

**ITEM 555.7502 11 – COLORED SIMULATED BRICK MASONRY WALL
PANELS (PRECAST)**

DESCRIPTION:

This work shall consist of furnishing and installing precast concrete textured and colored wall panels using simulated brick Form Liners and pigmented concrete designed to duplicate closely the appearance of natural brick walls as shown in the contract documents. All work shall be in accordance with these specifications and in close conformity to the lines, grades, pattern(s) and color(s) as indicated on the plans.

The completed formed concrete surface shall match the color and texture of the approved sample panel(s).

MATERIALS:

Precast Units –Precast units shall meet the requirements of 704-03 Precast Concrete-General.

Release Agent -When the 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 for custom Form Liners shall also be treated as needed. Form release material shall be on the NYSDOT's Approved List of Manufacturers and compatible with the Form Liner material.

Color – Color admixtures for integrally colored concrete will be certified by the manufacturer as meeting the requirements of ASTM C979 Standard Specifications for Pigments for Integrally Colored Concrete and be packaged such that one dose is the proper dosage for one cubic meter of concrete.

Form Liner Panels – Form Liner panels shall leave crisp, sharp definition of the architectural surface. Recurring textural configurations exhibited by repeating, recognizable shadow patterns shall be prevented by proper casting of Form Liner patterns. The Contractor shall plan on having sufficient liners available to minimize pattern repeat. Form Liners shall be removable without causing deterioration of the surface or underlying concrete.

Form Liner panels shall be capable of imprinting the surface of the concrete with a uniform and aligned pattern and texture. The panels shall be designed for their intended shape and number of reuses to achieve the desired effects established in the approved sample panel(s).

Form liners to simulate brick shall have been cast from actual brick, and shall display the same brick size, lines and patterns characteristic of the brick pattern shown in the Contract Documents or observed on the actual wall surfaces.

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Stainless Steel Bolts – 715-16 (ASTM A193M, Grade B6)

Stainless Steel Nuts and Washers 715-16 (ASTM A194M, Grade 6 and ASTM A167)

Concrete grout – 701-05

Anchoring Materials – Chemically Curing – 701-07 (Approved List)

Patching Material -701-04 concrete repair material.

Epoxy coated wire fabric reinforcement – 709-08

Leveling Pad – Class ‘A’ concrete

SITE PREPARATION

Field Survey – The Contractor shall perform a field survey to determine the elevations at the top of the existing mountable curb, at 2.0m longitudinal intervals, along the entire length of the walls where precast concrete wall panels will be installed at WIN 1-278-202 thru WIN 1-278-212. Layout drawings shall be prepared for all precast wall panels.

The Contractor shall also perform a 3D coordinate field survey of the front face of the existing wall brick veneer at 1m and 2m vertical heights, above the top of the existing mountable curb, and at 2m longitudinal intervals. Intermediate coordinates shall be taken at misaligned or offset brick veneer locations (bulging veneer or horizontally displaced veneer at joints). The coordinate survey shall be performed after all brick veneer repairs for WIN 1-278-202 thru WIN 1-278-212, as indicated on the plans, have been completed.

ARCHITECTURAL TREATMENT DETAILS:

Quality of Work:

The process of coloring of concrete, form lining and texturing of the hardened concrete shall be performed in strict accordance with the manufacturer’s recommendations resulting in an approved finish matching referee sample panels described herein.

If the quality of the application varies from the texture and color of the approved sample panel(s) at any time, or if unevenness in color, lines of work termination, etc. exist, the Engineer may have all such surfaces re-applied at the Contractor’s expense. Additional coverage, if deemed required, shall be carried to a natural break-off point.

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Referee Walls and/ or Panels – The Contractor may be directed in the plans to an existing real brick or other textured wall (the “referee wall”) and/or an existing sample panel (the “referee panel”) with architectural forming and color that will serve as the prototypes for texture, color and results for this project. Where both “referee wall” and “referee panel” are designated, the “referee wall” shall be the color and texture standard and the “referee panel” will be the technique standard that shall be used for determining acceptable results for the Contractor’s work on this project.

Pre-installation Meeting – Contractor, through the Engineer, shall schedule a meeting with manufacturer’s representative, precaster, installer, Engineer and Regional Landscape Architect to assure understanding of architectural concrete Form Liner use, color application, requirements for construction of sample panel(s), and to coordinate the work.

Submittals:

Catalog cuts, manufacturer’s literature, and technical data for the materials specified herein, including but not limited to Form Liner mold patterns, Form Liner, release agent, concrete patching material and color charts and application instructions for coloring of concrete.

Photographs - color photographs of three (3) similar past projects of the Contractor.

Samples - form ties, sample and description, showing method of separation when forms are removed.

Shop Drawings - The Contractor shall submit, for each panel type, fabrication drawings meeting the requirements of 704-03. Drawings shall include; plan, elevation and details to show overall pattern, color treatments, joint locations, anchors and end, edge and other special conditions. The pattern must also align without visual interruption across joints.

The Contractor shall prepare and submit layout plans and elevations for each panel to be installed at WIN 1-278-202 thru WIN 1-278-212. The layout plans and elevations shall include the precast wall panel number, height, top of panel elevation final horizontal alignment geometry, and 3D coordinates, including coordinates at misaligned and displaced brick veneer locations, taken during the field survey performed under “SITE PREPARATION” of these specifications.

Form Liner and Colored Small-Scale Concrete Sample Panel(s): If the Contract Documents do not specifically direct the Contractor to an existing “Referee Panel” as described above under “Referee Walls and or Panels”, the Contractor, for each distinct pattern and/or color system specified in the Contract Documents, shall cast and submit for approval a small scale sample panel, approximately 0.4SM in size, which will clearly show the required texture and coloration. Such panel(s) shall be resubmitted until

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accepted by the Engineer, up to a maximum of five (5) small scale sample panels, and shall serve as the basis for a full-scale sample panel as described below.

Form Liner and Colored Full-Scale Concrete Sample Panel(s) – Sample panels shall be prepared and submitted for approval in accordance with the requirements of 704-03 Precast Concrete –General , section D. Visual Standards except as noted herein. The concrete repair material proposed for use shall be used on the sample panel to simulate a repair and demonstrate compatibility with the coloring system. A maximum of no more than three (3) full scale sample panels shall be required.

CONSTRUCTION DETAILS

Panel Dimensions – The height of each precast wall panel shall vary to provide constant top of wall panel elevation for all panels installed within each WIN wall length, except at the two WIN wall locations indicated in the following paragraphs. The constant top of panel elevations shall be established by measuring 1.8m above the highest leveling pad elevation, as determined by field survey, within a given WIN wall length.

At WIN 1-278-203, where the exposed veneer height is less than 1.8m, the height of precast wall panels shall vary to match the exposed veneer height. For locations where the exposed veneer height exceeds 1.8m, the precast panels shall be installed to constant top of wall elevation in accordance with the requirements of the preceding paragraph.

At WIN 1-278-212, the precast panels shall be fabricated to a constant 1.8m height above the leveling pad grades and not to the constant top of panel elevation required at other wall locations.

Extra Concrete - The forms shall be placed so that on the textured face the minimum concrete cover to the reinforcing steel at all locations meets the following:

- a. Precast Concrete - 50mm
- b. Any larger minimum cover specified in the contract documents.

This may require increasing the width of the pour by the relief of the Form Liner.

Wall Preparation and Repair - After Form Liners are removed from the hardened concrete, repairs shall be made in accordance 704-03 Precast Concrete-General, except as noted herein. All holes larger then 10mm in greatest principal dimension shall be repaired. Repairs shall be hand-shaped to meet adjacent surfaces and otherwise blend in and match the character of the particular texture in which it occurs. Seam lines and other unnatural protrusions shall be ground down to match adjacent areas with a hand-held power grinder using discs made for concrete. Holes at dowel anchorage locations shall be patched in a similar manner.

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

Relief - The depth of relief specified and shown on the plans shall not be varied.

Coloring –Apply color admixtures and dry shake additives at the manufacturers recommended dosage rate. This rate is to remain constant for all batches of concrete produced. Prior to placing concrete, protect adjacent surfaces and structures from spatters. Once a portion of the batch has been placed, no additional water shall be added to the remaining batch.

To integrally color the concrete, introduce the color additive into the mixer drum in a manner recommended by the manufacturer. The quantity of concrete being delivered shall be no less than one-third the capacity of the mixer drum. Batch the concrete in full cubic meter increments.

Completed surfaces shall be free of blemishes, discoloration, surface voids and unnatural form marks

Special Techniques for Forming Textured Concrete - clean Form Liners and make free of buildup prior to each pour. Inspect for blemishes or tears. Repair if needed following manufacturer's recommendations.

If texture is to continue across top of a formed wall, the formed pattern must be replicated by hand while the concrete is still plastic. Hand carve the concrete, aligning rustication joints with those in the formed pattern to achieve the desired relief and texture.

If the pattern selected has molds connecting through the middle of features such as simulated masonry carefully remove the seam line created by abutting molds and match the texture and shape of the surrounding masonry, avoiding visible seams or mold marks.

Installation - The Contractor shall reconstruct the existing mountable curbs to provide leveling pads at all precast panel locations to be installed. The leveling pads shall be constructed in accordance with the details shown on the plans.

The Contractor shall drill and grout bolts to secure new precast concrete wall panels to the existing retaining walls at WIN 1-278-202 thru 1-278-212 in accordance with the details shown on the plans.

The front surface of the installed precast wall panels shall be smooth and continuous. The space between the installed precast panels and existing brick veneer shall be grouted in accordance with the details shown on the plans. Where misalignment or displacement

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of existing brick veneer surfaces has occurred, based on the field survey, the horizontal alignment of the precast panels shall be adjusted as necessary to provide a smooth continuous front surface while providing a minimum 25mm clearance from back face of precast panel to front face of misaligned or displaced brick veneer.

METHOD OF MEASUREMENT

This work will be measured for payment as the number of square meters of “Colored Simulated Brick Masonry Wall Panels (Precast)”, actually installed and accepted to the satisfaction of the Engineer. The quantity shall be 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 subject work. No field measurement will be taken of actual concrete surfaces.

BASIS OF PAYMENT

Work for “Colored Simulated Brick Masonry Wall Panels (Precast)” will be paid for at the contract unit price per square meter, which price shall include all panels and their installation, form lining, hand carving, coloring, extra concrete needed because of the use of the Form Liners, releasing agents, caulking compounds, patch mix, preparation and transport of sample panels and all materials, supplies, field survey, labor, tools, and equipment incidental thereto.