SECTION 04221

GLAZED CONCRETE MASONRY UNITS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pre-faced concrete masonry units in standard sizes.

B. Pre-faced concrete masonry trim units.

C. Pre-faced concrete masonry units in special shapes.

D. Decorative textured and surface designs and/or signage.

1.2 RELATED SECTIONS

A. A. Section 04065 - Mortar and Masonry Grout.

B. Section 04080 - Masonry Reinforcement Systems.

C. Section 04810 - Unit Masonry Assemblies.

D. Section 04811 - Single-Wythe Unit Masonry.

E. Section 04820 - Reinforced Unit Masonry Assemblies.

1.3 REFERENCES

A. A. ASTM C 90 - Standard Specification for Load-Bearing Concrete Masonry Units.

B. ASTM C 744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units.

C. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

D. Federal Specification SS-C-621 - Concrete Masonry Units, Hollow (And Solid, Prefaced and Unglazed).

E. MEA 171-90-M - Department of Buildings, City of New York.

F. Publication No. 229, Public Health Services for Grade A Pasteurized Milk Ordinance.

G. CAN3-A165.3-M85 - Prefaced Concrete Masonry Units; National Standards of Canada.

1.4 PERFORMANCE REQUIREMENTS

A. Glazed Coating: Meet requirements of ASTM C 744 as follows:
   1. Crazing resistance: No indication of crazing, cracking, or spalling of finish.
   2. Chemical resistance: No change in finish after contact with the following chemicals for indicated time periods:
      a. Acetic acid, 5 percent solution: 24 hours.
      b. Potassium hydroxide, 10 percent solution: 3 hours.
      c. Trisodium phosphate, 5 percent solution: 24 hours.
      d. Hydrogen peroxide, 3 percent solution: 24 hours.
      e. Blue-black ink: 1 hour.
      f. Ethyl alcohol, 95 percent solution: 3 hours.
   3. Coating adhesion to block: No failure.
   4. Abrasion resistance: Exceed specified requirements.
   5. Weathering Resistance: No significant change in color, gloss, or texture after 500 hours of testing by accelerated weatherometer.
   6. Surface Burning Characteristics, when tested in accordance with ASTM E 84:
      a. Maximum flame spread 25.
      b. Fuel contribution 0.
      c. Maximum smoke density 50.

B. Color and Color Change: BR27B4 and SFT12 exposure criteria and data provided.

C. Toxicity: Combustion products tested and determined to be non-toxic under New York MEA test. Certificate No. 171-90-M.

D. Acid Rain Resistance: No change in surface characteristics after 20-year simulated exposure period by MET test.

E. Gamma Radiation Resistance: No change when exposed to normal doses; slight darkening under accident conditions by RT test.

F. Thermal Shock Test B100-JL24P: No separation, spalling, cracking, or disintegration of facing.

G. Water Absorption: No measurable increase in unit weight after 24 hours water immersion.

H. Abbreviations:
   1. MET - Materials Engineering and Testing.
   2. RT - Radiation Technology.
   3. SFT - South Florida Testing.

I. Fire-Rated Assemblies: Provide glazed concrete masonry units listed by National Masonry Association for fire ratings indicated of 1, 2, 3, or 4 hours based on unit thickness.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Submit test reports and certifications.
C. Product Data: Manufacturer's descriptive literature for glazed concrete masonry units, including storage, installation, and cleaning instructions.
D. Shop drawings: Layout, drawn to scale, of graphic panels.
E. Selection Samples: For each product requiring color/pattern selection, provide color chips, samples of a full size 8 inch by 16 inch unit, or cut section for final selection.

F. Verification Samples: For each product, color, and pattern selected, two full-size units representing actual color, pattern, and finish of products to be installed.

1.6 QUALITY ASSURANCE
A. Regulatory Requirements: Glazed concrete masonry units approved by the following:
   1. United States Department of Agriculture (USDA); for federally-inspected meat processing facilities.
   2. City of New York NY Department of Buildings; MEA 171-90-M.
   3. Public Health Service; sanitary walls in compliance with Grade A Pasteurized Milk Ordinance, Publication Number 229.
   4. National Standard of Canada; CAN3-A165.3-M85.

1.7 SAMPLE PANELS

A. Construct sample panel at location indicated or directed, and as follows:
   1. Size: 4 feet by 4 feet (1.2 m by 1.2 m).

2. Include all unit types and sizes to be used, and mortar joint treatment.

B. Obtain Architect's acceptance of sample panel before beginning construction activities of this section.

C. Do not remove sample panel until construction activities of this section have been accepted by Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver products of this section on pallets, with individual faces protected; keep dry.

B. Store glazed concrete masonry units in protected area or under cover on level ground; keep dry. Do not double-stack pallets.

1.9 PROJECT CONDITIONS

A. Follow good practices for concrete block work, weep holes or vents, moisture control, suitable temperature and lighting, mortar selection, and handling and clean down of walls.

B. Do not allow mortar to freeze; do not use calcium chloride or soluble salts in mortar which will cause effervescence and adversely affect the mortar.

C. Do not retemper same mortar. Follow NCMA Technical Bulletins 3, 44, and 53.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Approved and licensed by The Burns & Russell Company and/or Spectra Marketing and Development Corporation, and using genuine Spectra-Glaze(R) ingredients provided by and used in products tested; P.O. Box 6063, Baltimore, MD 21231; ASD. Tel: (410) 837-0720, Fax: (410) 837-9498, Cable: BURUSS, Telex: 87791.

B. Requests for substitution will be considered in accordance with provisions of Section 01600.

C. Substitutions: Not permitted.

2.2 GLAZED CONCRETE MASONRY UNITS

A. Facing Components: Facing ingredients must be Spectra-Glaze(R) Compound, Spectra-Glaze(R) Sand, and other proprietary Spectra-Glaze(R) ingredients, supplied to approved manufacturers by The Burns and Russell Company and their authorized and licensed affiliates, and other ingredients as required to meet or exceed Burns and Russell product standards and ASTM C 744.

B. Components: Fabricate Spectra-Glaze(R) II glazed concrete masonry units to conform to ASTM C 744, and as follows:
   1. Concrete masonry units: Conforming to ASTM C 90, lightweight, Grade N, Type 1, moisture-controlled, for hollow and solid load-bearing units.
      a. Face Size: 8 by 16 inches (203 by 406 mm), except as otherwise indicated.
      b. Face Size: As indicated for each type.
      c. Face Size: _____.
      d. Thickness: _____.
      e. Type Concrete Block: _____.
      f. Thickness and Face Size: As indicated on drawings.
   2. Facing Ingredients: Spectra-Glaze(R) Compound, Spectra-Glaze(R) Silica, and Spectra-Glaze(R) Color, supplied to approved and licensed manufacturer by The Burns & Russell Company and its Spectra Group authorized supply affiliates, and other Burns and Russell proprietary ingredients that comprise a genuine Spectra-Glaze(R) block.
   3. Facings: Minimum 1/8 inch (3 mm) thick on block faces, and minimum 1/16 inch (1.5 mm) thick return on block edges.

C. Exterior Units:
   1. Fabricate with manufacturer's proprietary integral efflorescence-control additives.
   2. Meet freeze/thaw resistance requirements of ASTM C 67, Form B.
   3. Include Bloc-Rite II integral water repellent in raw block or add mix of similar chemical technology or Bloc-Rite II surface primers or both for maximum protection. Also include waterproof additive, integral water repellent additive, Dry Bloc, acrylic latex additive, or other waterproofing material in

all mortar. Grout exterior joints with epoxy grout where possible.

D. Unit Appearance and Design Types: Provide Spectra-Glaze(R) II units where indicated and as follows:
   1. Type ___: Dimpled, textured surface.
      a. Acceptable product: Sahara(tm) Series.
      b. Size: _____.
      c. Color: _____.
   2. Type ___: Oversized units, jumbo sizes for monumental or items scale appearance.
      a. Acceptable product: Imperial Wal(tm) Series.
      b. Face size: _____.
   3. Type ___: Scored units, enlarged or reduced architectural side.
      a. Acceptable product: Scored Series.
      b. Score pattern: _____.
   4. Type ___: Sculptured units, molded relief, texture, and patterns.
      a. Acceptable product: Sculptured(tm) Series.
      b. Form: _____.
   5. Type ___: Embossed, raised ridges design units.
      a. Acceptable product: Embossed(tm) Series.
      b. Design: _____.
   6. Type ___: Patterned units with two-tone images or surface designs.
      a. Acceptable product: Patrn-Glaze(tm) Series.
      b. Design: _____.
   7. Type ___: Custom signage and graphic imprinted units.
      a. Acceptable product: Engraved(tm) Series.
      b. Design: As indicated on drawings.

E. D. Special Unit Shapes: Provide Spectra-Glaze(R) II units in special shapes indicated and as follows:
   1. Type ___: Radiused circular corner units.
      a. Acceptable product: Soft Corner(tm) Series.
      b. Interior radius: 8 inches (203 mm).
      c. Exterior radius: 16 inches (406 mm).
   2. Type ___: Angled, graduated beveled corner units.
      a. Acceptable product: People-Friendly(tm) Series.
      b. Thickness: As indicated on drawings.
   3. Type ___: Column units.
      a. Acceptable product: Spectra-Column Series.
      b. Shapes: As indicated on drawings.
   4. Type ___: Sill units.
      a. Acceptable product: Spectra-Sill Series.
      b. Shapes: As indicated on drawings.

5. Type ___: Trim units for caps and ends.
   a. Acceptable product: Trym-Saver(tm) Series.
   b. Shapes: As indicated on drawings.
6. Type ___: Cove base units for base courses, toe protruding at floor line.
   a. Shapes: As indicated on drawings.
7. Type ___: Jamb and cap units.
   a. Shapes: As indicated on drawings.

F. Glazed Face Colors:
   1. Color: Selected from full range of manufacturer's standard colors.
   2. Color: Custom color matching Architect's sample.
   3. Color: As indicated on drawings.
   4. Color: _____.

2.3 SOURCE QUALITY CONTROL

A. Fabrication Tolerances:
   1. Face dimensions: Plus or minus 1/16 inch (1.5 mm) variation from actual dimensions indicated in product data.
   2. Unit thickness: Plus or minus 1/8 inch (3 mm) variation from actual dimensions indicated in product data for single-faced units; plus or minus 3/16 inch (4.5 mm) variation from actual dimensions indicated in product data for double-faced units.
   3. Face distortion: Plus or minus 1/16 inch (1.5 mm) variation from true plane; plus or minus 1/16 inch (1.5 mm) variation from square.

2.4 MISCELLANEOUS MATERIALS

A. Cleaning Compounds: Masonry detergent cleaners such as Spectra(R) brands, Vana-Trol(R), or Deox(R); do not use products containing unbuffered acid.

B. Cleaning Rags: Select clean cotton rag or towel.

C. Reinforcing, Control Joints, Weep Vents, or Weep Joints: Setting and/or pointing mortars, wire reinforcing, tier, anchors, and other accessories needed to properly complete work and install weep joints and sets, as recommended by the manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surfaces to support glazed concrete masonry are within level tolerances.
   1. Test that floor surfaces are level to within ____ inch in 10 feet (____ mm in 3 m).
   2. Notify Architect in writing of surfaces that require grinding or filling.

B. Inspect related conditions; do not start work in an area without proper lighting and until adverse conditions in that area are corrected.

3.2 PREPARATION

A. Test floor surfaces for straightness, levelness. Notify job superintendent where grinding or troweled filler corrections are needed.

3.3 INSTALLATION

A. Cut units where required for fitting or for installation of built-in items, using power tools; do not install units having chipped or cracked edges on sight-exposed surfaces.

B. Align base courses to follow accurate floor lines.
C. Set cove base units straight and level so that edges of floor coverings will hide the joint.

D. Align glazed faces plumb, level, and true, with uniform joint widths.

E. Size and portion units for best appearance, with joints arranged neat and symmetrical, free of imperfections detracting from overall appearance.

F. Install masonry accessories specified in sections referenced in RELATED SECTIONS Article of PART 1 of this section, and as indicated on drawings, as installation progresses.
   1. Use additional horizontal reinforcing every 16 inches above and below openings at chases and at other points where wall is weakened.
   2. Use vertical control joints in accordance with best practice for concrete block work.

3. Use weep joints or vents at least 4 inches long in vertical joint for every second block in base course immediately above grade and immediately above flashing, bond beams, solid fill, or other water-stop locations
4. Use continuous metal exterior wall copings with minimum 6 inch overhang, or maximum length stone or precast. Rake exposed joints back 1/4 inch minimum and calk with waterproof sealant, following manufacturer's directions.

G. Using mortars specified in Section 04065, set units in accordance with requirements of sections referenced in RELATED SECTIONS Article of PART 1 of this section, manufacturer's instructions, and as follows:
1. Set units in continuous bed of setting mortar, with continuous mortar joint at head joints.
2. Install units level and plumb to within specified site tolerances; maintain uniform 1/4-inch (6 mm) wide horizontal and vertical joint widths.
3. Set scored-face units in stacked bond where aligned vertical joint appearance is required.
4. Strike and tool setting mortar to concave profile using 5/8-inch (16 mm) diameter non-metallic tooling rod.
5. Rake out setting mortar minimum 1/4 inch (6 mm); allow to set.
6. Tuck-point joints and tool to concave profile using 5/8-inch (16 mm) diameter non-metallic tooling rod; do not use smeared-grout method to fill joints.
7. Tuck-point raked joints and scored joints in block at the same time. Point all joints, leaving no scored joints open.
8. Remove excess mortar from glazed surfaces at once, using clean, soft, damp rags. Do not allow mortar to harden on sight-exposed surfaces.

H. Site Tolerances: Specified in sections referenced in RELATED SECTIONS Article of PART 1 of this section.

I. Final Clean Down:
1. Use industrial strength detergents in strict accordance with cleaner manufacturer's instructions, including thorough rinsing.
2. Do not use steel wool, other abrasives, or any product containing unbuffered hydrochloric acid or other acid.

3. Do not use paint remover on faces.
4. Damp dry with clean, soft rags.

3.4 FIELD QUALITY CONTROL

A. Architect will observe appearance of installed units; installed glazed masonry unit surfaces shall be free of imperfections which detract from overall appearance when viewed from a distance of 5 feet (1.5 m) at 90 degrees normal to surface.

3.5 CLEANING

A. Clean installed glazed concrete masonry unit surfaces in accordance with manufacturer's instructions; do not clean units with products not specified in manufacturer's instructions, including steel wool, other abrasives, and nonbuffered acids.

END OF SECTION