breakage, marring reflective faces, and contact with contaminating materials.
- B. Deliver on wood pallets with foam layers to protect reflective faces. Prior to shipping cover block cubes with shrink wrap or shrink bags.
- C. Site store in protected area and covered to ensure units remain dry and clean. Do not allow units to sit in standing water.

## **PART 2 - PRODUCTS**

### **2.1 ACCEPTABLE MANUFACTURERS**

- A. E. Dillon & Company, P.O. Box 160, Swords Creek, Virginia 24649; 800-234-8970.
- B. Manufacturers of equivalent products submitted and approved in accordance with Section 01630 - Product Substitution Procedures. Architect reserves right to reject substitution request based on aggregate, color, reflective surface, and gloss, even though structural characteristic, shapes, and materials are equivalent.

### **2.2 MATERIALS**

- A. Aggregate: High-grade dolomitic limestone complying to ASTM C33 and the following additional requirements:

**\*\*\*\*\* In order to achieve a highly reflective surface, limestone aggregate with minimal silica is required. \*\*\*\*\***

1. Maximum silica content: 2 percent tested in accordance with ASTM C25.
2. Freeze-thaw resistance: 10 percent weight loss after 5 cycles tested in accordance with ASTM C88.
3. Maximum water absorption: 1.3 percent tested in accordance with ASTM C127.

- B. Water repellent: Liquid integral polymeric admixture.

- C. Sealer: Clear penetrating sealer to reduce water penetration and efflorescence.

### **2.3 REFLECTIVE FACE CONCRETE MASONRY UNITS**

- A. Type: Hollow and solid, load bearing concrete masonry units with highly reflective face complying with ASTM C90, Grade N, Type I moisture controlled.

- B. Minimum compressive strength: 2,000 PSI for average net area.

- C. Water repellency: Units manufactured with integral water repellent.

- D. Freeze/thaw durability: No separation, spalling, cracking, or disintegration of facing when tested in accordance with ASTM C1372.

- E. Reflective face: Conform to ASTM C744 when tested for:

1. Craze resistance: No evidence of crazing, cracking, or spalling.
2. Chemical resistance.
3. Abrasion resistant.
4. Resistance to color change: No significant change in color, gloss, or texture after 500 hours of accelerated weatherometer testing.

**\*\*\*\*\* E. Dillon & Company manufactures Premier Line Reflective Face CMU in 24 standard colors achieved with mixes of different colored aggregates. Custom colors and multi-blended mixes are also available. Contact E. Dillon for samples and custom color options. \*\*\*\*\***

E. Dillon & Company, P.O. Box 160, Swords Creek, Virginia 24649

PHONE: 800-234-8970; FAX: 276-873-5688; WEBSITE: [www.edillon.com](http://www.edillon.com)

- F. Color: Achieved with mix of colored aggregates; [Emerald] [Carnival] [Camel] [Red Marvel] [Amethyst] [Mocha] [Desert] [Heritage] [Mars] [Harvest] [Shadow] [Dominion] [Blue Ice] [Desert Bloom] [Silver Sand] [Desert Castle] [Mocassin] [Sierra Mist] [Shell Storm] [Antique Rose] [Hurricane] [Colonial White] [Granite Red] [Salt & Pepper]; manufactured by E. Dillon & Company.

**\*\*\*\*\* Premier Line Reflective Face CMU blocks can be provided with one or more vertical scores per face. \*\*\*\*\***

- G. Face pattern: Polished, smooth, flat face [scored with [one] [\_\_\_\_\_] vertical false head joint[s]].

**\*\*\*\*\* E. Dillon & Company manufactures both hollow and solid Premier Line Reflective Face CMU. Standard height is 7-5/8 inches (194 mm). Standard length is 15-5/8 inches (397 mm). 3-5/8 inches (92 mm) high ashlar units are also available. Available depths are 2-1/4, 3-5/8, 5-5/8, and 7-5/8 (57, 92, 143, and 194, mm). Indicate types required and delete non-applicable ones. \*\*\*\*\***

**\*\*\*\*\* Actual CMU dimensions are 3/8 inch (10 mm) less than nominal unit dimensions. Actual dimensions accommodate a 3/8 inch (10 mm) joint. For example a nominal 8x8x16 unit is actually 7-5/8 inches (194 mm) deep by 7-5/8 inches (194 mm) high by 15-5/8 ((397 mm) inches wide. Dimensions presented in this section are actual dimensions rather than nominal dimensions. Reflective face units are approximately 3/32 inch less than actual due to reflective face surface. \*\*\*\*\***

H. Types:

1. Stretcher units: Hollow units with one reflective front face, [7-5/8 inches] [194 mm] high.
2. Ashlar units: Half-high hollow units with one reflective front face, [3-5/8 inches] [92 mm] high.

**\*\*\*\* Standard Premier Line Reflective Face CMU corner units have beveled edges. Units can also be provided with bullnose and chamfered edges. \*\*\*\*\***

3. Hollow corner units with one front face and one end face reflective. [Provide with [3/4 inch] [19 mm] bullnose corner edge.] [Provide with [1/2 inch] [13 mm] chamfered corner edge.]

**\*\*\*\*\* Bond beam units are provided with or without solid bottoms. \*\*\*\*\***

4. Bond beam units: Hollow bond beam units with one reflective front face with [solid bottom] [knock-out webs].
5. Solid units: Stretcher unit with one reflective front face, [7-5/8 inches] [194 mm] [\_\_\_\_\_] high by [15-5/8 inches] [406 mm] [\_\_\_\_\_] high by [3-5/8 inches]

[92 mm] deep.

**\*\*\*\*\* E. Dillon & Company manufactures Majestic™ (oversize) units with one reflective face. Standard oversize units are provided in two lengths, 23-3/4 and 15-3/4 inches (603 and 400 mm) wide by 11-3/4 inches (298 mm) high by 3-5/8 inches (92 mm) deep. Various other heights and lengths are available. Contact E. Dillon & Company for options. Oversize units are provided with beveled edges. As an option, units are available with either bullnose or chamfered treatment on one or more edges. \*\*\*\*\***

6. Majestic™ (oversize) units: Units with one reflective face, [23-3/4 inches] [15-3/4 inches] [603 mm] [400 mm] [\_\_\_\_\_] wide by [11-3/4 inches] [298 mm] [\_\_\_\_\_] high by [3-5/8 inches] [92 mm] deep. [Provide with [3/4 inch] [19 mm] bullnose edges.] [Provide with [1/2 inch] [13 mm] chamfered edges.]

**\*\*\*\*\* Sill units are provided in three depths, 7-5/8, 5-5/8, and 3-5/8 inches (194, 143, and 92 mm). \*\*\*\*\***

7. Sill units: Solid units with vertical and sloped reflective front face, [7-5/8 inches] [194 mm] wide by [7-5/8 inches] [194 mm] high by [[7-5/8] [5-5/8] [3-5/8] inches] [[194] [143] [92] mm] deep.
  - I. Unit sizes: [As indicated on Drawings and otherwise required to complete work.]
    1. Depths: [[2-1/4] [3-5/8] [5-5/8] [7-5/8] inches] [[57] [92] [143] [194] mm].
    2. Height: [7-5/8 inches] [194 mm] [and] [3-5/8 inches] [92 mm].
    3. Length: [15-5/8 inches] [397 mm].]

## **PART 3 - EXECUTION**

### **3.1 COORDINATION**

- A. Coordinate provision of reflective face CMU with mortar specified in Section 04810 - Unit Masonry Assemblies to ensure:
  1. Color compatibility between reflective face and integrally colored mortar.
  2. Water repellent admixture added to mortar matches water repellent used in manufacture of reflective face CMU.

### **3.2 INSTALLATION**

- A. Install reflective face CMU as part of unit masonry work specified in Section 04810 - Unit Masonry Assemblies. Install, protect, and clean and in accordance with installation requirements of that Section, manufacturer's installation instructions, and the following additional requirements.

- B. Field cut reflective face CMU with power tools to provide straight true edges and avoid damage to reflective face. Do not install chipped or broken units.
- C. Exercise care that wet mortar is not splashed onto reflective face during installation. Excess or splashed mortar shall be cleaned from face with dry burlap wipe. Remove after mortar becomes hard enough not to smear but prior to mortar sets.
- D. During grouting, placement of foamed-in place insulation, and application of sealants, ensure that materials are not smeared onto reflective faces of CMU.. Remove as recommended by manufacturer.

### **3.3 PROTECTION**

- A. During erection: Cover top of walls with waterproof sheeting at end of each day. Cover partially completed walls when work is not in progress. Extend cover 24 inches minimum down both sides and hold securely in place.
- B. Protect face of walls, sills, and other projections from roof run-off, splashed water, mud, grout, and mortar.
- C. Spread sand or straw at base of walls to minimize dirt and clay splashing onto reflective CMU faces.
- D. Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.

### **3.4 CLEANING**

- A. Clean soiled reflective CMU surfaces only with non-etching type cleaning solution as recommended by manufacturer. Follow manufacturer's cleaning instructions. Maintain reflective surface and color.

**END OF SECTION**