SP-156227
(New)

SPECIAL PROVISIONS
FOR
PCC PAVER AREAS

Johnson County
TAP-U-1557(647)--8I-52

Effective Date
August 16, 2022

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDTIONS. THESE ARE SPECIAL PROVISIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

156227.01 GENERAL.

This part of the Specifications includes all labor, materials, equipment, and supervision required to furnish and install PCC paver areas consisting of PCC base (base), sand setting bed elements, and PCC pavers (pavers), as described in the project plans and these Special Provisions.

156227.02 MATERIALS.

A. PCC Pavers, 3 1/8 Inch.

1. Acceptable Manufacturers.

a. Borgert Products
8646 Ridgewood
Road St. Joseph,
MN 56374 Phone:
320.363.4671
Toll Free: 800.622.4952
Fax: 320.363.8516
Contact: Brandon Casteel
515.446.1589
Style: Match Existing (Uni-Stone or equivalent)
Color: Match Existing (Charcoal - Contractor to provide sample for Engineer's approval prior to ordering)

b. Approved Equal.

2. Pavers in compliance with the following:

a. Comply with ADA regulations.
b. Compressive Strength: Minimum 8000 psi.
c. Flexural Strength: Minimum 600 psi.
d. Water Absorption: 5% to 6%.

e. Freeze Thaw: Less than 1% loss of dry weight
f. Size: 4 inch by 8 inch by 3 1/8 inch (nominal).
  1) Contractor to confirm thickness of paver selected allows sufficient sand setting bed thickness (3/4 inch, minimum) such that the top of the paver will be flush with the top of the adjacent PCC.
  2) If insufficient depth of setting bed would result, Contractor may submit another paver for approval or make the necessary adjustments in the field to lower the base, at no additional cost to the project.

3. Paving Patterns: Match existing City projects.

B. Sand – Setting Bed and Joint Filler.

1. Sand shall be concrete sand or finer.

2. General fineness requirement: 95 % to 100 % passing the No. 8 sieve.

3. Submit sand gradation analysis for approval.

Table 156227.02-1: Grading Requirements for Setting Bed and Joint Filler Sand

Sieve Size	ASTM C 144 Natural Sand Percent Passing	ASTM C 144 Manufactured Sand Percent Passing
No. 4	100	100
No. 8	95 to 100	95 to 100
No. 16	70 to 100	70 to 100
No. 30	40 to 75	40 to 100
No. 50	10 to 35	20 to 40
No. 100	2 to 15	10 to 25
No. 200	0	0 to 10

C. PCC Base.
Concrete construction in accordance with Section 2512 of the Standard Specifications

156227.03 CONSTRUCTION.

A. Definitions.

1. Mechanical Installation: The use of specialized machines to lift clusters of pavers from the bundles and place them on the prepared bedding course. These specialized machines are designed specifically for this application.

2. Method Statement: The paver installer's and manufacturer's plan for construction and quality control of the pavers.

3. Spacer Bars: Small protrusions on each side of pavers which are used to keep them uniformly spaced while minimizing chipping and spalling. Mechanically installed pavers must have spacer bars.

B. Submittals.

1. Paver manufacturer's material test data certifying pavers comply with contract documents.

2. Paver samples representing actual size, shape, and color range.

3. Shop drawing of paver pattern layout prior to installation.

4. Setting Bed and Joint filler sand gradation reports.

5. Submit Method Statement and Quality Control Plan.

C. Site Disturbances.

1. Take precautions to ensure equipment and vehicles do not disturb or damage existing site grading, walks, drives, utilities, plants, etc.

2. Repair and/or return to original condition any damage caused by Contractor's negligence at no cost to Contracting Authority.

3. Provide temporary barricades and warning lights as required for protection of project work and public safety.

D. Delivery, Storage & Handling.

1. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers packaging with identification labels intact.

2. Coordinate delivery and paving schedule to minimize interference with normal use of buildings adjacent to paving.

3. Deliver concrete pavers to the site in steel banded, plastic banded or plastic wrapped packaging capable of transfer by fork lift or clamp lift.

4. Unload pavers at job site in such a manner that no damage occurs to the product.

5. Storage and Protection: Store materials protected such that they are kept free from mud, dirt, and other foreign materials.

6. Cover bedding sand and joint sand with waterproof covering if needed to prevent exposure to rainfall or removal by wind. Secure the covering in place.

E. Quality Assurance.

1. **Quality Control Plan.**
   - **a.** The installer and manufacturer shall establish, provide and maintain a quality control plan. The quality control plan shall provide reasonable assurance that the materials and completed construction submitted for acceptance will conform to the contract requirements. Although guidelines are established and certain requirements are specified, they are a minimum and the installer and manufacturer shall assume full responsibility for meeting all requirements.
   - **b.** The installer and manufacturer shall agree upon a method for measuring the clusters at the factory and in the field. That method shall be submitted in writing to the Contracting Authority for approval.
   - **c.** The Quality Control Plan shall contain at a minimum, but not limited to, the following elements:
     - **1)** The manufacturer’s quality control procedures.
     - **2)** The manufacturer’s production records showing at a minimum the date of manufacture, a mix design designation, mold number, mold cycles, and sequential pallet numbers. Copies of such records shall be made available to

the Contracting Authority upon request.

3) A description of the anticipated growth (due to mold wear) in the cluster size and a plan for managing the growth so as to not interfere with placement by paving machine(s), if mechanically installed.
4) The installer's quality control procedures, including but not limited to, dimensional control methods, paving machine(s) head adjustment, typical daily work schedule to ensure that all pavers placed on the bedding course on any given day are adjusted as required and vibrated, and installation of void filler completed at the end of that work day. (Exception: The installation of the void filler may not be installed for the first and second day due to start-up procedures.)

2. Sampling and Testing.

a. The manufacturer shall employ an independent testing company, qualified to undertake tests in accordance with the applicable standards specified herein. Test results shall be provided to the installer and the Contracting Authority, upon request.
b. Pavers shall be tested for density and dimensional variation, compressive strength (ASTM C 140), density and absorption (ASTM C 140) and abrasion resistance (ASTM C 418).
c. The initial testing frequency shall be one set of tests for each 100,000 full-sized pavers delivered to the site or at any time a change in the manufacturing process, mix design, cement, aggregate or other material occurs.
d. The following number of full-sized pavers shall be randomly sampled for each test: five for dimensional variation; three for density and absorption; three for compressive strength; and three for abrasion resistance.
e. If all pavers tested pass all requirements for a sequence of 400,000 pavers then the testing frequency may be relaxed to one set of tests for each 500,000 full-sized pavers. If any pavers fail any of the required tests then the testing frequency shall revert to the initial testing frequency.
f. When any of the individual test results fail to meet the specified requirements, the cube of pavers represented by that test sample shall be rejected. The manufacturer shall provide additional testing of paver samples taken from both before and after the rejected test sample to determine the sequence of the paver production run that should be rejected. In addition, the testing frequency shall revert to the initial testing frequency specified in Article 2.c for the balance of the project.
g. Additional testing, as described above, shall be carried out at no additional expense to the Contracting Authority. The sequence of pavers found to be defective shall, if they have been delivered to the site, be removed from the site promptly at no expense to the Contracting Authority or installer.
h. Pavers shall be sound and free from defects that would interfere with the proper placing of the pavers or impair the strength or performance of the construction.

3. Method Statement.

The installer and manufacturer shall each prepare a Method Statement describing the overall plan to complete the work. This plan shall include at a minimum:

a. The quality control plan.
b. A description of the anticipated mold life, rate and effect of mold wear on pavers produced, individual mold runs, and a mold rotation plan.
c. Clear diagrams of the site showing the proposed starting point of the installation and the proposed direction of installation.
d. A method of measuring the clusters at the factory and in the field.
e. A description of the anticipated growth in cluster size due to mold wear and a plan for dealing with that growth or other dimensional variances.
f. A description of the personnel and equipment to be employed for each portion of the work including manufacture, installation and quality control.
g. The manufacturer's proposed daily production rate and mold life for this project and supply data demonstrating experience on similar past projects. Installer shall

state the proposed daily installation rate.

4. **Qualifications.**
Every manufacturer and installer shall demonstrate that they have supplied and / or installed pavers for projects of a similar nature, with regard to installation and production capacity of at least 300,000 square feet. Qualifications shall be submitted at the time of bid, without exception.
   a. **Paver Manufacturer's Qualifications.**
      1) The manufacturer shall demonstrate a minimum of 5 years successful experience in the manufacture of interlocking concrete block pavers.
      2) The manufacturer shall have sufficient production capacity and established quality control procedures to produce, transport, and deliver the required number of pavers with the quality specified, without causing a delay to the work.
      3) The manufacturer shall have suitably experienced personnel and a management capability sufficient to produce the number of quality pavers as depicted on the contract plans and as specified herein.
   b. **Paver Installer's Qualifications.**
      1) Installer shall provide installation history, including references in writing with contact information, demonstrating to the satisfaction of the owner their ability to perform the paver installation and related work indicated in the contract documents.
      2) The installer shall have suitably experienced personnel and a management capability sufficient to execute the work shown on the plans and specified herein.
      3) The installer's foreman shall demonstrate, including references, a minimum of 5 years experience in the installation of unit paver systems similar in size and nature to this project.

F. Environmental Requirements.

1. Do not install during heavy rain or snowfall.

2. Do not install over frozen aggregate base materials.

3. Do not install frozen sand or saturated sand.

4. Do not install concrete pavers on frozen or saturated sand.

G. Test Sections.
For each site, prior to pouring concrete, Contractor shall verify that pavers will fit areas designated in the plans. Contractor shall mock up a 2 foot by 6 foot section of pavers to ensure correct tolerance for partial pavers (refer to subsection J.4 of this Special Provision), spacers, and joints. Contactor will submit request for adjustments to base area to better accommodate paver layout to the Engineer for review and approval.

H. PCC Base.

1. Prior to construction of concrete base, confirm all dimensions of the actual pavers with the design pattern to confirm configuration, patterns, and dimensions of all material. Contractor shall notify the Engineer if there are any conflicts between the material and the design.

2. Includes Special Compaction of Subgrade (for the area of the base) in accordance with Article 2109.03, C of the Standard Specifications.

3. Inspect base to ensure surface is clean and built in conformance with details.

4. Verify elevation difference between base and adjacent finished concrete to confirm pavers can be installed flush with concrete, with sufficient thickness of sand setting bed (3/4 inch, minimum).

I. Installation of Engineering Fabric for Sand Setting Bed.

1. Prior to placement of sand, install engineering fabric across the base, extending up to top of the adjacent concrete along all sides.

2. Trim the engineering fabric before or after installation of the pavers such that it does not protrude above the finished surface.

3. Adjacent widths of engineering fabric shall be lapped a minimum of 1 foot and secured so that they do not separate during the construction process.

J. Installation of PCC Pavers.

1. Carefully place the pavers in straight courses with “hand” tight joints and uniform top surface.

2. Pavers shall be installed in approximately the order in which they were manufactured. No cluster shall be installed next to a cluster that was manufactured more than 2500 cycles before or after.

3. Good alignment must be kept.

4. Cutting paver for fit is incidental to the unit price.

5. No partial paver shall be installed that has an area less than one-half the original full-size paver.

K. Joint Treatment.

1. Joints shall be maximum of 1/4 inch for concrete pavers.

2. Sweep the dry joint filler sand into paver joints.

3. Simultaneously spread, sweep and compact dry joint sand into joints continuously until full. This will require at least four to six passes with a plate compactor. Do not compact within 6 feet of unrestrained edges of paving units.

4. All work within 6 feet of the laying face shall be left fully compacted with sand-filled joints at the end of each day or compacted upon acceptance of the work. Cover the laying face or any incomplete areas with plastic sheets overnight if not closed with cut and compacted pavers with joint sand to prevent exposed bedding sand from becoming saturated from rainfall.

5. Allow excess joint sand to remain on surface to protect pavers from damage from other trades. Remove excess sand when directed by the Engineer.

L. Clean-Up.

1. Sweep excess sand from paved surfaces and remove from site.

2. Remove all excess materials and debris from site.

156227.04 METHOD OF MEASUREMENT.

The area of PCC Paver Areas in square yards will be measured from outside edge to outside edge of PCC pavers.

156227.05 BASIS OF PAYMENT.

A. Per square yard.

B. Payment for PCC Paver Areas is full compensation for all labor, materials, equipment, and supervision for the site preparation / grading / compaction, concrete jointing, sand joints, removals and disposal, required to furnish and install PCC Paver Area, including the PCC base, setting bed elements, and PCC pavers complete in place.