

SECTION 07 76 00
PORCELAIN ROOF PAVER PEDESTAL SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Adjustable pedestal supports.
- B. Rooftop porcelain pavers / tiles.

1.2 RELATED SECTIONS:

- A. Section 04 22 00 - Concrete Unit Masonry.
- B. Section 04 40 00 - Stone Assemblies.
- C. Section 61 50 00 - Wood Decking.
- D. Section 07 33 63 - Vegetated Roof System.
- E. Section 07 55 00 - Membrane Roofing.
- F. Section 09 69 00 - Access Flooring.

1.3 REFERENCES

- A. American National Standards Institute (ANSI):
 - 1. ANSI A137.1 - Standard Specifications for Ceramic Tile.
 - 2. ANSI A326.3 - Test Method for Measuring Dynamic Coefficient of Friction of Hard Surface Flooring Materials.
- B. ASTM International (ASTM):
 - 1. ASTM C373 - Water absorption and associated properties of ceramic tile.
 - 2. ASTM C648 - Standard Test Method for Breaking Strength of Ceramic Tile.
 - 3. ASTM C1026 - Standard Test Method for Measuring the Resistance of Ceramic and Glass Tile to Freeze-Thaw Cycling.
 - 4. ASTM C650 - Standard Test Method for Determination of Resistance to Chemical Substances.
 - 5. ASTM E1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
- C. International Organization for Standardization (ISO):
 - 1. ISO 10545 series - Ceramic tile test methods, including Parts 3, 4, 9, 12, 13 and 14 for the properties specified in this Section.

1.4 SUBMITTALS

- A. Submit under provisions of Section 07 76 00.
- B. Product Data:
 - 1. Manufacturer's data sheets on each product to be used.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Typical installation methods.
- C. Verification Samples:
 - 1. Architectural Pavers: Submit samples for type, color and texture required.

- 2. Pedestals: Submit samples of each pedestal component.
- D. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
 - 1. Scaled drawings to include plan of installation area, layout of all paver and pedestal areas, starting point and elevations, and construction details at critical terminations of pedestal paver system with adjacent construction.
- E. Delivery, storage and handling requirements and recommendations.
- F. Certifications: Written submittal by manufacturer indicating that installer is certified as qualified to perform work of this Section.
- G. Warranty: Submit manufacturer warranty and ensure Owner's name is registered with manufacturer.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.
- B. Single Source Responsibility: Manufacturer shall provide the following:
 - 1. Rooftop Pavers
 - 2. Pedestal Support System
- C. Installer Qualifications: Certified as pre-approved and qualified by manufacturer to install work of this section.
 - 1. Installer assumes liability for any deviations from specifications and/or the Drawings.
- D. Preconstruction Testing: Conduct to verify following.
 - 1. Membrane Roofing Manufacturer: Conduct inspection by certified manufacturer's technical representative to verify that the in-place membrane roofing system meets the manufacturer's specifications, is waterproof, and is approved for installation of the pedestal paver system. Verify membrane protection layer (if required) and other requirements to maintain roofing manufacturer's warranty provisions. A copy of the inspection report shall be submitted to the pedestal paver manufacturer prior to installation of the pedestal paver system.
 - 2. Membrane Integrity Test: The roof area or portions thereof shall be leak tested by means of electronic testing or flood testing for a period of 48 hours to check the integrity of the membrane installation. The Membrane integrity test shall be conducted by roof membrane contractor and attested in writing to pedestal paver manufacturer by the roofing contractor prior to the pedestal paver system being installed.
- E. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
 - 1. The intent of mock-up is to demonstrate quality of workmanship and visual appearance.
 - 2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
 - 3. Retain mock-up during construction as a standard for comparison with completed work.
 - 4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, HANDLING, STORAGE, PROTECTION

- A. Deliver materials to project site in the original packaging with the manufacturer's labels intact and legible.
- B. Inspect all materials to ensure they are undamaged and in good condition.
- C. Store materials in a clean, dry, and protected location.
- D. Ensure waterproofing membrane is not damaged while delivering, storing, or handling material.
- E. Take measures to locate and spread loads in manner to not exceed load capacity of roof deck.
- F. Store paver and pedestal components and materials over plywood panels or protective sheeting. Do not allow products, grit, debris, and pedestrian traffic on unprotected roofing.
- G. During installation, protect the roof deck and membranes with appropriate material such as plywood sheeting. Never scrape or puncture membrane protection layer or membranes. Keep roof surfaces free of soil, grit, or debris at all times.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, precipitation) within limits recommended by manufacturer for optimum results. Do not install products in any unsafe condition, inclement weather or under environmental conditions outside the manufacturer's recommended limits.
- B. Deck supports specified are to be used with pedestrian traffic only. All four sides of the deck system must restrain and contain the decking panels with perimeter blocking or walls. Decking panels must not be allowed to move laterally.
- C. All membrane waterproofing and protection board surfaces to receive pedestals must be frost/ice free, and free of dirt, oil, debris, or any rough foreign matter, which may impair the waterproofing / roofing manufacturers guarantee or protection requirements.
- D. Installation or anticipated installation of additional heavy roof top feature such as, planters, benches, water features, hot tubs, industrial equipment etc. must be supported directly by additional pedestals that are in addition to the main deck paver pedestal system. Failure to adequately support the additional weight of any such features or items may cause significant damage to the deck, underlying structure, or waterproofing.
- E. All decks shall be designed to not exceed the design capacity of the pedestal.
- F. The substrate immediately below the pedestal supports shall provide positive and adequate drainage in accordance with good building practice and applicable building codes.
- G. Do not install Sky Deck Pedestal Paver System over any insulation less than 60psi or with low-density polystyrene (bead board insulation).

1.9 WARRANTY

- A. Manufacturer's Warranty: Paver and pedestal system manufacturer shall warrant the materials to remain free from defects for a period of five (5) years.
 - 1. SkyWalk Porcelain Pavers: Limited 5 year warranty.
 - 2. SkyJack Pedestal System: Limited 5 year warranty.
- B. Contractor's Warranty: The contractor shall warrant the work to remain free from defects of labor and materials used in conjunction with their work in accordance with the general conditions for this project for a maximum period of two (2) years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: SkyDeck USA, which is located at: 1181 58th St SW; Wyoming, MI 49509; Tel: 616-308-6309; Email: request info (info@skydeckusa.com); Web:https://skydeckusa.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with the provisions of Section 07 76 00.

2.2 MATERIALS

- A. SkyJack Adjustable Height and Slope Compensating Pedestals
 - 1. Material: Fully Recyclable High Density Copolymer Poly Propylene (HDCPP)
 - a. Resistant to UV, Aging and Decay.
 - 2. Temperature Range: -22 to 200 degrees F (29 to 93 degrees C).
 - 3. Typical Height Range: 0 to 21 inches (0 to 533 mm).
 - 4. Pedestal Bracing System: For pedestal applications over 21-3/4 inches (552 mm) in height.
 - 5. Weight Bearing Design Capacity: 2,150 lbs (975 kg) per pedestal.
 - 6. Spacer Tabs: 3/16 inch (5 mm). 1/8" available upon request (3mm).
 - 7. Slope Stabilization Head or Base Slope Corrector: Compensates for slope up to 5 percent.
 - 8. Pedestal Components:
 - a. Adjustable Pedestals:
 - 1) Model SD-XXS: A top screw and bottom screw sit on top of one another.
 - a) Height Adjustment: Twist 8 ergonomic handles to adjust height in 0.04 inch (1 mm) increments.
 - b) Adjustment Range: 3/8 to 5/8 inches (8.5 to 16 mm).
 - 2) Model SD-XS: A top screw and bottom screw that sit on top of one another.
 - a) Height Adjustment: Twist 8 ergonomic handles to adjust height in 0.04 inches (1 mm) increments.
 - b) Adjustment Range: 5/8 to 1-1/4 inches (16 to 32 mm).
 - 3) Model SD-S: A base, screw ring, screw, and spacer tabs.
 - a) Height Adjustment: Twist 4 ergonomic handles to adjust height.
 - b) Adjustment Range: 1-1/4 to 2 inches (32 to 44 mm).
 - 4) Model SD-M: A base, screw ring, screw, and spacer tabs.
 - a) Comes in one assembled piece with spacer tabs in a separate bag.
 - b) Height Adjustment: Made by twisting the ergonomic handles, using the hand tool or the drill bit tool.
 - c) Adjustment Range: 1.75 to 3 inches (44 to 75 mm).

- 5) Model SD-L: A base, screw ring, screw, and spacer tabs.
 - a) Comes in one assembled piece with spacer tabs in a separate bag.
 - b) Height Adjustment: Made by twisting the ergonomic handles, using the hand tool or the drill bit tool.
 - c) Adjustment Range: 3 to 6 inches (75 to 150 mm).
 - 6) Model SD-XL: A base, screw ring, screw, and spacer tabs.
 - a) Comes in one assembled piece with spacer tabs in a separate bag.
 - b) Height Adjustment: Made by twisting the ergonomic handles, using the hand tool or the drill bit tool.
 - c) Adjustment Range: 6 to 13.75 inches (150 to 349 mm).
 - b. Extender Sleeve:
 - 1) Model SD-XL-EXT. Used to increase the height range of SD-XL pedestals.
 - a) Screws into the SD-XL pedestal base.
 - b) The screw head is applied to the extender top.
 - 2) Pedestal Heights Greater than 21-3/4 inches (552 mm): Use Skydeck USA steel strapping system to stabilize pedestals.
 - c. Base Slope Corrector:
 - 1) Model SD-BSC. Placed underneath the SD-M, SD-L and SD-XL pedestals to compensate for slopes up to 5 percent.
 - a) Twist to adjust the slope correction from 0 to 5 percent.
 - d. Head, Self -Leveling: Used for installations where slope is present. Upper and lower pieces.
 - 1) Model SD-XL-SLH.
 - 2) The lower piece locks onto the Screw. The upper piece is put into the lower part of the head. The Head automatically adjusts to be level under applied loads.
 - e. Regulation Shim: Used to eliminate uneven pavers and to compensate small differences in height of terrace pavers. Also used for sound dampening. Can be cut into halves and quarters, as necessary.
 - 1) Thickness: 1/16 inches (1.6 mm).
 - f. Deck Joist Adapter: for mounting and supporting deck joists.
 - 1) SD-AD.
- B. SkyWalk porcelain pavers with integrated safety backing.
1. Composition: Porcelain ceramic body manufactured predominantly from clay and naturally occurring mineral materials, with factory-applied fiberglass safety backing bonded to the underside.
 2. Weight: Approximately 9 lb/sq. ft. (44 kg/sq. m) for nominal 2 cm porcelain. Unit weight varies with size; submit the actual finished weight including safety backing for the selected product.
 3. Physical Porcelain Properties: Typical values; provide selected-product data.
 - a. Water Absorption per ISO 10545-3: Less than 0.1 percent.
 - b. Breaking Strength per ISO 10545-4: Greater than 2,200 lbf.
 - c. Modulus of Rupture per ISO 10545-4: Greater than 7,000 psi.
 - d. Frost Resistance per ISO 10545-12: Resistant.
 - e. Thermal Shock Resistance per ISO 10545-9: Resistant.
 - f. Chemical Resistance per ISO 10545-13: Class UA; resistance to acids and alkalis: ULA/UHA.
 - g. Stain Resistance per ISO 10545-14: Class 5.
 - h. Slip Resistance: Provide ANSI A326.3 data and exterior-use classification for the selected surface.
 4. Integrated Safety Backing: Factory-bonded fiberglass reinforcement on the underside of each paver.

5. Paver Thickness: Nominal 2 cm (approximately 3/4 inch), excluding safety backing.
6. Nominal Size: 12 x 12 inches (305 x 305 mm).
7. Nominal Size: 12 x 24 inches (305 x 610 mm).
8. Nominal Size: 12 x 48 inches (305 x 1219 mm).
9. Nominal Size: 24 x 24 inches (610 x 610 mm).
10. Nominal Size: 24 x 48 inches (610 x 1219 mm).
11. Size availability varies by color. Select from the SkyWalk porcelain color and size chart; confirm actual dimensions before setting out.
12. Color: Bosco Silver. Solar Reflective Index: not published.
13. Color: Calm White. Solar Reflective Index: 80.
14. Color: Cementek - Cemento. Solar Reflective Index: 70.
15. Color: Cementek - Cenere. Solar Reflective Index: 76.
16. Color: Cementek - Sandalo. Solar Reflective Index: 38.
17. Color: Charcoal. Solar Reflective Index: not published.
18. Color: Coastal. Solar Reflective Index: 77.
19. Color: Coral. Solar Reflective Index: 70.
20. Color: Cotto. Solar Reflective Index: 47.
21. Color: Flagstone-Sienna-Slate. Solar Reflective Index: not published.
22. Color: Grey Mist. Solar Reflective Index: 73.
23. Color: Hyalite. Solar Reflective Index: 40.
24. Color: Limestone. Solar Reflective Index: 70.
25. Color: Lunar. Solar Reflective Index: 75.
26. Color: Marble - Glacial White. Solar Reflective Index: 75.
27. Color: Monochrome - Ash. Solar Reflective Index: 56.
28. Color: Monochrome - Basalt. Solar Reflective Index: 35.
29. Color: Monochrome - Bone. Solar Reflective Index: 78.
30. Color: Monochrome - Cognac. Solar Reflective Index: 42.
31. Color: Monochrome - Sand. Solar Reflective Index: 74.
32. Color: Nordic Pine. Solar Reflective Index: not published.
33. Color: Quarry. Solar Reflective Index: 75.
34. Color: Quartzite - Cloud. Solar Reflective Index: 62.
35. Color: Quartzite - Crystal White. Solar Reflective Index: 81.
36. Color: Quartzite - Laguna. Solar Reflective Index: 44.
37. Color: Quartzite - Sandy Island. Solar Reflective Index: 48.
38. Color: Ridge. Solar Reflective Index: 70.
39. Color: Slate Nero. Solar Reflective Index: 21.
40. Color: StoneTech - Bluestone. Solar Reflective Index: 40.
41. Color: StoneTech - Calstone. Solar Reflective Index: 56.
42. Color: StoneTech - Greystone. Solar Reflective Index: 41.
43. Color: StoneTech - Multicolor. Solar Reflective Index: not published.
44. Color: StoneTech - Pennstone (Full Color). Solar Reflective Index: 42.
45. Color: StoneTech - Pennstone (True Blue). Solar Reflective Index: 42.
46. Color: StoneTech - Riverstone. Solar Reflective Index: 62.
47. Color: StoneTech - Titan. Solar Reflective Index: 44.
48. Color: WoodLook - Strato-Teak. Solar Reflective Index: not published.
49. Color: Terrazzo - Charcoal. Solar Reflective Index: 30.
50. Color: Terrazzo - Cool Grey. Solar Reflective Index: 72.
51. Color: Terrazzo - Cool White. Solar Reflective Index: 84.
52. Color: Terrazzo - Grey Black. Solar Reflective Index: 58.
53. Color: Terrazzo - White Black. Solar Reflective Index: 69.
54. Color: Travertine - Andes Shell. Solar Reflective Index: 68.
55. Color: Travertine - Andes Silver. Solar Reflective Index: 72.
56. Color: Travertine - Avorio. Solar Reflective Index: 80.
57. Color: Travertine - Cappuccino. Solar Reflective Index: 55.
58. Color: Travertine - Crema. Solar Reflective Index: 77.
59. Color: Travertine - Pearl. Solar Reflective Index: 67.

60. Color: Travertine - River. Solar Reflective Index: 62.
61. Color: Travertine - Walnut. Solar Reflective Index: 62.
62. Color: WoodLook - Canyonwood Brown. Solar Reflective Index: 38.
63. Color: WoodLook - Canyonwood Grey. Solar Reflective Index: 49.
64. Color: WoodLook - Canyonwood Ivory. Solar Reflective Index: 52.
65. Color: WoodLook - Drift. Solar Reflective Index: 75.
66. Color: WoodLook - Forest Honey. Solar Reflective Index: 68.
67. Color: WoodLook - Lapacho. Solar Reflective Index: 36.
68. Color: WoodLook - Pine. Solar Reflective Index: 58.
69. Color: WoodLook - Strato-Chestnut. Solar Reflective Index: not published.
70. Color: WoodLook - Tectona. Solar Reflective Index: 43.
71. Color: WoodLook - Woodsmoke. Solar Reflective Index: not published.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared and related work penetrating the plane of the roof is completed.
 1. Carefully inspect installed work of other trades and verify that such work is complete to the point where work of this section may properly commence.
 2. Notify the Architect in writing of the conditions detrimental to the proper and timely completion of work.
- B. Verify the Following:
 1. Substrates, membranes, and protection boards are ready for installation of pedestal and paver system.
 2. The roof deck will sustain the weight of the pedestal paver system.
 3. Deck dimensions and elevations and pedestal heights before commencing work.

3.2 PREPARATION

- A. Clean and prepare deck free of all debris in accordance with manufacturer's instructions.
- B. Install membrane protection layer under all pedestals if specified by roofing membrane manufacture.
- C. Establish accurate lines, levels, and pattern.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
 1. Determine starting point and layout the paver and pedestal grid layout determining where full and cut pavers will be installed.
 2. Mark perpendicular guidelines on substrate surface to ensure square layout.
 3. Install initial pavers along guidelines forming a "T" pattern.
 4. Install Pavers tightly butted into pedestals. Form even joint width determined by pedestal spacer tabs.
 5. Checks shall be made constantly for correct elevation and spacing of the installed pavers using laser level, automatic leveler, or mason's line.
 6. Slight irregularities in paver thickness and/or deck heights can be compensated for by using one or more regulation shims.
 7. 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.

3.4 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturers recommendations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 ROUTINE MAINTENANCE AND CARE

- A. Remove and replace pavers, which are loose, chipped, broken, stained or otherwise damaged. Make sure edge restraints stay intact and are structurally sound.
- B. Remove mortar stains and all other types of soiling from exposed paver surfaces, wash, and scrub clean.
- C. Clean porcelain pavers with water and a neutral detergent. Rinse thoroughly; use manufacturer-recommended cleaners for persistent deposits.
- D. Provide final protection and maintain conditions in a manner acceptable to installation, which ensures paver work being without damage or deterioration at time of substantial completion.
- E. Joints and drains should be kept clean to protect from water back up.

END OF SECTION