

**ITEM 10555.7296 M - ARCHITECTURAL TREATMENT TO CONSTRUCT
VERTICAL BRICK FINISHES**

DESCRIPTION

This work shall consist of creating brick veneer finishes on the vertical surfaces of concrete retaining walls, structures, pilasters, piers or other similar vertical surfaces with designated patterns. All work shall be in accordance with these specifications and in close conformity to the lines, grades and patterns shown on the plans.

MATERIALS

Form Liner. Form liner for vertical brick finishes shall be produced to hold brick veneer with running bond pattern or other patterns as shown on the plans as manufactured by Scott System, Inc. 4575 Joliet Street, Denver, Colorado 80239; Greenstreak Plastic Products, 3400 Tree Court Ind. Blvd, St. Louis, Missouri 63122-6689; Fitzgerald Formliners, 1341 East Pomona Street, Santa Ana, California 92705; or approved equal.

The form liner system shall:

1. Produce the pattern required by the plans.
2. Be composed of a material(s) that will not bond to concrete.
3. Be attachable to standard plywood, steel, or concrete forms, such that no distortions, or stray markings occur within the concrete or brick surfaces.

Form liner system shall meet the following requirements:

1. Form liner shall be made from urethane elastomer material with a shore hardness of 50 to 55.
2. Modular cavities shall maintain a manufactured tolerance of 1 mm \pm .
3. Form liner shall be attached to 19 mm plywood.
4. Alignment between form liners shall be true and accurate.
5. Where form liners are abutted, no more than 1.5 mm offset shall occur due to thickness variations.
6. Form liners shall be square as measured on the diagonal to within 1.5 mm.
7. Form liner raised mortar joints shall match, and may not be misaligned more than 1.2 mm from liner to liner.
8. All form liners shall abut tightly together to prevent concrete leakage.

Thin Brick Veneer. Thin Brick Veneer shall meet the following requirements:

1. Thin Veneer Brick units made from clay or shale shall meet or exceed ASTM C 1088-88 Type TBX select thin veneer brick for general use in exposed exterior masonry walls and partitions where a higher degree of precision and low permissible variation in size is permitted.
2. Physical properties of durability, freezing and thawing, and efflorescence shall conform to ASTM C 1088-88.
3. Color shall be as indicated on the plans.
4. Thin brick of standard size (57 mm x 194 mm x 12mm) shall maintain a length and width tolerance of -1.5 mm, +0. Thickness tolerance shall be 1.5 mm \pm .

Concrete. Concrete shall meet the requirements of Section 501 and 555 of the Standard Specifications except for the following. The class of concrete will be as specified elsewhere in the Contract Documents.

**ITEM 10555.7296 M - ARCHITECTURAL TREATMENT TO CONSTRUCT
VERTICAL BRICK FINISHES**

Color Admixture. All concrete which is visible above the finished grade shall be integrally colored using pigment admixture, Federal Color as noted on drawings and as approved by the Regional Landscape Architect. The color admixture shall be a single component, pigmented, water reducing concrete admixture such as CHROMIX ADMIXTURE for color conditioned concrete as manufactured by L.M. Scofield Co., Douglasville, Ga., (800) 800-9900 or (201)342-1380, or Davis Color Inc., Beltsville, Md. (800) 638-4444 or (301) 210-3400, or approved equal. Colored concrete shall contain the required number of pounds of color admixture per sack of concrete as noted on the drawings. Admixture shall be thoroughly and uniformly mixed into the concrete. Admixture shall comply with Uniform Building Code Standard No. 26-9, as evidenced by a Research Committee Recommendation from I.C.B.O. (International Conference of Building Officials).

All batching, placing and finishing of admixtures shall be in accordance with Scofield's Tech-Data Bulletin A-304 on Chromix Admixtures. Caulking shall be in accordance with Scofield's Tech-Data Bulletin Application Instructions S-304-3G.02 LITHOSEAL Colorcaulk 3G or approved equal. Caulk color shall match the adjacent material color.

Releasing Agents. If the form liner manufacturer requires the use of an agent to facilitate the release of the form liner panel from the concrete, or when its use is specified on the plans, such agent shall be non-staining and evenly spread over the entire liner surface. Formwork shall also be treated as needed.

Caulking Compounds. When a caulking compound is required to seal any necessary concrete joints in the surface, such caulking compounds shall meet the material requirements of U.S. Federal Specification TT-S-00227E (COM-NBS) as a multicomponent, Class A, Type II sealant with ASTM C 920, Standard Specification for Elastomeric Joint Sealants as a Type M, Grade NS, Class 25 joint sealant for uses NT, A, M, and O.

SUBMITTALS

In addition to the tests submitted above, the Contractor shall submit the following for approval:

1. Thin Brick Veneer samples of the color and size indicated on the plans.
2. Form liner sample with manufacturer's specifications.
3. Shop drawings of layouts for brick veneer on retaining walls, abutment walls, piers, pier caps, and parapet walls including all dimensions and radii.
4. The Contractor shall prepare and submit to a certified testing lab two (2) 300mm x 300mm x 100mm thick cast samples using the selected formliner, veneer brick and specified concrete mix for testing of the concrete/brick unit as a composite in accordance with ASTM C 666 (Method A) for 300 cycles. Certification shall be supplied to the Engineer to demonstrate that no bricks delaminate after 300 cycles. Freeze/thaw testing for thin veneer brick, exterior grade, shall govern. TBX (Select) shall be tested according to ASTM C 1088-88. Any five (5) bricks tested shall show no breakage or loss greater than 0.5% in dry weight of any individual brick after 50 cycles of the freeze and thaw testing.
5. A separate 1 m x 1 m x 100 mm thick completely finished sample of colored concrete with form liner/brick veneer treatment utilizing a curve similar to the top of an arch shall be cast on-site using the methods, materials and finishes stated in this specification and on the plans for the approval of the Engineer and the Regional Landscape Architect. When approved, these samples shall remain on site and be used as the standard or comparison for all Architectural Brick work on the project.

CONSTRUCTION DETAILS

All provisions of Section 555-3 shall apply with the following additional revisions:

**ITEM 10555.7296 M - ARCHITECTURAL TREATMENT TO CONSTRUCT
VERTICAL BRICK FINISHES**

Special care shall be taken after installation to ensure that all form liner surfaces are thoroughly clean of all stray material of any nature. No forms shall be erected prior to the Engineer's inspection and approval of form liner surfaces.

Approximately 2 mm of the form liner panel shall overlap on either side of the formwork panel so that when the formwork sections are forced together, the form liners compress at the edges to form a tight joint. Joints between panels shall be sealed, taped or fused to form a watertight seam, according to the manufacturer's instructions. Unless otherwise specified on the plans, brick veneer will also be required on surfaces which will be below finished grade to provide uninterrupted brick coursing where grades may change. Plastic snap tie cones are to be of the non-leaking type. Metal form ties are not to be placed closer than 38 mm to the interior surface.

Concrete retarder coated paper as supplied by the form liner manufacturer, shall be inserted into each form liner pocket to facilitate clean up of any concrete leakage. Follow the manufacturer's recommendations as to the strength of retarder paper to be used.

Placement of brick units shall be preceded by physically cleaning the form liner gasket pockets of all foreign matter. The veneer brick shall be pressed into the liner pockets so as to achieve a sufficient grip on all sides to reduce concrete leakage around the brick.

Construction joints shall extend to the full depth of the concrete at the locations shown on the plans. When construction joints are needed but are not shown on the plans, the Contractor and the Engineer shall agree on the proper locations of such joints so as to not detract from the appearance of the pattern shown on the plans and to minimize the possibilities of cracking.

After formwork removal the Engineer will inspect the architecturally patterned brick finishes. All such surfaces which do not exhibit the required architectural pattern shall be repaired in a manner satisfactory to the Engineer at no cost to the State. The repair shall match the brick finish. Concrete repair material, if used, shall be colored to match the surrounding concrete and shall meet the requirements of Subsection 701-04, Concrete Repair Material of the Standard Specifications.

Clear (fugitive dye) membrane curing compound and wet curing in contact with the concrete/brick surface as specified under Subsection 555-3.09 shall not be used.

After the concrete has cured 28 days, power wash at 20,000 kPa the surface of all architecturally treated areas. Sandblasting will not be permitted.

METHOD OF MEASUREMENT

Architectural Treatment to Construct Vertical Brick Finishes will be measured by the number of square meters of concrete treated to the satisfaction of the Engineer. The quantity shall be as computed from payment lines shown on the plans or as established by the Engineer in writing. Measurement will be taken as the vertical plane projection of the treated location. No measurement will be taken of actual surfaces.

BASIS OF PAYMENT

The unit price bid per square meter shall include the cost of the form liner, brick veneer, color admixture, releasing agent, caulking compound, concrete repair material and all other materials, equipment and labor

**ITEM 10555.7296 M - ARCHITECTURAL TREATMENT TO CONSTRUCT
VERTICAL BRICK FINISHES**

necessary to complete the work as specified, as well as the cost associated with all submittals, testing and samples required. Structural concrete will be paid for separately.

This Specification has been Disapproved by EI 04-021