

AMCON BLOCK SUGGESTED CONCRETE MASONRY SPECIFICATION NOTES TO ARCHITECTS AND SPECIFIERS – May 23rd, 2009

General notes about the specifications and the reasons for them are listed below. Use this as a guide when writing your specification.

ASTM C90

These specifications are based on ASTM C90. When particular features are desired such as weight classification, higher compressive strengths, surface textures, finish, color, fire resistance, insulation, acoustical properties or other special features; such properties should be specified separately and clearly by the purchaser or architect.

TYPE OF CONCRETE MASONRY UNITS

Many different sizes, shapes, and textures of CMU's are available. Textures include SPEC-BRIK Structural Veneers, Stone Mason Series, Mammoth Stone Series, Rock Face Series, Burnished Series, Astra Glaze, Nova Brik, etc. Select from a number of mix designs including Regular High Strength, Premium High Strength (recommended for projects with f'm prism values of 2,750 psi or greater), Lightweight, or our new "Green" blend, "Sustainable Solutions" Mix Design (50% to 70% Pre Consumer Waste Recycled Content depending on application).

TOOLING OF JOINTS

Concave or "C" joints are recommended for all exterior applications, as they provide the best protection against moisture intrusion. For the best appearance where scored units are used, it is recommended that the machine made scores be pointed and tooled in the same manner as the surrounding joints. This will help insure a uniform appearance when complete. To achieve the best final overall appearance of a masonry wall, avoid specifying raked joints; instead specify "C" or "V" tooled joints. These types of joints tend to eliminate or greatly reduce the appearance of any minor chipping of edges or corners that can occur from rough handling of units in the field.

SAMPLE PANEL

A sample panel is important because it serves as a visual aid for workmanship for the masonry contractor and architect. Select samples that show normal variations in shade, unit size, etc. Use cleaning materials and methods that will be representative of those to be used on actual walls. This helps to eliminate later discussion about workmanship standards.

COLOR

Typically, integrally colored CMU's are manufactured on a job to job basis. If possible, select and specify the color of CMU desired prior to bidding the project. This will help avoid possible delays during construction. If selecting the final color prior to bid is not possible, specifying a color series (standard, custom, or premier series) will enable the contractor to provide a more accurate bid and allow the architect choices within the specified series of colors. Please note that regardless of color selection, AMCON BLOCK does not recommend the use of smooth face mono colored units due to potential color irregularities.

INTEGRALLY VARIEGATED (BLENDED) COLORED UNITS

Variiegated (Blended) colored units in either the Rock Face Series, Mammoth Stone Quarry Series or Stone Mason Series are offered in 2 color blends intended to simulate the inherent color variation occurring in natural quarried stone products. Since color variegation in these products will vary (like natural stone does) it is important for the mason to lay these products off of several different cubes at the same time when constructing the wall, this will help eliminate the "spotty" color effect in the wall that could occur if the mason laid off of just one cube at a time; this precaution should be *clearly* called out in the specifications when using any variegated (blended) color products (the same should be done when laying natural stone).

INTEGRALLY VARIEGATED (BLENDED) COLORED CONCRETE BRICK UNITS

Integral color concrete brick units like SPEC-BRIK Structural Veneers are offered in integral 2 color variegated blends. For optimum results it is recommended that when installing any integral variegated (blended) colored concrete brick units like SPEC-BRIK Structural Veneers that the mason lay these products off of several different cubes at the same time when constructing the wall, this will help eliminate the “spotty” color effect in the wall that could occur if the mason laid off of just one cube at a time; this precaution should be *clearly* called out in the specifications when using any integrally variegated (blended) colored concrete brick products (the same should be done when laying clay brick products).

CLEANING COLORED MASONRY UNITS

With **all** integrally colored decorative concrete masonry units, extreme caution should be taken to avoid any unnecessary deposits of mortar on the face of the masonry units. Please keep in mind the installed surface of decorative concrete masonry units **is** the finished surface. If it becomes necessary to clean deposits of mortar from the face of the masonry units please consult our Suggested Masonry Specification (Section 3.05 Final Clean Down).

WATER REPELLANTS

Exterior concrete masonry will benefit from the use of integral water repellent admixture at the time of manufacture. An integral water repellent is a system of liquid polymeric admixtures. One component is incorporated into the mix design of the concrete during manufacture of the concrete masonry units while the other is added to the mortar in the field, both must be done to assure protection of the entire wall is addressed. Field applied water repellents (siloxane or silane) are applied after the erection and final clean down of the wall. Although modern integral water repellents are *very* effective at preventing moisture intrusion, they should *not* be considered a substitute for proper masonry flashing, weeps, and vents.

**AMCON BLOCK SUGGESTED CONCRETE MASONRY SPECIFICATION
SECTION 04 22 00 - CONCRETE UNIT MASONRY – May 23rd, 2009**

Conditions of the Contract and Division 1 General Requirements are a part of this Section

PART 1 GENERAL

1.01 SUMMARY

Provide materials, labor and equipment necessary for the completion of concrete masonry work as indicated on the drawings and specified herein.

1.02 RELATED WORK SPECIFIED IN OTHER SECTIONS

Section 09 97 23, Concrete and Masonry Coating **<Specifiers note: select this option if Burnished units are used>**

1.03 CODES AND STANDARDS

Perform work with materials complying with ASTM and ACI specifications.

1.04 INSPECTION

Conform with the requirements of Section 01401-Testing and Inspections.

1.05 SUBMITTAL

- A. Submittal procedures and quantities are specified in Section 01300-Submittal.
- B. Submit copies of manufacturer's product information and installation instructions for each item and accessory.
- C. Submit samples of exposed masonry units, indicating special shapes, textures and colors.

1.06 QUALITY ASSURANCE

- A. Before installation of concrete masonry a sample panel **must** be set up, cleaned and approved by the architect.
- B. The panel shall be 4 feet long by 4 feet high and shall show the proposed color, texture, bond, pattern, mortar joints and workmanship for concrete masonry. The panel shall be cleaned according to Section 3.05 Final Clean Down; the same methods and materials used to clean the sample panel shall be used to clean the building.
- C. Upon approval by the Architect, the sample panels shall become the standard of comparison for concrete masonry construction on the project and shall not be taken down without written permission from the architect.

PART 2 PRODUCTS

2.01 CONCRETE UNIT MASONRY

- A. Load bearing concrete masonry units shall comply with ASTM C90 (latest edition) and provide required shapes such as double ends, bullnose, bond beams, lintels, sills, etc. as required by the project.
- B. Provide concrete masonry units as manufactured and supplied by AMCON BLOCK & PRECAST, 2211 Highway 10 South St. Cloud, MN 56304, Phone: 888-251-6030; Fax: 320-529-6970. Provide the following type of concrete masonry units as indicated on drawings:
<Specifiers note: select from the following>

<Specifiers note: First select a Mix Design. All Mix designs listed below meet or exceed ASTM C90 requirements>.

If a "GREEN" or "LEED" type mix design is desired, specify AMCON BLOCK manufactured with a "Sustainable Solutions Mix Design" containing a specific content of Pre Consumer waste materials. This mix design can contain from 50% to 70% Pre Consumer Waste content, and is available in most Architectural finishes listed below (with some restrictions). Please contact your AMCON BLOCK representative to discuss colors, finishes and recycled content.

If a regular high strength mix design is desired no specific language needs to be inserted regardless of product.

If lightweight units are required it should be stated after the product name. Lightweight units can be pigmented, split or ground. Specialty colored aggregates are not available however because lightweight aggregates must be used.

If a premium high strength mix design is desired it should be stated right after the product name. This mix design is required if the project requires prism strengths in excess of f'm 2,750 psi. >

1. SPEC-BRIK STRUCTURAL SERIES units – SPEC-BRIK color _____.
<Specifiers note: Concrete brick units in 3 5/8" high by 15 5/8" long face dimensions are available in 4", 6", 8" and 12" widths. All SPEC-BRIK units come standard with Integral Water Repellent; this should be called out in the specification for SPEC-BRIK as well as for the mortar. SPEC-BRIK is Concrete Masonry and should be detailed as such with regard to such items as Control Joints and Horizontal Joint Reinforcement. SPEC-BRIK should be laid from a minimum of two different pallets at once to assure an optimum color blend - see AMCON BLOCK NOTES TO ARCHITECTS AND SPECIFIERS. SPEC-BRIK is available in a range of blends – see Architectural Product Guide>

2. STONE MASON SERIES units – AMCONBLOCK color _____.
- <Specifiers note: Smooth (not split) face reminiscent of traditional hand dressed stone! The Stone Mason Series is a random pattern 4 piece system with 2 return corner sizes. The Stone Mason Series should be laid in a random pattern avoiding stacked bond. All sizes are 3 5/8" veneer depth and 7 5/8" in height. The Stone Mason Series comes in 4 lengths; 5 5/8", 11 5/8", 17 5/8" and 23 5/8". All Stone Mason Series units come standard with Integral Water Repellent and this should be called out in the specification for Stone Mason Series as well as for the mortar. The Stone Mason Series is Concrete Masonry and should be detailed as such with regard to such items as Control Joints and Horizontal Joint Reinforcement. The Stone Mason Series should be laid from a minimum of two different pallets at once to assure an optimum color blend - see AMCON BLOCK NOTES TO ARCHITECTS AND SPECIFIERS.**

The Stone Mason Series should be laid neatly and cleaned at the end of each days work; acidic cleaners and high pressure cleaning is not recommended with this finish. Detail as you would conventional 3 5/8" veneer depth Concrete Masonry Units>

3. MAMMOTH STONE SERIES units – AMCON BLOCK color _____.
- <Specifiers note: full face split units for veneer applications, sizes range from 4x4x16 to 4x16x24; for exterior applications, concrete masonry units shall be manufactured with an integral water repellent, a compatible material shall also be used in the mortar. Mammoth Stone Series in variegated colors should be laid from a minimum of two different pallets at once to assure an optimum color blend - see AMCON BLOCK NOTES TO ARCHITECTS AND SPECIFIERS. >**
4. ROCK FACE SERIES units - AMCON BLOCK color _____.
- <Specifiers note: full face split units in a wide range of sizes; for exterior applications, concrete masonry units shall be manufactured with an integral water repellent, a compatible material shall also be used in the mortar. Rock Face units in variegated colors should be laid from a minimum of two different pallets at once to assure an optimum color blend -see AMCON BLOCK NOTES TO ARCHITECTS AND SPECIFIERS.>**
5. BURNISHED SERIES units – AMCON BLOCK color _____.
- <Specifiers note: Burnished units used in exterior applications, concrete masonry units shall be manufactured with an integral water repellent, a compatible material shall also be used in the mortar.>**

BURNISHED SERIES units shall have a factory-applied sealant on each ground surface to facilitate cleaning on the job site. Recommended factory applied sealant to be TK 192 for interior applications. For exterior applications, concrete masonry units shall be manufactured with integral water repellent and shall have a factory-applied coat of TK 192. After final clean down, a coat of acrylic highlight sealer (TK Bright Seal) shall be applied to the wall, in accordance with Section 09 97 23.

6. SOUNDBLOX units – AMCON BLOCK color _____.
- <Specifiers note: sound absorptive masonry units; for exterior applications, concrete masonry units shall be manufactured with an integral water repellent, a compatible material shall also be used in the mortar.>**

7. ENERBLOCK units with _____” inserts <specifiers note: specify 4, 2 -1/2, 2, 1-1/4 in.- AMCON BLOCK color #_____.
<Specifiers note: Plain CMU, ROCK FACE SERIES or BURNISHED SERIES Insulated masonry units with rigid polystyrene molded insulating barriers; for exterior applications, concrete masonry units shall be manufactured with an integral water repellent, a compatible material shall also be used in the mortar.>

8. OTHER

2.02 MORTAR AND GROUT MIXES

- A. AMCON BLOCK COLORED MORTAR MIX is manufactured using Portland cement (ASTM C150 Type 1), Hydrated Type S (Special) Mason’s Lime (ASTM C207), and non fading synthetic pigments. When mixed with three cubic feet of mason’s sand (ASTM C144), this mortar meets the requirements of ASTM C270 Type S Mortar.
- B. When using concrete masonry units that contain integral water repellent, the installer shall use only mortar containing integral water repellent mortar admixture at the manufacturer’s recommended addition rate and mix according to the manufacturer’s recommended instructions.

PART 3 EXECUTION

3.1 GENERAL ERECTION REQUIREMENTS

- A. Install units level, aligned, plumb and true unless otherwise indicated. Install only quality units; reject all defective units.
- B. In order to assure optimum blending of product when using variegated (blended) color units of any type including Rock Face Series, Mammoth Stone Series, Burnished Series, SPEC-BRIK, or Stone Mason Series, stage cubes so that two or more cubes can be worked off of at the same time. Mason is to lay wall off of at least two cubes of variegated (blended color) product at the same time for even distribution of color. Avoid constructing walls that have a “spotty” visual effect.
- C. Neatly cut units utilizing a power masonry saw to obtain crisp, sharp edges that fit neatly with all adjoining work.
- D. Place adequate lighting a reasonable distance from the masonry work to ensure even illumination of the area. Do not use trough lighting.
- E. Lay units with full mortar coverage on head and bed joints, taking care not to obstruct or fill cores to be grouted or insulated. Keep cavity areas free of debris.
- F. Tuck-point the joints of rake scored units and tool with a _____ finish to match surrounding units **<Specifiers note: select either concave profile or “V” profile. Rake finish joints are not recommended>**
- G. Tool all mortar joints when thumb print hard. Remove all excess mortar from the face of masonry units before it sets; **remember this is the finished surface!**
- H. **Cover and keep dry all materials stored at the jobsite. At the end of work each day cover the top of the wall in such a way that rain or snow will not get into the cores or wall cavity!!**

3.2 CONTROL JOINTS AND HORIZONTAL JOINT REINFORCEMENT

- A. Do not continue Bond Beam Reinforcement or Horizontal Joint Reinforcement across control joints unless otherwise shown on plans as indicated by the Structural Engineer.
- B. Install preformed joint filler material at locations indicated on drawings. Space control joints as shown on drawings; spacing however should not exceed 1 ½ times the height of the building or 25 feet (whichever is less) for structural walls or 1 ½ times the height or 20 feet (whichever is less) for veneer walls.
- C. Install horizontal joint reinforcement at 16" vertical spacing except space at 8" below finished floors and in parapet walls and where otherwise indicated on drawings. **Horizontal Joint Reinforcement should always be overlapped a minimum of 6 inches.** Do not extend horizontal reinforcement through control joints.

3.3 FLASHING AND WEEP HOLES

- A. Install flashing and end dams at all locations shown in the plans. Keep flashing free of mortar debris. Install flashing in strict accordance with the details shown. Flashing for single wythe walls shall be "**Blok Flash**" by **Mortar Net**.
- B. Install weep holes (32" O.C. recommended spacing) at courses above grade, above flashing and at waterstops over doors, windows and beam areas.
- C. If weep holes are used, only 100% cotton rope is to be used in weep holes; synthetic materials (nylon, etc) is specifically prohibited.

3.4 DAILY CLEANING

Clean completed work daily using brushes, clean rags or burlap. DO NOT allow excess mortar to dry and harden on the face of the wall; ***this is a finished surface!***

3.5 FINAL CLEAN DOWN

Job site mixed muriatic acid is specifically prohibited; use **Sure-Klean Custom Masonry Cleaner or Sure-Klean Burnished Custom Masonry Cleaner for Integrally Colored Rock Face, Smooth Face CMU's and Burnished CMU's. Use Sure-Klean Concrete Brick Cleaner for SPEC-BRIK.** <Specifiers note: select one> in strict accordance with manufacturer's recommendations. Thoroughly pre-wet area to be cleaned. Allow product to work and thoroughly rinse with clean potable water when complete. All work is to be done with low pressure equipment. Job site sample panel must first be cleaned and approved by the architect before proceeding with the cleaning of the building.

<Specifiers note: the following should be specified for Burnished Concrete Masonry Units in Section 09 97 23 – Concrete and Masonry Coating, Referred to in Section 04 22 00, Part 1 General, under Related Work Specified in Other Sections>

FINAL SEALING OF BURNISHED SERIES UNITS

Interior Applications and Exterior Applications

After clean down, a coat of TK Bright Seal Acrylic Highlight Sealer shall be applied to the moisture-free wall, in accordance with manufacturer's recommendations and Section 09 97 23, making sure the mortar joints are thoroughly covered. The recommended coverage is 200 square feet per gallon.

3.6 INSPECTION

The face of the finished wall shall be free of chips, cracks, or other imperfections that would detract from the overall appearance of the wall when viewed from a right angle at a distance of 20 feet under normal diffused lighting.