SECTION 04 22 23
ARCHITECTURAL CONCRETE BRICKS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete Brick Facing

1.2 RELATED SECTIONS

01 00 00 General Requirements
03 00 00 Concrete
04 05 00 Common Work Results for Masonry
04 05 13 Masonry Mortaring
04 20 00 Brick Masonry
08 00 00 Openings

1.3 REFERENCES

A. 2024 International Building Code (IBC) 1206.2 Airborne sound.
B. 2024 International Building Code (IBC) TMS 302 Standard Method for Determining Sound Transmission Ratings for Masonry Walls."
C. ASTM E90-09 (2024) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
D. ASTM C518-21Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
E. ISO 14025 EPD Programs - ISO Environmental Compliance.
F. ISO 21930 International Standard "Sustainability in buildings and civil engineering works.
G. ASTM C1634 – Standard Specification for Concrete Facing Brick and Other Concrete Masonry Facing Bricks

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 23 Shop Drawings, Product Data and Samples
B. Manufacturer's data sheets on each product to be used, including:
    1. Physical properties and independent testing agency reports showing compliance with specified tests.
    2. Preparation instructions and recommendations.
    3. Storage and handling requirements and recommendations.
    4. Installation methods.

1.5 QUALITY ASSURANCE

A. Concrete brick manufacturer will maintain quality standards for all materials used on the project.
B. Architectural concrete brick will adhere to all relevant industry standards and regulations to ensure that materials meet or exceed performance and safety requirements.
C. Manufacturer will evaluate and qualify their material suppliers to maintain high-quality materials.
D. Incoming materials undergo testing and inspection to verify compliance with specifications.

1.6 DELIVERY AND STORAGE

A. Concrete brick to be delivered and stored to protect the brick from damage by other trades.

1. Concrete brick to be protected from damage during and after installation.

1.7 PRE-CONSTRUCTION

A. Mock-up
   1. If required by the architect concrete brick manufacture will work with the architect to design an onsite mockup.
   2. Mock-up material and installation costs to be billed to the general contractor.

1.8 WARRANTY

A. See section 01 70 00 Execution and Closeout Requirements for additional warranty.
   1. Provide manufacturer's standard limited warranty.
   2. Duration of limited warranty to be as follows:
      a. Manufacturer’s warranty will cover defects in material and workmanship occurring during the manufacturing of the product for 110 years.
      b. Installer to provide a one-year warranty covering installation defects.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design; Bilco Brick, 2116 N. Lancaster-Hutchins Road, Lancaster, Texas 75134, Phone: (972) 227-3380 Email: info@BilcoBrick.com
B. Install concrete bricks as shown on the drawings.

2.2 BRICK FINISHES

A. Architect to provide concrete brick manufacturer with required colors of brick.
   a. Matching existing brick color.
   b. RGB Color Codes Chart.
   c. Canva Colors.
   d. Pantone Color Chart.
      i. Any printed color number can be used.

2.3 FIRE-RETARDANT ATTRIBUTES

A. Bricks to be tested following National Concrete Masonry Association, "Fire Resistance Ratings of Concrete Masonry Assemblies TEK 7-1C".
B. Bricks as shipped will not pose a fire hazard.
   a. Manufacture to provide test report when requested.

2.4 PRODUCT INFORMATION

A. Concrete bricks to be manufactured from integrally colored architectural concrete.
   1. Natural variation in color, aggregate exposure, and surface texture is inherent to concrete masonry products.
B. ASTM Designation: C1634-25

   This specification covers solid, dry-cast, concrete facing brick and other solid concrete masonry facing units intended for interior and exterior use in constructing structural and facing masonry components and are made from Portland cement, water, and suitable mineral aggregates with or without the inclusion of other materials.

2.5 CONTROL JOINTS

A. Place control joints as shown on the plans.
    1. Follow industry standards and architect requirements for placement size and sealants of joints.

2.6 SUSTAINABILITY ATTRIBUTES

A. Concrete brick manufacturer to provide life cycle assessments (LCAs) conducted by a third party.
B. Environmental Product Declaration is required for concrete brick providing an evaluation of environmental information about the life cycle of manufacturer. EPD to be based on product life cycle assessment, following the ISO 14040 series of international standards, and must be verified by an independent third-party before publication.
C. When requested, concrete brick manufacturer will provide Health Product Declaration (HPD) information on the brick.
D. When requested, concrete brick manufacturer will provide data on LEED v4.1and LEED v5 direct and indirect credit contributions.

2.7 FREEZE-THAW REQUIREMENTS

A. Concrete brick to be used on the project must have completed freeze-thaw durability testing per ASTM C1645-22, Standard Test Method for Freeze-thaw, and De-icing Salt Durability of Solid Concrete Interlocking Paving Bricks.

2.8 PERFORMANCE REQUIREMENTS

A. Based on independent testing wall assemblies built with king or modular concrete brick with added insulated air space and gypsum boards to have a minimum STC rating above STC 50.
B. Concrete masonry bricks to meet the requirements of ASTM C1634-23

PART 3 EXECUTION

3.1 SITE PREPERATION

A. Work area to be clean and free of obstructions that create a hazard for the installer.

3.2 EXAMINATION

A. Brick and mortar mix are to be examined to verifier they meet the requirements of the project.
    1. Architect is to be notified of any incorrect material before installation.

3.3 CUTTING, MILLING

A. Use all appropriate measures of dust control or suppression and Personal Protective Equipment (PPE). Avoid dust production that exceeds Permissible Exposure Limits.

3.4 VENTILATION

A. Power equipment should be equipped with wet dust suppression or dust collection devices if cutting/grinding/chipping product.
B. Emergency eyewash equipment should be available in the immediate vicinity of any potential exposure.

C. Use local exhaust or general dilution ventilation, or other suppression methods to maintain dust levels below exposure limits.

3.5 INSTALLATION

A. Bricks are not to be installed if wet or covered in dirt or other materials.
    1. Dirt or other materials adhered to the brick are to be removed before installation.
B. Installers to be CMHA certified.
    1. Concrete Masonry & Hardscapes Association (CMHA) is the authority for segmental concrete products and systems. The CMHA Certification Program provides programs of certification in the installation of ICP, SRW, PICP, and MSV systems.
        i. Certification to be verified on the CMHA website.
C. Assembly of masonry bricks will use mortar made using conventional cementitious materials including cements meeting the requirements of ASTM C150, C595, C618, C989, or C1157.
    1. Mortar when prepared with the addition of water will chemically hydrate the mortar to permanently bind the mortar and concrete brick together.

3.6 ONSITE BRICK CLEANING

A. Concrete brick used on the project will have independent testing of cleaning products.
    1. Manufacturer will provide written instruction on jobsite cleaning of concrete masonry.
        a. Cleaning methods must remove mortar residue and construction-related soiling while maintaining the original surface appearance.
    2. Manufacturer will provide maintenance instructions to building owner.

3.7 JOBSITE WASTE REMOVAL

A. Dispose of waste material safely and in accordance with all local, regional, national, solid waste regulations.

3.8 PROTECTION

A. Protect finished material from damage by other trades.

END OF SECTION