

ITEM 0330401

CONCRETE PAVERS ON 4" CONCRETE BASE SLAB

DESCRIPTION

The work of this Item includes furnishing all materials, equipment, supplies, accessories, incidentals, labor and supervision, and performing all operations required to furnish and install concrete pavers on a 4" concrete base slab as shown on the drawings, as specified herein, and as is additionally required to properly complete the work, including furnishing and installing the bituminous setting bed, neoprene-modified asphalt setting adhesive, colored sand/cement joint filler mixture, and expansion joints.

REFERENCED ITEMS

Item 0330501

REQUIRED SUBMITTALS

- A. Samples: Furnish not less than ten individual masonry pavers of each size, type and color as samples, showing extreme variations in color and texture. Do not order brick for project until Architect's approval of field sample panel.
- B. Manufacturer's Product Data: Manufacturer's product data shall be submitted for the following items:
 - Concrete Pavers
 - Coloring additive for sand/cement joint filler mixture
 - Neoprene-modified asphalt setting adhesive
 - Bituminous setting bed
- C. Test Report:
 - 1. Test report of concrete pavers shall be submitted,
 - 2. Testing shall be done by an independent testing laboratory. Test procedures shall conform to ASTM C-67-03 methods, as applicable.
 - 3. Test report shall indicate , as a minimum, the following:
 - a) Compressive strength, psi
 - b) Absorption, 5 hr. submersion in cold water.

- c) Absorption, 24 hr. submersion in cold water.
- d) Maximum saturation coefficient.
- e) Initial rate of absorption (suction).
- f) Abrasion index.
- g) Freeze-thaw.
- h) Tolerance to saline conditions.
- i) Efflorescence.

MATERIALS

Concrete Paving Units

The paving units shall be as manufactured by Pavestone, 888-409-7992, or approved equal. The colors and shapes shall be as listed below. The compressive strength shall average greater than 8,000psi minimum. The absorption shall be 5% or less. The pavers shall meet or exceed ASTM C-936-01.

Special Conditions - The paver color(s), if specified, may be a "custom order". The contractor shall coordinate with the manufacturer to provide samples on a timely basis and secure orders in time to prevent delays due to production schedules.

Concrete Paver Descriptions:

NOTE: Paver names, descriptions, and special patterns are based on PAVESTONE product descriptions.

PAVER A: Running Bond at back of curb.

Half Holland Stone, Heritage Series (tumbled texture): 2.5" x 4" x 4"

Color: As specified on the plans, or as approved by the engineer

PAVER B: Random length Running Bond next to Paver A

Adirondack, Standard Series (tumbled texture) 2.5" pavers: a mixture of approximately seven eighths small (5.5" x 4.75"), medium (5.5" x 4.75"), and large (5.5" x 4.75") rectangles, and one eighth extra large (5.5" x 9.25") rectangles. Arrange pavers in a random, Runner Bond pattern, with all corner cuts made from extra large rectangles.

Color: As specified on the plans, or as approved by the engineer

PAVER C: Basket Weave pattern next to Paver B

Holland Stone, Heritage Series (tumbled texture): 2.5" x 4" x 7.75", four pieces each location.

Color: As specified on the plans, or as approved by the engineer

PAVER D: Center of Basket Weave pattern, Paver C
Half Holland Stone, Heritage Series (tumbled texture): 2.5" x 4" x 4".
Color: As specified on the plans, or as approved by the engineer

PAVER E: Soldier Course bordering Field Pavers, Paver F
Holland Stone, Heritage Series (tumbled texture): 2.5" x 4" x 7.75", in soldier course pattern.
Color: As specified on the plans, or as approved by the engineer

PAVER F: Field Pavers behind border pattern
Adirondack, Heritage Series (tumbled texture) 2.5" thick pavers: a proportional mixture of small (5.5" x 4.75"), medium (5.5" x 6.75"), large (5.5" x 7.75"), and extra large (5.5" x 9.25") rectangles. Arrange pavers in a 4 Piece System with Giant Random pattern.
Color: As specified on the plans, or as approved by the engineer

Bituminous Setting Bed

- A. Asphalt cement to be used in the bituminous setting bed shall conform to AASHTO M226-80. Viscosity grade shall be AC 10 or AC 20.
- B. Fine aggregate to be used in the bituminous setting bed shall be clean, hard sand with durable particles and free from adherent coatings, lumps of clay, alkali salts, and organic matter. Aggregate shall be uniformly graded from "Coarse" to "fine" with 100% by weight passing the No. 4 sieve and shall meet the gradation requirements when tested in accordance with ASTM C-136-01.
- C. Fine aggregate shall be dried and shall be combined with hot asphalt cement, and the mix shall be heated to approximately 300 degrees F at the asphalt plant. The approximate proportion of materials shall be 7% asphalt cement and 93% fine aggregate. Each ton of material shall be apportioned by weight in the approximate ratio of 150 lbs. Asphalt cement to 1850 lbs. Sand. The Contractor shall determine the exact proportions to produce the best possible mixture for construction of the bituminous setting bed to meet specified requirements and the Architect's approval.

Neoprene-Modified Asphalt Setting Adhesive

- A. Neoprene modified asphalt setting adhesive shall meet the following requirements:

1. Mastic (asphalt adhesive):
 - a) Solids (base) content by volume = 75 +_ 1%.
 - b) Weight = 8 to 8.5 lb./gal
 - c) Solvent vehicle - Varsol (over 75 degrees F flash).
2. Base (2% neoprene, 10% fibers, 82% asphalt):
 - a) Melting point (ASTM D-36-95) = 200 degrees F, minimum,
 - b) Penetration at 77 degrees F 3.5 oz. load 5 second = 23 to 27.
 - c) Ductility (ASTM D-113-99 at 77 degrees F 3/16" /minute) = 50 in. minimum.

Sand/ Cement Joint Filler Mixture

- A. Joint filler mixture between paves shall be a Portland cement and sand mixture with a coloring additive so that the joint filler mixture will match the dark color range of the brick.
Color of mixture shall be approved by the Architect.
- B. Joint filler mixture shall be one part Portland cement and three parts sand.
 1. Portland cement shall be white, conforming to ASTM C-150-04 Type
 2. Sand shall be a clean, washed, uniformly well graded masonry sand conforming to ASTM C-144-03, except that the fineness modulus shall be 2.25 +- 0.10 Sand shall be from a single approved source. Source of supply shall not be changed during course of the work without written permission of the Architect.
 3. Coloring additive for sand/cement joint filler mixture shall be "SGS Colors, by Solomon GrindChem Service; "True Tone Mortar Colors" by Rockwood Industries, Inc.; or approved equal. Coloring additive shall be a chemically inert, finely ground mineral oxide pigment and shall be certified by the manufacturer to be resistant to alkali, light, and weather, and shall be or a chemical composition unaffected by cement and free of water and soluble salts. Coloring additive shall be specially prepared for use in the sand/cement mixture. Coloring pigment shall not exceed 10% of the Portland cement in the mixture.

Water

Water shall be potable, free of injurious contaminants.

Expansion Joints

Provide expansion as recommended by the paver manufacturer and approved by the Architect.

CONSTRUCTION METHODS

Sample Panels

Display Panel: Construct a display panel, 3' x - 3' (minimum size), for each paver type, size, color, and finish specimen in this Item for use by the Architect in selecting pavers for project.

Display panel shall exhibit color range, texture, bond, jointing, patterns, and workmanship. A maximum of six display panels will be required. Display panels shall be portable with suitable lifting handles.

Delivery, Storage, and Handling

Pavers shall be carefully packed by the supplier for shipment, Pavers shall be stored off the ground and protected against staining and other damage.

Pavers damaged in any manner shall be receded and replaced with new materials at no additional cost.

Protection of Finished Surfaces

Finished surfaces adjacent to the paving work shall be adequately protected from soiling, staining, and other damage during construction.

Acceptability of Concrete Base

- A. Contractor shall examine the concrete base slab to determine its adequacy to receive the asphalt setting bed and brick paving. Concrete shall have fully cured. Evidence of inadequate concrete base shall be immediately brought to the attention of the Architect, Concrete base shall be paid for under Item 0330501.
- B. Sort of work of this Item shall constitute acceptance of concrete base slab.

Bituminous Setting Bed

- A. Bituminous setting bed shall be installed over the fully cured concrete base. Control bars $\frac{3}{4}$ ". Deep shall be placed directly over the concrete base. If grades must be adjusted, place wood chocks under depth control bars be set to bring the bars to proper grades. Set two bars parallel to each other to serve as guides for the striking board. The depth control bars must be set carefully so that the pavers, when laid on the setting bed will be at the proper line and grade.
- B. While still hot (not less than 270 degrees F) some of the bituminous bed material shall be placed between the parallel depth control bars. This bed shall be pulled with the striking board over the control bars several times, After each pass, low porous spots shall be showered with fresh bituminous material to produce a smooth, firm, and even setting bed. As soon as this initial panel is completed, advance the first bar to the next position in readiness for striking the next panel. After the depth control bars and wood chocks have been removed, carefully fill all depressions that remain.
- C. The setting bed shall be rolled with a power roller to a nominal depth of $\frac{3}{4}$ ". While still hot. The thickness of the setting bed shall be adjusted so that when the Licks are placed and rolled, the top surface of the pavers will be at the required finished grade.
- D. A coating of neoprene-modified asphalt setting adhesive shall be applied by mopping, squeegeeing, or troweling over the top surface of the bituminous setting bed so as to provide a bond under the pavers. If adhesive is trowel-applied, trowel shall be serrated type with serration not to exceed $\frac{1}{16}$ ".
- E. After the neoprene-modified asphalt setting adhesive is applied, carefully place the pavers by hand in straight courses with hand tight joints and with a uniform, smooth top surface. All setting shall be done by skilled masons under adequate supervision.
- F. Pavers shall be set true to the required lines and grades in the pattern detailed on the Drawings. Brick pavers shall be neatly cut and fitted at all perimeters and closures with joints uniform in width to that of adjacent paving. Pavers shall be cut with a water- cooled, cut-offwheel masonry saw using a diamond blade. Pavers with chips, cracks, stains or other defects which might be visible in the finished work, or which

might cause such defects in the future, shall not be used.

Joint Treatments

- A. Joints between pavers shall be hand tight and shall be uniform in width.
- B. Joint filler mixture shall be swept dry into the joints between pavers until the joints are completely filled. Surface shall be swept clean. Swept surface shall then be thoroughly dampened with a low-volume fine spray of water.

Expansion Joints

Install expansion joints at interruptions in brickwork, in long spans, at curbs, at brownstone coping, at dissimilar materials, and as additionally directed by the Architect.

Cleaning and Protection of Brick Surfaces

After completion of paver paving, surfaces shall be carefully cleaned, removing all dirt, excess joint filler mixture, and all stains.

METHOD OF MEASUREMENT

Concrete Pavers on 4" Concrete Base Slab will be measured on a per square foot basis, complete, in-place, as shown on the Drawings, as specified herein, and as directed by the Architect. The 4" concrete base slab will be measured for payment under other items.

BASIS OF PAYMENT

Concrete Pavers on 4" Concrete Base Slab will be paid for at the contract unit price per square foot for "CONCRETE PAVERS ON 4" CONCRETE BASE SLAB" which will be full compensation for furnishing and installing masonry pavers, complete, in- place, including furnishing and installing the bituminous setting bed, neoprene-modified asphalt setting adhesive, colored sand/cement joint filler and expansion joints.

<u>PAY ITEM</u>	<u>DESCRIPTION</u>	<u>PAY UNIT</u>
0330401	Concrete Pavers On 4" Concrete Base Slab	SF