

SECTION 077600 PAVERS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the pavers as shown on the drawings and/or specified herein.
- B. Bison Cube for use as stand-alone planter or use with pedestal systems.

1.3 RELATED SECTIONS

- A. Fluid-Membrane Waterproofing - Section 071413.
- B. EPDM Membrane Roofing and Roof Insulation - Section 075323.
- C. Section 129000 – Outdoor Furnishings

1.4 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including accessories indicated. This includes:
 - 1. Preparation instructions and recommendations.
 - 2. Storage/Handling requirements and recommendations.
 - 3. Installation methods.
- B. Shop Drawings: After field verifying dimensions provide shop drawings showing layout of pavers and installation details for pavers. Show locations of drains, pitches, penetrations, equipment, and equipment supports. Complete details of layout and assembly, showing sizes and part identification, fasteners, anchors, and fittings
- C. Samples: For each type of paver finish required and for each type of paver accessory indicated. Provide full-size samples of pavers to adequately show color. Color selections for Bison Cubes selections shall be made from the Manufacturer's brochure representing Manufacturer's full range of available colors and patterns.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain each color, type, and variety of paver from a single source with resources necessary to provide products and materials of consistent quality in appearance and physical properties without delaying progress of the Work.

- B. Manufacturer Qualifications: All primary products in this section will be supplied by a single Manufacturer with five (5) years of experience minimum.
- C. Installer Qualifications: The Installer must have a minimum of two (2) years proven construction experience, be capable of estimating and building from blueprint plans and details, determine elevations and properly handle materials. All work must comply with the Bison installation procedures for assembling and installing site furnishings specified herein.
- D. Special Considerations: The Contractor assumes the responsibility for and must take into consideration the structural capability and adequacy of the structure below to carry the dead and live load weight(s) involved, and when appropriate, make sure that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect pavers during storage and construction against wetting by rain, snow, or ground water, and against staining or contamination from earth and other materials.
- B. Do not deliver Bison Cubes job site until conditions are ready for installation.
- C. Immediately upon receipt inspect all delivered materials to ensure they are undamaged and in good condition. Claims for damages must be made to the Driver/Carrier *prior* to accepting delivery. Note any visual damage to containers or packaging material on the bill of lading *before* the Driver leaves. Any damage should be noted on the bill of lading, photographed, and then reported to Bison immediately.
- D. All Bison Cubes should be removed from the original packaging and stored indoors until installation begins; do not leave products tightly wrapped as condensation can build up between the shrink wrap and planter, foam and planter, cardboard and planter, or any combination of materials, and could stain and/or begin to remove finishes. Do not store Bison Cubes or Tops in standing water.
- E. Care should be taken in the handling, placement, and maintenance of Bison Cubes. While the Cubes are extremely durable, care should be taken to not scratch, dent, or drop the Cubes. It is also recommended that clean gloves be used during handling and installation to limit exposure to grease and other contaminants.

1.7 CONTAINER FILL

- A. Do not use soil weighing in excess of 25-50 lbs/cubic foot.
- B. The bottom of extra-large and tall Cubes can be filled with lightweight filler. Consult your landscape professional for more information on fillers that work with the desired plantings.
- C. The substrate immediately below the Cubes and pedestals shall provide positive drainage.
- D. In the case of decks over roofing substrates, roof systems must meet local building code and be in accordance with the NRCA recommended good construction practices. Only roofing manufacturer approved systems shall be used

1.8 APPLICATION/SCOPE

- A. Furnish and install Bison Cubes for use on grade without pedestal support.
- B. Consult the Manufacturer and the Project Engineer regarding the following:
 - 1. When spacer tab condition or design requires spacing between decking tiles or Cubes other than the standard spacing required by the Manufacturer.
 - 2. When the required pedestal height exceeds the safe limits as determined by the Manufacturer.
 - 3. When planter or pedestal load capacity exceeds the maximum listed.
 - 4. When anticipating installation of any items with excess weight on top of the deck.
 - 5. When using Bison Pedestals on grade (soil).
 - 6. When greater pedestal load capacity is required.

1.9 EXTRA STOCK

- A. Upon completion of this portion of the Work, deliver to the Owner an extra stock of pavers, pedestals, and accessories of ten percent of each product and finish. All extra stock shall be new, in original packaging, and clearly labeled.

1.10 WARRANTY

- A. At project closeout and upon request, Bison can provide to the Owner or Owner's Representative an executed copy of the Manufacturer's standard document outlining the terms, conditions, and limitations of their limited warranty against manufacturing defects for a period of five (5) years. Bison must approve all warranty related repairs, and unauthorized repairs void this limited warranty.
- B. The Contractor warrants 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 minimum of five (5) years.
- C. It is the responsibility of the Contractor installing the product listed in this section to coordinate warranty requirements with any related sections or adjacent work. Notify the Architect immediately of any potential lapses or limitations in warranty coverage.
- D. Bison Aluminum Cubes and Ipê Wood Cubes and Tops are covered by a limited five (5) year warranty. Bison Aluminum Cubes and Ipê Wood Cubes and Tops are warranted to the original owner to be free of defects in material and workmanship for the period of five (5) years from the date of purchase. This warranty also extends to defects caused by wood rot and insect infestation for the same period. Defects are defined as imperfections that impair the utility of the product. This warranty applies to conditions of normal use and does not apply to damage resulting from abuse, excess weight, or acts of nature. This warranty does not apply to non-structural surface cracks or to variations in wood color due to weathering. If an Aluminum Cube or Ipê Wood Cube or Top is deemed defective within the terms of the warranty, Bison may make repairs or provide for repair services at no cost to the customer. If a repair cannot be made, a replacement Aluminum Cube or Ipê Wood Cube or Top will be furnished at no cost to

the customer. This warranty does not cover shipping damage. Shipping damage must be reported directly to Bison immediately upon receipt of products. Please save all product packaging for a short period of time in case return shipping is required. Bison makes no other warranties, either express or implied, with respect to the use of the Bison Aluminum Cube or Ipê Wood Cube or Top, including warranties of merchantability or fitness for a particular purpose.

PART 2 - PRODUCTS

2.1 PLAZA DECK PAVERS AND PEDESTALS

- A. Concrete Pavers: Nominal 24" x 24" x 2-1/2" thick pre-cast concrete paver, minimum 8500 psi air entrained concrete, stone aggregate conforming to ASTM C 33. Pavers shall weight not less than 25 lbs./lin. ft. and shall have texture and color as selected by the Architect. Pavers shall be manufactured by Hanover, "Tudor Finish," or approved equal.
- B. Paver Pedestals: Provide paver pedestals of the screwjack type, comprised of components including rotating base, couplers and top unit designed to raise and level finished pedestrian deck to height indicated on the drawings, and to exact tolerances. Provide units fabricated from high-density polypropylene that are durable, impervious to water, impact and ultraviolet resistant, non-absorbent, and not affected by humidity, freeze/thaw cycling or ozone. System supports shall include EPDM rubber leveler pads and/or polypropylene leveler discs for slope compensation, where necessary.
 - 1. Provide Bison Screwjack Pedestals as manufactured by Bison Deck Supports, or approved equal.
 - 2. Support Capacity: Fully extended pedestal system shall achieve a minimum load- bearing capacity of 1,000 lbs per pedestal with a factor of safety of two as certified by a recognized testing laboratory..

2.2 BISON CUBES

- A. Model: CUBE-IPE482417-LINED – Bison Ipê Wood Cube
- B. Width/Length/Height: 47.9375 inches x 23.875 inches x 16.75 inches (1218mm x 606mm x 425mm)
- C. Weight: 124 lbs (56.2 kg)
- D. Material: Ipê hardwood.
- E. Liner: Polyurethane lining standard.
- F. Drainage:
 - 1. Drainage hole(s) standard.
 - 2. Drainage fittings by special order.
- G. Important Considerations: Do not use bamboo or plants known to have aggressive root systems with Ipê Wood Cubes.

H. Finish: Natural wood.

1. Small checks and splits are normal and a natural part of the wood.
2. Wood stabilizers or sealants can preserve color, help mitigate the loss of moisture, and minimize checking and splitting.

I. Mounting:

1. Free standing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to Bison Cube installation verify the following:

1. All elevations and deck dimensions are consistent with information submitted to Bison for quoting and/or take-off.
2. Anticipated live/dead loads in or on Bison Cubes are compatible with the deck system.
3. Substrates have been properly prepared, and the project is set to proceed. If substrate preparation is the responsibility of another Installer, notify Architect of unsatisfactory preparations before proceeding.

3.2 PREPARATION

A. The substrate surface that will receive the Cubes must be:

1. Well compacted if on-grade.
2. Structurally capable of carrying the dead and live loads anticipated if over occupied space.
3. Clean and free of debris that could impair the performance of the Pedestals or Cubes.

3.3 LAYOUT

A. Lay out pavers so as not to obstruct drainage paths or drains.

B. Start paver layout at center of plaza sections in such a way as to avoid pavers of less than one-half width at edges or other joints with vertical obstructions.

3.4 COORDINATION

A. Coordinate paver installation with work of other trades affected by installation.

3.5 INSTALLATION

A. Pavers:

1. General: Install pavers according to manufacturer's written instructions. Use shims, separators, and other miscellaneous items as required for completing paver installation. Install pavers to resist exposure to weather without failing, shifting, and pedestal disengagement.
2. Install pavers without damaging or disturbing the roof membrane, maintaining watertight performance.
3. Install pavers without obstructing drainage paths or drains.
4. Cut pavers with a concrete saw cleanly, allowing for close fitting with walls, penetrations, and equipment and equipment supports. Pavers with chips in the exposed surface, over-sawn cuts, and irregular cuts are not permitted.
5. Install pavers level and true to line and elevation, and without warping or jogs in alignment. Install each paver securely so that it does not wobble or move in place.
6. Tolerances
 - a. Maximum of 1/16" height variation between adjacent pavers.
 - b. Individual pavers shall not vary more than 1/16" from level across width of the paver.
 - c. Paved areas shall not vary more than 1/8" from level in a distance of 10' 0" measured at any location and in any direction.
 - d. Joints between pavers shall be 1/8".

B. Bison Cubes:

1. If a scenario is encountered during installation which is not covered, please contact Bison.
2. General Safety Precautions: Bison recommends wearing puncture resistant safety gloves when handling Cubes and Tops.
3. For use as Planters:
 - a. Place landscape fabric on the bottom of the containers to prevent soil from falling through drainage holes.
 - b. Container Fill:
 - Do not use soil weighing in excess of 25-50 lbs/cubic foot.
 - The bottom of extra-large and tall planters can be filled with lightweight filler. Consult your landscape professional for more information on fillers that work with the desired plantings.
4. For use as Storage: Storage provided by Bison Cubes with Ipê Wood Cube Tops is weather resistant not watertight.
5. Surface Mounting: Place Cube on level, structurally sound surface.

3.6 FIELD QUALITY CONTROL

A. During Installation:

1. Inspect construction process regularly to ensure that gridlines and spacing are being maintained in a straight and consistent pattern, lateral motion is restricted, and the Cubes and Pedestals are level and not rocking; shim as required.
2. Confirm that Cube height (height above parapet/bearing surface) complies with any federal, state, or local regulations.
3. Inspect to ensure that all perimeter sides of the deck system are securely contained to restrain all sides of the deck. Surface materials must fit tightly against all pedestal spacing tabs, and the gap or space at all perimeter edges must not exceed one tab width or 3/16" (4.5 mm).
4. While Bison Cubes are durable, they can be damaged by mishandling or careless treatment. If tools or equipment are dropped against a Cube surface, chips, cracks, gouges, scratches, or other surface damage may occur. If exposed to nearby construction, pay special attention to keeping the Ipê Wood Cubes and Ipê Wood Cube Tops clear of metal shavings or filings as there could be a reaction causing discoloration.

B. Immediately Following Installation: The Owner, or the Owner's Agent, shall carefully inspect the deck system to be positive that:

1. The new deck system is adequately blocked on all sides to contain the surface decking and related components.
2. There is no more than one tab width spacing between Cubes and surface materials or from perimeter containment [not to exceed 3/16" (4.5 mm)].
3. There is no rocking of the Cube(s) or surface materials.
4. All required spacer tabs and fastening kits are installed and secure.
5. The installed Cubes are protected from damage which may result from continued site construction.

C. After Installation: The Installer and/or Architect has the responsibility of informing the Owner about performing routine maintenance on the deck. This includes:

1. Checking for rocking surface materials and properly applying shims as the substrate can settle and require Pedestal adjustment.
2. Periodically checking for broken, damaged, or missing tab sets and replacing them to limit deck movement.
3. Maintaining intact and structurally sound perimeter containment.
4. Retaining extra surface materials in a convenient location for future replacements.

3.7 CUBE CARE AND MAINTENANCE RECOMMENDATIONS

- A. Bison Ipê Wood Cubes and Tops are made of dense hardwoods which contain a rich variety of graining and coloration.
- B. Cleaning and Sealing Bison Ipê Wood Cubes and Cube Tops can be periodically cleaned and sealed. Wood stabilizers and sealants can help mitigate the loss of moisture and minimize checking and splitting; however, small checks and splits are normal and a natural part of the wood. The following manufacturers offer cleaning and sealing products specifically designed for exotic hardwoods: Messmer's, Defy, Penofin, and TimberPro. Bison recommends that you test any cleaners or sealants in an inconspicuous area first to make sure it performs as you expect.
- C. Maintaining Cube Color To better maintain the rich coloration of the Ipê Wood Cubes and Cube Tops, you can apply a penetrating oil finish with UV blocker. These products offer UV protection as well as mold and mildew protection, slowing the weathering process. Before applying any finish, first clean and remove any residue from the Ipê Wood Cube or Cube Top. After your initial coat is applied, regular maintenance coats will help keep the coloration vibrant for years to come. The frequency of application depends on the location of the Ipê Wood Cube or Cube Top.
- D. Natural Aging Left to weather naturally and depending on climatic conditions, Ipê Wood Cubes and Cube Tops will develop a silvery-gray patina. To help even the aging process, Bison recommends that a coat of wood stabilizer be applied after installation. Some products provide UV protection, allowing the Ipê Wood Cubes and Cube Tops to acclimate more uniformly; however, each board has unique characteristics and will weather at different rates. The amount of direct and indirect sunlight, temperature, humidity, moisture, and other local conditions will affect the rate of change in appearance as the wood ages.
- E. Ipê Wood Cube Tops As the wood is exposed to moisture, it will begin to weather and release natural tannins, which may cause some discoloration to the Cube they are set on if not cleaned or removed.
- F. Environmental Conditions Being a natural product, Ipê Wood Cubes and Cube Tops will react to the surrounding environmental conditions. They may spot or stain when exposed to various materials including metal, steel, iron, or aluminum filings, pieces, equipment, tools, or fasteners; iron enriched fertilizers; plant debris; animal urine; beverage, food, or grease spills; or mildew that naturally occurs in humid or moist locations. To avoid spotting or staining during construction, Bison recommends protecting the Cubes and/or Cube Tops to reduce exposure to these materials.

END OF SECTION 077600