

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

- A. Furnish and install a complete Architectural Pavers and Adjustable Pedestals deck support system with a maximum cavity height of up to 22 inches.
- B. Related Sections include the following:
 - 1. Division 02 - Section 02780 Unit Pavers
 - 2. Division 03 - Section 03300 Cast-in-Place Concrete.
 - 3. Division 06 - Section 06100 Rough Carpentry.
 - 4. Division 07 - Section 07760 Roof Pavers.
 - 5. Division 07 - Section 07620 Roof related Metal Work.
 - 6. Division 07 - Section 07540 Fluid Applied Waterproofing.
 - 7. Division 07 - Section 07540 Bituminous Sheet Waterproofing.
 - 8. Division 07 - Section 07760 Roof Pavers.

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM D 638 - Tensile Properties of Plastics
 - 2. ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics Insulating
 - 3. ASTM D 1525 - Vicat Softening Temperature of Plastics

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Samples:
 - 1. Architectural Pavers: Submit samples for type, color and texture required.
 - 2. Pedestals: Submit sample of each pedestal component.
 - 3. PVC Pipe: Submit 12-inch long sample of PVC pipe.
- B. Shop Drawings: Submitted by contractor showing all components required for the paver & pedestal requirements. Shop drawings shall include plan drawings showing layout of all paver areas and detail drawings showing how the various components of the system fit together. Include manufacturer's literature completely describing all components of the paver pedestal systems and giving detailed installation recommendations and instructions. Also included detailed installation drawings for all precast pavers.

1.5 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** All products covered under this Section shall be produced by a single manufacturer unless otherwise specified with a minimum of fifteen (15) years proven production experience.

- B. **Installer Qualifications:** Installer shall have a minimum of three (3) years proven construction experience and be capable of estimating & building from blueprint plans and details, determining elevations, in addition to proper material handling. All Work must comply with Tile Tech Inc installation application procedures for pedestal mounted pavers as specified herein.
- C. **Special Consideration:** The installer and or subcontractor must assume the responsibility for and take into consideration (1) the structural capability and adequacy of the structure to carry the dead and live load weight(s) involved, and (2) that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. In accordance with provisions of Section 01300.
- B. Protect Concrete Pavers and Pedestal System during shipment, storage and construction against damage. Store a minimum of 4 inches off the ground in a dry location and cover with polyethylene to protect from contact with materials which would cause staining or discoloration.

1.7 PROJECT CONDITIONS

- A. Tile Tech Pedestal System specified are to be used with pedestrian traffic only & all four (4) sides of a deck system must restrain and contain the decking panels with perimeter blocking or walls. Decking panels must not be allowed to move laterally.
- B. All membrane waterproofing and protection board surfaces to receive pedestals must be broom clean, frost free, and free of dirt, oil or any rough foreign matter, which may impair the waterproofing / roofing manufacturers guarantee or protection requirements.
- C. The substrate that is to receive pedestals must have slope and provide positive and adequate drainage in accordance with good building practice and applicable building codes.
- D. **Decks over Roofing and Waterproofing;**
 - 1. If high density closed cell extruded 60psi polystyrene insulation is installed on top of the membrane in a protected membrane system, Tile Tech Pedestals may be installed directly on top of this type of insulation.
 - 2. Do not use Tile Tech Pedestals over any insulation less than 60psi or with low density polystyrene (bead board) insulation.
- E. **Decks on Grade:**
 - 1. Any substrate soil that is to receive pedestals shall be adequately compacted and have positive drainage slope. A "walkway gravel" base ie: $\frac{1}{4}$ " Minus should be installed and compacted at pedestal locations.
 - 2. A wall or perimeter containment on all open sides is required. Install structural perimeter containment that restrains the entire decking system.



- F. Installation or anticipated installation of additional items on top of the deck such as planters, hot tubs, sculptures, or industrial equipment must be supported directly by additional pedestals that are in addition to the main deck paver/tile 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 .

1.8 WARRANTIES / GUARANTEES

- A. Tile Tech Pedestal System (pavers and pedestals) shall remain free from defects for a period of ten (10) years. The contractor shall warrant that his work will remain free from defects of labor and materials used in conjunction with his work in accordance with the general conditions for this project or a maximum of three (3) years.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. The Paver Pedestal Systems specified herein are based upon products manufactured by:
Tile Tech Inc., 888-380-5575 Phone: (213) 380-5560 Fax: (213) 380-5561
E-mail: sales@tiletechpavers.com Website: www.tiletechpavers.com
- B. Paver Pedestal Systems equal in appearance and function and meeting these specifications, will be acceptable when the specified submittals are approved in writing by the Architect prior to bid.

2.2 MATERIALS

A. PORCELAIN PAVERS:

- 1. Type: Porce-Pave™ Porcelain Pavers.
- 2. Color: Standard range manufactured by Tile Tech Inc.
- 3. Size: Nominal 24" x 24" x 3/4"
24" x 48" x 3/4"
- 4. Finish: Porce-Plank™ Porce-Rustics™ Porce-Stone™
- 5. Weight: 9lbs per Sqft.

B. IPE WOOD DECK TILES:

- 1. Type: IPE Wood Deck Tiles.
- 2. Color: Natural State.
- 3. Size: Nominal 20"x20"x1-1/2"
24"x24"x1-5/8"
24"x48"x1-5/8"
- 4. Finish: Smooth finished.
- 5. Weight: 6lb per Sqft.

C. CONCRETE PAVERS:

- 1. Type: Granite-Tech™, Stamp-Tech™, Cool-Roof™, Recycled Glass and Win-Lok™.
- 2. Color: Standard and custom range manufactured by Tile Tech Inc.
- 3. Size: 20"x20"x2", 16"x16"x1-1/2" , 12"x12"x1" , 12"x24"x1-1/2" , 16"x24"x2" nominal
- 4. Finish: Shot-blasted with 3/16" bevel on all four (4) sides of finished surface.
- 5. Weight: 11 to 22 lbs per square foot depending on paver size & thickness.

B. PEDESTALS:

1. Stak-Cap™ Pedestals: PVC Pipe & Stack Adjustable
 - a. Stack or use SDR35 PVC pipe to accommodate various HEIGHT adjustments of ½” to 2”.
 - b. Each cap provides maximum of ½” of HEIGHT and 1% SLOPE. Rotate and stack one cap relative to another to accommodate SLOPE adjustments from 0% to 5%.
 - c. Base diameter of 6-inch and top diameter of 5-¼-inch and is ½-inch high.
 - d. Made of high impact and flame resistant ABS plastic.
 - e. Use of Buffer Pads under Stak-Cap™ Pedestals is MANDATORY.

2. Uni-Just™ Pedestals: PVC Pipe & Screw Adjustable
 - a. Assembly consist of 5 parts: Uni-Base™, Uni-Collar™, Uni-Insert™, Uni-Cap™ & Buffer Pads.
 - b. Use SDR35 PVC pipe to accommodate various HEIGHT adjustments from 2-½” to 24”. Additional precise height adjustment of up to 1-½” with the use of Uni-Insert™ which can screw up or down while loaded. Additional heights beyond 24” can be accomplished subject to consultation with manufacturer and approval by manufacturer.
 - c. Self-leveling and can tilt in any direction to a level plane to accommodate SLOPE adjustments from 0% to 6%.
 - d. Base diameter of 7.25-inch with bearing surface area of thirty eight (38) square inches.
 - e. Made of 100% recycled and flame resistant High Density Polypropylene.
 - f. Use of Buffer Pads under Uni-Just™ Pedestals is MANDATORY.

3. Uni-Shims™: 1/8-inch & 1/16-inch Thick
 - a. Can be used whole or broken into halves or quarters and can be stacked up to 2 high.
 - b. Used on top or under Stak-Cap™ or Uni-Just™ Pedestals for fine leveling of pedestals and or individual pavers.
 - c. Made of high impact and flame resistant ABS plastic.

C. OTHER COMPONENTS: INSTALLER OR USER SUPPLIED

1. Pedestal Pipe: 4-inch diameter SDR35 PVC Sewer Pipe
 - a. Used with either Stak-Cap™ or Uni-Just™ Pedestals and is cut to required height.
 - b. Dimensions: 4.215-inch outside diameter & 3.890-inch inside diameter.
 - c. Meet ASTM D-3034 and F-679.
 - b. NOT supplied with pedestal components by Tile Tech Inc.

2. Protection Course:
 - a. Protection board (required over insulated BUR systems, and when specified for use over bituminous asphalt-based waterproofing): W.R. Meadows “Vibraflex” or equal, minimum 3/8- inch thick asphaltic composition protection board.
 - b. Insulation (when specified): Dow Styrofoam “Highload 100” or equal, minimum compressive strength of 100psi recommended for foam plastic insulation placed beneath Pedestal System to prevent damage to the waterproofing membrane.
 - c. NOT supplied with pedestal components by Tile Tech Inc.

2.3 PERIMETER CONTAINMENT AND SUPPORT

- A. The complete assembly of insulation (if used), protection board (if used), drainage mat (if used), pedestals and pavers must be restrained at the perimeter of the deck area.
- B. Perimeter parapet walls, concrete dividers or other perimeter restraint must be capable of resisting lateral forces (including seismic and wind). Cumulative movement in excess of 1/8 inch will void the Tile Tech Inc Pedestal System warranty.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Prior to starting work inspect the substrate to ensure that it has been properly prepared to accept the Tile Tech Pedestal System. The substrate and or surface shall be clean and free of any projections and debris which may impair the performance of the pedestal and or the deck system. Verify all elevations, required pedestal heights and deck dimensions. Commencement of work shall imply acceptance of surfaces & deck conditions.
- B. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 PREPARATION

- A. The substrate surface that will receive the Pedestal System must be well compacted (on Grade) or structurally capable of carrying the dead and live loads anticipated.
 - 1. Insulation OVER the membrane: (Option 1) Insulation and/or protection board (if specified) must be applied over the waterproofing substrate and/or specified drainage mat. Install the system according to the membrane manufacturer's recommendations and specifications.
 - 2. Insulation UNDER membrane: (Option 2) Insulation required to be installed within a roofing system below deck supports must meet the roofing membrane manufacturers' specifications and must have a minimum core density of 60psi.
 - 3. Protection Board: (for asphalt type systems used over waterproofing) Full coverage 1/8-inch asphaltic composition protection board is recommended. When protection is specified only under the pedestal cut protection board pads to extend beyond the outside perimeter of the pedestal system base or buffer pad by a minimum of TWO (2) inch.
 - 4. Drainage Mat: (when desired or specified) Install drainage mat according to the manufacturers recommendations to avoid crushing.

3.3 INSTALLATION

- A. Install in accordance with Tile Tech Inc. and other contributing manufacturer's instructions. Installation requirements vary for each individual project site. Decking paver or tile used, pattern, grid layout, starting point, and finished elevation should be shown on plan view shop drawings, which have been prepared and approved by the designer, installing contractor and/or owner.

B. GRID LAYOUT AND ELEVATIONS:

1. Once the starting point and the finished elevation of the deck surface have been determined, the “Top of Pedestal Elevation” (finished elevation less decking paver or tile thickness) is established and marked around the perimeter using a transit water level or laser leveling device.
2. Precise measurements should be taken and deck area should be accurately defined. Mark off and ‘square up’ all outside edges with control lines using “snapped” chalk lines. Mark two (2) lines that are perpendicular to each other across the deck area. Continue to mark a grid of lines in both directions marking the location of each pedestal. Use the control lines as references to periodically check and assure a square layout during installation.
3. Next, a pedestal must be placed where each measured grid line meets the perimeter. Remove two (2) spacer tabs in line with one another atop each pedestal system placed around the perimeter. Remove all four (4) spacer tabs at corners.
4. Adjust each pedestal height to the “Top of Pedestal Elevation” marked on the perimeter. 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. On larger decks, it is recommended that Tile Tech Pedestal System be pre-assembled and pre-set to the proper elevation and placed in position prior to the installation of decking paver or tile.
6. As the pedestals located along the grid lines are loaded with pavers or tiles, fine vertical height adjustment can be made by inserting and rotating, from the top, a T-handle Hex Key in to the Uni-Insert™ of the Pedestal assembly. Clockwise rotation of the Uni-Insert™ will raise the bearing surface and the deck. Counter-clockwise rotation will lower the top bearing surface and deck.
7. Always maintain adequate thread engagement. Tile Tech Pedestal Uni-Insert™ contains a locking tab that will not allow the screw to extend past its maximum extension. Never use if the locking tab is broken. If the height required goes beyond the Uni-Insert™ limit re-cut PVC pipe to the correct height and re-assemble the pedestal using the correct size pipe.
8. Slight irregularities in decking paver or tile thickness can be compensated for by using one (1) to two (2) shim segments. Place on top of the pedestal, under the corner(s) of the decking paver or tile. Use no more than two (2) shims on top of the pedestal and always adhere quartered (1/4) wedges with construction adhesive.
9. Stak-Cap™ Pedestal can be used for limited and or fixed height requirements. Complete deck and grid layout as instructed above. Stack no more than five (5) fixed height Stak-Cap™ Pedestals together and place in lieu of Uni-Just™ Pedestals where needed. Stak-Cap™ Pedestal can also be used with PVC pipe to reduce cost. Spacer tabs can be removed to accommodate perimeter and corner support locations.

C. SLOPE AND HEIGHT COMPENSATION:

1. Stak-Cap™ Pedestals can provide limited slope and height compensation to maintain a level decking surface over sloping substrates and is accomplished using a combination of the following:
 - a. Rotate and stack one cap in relation to another to change slope and add height. Each cap will add ½-inch of height and provide 1% slope. Stack no more than 5 caps.
 - b. Can also be used with PVC Pipe cut to required height of maximum of 6-inches.
2. Uni-Just™ Pedestals can provide both slope and height compensation to maintain a level decking surface over sloping substrates and is accomplished using a combination of the following:
 - a. PVC Pipe cut to varying lengths to compensate for GENERAL height requirements.
 - b. SCREW extension for PRECISE height adjustment.
 - c. Self-Leveling cap that pivots and tilts in any direction for slope compensation from 0% to 6%.
 - d. Additional slope adjustments is achieved by the use of the Base Slop Plates that provide 2% slope per plate and can be stacked to a maximum of 5 units to obtain 10% slope.
3. Tile Tech Pedestals are designed to be rotated for final precise adjustment when they are fully loaded. Pedestals should be leveled in each succeeding row as the installation proceeds. Final height adjustment or maintenance is easily made by simply using a T-handle Hex Key that allows you to adjust the pedestals without removing the pavers. T-handle Hex Key is inserted between the four paver corners to engage Uni-Insert™ portion and is adjusted clockwise or counter clockwise to level as needed.
4. Uni-Shims™ may be used in multiples, whole or quarters, and placed under the pedestal base or on top the pedestal cap to level pedestals. Use a small amount of construction adhesive to adhere sections of shims and/or whole shims to each other or to the pedestal. DO NOT use construction adhesive to adhere pedestal or shims to insulation, roofing or waterproofing membrane. Additional sections of shims may be used and should be available for regular maintenance.

3.4 PERIMETER CONTAINMENT

- A. Any area of the pedestal deck that is not restrained by a parapet or foundation wall must be 'boxed-in' and contained. The deck panels will move if all sides are not adequately restrained. Perimeter framing and edging boards located at the outside of the deck perimeter must be installed to provide restraint. No movement should be allowed at the perimeter of the deck system greater than one tab width.

3.5 FIELD QUALITY CONTROL

- A. Inspect often during installation to assure that grid spacer lines are being maintained in a straight and consistent pattern and that deck pavers or tiles are level and not rocking. Unless otherwise specified in writing to allow for expansion, inspect to assure that all paver spacing between tiles and at perimeter walls does not exceed a tab width. Particular attention should be made to assure that all pedestrian entry or access points to the deck are level and that the deck surface tiles are not randomly raised or uneven creating a tripping or safety hazard.

Confirm that deck pedestal height excess of sixteen (16) inches have been braced in accordance with Tile Tech Inc written instructions.

3.6 ROUTINE MAINTENANCE AND CARE

- A. The deck owner must perform routine maintenance of the deck. Check for rocking pavers and adjust using T-Handle Hex Key or shim immediately. Pedestals can settle and may have to be realigned. Failure to do so can cause a tripping hazard. Periodically check spacer tabs and immediately replace broken tabs to limit deck movement. Make sure the edge restraint stays intact and structurally sound.

- B. Extra Materials: Deliver supply of maintenance materials to the owner. Furnish not less than 1 percent maintenance materials from same lot as materials installed, and enclosed in protective packaging with appropriate identifying labels.

**END OF SECTION 07760
ROOF PAVERS AND PEDESTALS**