

SECTION 04220

CONCRETE MASONRY UNITS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Pertains to Manufactured Concrete Masonry Units, including, but not limited to, Standard Concrete Masonry Units, Ground Face Concrete Masonry Units, Exposed Aggregate Concrete Masonry Units, Fluted Concrete Masonry Units, Interlocking Concrete Masonry Units, Sound-Absorbing Concrete Masonry Units, and Split-Face Concrete Masonry Units.

1.02 SECTION INCLUDES

- A. Manufactured Concrete Masonry Units; both loadbearing and nonloadbearing and intended for use in unit masonry assemblies.

1.03 PRODUCTS SUPPLIED BUT NOT INSTALLED IN THIS SECTION

- A. Manufactured Concrete Masonry Units.

1.04 RELATED SECTIONS

- A. Section 04050 – Basic Masonry Materials and Methods.
- B. Section 04060 – Masonry Mortar.
- C. Section 04090 – Masonry Accessories; Control Joint Materials, Embedded Flashing, Expansion Joint Materials, Weep Holes.
- D. Section 04910 – Masonry Restoration and Cleaning.

1.05 UNIT PRICES

- A. Price-per-unit or per Bid Form.

1.06 MEASUREMENT PROCEDURES

- A. Per Concrete Masonry Unit.

1.07 REFERENCES

- A. ASTM C33 – Standard Specifications for Concrete Aggregates
- B. ASTM C90 – Standard Specification for Loadbearing Concrete Masonry Units.
- C. ASTM C129 – Standard Specification for Nonloadbearing Concrete Masonry Units.

- D. ASTM C140 – Sampling and Testing Concrete Masonry Units and Related Units.
- E. ASTM C270 – Standard Specification for Mortar for Unit Masonry.
- F. ASTM C331 – Lightweight Aggregates for Concrete Masonry Units.
- G. ASTM C426 – Linear Drying Shrinkage of Concrete Masonry Units.
- H. ASTM C476 – Standard Specification for Grout for Masonry.
- I. ASTM C1209 – Terminology of Concrete Masonry Units and Related Units.
- J. ASTM C1232 – Terminology of Masonry.
- K. ASTM E514 – Water Penetration and Leakage Through Masonry.
- L. ACI 530-95/ASCE 5-95/TMS 402-95 – Building Code Requirements for Masonry Structures.
- M. ACI 530.1-95/ASCE 6-95/TMS 602-95 – Specification for Masonry Structures.
- N. National Concrete Masonry Association (NCMA) Concrete Masonry Shapes and Sizes Manual.
- O. National Concrete Masonry Association (NCMA) TEK Manual for Concrete Masonry Design and Construction.

1.08 SUBMITTALS

- A. Manufacturer to submit product literature, data, test reports, certifications, and samples, of each type concrete masonry unit, as required.

1.09 SAMPLES

- A. Manufacturer to submit color samples of various types and/or finishes under consideration from standard color palette, as required.
- B. Samples are representative of color and texture and may vary slightly during the manufacturing process.

1.10 CERTIFICATIONS

- A. Complies with ASTM C33 – Standard Specification for Concrete Aggregates.
- B. Complies with ASTM C90 – Loadbearing Concrete Masonry Units, as applicable.
- C. Complies with ASTM C129 – Nonloadbearing Concrete Masonry Units, as applicable.
- D. Complies with ASTM C331 – Lightweight Aggregates for Concrete Masonry Units, as applicable.
- E. Conforms to National Concrete Masonry Association (NCMA) Shapes and Sizes Manual, as applicable.

1.11 FIELD SAMPLES

- A. Manufacturer shall submit full size samples of each type and color of unit selected to illustrate texture, finish, coating, and color, as applicable.

1.12 MOCK-UPS

- A. Incorporate full size field samples into a mock-up for coordination of work specified in other sections and final approval of texture, finish, coatings and color, as applicable.

1.13 PACKING, SHIPPING, HANDLING, AND UNLOADING

- A. Stack units on pallets in an “interlocking” fashion to facilitate shipping. If unable to “interlock”, the top layer of units shall be mechanically secured.
- B. Each full pallet shall weight between 3500 and 3750 pounds.
- C. Bag all architectural and specialty units using shrink-wrap coverings.
- D. Separate layers of ground face units with corrugated plastic sheeting.
- E. Unload pallets from delivery vehicle with forklift capable of safely lifting and carrying pallets.
- F. Handle units and pallets with care to avoid damage and breakage.

1.14 STORAGE AND PROTECTION

- A. Store pallets on level ground in single stacks only.
- B. Upon delivery, site manager shall cover pallets with waterproof material as protection from inclement weather; provide ventilation to avoid condensation.

1.15 WARRANTY

- A. Units shall be free from defects in materials for 1 year from date of shipment.
- B. ASTM C90, 8.1, 8.2 and 8.2.1, Finish and Appearance, applies.
- C. Inspect shipment for unit defects upon delivery. Defects shall be immediately reported to manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Betco Supreme, Inc.
7920 Notes Drive
Manassas, VA 20109
800-486-4011
703-361-2777
Fax: 703-361-7479

2.02 MANUFACTURING PLANTS

- A. 396 Tyson Drive
Winchester, VA 22603
800-343-1605
540-667-4600
Fax: 540-662-5920

- B. 42824 Durham Court
Leesburg, VA 22075
800-572-2209
703-777-7150
Fax: 703-777-3464

2.03 MATERIALS

- A. Structural Standard Concrete Masonry Units, Exposed Aggregate Concrete Masonry Units, Ground Face Concrete Masonry Units, Fluted Concrete Masonry Units, Interlocking Concrete Masonry Units, Sound-Absorbing Concrete Masonry Units, Split-Face Concrete Masonry Units, as required.

1. GENERAL

- a. Unless otherwise indicated or specified, concrete masonry units shall be standard units with nominal face dimensions of 16 inch length x 8 inch height (15 5/8 x 7 5/8 actual) x width indicated.
 - (1) 2", 3", 4", 6", 8", 10" and 12" nominal widths are available.
 - (2) Ground Face Concrete Masonry Units shall be approximately 3/32" less than NCMA actual width due to ground face surface.

- b. Provide, or cut, all related matching accessory shapes and sizes as required for lintels, corners, jambs, sills, control joints, headers, bonding, and other special conditions.
 - (1) Make all cuts with motorized masonry saw, using abrasive or diamond blade.

- c. Special units shall match color and texture of standard units.
- d. Where units are placed so end of a unit is exposed, such as at corners or intersections, the exposed end of that block shall have a surface that matches the color and texture of the other units.
- e. Provide units with normal weight aggregate conforming to ASTM C33 or lightweight aggregate conforming to ASTM C331, as required.
- f. Normal weight aggregate shall be #10 architectural screened aggregate

- g. Cure all units in a moisture-controlled atmosphere to conform to ASTM C90.
- h. ASTM C90, Standard Specification for Loadbearing Concrete Masonry Units, shall apply as required.
- i. ASTM C129, Standard Specification for Nonloadbearing Concrete Masonry Units, shall apply as required.
- j. Architectural units shall contain integral water repellent admixture, Rheomix Rheopel™ by Master Builders, Inc., Cleveland, Ohio.

2. COLOR

- a. Select colors from Supreme Concrete Block's Standard Palette of sample colors.

2.04 ACCESSORIES

A. MORTAR

- 1. Shall comply with ASTM C270, Standard Specification for Mortar for Unit Masonry.
- 2. Water for masonry mortar shall be clean and free of oils, acids, alkalis, salts, organic materials, or other substances that are harmful to mortar or any metal in the wall.
- 3. Admixtures containing chlorides accelerate corrosion of steel reinforcing, ferrous ties and anchors, metal doors, and metal window frames. Chloride containing admixtures are, therefore, not recommended.
- 4. Aggregates for mortar must comply with ASTM C144, Standard Specification for Aggregates for Masonry Mortar.
- 5. Mortar shall contain integral water repellent admixture, Rheomix Rheopel™ by Master Builders, Inc., Cleveland, Ohio.

B. GROUT

- 1. Shall comply with ASTM C476, Standard Specification for Grout for Masonry.
- 2. Water for grout shall be clean and potable.
- 3. Admixtures shall comply with ASTM C476, 3.1.5.

2.05 FABRICATION TOLERANCES

- A. Shall comply with ASTM C90, Standard Specification for Loadbearing Concrete Masonry Units, Article 7, Permissible Variations in Dimensions.

2.06 FINISHES

- A. Finished surfaces exposed in place shall conform to an approved sample consisting of not less than four units, representing the range of texture and color permitted

2.07 SOURCE QUALITY CONTROL

- A. Purchaser or authorized representative shall be accorded proper facilities to inspect and sample units at place of manufacture from lots ready for delivery.
- B. Test results in accordance with ASTM C140, Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units, shall be available upon request from the manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Foundation must be level and clean, free of ice, dirt, oil, mud, and other substances.

3.02 INSTALLATION

- A. Installers shall be experienced masons using best masonry practices.
- B. Lay up walls plumb and true, with courses level, accurately spaced and coordinated with other work.
- C. Pull units from more than one pallet at a time.
- D. Install only quality units. Reject defective or damaged units.
- E. As work progresses, build in all metal doorframes, window sashes, louvers, conduit, pipe, panel boards, and other items as required. Build in openings and recesses as required for work of other trades.
- F. Temporarily brace masonry walls that may be exposed to wind loads or other conditions that could affect stability.
- G. Install weep holes, vents, flashing at locations as indicated on plans and in strict accordance with best masonry flashing practices.
- H. Temperatures between 40 and 90° F (4.4 and 32.3° C) are considered “normal” temperatures for masonry construction and do not require special procedures or weather protection protocols. When ambient temperatures fall below 40° F (4.4° C) or above 90° F (32.3° C), special construction procedures shall be considered to ensure the final construction is not adversely affected.
- I. Protect newly constructed walls by draping weather-resistant coverings over wall and extending them below any mortar susceptible to washout.

3.03 CLEANING

- A. Minimize mortar and grout smears on face of units during installation.
- B. Mortar droppings can be removed with trowel or chisel after being allowed to harden.
- C. Remove remaining mortar with stiff fiber brush.
- D. Clean completed walls with masonry cleaner, strictly following manufacturer’s directions. Rinse thoroughly.

3.04 LONG TERM MAINTENANCE

- A. Concrete Masonry Units are a long lasting and durable material. Estimated life is 100+ years.
- B. Owner shall assess condition of units periodically by checking overall appearance of structure for signs of damage.
- C. Patch or replace damaged or cracked units as required.
- D. Perform routine cleaning with standard commercial cleaning agents.

END OF SECTION