

SPECIAL SPECIFICATION

SECTION 07765S

ROOF PAVERS AND BALLAST MATERIALS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pavers and pedestals for pedestrian traffic, on pedestals, over roofing membrane.

1.02 RELATED SECTIONS

- A. Section 07533S – Single-Ply Roofing - TPO.
- B. Section 07710S - Prefabricated Roof Specialties.

1.03 REFERENCES

- A. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile; 1999a.
- B. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 1999b.
- C. ASTM C 293 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading); 1994.
- D. ASTM D 448 - Standard Classification for Sizes of Aggregate for Road and Bridge Construction; 1998.
- E. SPRI RP-4 - Wind Design Standard for Ballasted Single-Ply Roofing Systems; 1997. (ANSI/SPRI RP-4)

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.
 3. Paver Installation methods.
- C. Selection Paver Samples: Two complete sets of color chips representing manufacturer's full range of colors and patterns available from regional plant.
 - D. Verification Paver Samples: Two samples, minimum size 2-1/2 inches (60 mm) square, representing actual product to be supplied from regional plant, color, and patterns.
 - E. Specimen warranty.
 - F. The installer shall submit a sample of each component of the pedestal support system which will be used in the project (when requested by the architect).

1.05 QUALITY ASSURANCE

- A. The pedestal and paver system installer shall have a minimum of 2 years proven concrete construction experience is capable of estimating takeoffs from blueprint plans, determining elevations, material handling and complying with proper application procedures of the work specified herein. Proof of business experience shall be submitted in writing (at the request of the architect).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store Pedestals in the manufacturer's original containers, and assure the pedestals are undamaged.
- B. Store products in manufacturer's unopened packaging, with labels intact, until ready for installation.
- C. Store products off the ground; if stored on the roof, do not exceed structural capacity of deck.

1.07 WARRANTY

- A. Plaza Deck Pavers: Provide manufacturer's 10-year limited material warranty.
- B. Pedestals: Provide pedestal manufacturer's 3-year warranty.
- C. Ballast Pavers: Provide manufacturer's 20-year limited material warranty.

- D. Ballast Pavers: Provide manufacturer's limited wind uplift warranty for 10 years.

1.08 PREPARATION OF SURFACE

- A. Membrane roofing and protection board surfaces to receive pedestals should be broom clean, frost free, and free of dirt, oil or any rough foreign matter which may impair the performance of the pedestals and waterproofing membrane. The contractor is to comply with the waterproofing manufacturer's protection requirements.

1.09 BUILDING AND ROOF EXPANSION JOINTS.

- A. Pedestals are never to be placed directly over an expansion joint. Doing so will interfere with the pedestal and paver system performance. Move the pedestals to one side or the other.

1.10 SLOPE

- A. The substrate that is to receive pedestals shall have positive slope to provide positive and adequate drainage in accordance with good building practice. Contractor shall assure that IBC 2000 and local code are followed and met.

1.11 MAINTENANCE TOOLS

- A. Paver Lifter: Provide one "Probst Slab Grabber" or approved equal; deliver to Owner at location directed; provide 3-year warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
 1. Westile, Inc.
 2. Bison ScrewJack Co.
 3. Envirospec, Inc.
 4. Hanover Architectural Products
 5. Stepstone, Inc.

2.02 PEDESTRIAN BALCONY APPLICATIONS

- A. Precast concrete unit pavers.
 - 1. Size: 24 by 24 inches (610 by 610 mm).
 - 2. Thickness: min 1-3/4 inches (42 mm).
 - 3. Compressive Strength: 8800 psi (55,140 kPa), minimum, when tested in accordance with ASTM C 140.
 - 4. Water Absorption: 5 percent, maximum, when tested in accordance with ASTM C 140.
 - 5. Freeze-Thaw Resistance: Maximum 1 percent loss of dry weight, when tested in accordance with ASTM C 67.
 - 6. Finish and Color: To match “California Architectural Paver, Granada White #1401, Sandblast Finish, Special Color” by Stepstone, Inc.

- B. Adjustable Paver Pedestals: Injection molded high density polypropylene with height adjustment by screw mechanism; required to make top surface of pavers dead level over entire area at elevation indicated on drawings.
 - 1. Rotating base, 3/16 inch wall thickness, base bearing surface area (50 square inches), four (4) ea. 1/4 inch diameter holes for drainage and optional mechanical fixing.
 - 2. Top unit, 5/32 inch thick deck with bearing surface area (26 square inches).
 - 3. Standard integral spacer tabs are 3/16 inch thick for uniform spacing between pavers. Contact
 - 4. Coupling Units with Bracing Tabs. (high density polypropylene)
 - 5. Polypropylene Properties:
 - a. Brittleness Temperature - ASTM D 746
 - b. Softening temperature of plastics - ASTM D 1525
 - c. Shore Hardness - ASTM D 1706
 - d. Ozone Resistant.

- e. Load bearing Capacity. Each Bison ScrewJack shall support a minimum of 1,000 lbs, with a Safety Factor of 2.
 - 6. Rubber Pads, Shims. (EPDM) 1/16 inch thick.
 - 7. Base Leveler Disk (high density polypropylene) Built in slope is 1/4 inch per foot; center point thickness is 3/8 inch; used individually or stacked in multiples, and placed underneath pedestals, the LD4 compensates for substrate slope of up to 1 inch per foot.
 - 8. Top mounted Adjusting Leveler Disk (high density polypropylene). Used for precise top leveling with incremental adjustment from zero to 5/8 inch per foot.
 - 9. EPDM Properties:
 - a. Tensile strength and elongation - ASTM D 412
 - b. Tear resistance - ASTM D 624
 - c. Resistance to water absorption - ASTM D 471
 - 10. Top Levelers and Bottom Levelers
 - a. Top Leveler Disk or Bottom Leveler Disk (used singly or in combination) may be appropriately specified to provide a precisely level surface for the pavers.
 - b. Protection Mat: Nonwoven polyester.
 - c. Mechanical Clips: Galvanized sheet metal.
- C. Perimeter Containment and Support.
- 1. All assemblies of insulation, protection board, drainage mat, pedestals and pavers must be restrained at the perimeter of the walk deck area . Any cumulative movement in excess of 1/8 inch will void the Bison warranty. Any parapet wall, concrete divider or other perimeter restraint must be capable of resisting lateral forces sufficient to the move paver system.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until all roofing or waterproofing work is completed, including work penetrating waterproof plane.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Inspect to insure that all substrates have been properly prepared to accept the pedestals. Any surface defect which may impair performance of the pedestals or waterproofing membrane shall be appropriately repaired. Commencement of work shall imply acceptance of surfaces.

3.02 PREPARATION

- A. Clean roof surfaces thoroughly prior to installation.
- B. Plan sequence of transporting and placing pavers to avoid damage to waterproof membrane and already installed pavers; place 3/4 inch (19 mm) thick plywood in traffic paths or use carts with pneumatic tires.
- C. Assure that the surface to accept the pedestals is clean and free of debris which would impair the performance of the pedestal system. Insulation and/or protection board must be applied over the waterproofing substrate. If specified, drainage mat, insulation and/or protection board must be installed according to manufacturer's recommendations. If protection is specified only under the pedestal, then each pad must extend beyond the edge of the base by a minimum of one (1) inch.

3.03 INSTALLATION

- A. Pedestals
 - 1. Once a starting point and the finished elevation of the paver surface have been determined, the support system elevation (finished elevation less the paver thickness) is established and marked around the perimeter using transit, water level or laser leveling device.
 - 2. Measurements should then be taken and two (2) perpendicular chalklines "snapped" on the surface to receive the pedestals. Use these lines as reference to check the paver layout during installation and to assure a square layout. Installation of pavers can now begin, one row at a time.

3. At the starting row of pavers, a pedestal must be placed where each grid line meets the perimeter. Remove two spacer tabs in line with one another from atop each ScrewJack located along the perimeter. Adjust each to the elevation marked on the perimeter.
4. Position the pedestal as close to the edge of the perimeter as possible, with the two remaining spacer tabs aligned with the grid line. Using the elevation marked on the perimeter, stretch a mason's line along and slightly ahead of the second row of pedestals. A laser leveling device may also be used for this purpose.
5. Slight irregularities in paver thickness can be compensated for by using one or more of four pie-cut segments of rubber shim which is placed under a paver corner(s) atop the bearing head.

B. Pavers

1. Install pavers on pedestals in accordance with manufacturer's instructions.
2. Install pavers over entire roof surface indicated on drawings.
3. Install pavers in pattern indicated on drawings.
4. Install pavers with top surface flat and dead level, with minimal difference in height between adjacent pavers; accommodate varying heights due to slope by using adjustable height pedestals; use a reliable method of determining levels.
5. When pavers must be cut, use mason's saw; do not chip or split; remove dust generated by cutting immediately using high pressure water or air to avoid discoloration of pavers.

3.04 PERIMETER CONTAINMENT

- A. Any section of paver, pedestal or protection course which is not restrained by an abutting wall or parapet must be "boxed in" by some field installed restraint. No movement should be allowed at the perimeter of a paver system greater than 1/8 of an inch.

3.05 FIELD QUALITY CONTROL

- A. Inspect often during installation to assure that grid (spacer) lines are straight and consistent, and that pavers are level. Where necessary, install

rubber shims to eliminate "rocking" of pavers. Unless otherwise specified to allow for expansion, paver spacing at perimeter walls should not exceed 1/8 inch. Particular attention should be paid to assure that all pedestrian access points to the plaza deck are level and do not have offsets in the paver surface that could create a trip hazard.

3.06 PROTECTION

- A. Protect installed products until completion of project. Prohibit construction traffic unless adequate precautions are taken. **BALLAST PAVERS ARE NOT DESIGNED FOR HEAVY TRAFFIC.**
- B. Repair or replace products damaged due to inadequate protection.

3.07 WARRANTY

- A. Each pedestal has a support capacity of 1000 pounds with a Factor of Safety (FS) of two (2), and is guaranteed to be free of defects in materials used their manufacture for a period of three (3) years from date of purchase. Except for this specific warranty, all other warranties, expressed or implied, are disclaimed, including any warranties of merchantability or fitness for a particular purpose.

END OF SECTION