

SECTION 32 14 60

DECK PEDESTAL SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

Adjustable Deck Pedestals.

1.2 RELATED SECTIONS

1.3 REFERENCES

ASTM D 1238-04 – Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer.
ASTM D 792-00 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D 638-03 – Standard Test Method for Tensile Properties of Plastics
ASTM D 256-06 – Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics.
ASTM D 648-06 – Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

1.4 SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Manufacturer's data sheets on each product to be used, including:

- A. Preparation instructions and recommendations.
- B. Storage and handling requirements and recommendations.
- C. Installation methods.
- D. Shop Drawings: Submit shop drawings detailing the installation methods. Coordinate placement with locations noted on the Contract Drawings.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

- 1. All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.

B. Installer Qualifications:

- 1. The deck support system 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 application procedures for deck support work specified herein.

C. Special Considerations

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1. The contractor assumes the responsibility for and must take into consideration the structural capability and adequacy of the structure to carry the dead and live load weight(s) involved, and that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship is approved by Architect. (if applicable)
 3. Refinish mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store Bison Deck Supports and system components with labels intact and legible.
- B. Inspect all delivered materials to insure they are undamaged and in good condition.
- C. Store and dispose of solvent-based materials such as construction adhesive, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

- A. There are no pedestal installation temperature restriction guidelines other than the practical considerations of working in any unsafe condition or inclement weather.
- B. Deck supports specified are to be for used with pedestrian traffic only.
- C. Perimeter Walls and Containment
- D. Pedestrian decks must be restrained by perimeter blocking or walls on all sides. Lateral movement greater than 1/8" is unacceptable and will be subject to rejection.
- E. It is recommended that the deck surfacing tiles or pavers sit above the waterproofing integral flashing and or counter flashing. In situations where the perimeter of the deck comes into contact with the flashing material, protective wall covering should be specified if deemed necessary by specifier.
- F. Heavy Roof Top Features. Flat bottom features such as planters, heavy benches, water features, hot tubs, etc. always require individual support that is in addition to the deck pedestal system.
 1. A minimum of one additional pedestal support must be installed for every 500 lbs. (or portion thereof) of static loading. These additional support pedestals must be installed directly under the decking and evenly spaced immediately below the feature locations. One additional pedestal must be placed under corner of any rectangular feature.
 2. When installing Bison Cubes, additional support may be needed under the center and corners of the cubes depending on the size and anticipated weight loads.
 3. Features supported by legs or feet are not advised or considered unacceptable because of the consequences of point loading.
 4. Any feature that creates vibration must be provided for in special consultation and written agreement with Bison. Cell phone towers, heavy planters and other similar features require their own separate curb designed by an architect or engineer.

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- G. All decks shall be designed to not exceed the design capacity of the pedestal.
- H. The substrate immediately below the pedestals shall provide positive drainage.
- I. 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.
- J. For applications over roofing and waterproofing membranes Bison Innovative Products recommends that a 12" x 12" piece of the same type of membrane be installed as a separate protection slip sheet underneath each pedestal.
- K. Decks over roofing and waterproofing
- L. Bison Pedestal Installation: Bison pedestals must be installed on surfaces with a minimum 40 psi bearing capacity.
- M. Bison Pedestal Installation: Bison pedestals must be supported by a surface that provides a minimum
- N. 40 psi bearing capacity. There are alternate ways to accomplish the non- invasive and required support.
- O. Roof top applications : Two basic types of roof systems are commonly found in the US and Canada for retrofit and new roofing. Roof systems that specify insulation below the waterproofing layer, and roof systems that have extruded insulation above the waterproofing membrane.
 - 1. Roof Type 1 – Common Insulation installed below Roof Membranes.
 - 2. Currently the most typical and common roofing systems specify roofing membranes be installed over common rigid insulation boards that are typically manufactured from poly-isocyanurate, perlite, or wood fiber-board materials. These typical systems incorporate 20 psi density insulations that need additional support to create an adequate bearing surface. That is typically accomplished in one of three ways.
 - 3. Incorporate one of the thin Cap Bearing Protective Layer Insulation specifications that call for a very thin protective layer to be installed on top of the common 20 psi insulation. Such a cap type insulation product is commonly formed as a thin dense low-foamed isocyanurate layer, and provides the necessary pedestal support.
 - 4. Bison Model FIB Pedestal Base: Install an enlarged base that supports the pedestal to distribute the anticipated loaded weight of a pedestal over an enlarged area. Bison manufacturers the Floating Insulation Base (Model FIB) for this purpose. Model FIB is specifically designed to be directly installed over Type 1 roof systems that incorporate 20 psi common insulation boards.
 - 5. Insulation above the Membrane: Install a 1.5" thick (min.) layer of dense, closed cell 40 psi (min.) extruded cell poly-styrene insulation board above the common roofing system that has buried insulation to provide support for the pedestal system.
 - 6. Roof Type 2 – Closed Cell Insulation Protecting Roof Membrane Systems.
 - 7. Inverted Roof Membrane Systems that incorporate 40 + psi density closed cell extruded poly-styrene insulation on top of the roofing membrane are the second type. The dense extruded polystyrene is capable of bearing Bison pedestal weights. Before the ballast rock is installed, deck system pedestals can be installed directly on the insulation. Varying densities and thicknesses of extruded polystyrene are commonly used, and substantial ballasting is required.

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8. Bison pedestals can be installed directly on top of gravel removed 40 psi, or greater, extruded closed cell polystyrene insulation with 1.5" thickness or greater.

P. 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: ¼" Minus (breeze) should be installed and compacted at Bison Deck Support locations.
2. Bison Floating Foundation Bases (FFB) must be used beneath all on-grade Bison Deck Support decks. Level the surface and install directly on grade as a base.
3. A wall or perimeter containment on all open sides is required. Install structural perimeter containment that restrains the entire decking system.

1.8 WARRANTY

- A. At project closeout and upon request, Bison Deck Supports can provide to the Owner or Owners Representative, an executed copy of the manufacturer's standard document outlining the terms, conditions and limitations of their limited warranty against manufacturing defect for a period of three (3) years.
- 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 three (3) 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. For use with pedestrian traffic only – Never use Bison Deck Supports to support decks that have wheeled, motorized or equipment traffic.
- E. Decks should be restrained on all sides and not have lateral movement in excess of 1/8".
- F.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Bison Innovative Products; 2395 West 4th Avenue, Denver, CO 80223. Toll Free 800-333-4234. Phone 303-892-0400. Fax 303-825-5988. Email: Sales@BisonIP.com. Web: www.BisonIP.com.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 APPLICATIONS/SCOPE

Furnish and install a complete adjustable deck support system with a maximum cavity height of up to:

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- A. Versadjust Pedestals maximum cavity height 24 inches (610 mm).
- B. Versadjust Pedestals with Bison Brace System for excess height installations in the range of 24-36 inches.
- C. Deck supports are not designed for supporting decks that carry vehicular traffic or equipment including but not limited to snow removal equipment, ATV's, forklifts, or any motorized vehicles.

Consult the Manufacturer and the Project Engineer regarding the following:

- D. When spacer tab condition or design requires spacing between decking tiles or concrete pavers other than the standard spacing required by the manufacturer.
- E. When considering use for other than a raised decks (e.g. interior floors, stairs, etc.).
- F. When the required pedestal height exceeds the safe limits as determined by the Manufacturer.
- G. When pedestal load capacity exceeds the maximum listed.
- H. When anticipating installation of any items with excess weight on top of the deck.
- I. When using Bison Deck Supports pedestals on grade (soil).
- J. When greater pedestal load capacity is required.

2.3 VERSADJUST DECK PEDESTALS Typical Height Range 2 1/4" -36 inches, Weight Bearing 1250 lbs/pedestal FS:3 V-Series Pedestals Made in the USA

Adjustable Pedestals:

- | | | |
|----|-----------------------|---|
| A. | Model: V1 – 18 | 2 1/4" – 2 3/4" (57mm – 70mm) with 1/8 inch tab |
| B. | Model: V1 – 316 | 2 1/4" – 2 3/4" (57mm – 70mm) with 3/16 inch tab |
| C. | Model: V2 - 18 | 2 3/4" - 3 3/4" (70mm – 95mm) with 1/8 inch tab |
| D. | Model: V2 - 316 | 2 3/4" - 3 3/4" (70mm – 95mm) with 3/16 inch tab |
| E. | Model: V3 – 18 | 3 3/4" - 5 3/4" (95mm – 146mm) with 1/8 inch tab |
| F. | Model: V3 – 316 | 3 3/4" - 5 3/4" (95mm – 146mm) with 3/16 inch tab |
| G. | Model: V4 – 18 | 5 3/4" - 9" (146mm – 229mm) with 1/8 inch tab |
| H. | Model: V4 – 316 | 5 3/4" - 9" (146mm – 229mm) with 3/16 inch tab |
| I. | Model: VC2– | Coupler adds between 0" to 4" inches (0mm-102mm) |
| J. | Model: V4 + VC2 | 9 inches to 13 inches (229mm – 330mm). |
| K. | Model: V4 + VC2 + VC2 | 13 inches to 17 inches (330mm - 432mm) |

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- L. Model: V4 + VC2 + VC2 + VC2 17 inches to 21 inches (432mm - 533mm)
- M. Model: V4 + VC2 + VC2 + VC2 + VC2 21 inches to MAXIMUM HEIGHT 24 inches (533mm - 610mm)
- N. If over 24" use Couplers in conjunction with Bison Brace system. Base Model: Includes 2 adjusting base leveler disks
 - 1. Diameter: 8" inches (203 mm) diameter x 3/16 inch (4.75mm) top wall thickness.
 - 2. Bearing Surface Area: 50.24 square inches (1276 sq. mm)
 - 3. Six (6) - 1/4 inch (6mm) diameter holes for drainage and / or mechanical attachment.
 - 4. Top Unit: 5/32" inch (4mm) thick plate with a 42.39" square inch (736.6 sq. mm.) bearing surface area.
 - 5. Spacer Tabs uniform spacing between pavers:
 - 6. VT18 1/8 inch (3.175 mm) tab thickness.
 - 7. VT316 3/16 inch (4.5mm) tab thickness.
 - 8. Load Capacity: Maximum 1250 lbs (567 kg) per pedestal with a Safety Factor of 3 (FS:3).
 - 9. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
 - 10. Contains 20% Post-industrial recycled material.

Low Height Pedestal Supports: (Note: NO slope compensation is included with these models)

Shim as needed.

- O. Model: Fixed Height VT18 or VT316 1/8 inch (3.175mm) tall,
 - 1. Integral Spacer Tabs: Specify 1/8 inch or 3/16 inch
 - 2. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
 - 3. Contains 20% Post-industrial recycled material.
 - 4. Bearing Surface 17.75 square inches.
 - 5.
- P. Model: HD25-18 Stackable (4 Max) 1/4 inch (6.4mm) tall, with integral 1/8" Spacer Tabs
- Q. Model: HD25-316 Stackable (4 Max) 1/4 inch (6.4mm) tall, with integral 3/16" Spacer Tabs
- R. Model: HD50-18 Stackable (4 Max) 1/2 inch (13mm) tall, with 1/8" integral Spacer Tabs
- S. Model: HD50-316 Stackable (4 Max) 1/2 inch (13mm) tall, with 3/16" integral Spacer Tabs
- T. Model: HD75-18 Stackable (4 Max) 3/4 inch (19mm) tall, with 1/8" integral Spacer Tabs
- U. Model: HD75-316 Stackable (4 Max) 3/4 inch (19mm) tall, with 3/16" integral Spacer Tabs

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1. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
 2. Contains 20% Post-industrial recycled material.
 3. Bearing Surface Area: 37.68" sq inches (9032 sq mm).
 - 4.
- V. Model: Adjustable LO: 1 1/4 inches to 2 inches (32mm - 51mm).
1. Rotating Base:
 2. Size: 7 7/8 inch (200mm) diameter x 3/16 inch (4.75mm) top wall thickness.
 3. Bearing Surface Area: 48 square inches (310 sq. cm.).
 4. Four (4) - 1/4 inch (6mm) diameter holes for drainage and / or mechanical attachment.
- W. Top Unit: 5/32 inch (4mm) thick plate with a 29 square inch (187 sq. cm.) bearing surface area
1. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
 2. Contains 20% Post-industrial recycled material.
 3. Base Leveler Disks:
- X. Model: LD4 - Placed beneath pedestals to compensate for slopes up to 1 inch per foot.
1. Slope: 1/4 inch per foot each. Two additional LD4 units may be added.
 2. V Series Pedestals include two (2) Model VB Integral Base Leveler Disks.
 3. All other pedestals may stack up to four LD4's under one pedestal for up to 1 inch of slope compensation.
 4. Dimensions: Center point thickness 3/8 inch (9.5mm).
 5. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
 6. Contains 20% Post-industrial recycled material.
 - 7.

Shims:

- Y. Model: B11 Flexible Shim 1/16 inch
1. Use no more than 4 shims. If using only 1/4 segment, adhere it to the pedestal with construction adhesive.
 2. Material: (1.5mm) Sanaprene.
- Z. Model: PS1 Rigid Poly Shims 1/8 inch (3.175mm)

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1. Use no more than 2 shims. If using only 1/4 segment, adhere it to the pedestal with construction adhesive.
2. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
3. Contains 20% Post-industrial recycled material

AA. Model: BB-Wedge

1. Spacing Wedge
2. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
3. Contains 20% Post-industrial recycled material.
- 4.

Base Pads:

BB. Model FFB: Pedestal base pad for on grade use, provides a large 12 inch by 12 inch x 1/4 inch (305mm x 305mm x 6 mm) base bearing surface for on grade installations.

CC. Model FIB: Pedestal base pad for use on roofing and waterproofing installations over low density insulation, provides a large 12 inch by 12 inch x 11/16 inches (305mm x 305mm x 17.5mm) base bearing surface.

1. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025 FIB also contains galvanized metal pad.
2. Contains 20% Post-industrial recycled material.
3. Joist Top:

DD. Model JT: Pedestal Accessory to construct joist and plank decks. Accommodates 2 x and 4 by joists.

1. Adds 3/16" (4.5mm) in height. Creates a base bearing surface for joist installation.
2. Material: Polypropylene
3. Bison Brace System:

Required for Installations 24"-36" in height or for applications requiring additional stability.

EE. Model: BB-C – Bison Brace Collar, Fits Model V3 & V4 only

FF. Model: BB-S – Short Brace Kit

1. For 16"-22"wide Deck Tiles
2. Kit contains 2 each 8" long brace pieces, Screw & Nut

GG. Model: BB-L Long Brace Kit

1. For 22"-36" wide Deck Tiles

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2. Kit contains 2 each 16" long brace pieces, Screw & Nut

HH. Model: BB-Pegs

1. Individual pegs to be inserted into Versadjust Pedestal Base

II. Model: BB-P

1. Pegs pre-inserted into Versadjust Pedestal Base at the factory
2. Add to any Versadjust Pedestal Model – for example specify: V4 + BB-P
3. Material: Mineral Filled High Density Copolymer Polypropylene. Bison #B-PP-2025
4. Contains 20% Post-industrial recycled material.

2.4 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Verify all elevations, required pedestal heights and deck dimensions before commencing work.

2.5 PREPARATION

- A. Establish accurate lines, levels and pattern.
- B. The substrate surface that will receive the deck supports must be well compacted (on grade) and structurally capable of carrying the dead and live loads anticipated.
- C. The substrate must be clean and free of projections and debris that could impair the performance of the pedestals or the total deck system.
- D. Decks over roofing and waterproofing: verify that installation conforms to section 1.7H of this specification.
- E. Decks on Grade: verify that installation conforms to section 1.7I of this specification.
- F. Installation requirements vary for each individual project site. Deck materials 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.
- G. Once a starting point and the finished elevation of the deck surface have been determined, the support system elevation (finished elevation minus deck material thickness) is established and marked around the perimeter using a transit "torpedo" water level or laser leveling device.

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- H. Precise measurements should be taken and deck area should be accurately defined. Mark off and square all outside edges with control lines (chalk lines or spray paint). Install 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. To assure a square layout, use the control lines as references to periodically check the layout during installation.

2.6 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. If required, place a Floating Insulation Base (FIB) board or Floating Foundation Base (FFB) in the location on the grid of each pedestal.
- C. Next, a deck support must be placed where each measured grid line meets the perimeter. Remove two (2) spacer tabs in line with one another on top of each deck support placed around the perimeter. Remove all four (4) spacer tabs at corners.
- D. Adjust each deck support to a "top of pedestal" elevation marked around the perimeter. Normally the deck support is positioned as close to the perimeter as possible, with the two remaining spacer tabs aligned with the grid line. Using the "top of pedestal" elevation marked on the perimeter, stretch a mason's line along and slightly ahead of the second row of deck supports. A laser leveling device may also be used for this purpose.
- E. On larger decks, it is recommended that pedestals be pre-sorted and pre-set to the proper elevation and placed in position prior to the installation of pavers or tiles.
- F. As the deck supports located along the grid lines are loaded with pavers or tiles, fine vertical adjustment can be made by rotating the base or bottom of the deck support. Clockwise rotation of the pedestal base will raise the bearing surface and the deck. Counter-clockwise rotation will lower the top bearing surface.
- G. Bison pedestals have built in height limit indicator 'bumps'. When pedestal is fully extended, height limit indicator "bumps" will be felt and heard, indicating the maximum height of the pedestal. Do not extend pedestal beyond the height limit indicators. Do not exceed maximum height listed on pedestal, use the next size pedestal. A VC2 coupler must be added to the V4 model to achieve greater heights. Always maintain adequate thread engagement. Never over extend any pedestal.
- H. Slight irregularities in decking panel thickness can be compensated for by using one to two shim segments. Place on top of the pedestal, under the corner(s) of the decking tile or paver. Use no more than two (2) shims on top of the pedestal and always adhere 1/4 wedges with construction adhesive.
- I. Stackable Fixed Height Pedestals: Complete deck and grid layout as instructed above. Stack no more than four (4) fixed height pedestals together and place in lieu of adjustable pedestals where needed. Spacer tabs can be removed to accommodate perimeter and corner support locations.
- J. V Series Slope Compensation:
 - 1. The V Series has integrated base leveler disks that compensate for up to ½ inch per foot slope. Additional slope compensation can be added by placing two additional LD4 disks under the pedestal base to compensate for up to 1 inch per foot of slope.
 - 2. Place the thickest edge of the disk (located on the edge by a small finger tab) at the down slope side of the deck support, one disk compensates for 1/4 inch per foot of slope. Using two to four disks, rotate one in relation to the other to create a level deck support.
 - 3. Shims may be used in multiples, whole or segmented, and placed under the base to level the deck support.

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4. Under a pedestal: All shims under a pedestal must be adhered to each other or the pedestal (NOT to the roofing membrane) with construction adhesive. Shim no more than 1/8 inch (3mm) beneath each pedestal.
5. On top of a pedestal: Use no more than 2 shims.
6. Versadjust Series Pedestal Bracing with Bison Brace
7. Excess Height: Required for added Stability for Installations 24"-36" in height
8. For Installations requiring additional stability.
9. One level of Bison Brace Collars must be installed at the mid-point height of the pedestal column. Once the standard height is established (i.e. 18" for 36" overall height) that same level of Collar placement must be maintained. NOTE: Final adjustment for top of deck height must be made prior to setting the standard height for the Brace Collars.
10. BB – S Short Bison Brace
11. Install around the outside perimeter of a walk deck where pedestals are installed where less than the typical 24" spacing occurs and shorter arms are required.
12. BB – L Long Bison Brace
13. Install in the interior area of a walk deck where pedestals and 23 - 7/8" x 23 - 7/8" surfacing panels are installed providing uniform 24" spacing.
14. Install Bison Braces by placing the two-hole brace ends over the self-locking pegs on Collar or base, fit brace arms together making sure all brace teeth are firmly interlocked and secure with Screw and Wing Nut. Braces should be installed as tightly as possible to create a rigid bracing system between each vertical pedestal column.
15. Two Bison Brace arms extend outward from each corner pedestal in perpendicular rows. This results in a series of braces attached to Collars (BB – C) in each horizontal direction from one side of the deck to the other and from one end to the other.
16. Once the horizontal perpendicular run(s) of Bison Braces are properly installed at the correct height(s), the deck surfacing panels may be installed as the decking system progresses.

2.7 DECK SUPPORT PLACEMENT AND FINAL ADJUSTMENT

- A. Deck supports and the deck surface panels must be placed as the manufacturer directs in these written instructions. Use of labor saving devices, such as paver lifters, is encouraged, especially on large jobs.
- B. Pedestals are designed to be rotated for final slight adjustment when pedestals are fully loaded. Deck supports should be leveled in each succeeding row as the installation proceeds. Final height adjustment or maintenance is easily made by simply rotating the base in a clockwise or counter-clockwise direction to raise or lower the deck surface material.
- C. Additional sections of shims may be used and should be available for regular maintenance. Shims may be used in multiples, whole or segmented, and placed under the base or on top the pedestal to level the deck support.
- D. On top of pedestal: Use construction adhesive to adhere sections of shims. Construction adhesive is not required when using whole shims on top of a pedestal.

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- E. Beneath a pedestal: Use a small amount of construction adhesive to adhere sections of shims and/or whole shims to each other or to the pedestal. Unless specified to do so, DO NOT use construction adhesive to adhere pedestal or shims to insulation, roofing or waterproofing membrane.

2.8 PERIMETER CONTAINMENT

- A. Any area of a 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 containment located at the outside of the deck must be installed to provide restraint. No movement should be allowed at the perimeter of the deck system greater than 1/8" .

2.9 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 panels or pavers are level and not rocking.
- B. Confirm that deck pedestal height does not exceed the specified height for the V Series:
- C. 24 inches (610mm) maximum pedestal height unless using the Bison Brace System.
- D. Unless otherwise specified in writing to allow for expansion, inspect to assure that all paver spacing between tiles and at perimeter containment does not exceed a 1/8" . 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.

2.10 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

2.11 IMMEDIATELY FOLLOWING INSTALLATION

- A. 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 1/8" spacing between any deck panels and at all sides of the deck perimeter.
 3. There is no ballasting rock used to fill in any perimeter voids.
 4. There is no 'rocking' of deck panels as foot traffic is applied to the surface decking.
 5. All required spacer tabs are in place and visible.

2.12 ROUTINE MAINTENANCE AND CARE

- A. Installer has a duty to instruct the deck owner about performing routine maintenance of the deck. Check for rocking pavers and adjust or shim immediately. Substrates can settle and pedestals may have to be readjusted. 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.

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PART 3.0 INSTALLATION

3.1 EXAMINATION

- A. Prior to starting work, 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. Notify the Architect in writing of conditions detrimental to the proper and timely completion of the work.
- B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.
- C. Verify that substrates, membranes, and protection boards are ready for installation of pedestal system, and pavers.
 - 1. The substrate that is to receive pedestals shall have positive slope to provide adequate drainage in accordance with good building practices.
 - 2. 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.

3.2 PREPARATION

- A. Establish accurate lines, levels, and pattern .
- B. Assure that the surface to accept the pedestals is clean and free of debris which would impair the performance of the pedestal system.
- C. Insulation and/or protection board must be applied over the waterproofing/roofing 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 Pedestal System bottom cap or Buffer Pad, by a minimum of 2-inches.

3.3 PEDESTAL SYSTEM INSTALLATION

- A. **GRID LAYOUT AND ELEVATIONS**
 - 1. Layout the paver and pedestal grid layout, starting point and finished elevations in accordance with approved shop drawings which have been reviewed by the A/E or Designer, installing Contractor and Owner's Representative.
- B. **LEVEL INSTALLATION**
 - 1. Establish starting point and finished elevation of the paver surface, 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. Take measurements, and provide two (2) perpendicular chalklines "snapped" on the surface to receive the pedestals. Use these lines as a reference to check the

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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 Pedestal System top cap, 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. Top Shims: Slight irregularities in paver thickness and/or deck heights, can be compensated for by using one or more of four pie-cut segments of Top Shims which is placed under a paver corner(s) atop the Top Cap at intersection quadrants.
6. Bottom Shims: Slight irregularities in paver thickness and/or deck heights (with additional slope requirements), can be compensated for by using one or more of the Bottom Shims which is placed below the Bottom Cap.
7. Buffer Pads and Protection Board: Install Buffer Pads and 12" x 12" x 3/8" thick protection board (W.R. Meadows "Vibraflex") below each Bottom Cap of the pedestal assembly, when installing the Pedestal System over:
 - a) Built-Up roofing (BUR) membranes that are installed over rigid or semi-rigid insulation;
 - b) Elastomeric type waterproof and/or roofing membrane coatings, so as to prevent damage to the membrane or coating system;

C. SLOPED INSTALLATION

1. Compensation to maintain a level paver surface over sloping substrates, can be accomplished using a combination of the following:
 - a) PVC Pipe length cut to varying lengths to compensate for slope;
 - b) Bottom Shims: Place one or more Bottom Shims under the Bottom Cap, to compensate for up to 1 inch per foot of slope.
 - c) Top Shims: Place the Top Shims (pie-shaped pieces) on to the Top Cap, in increments of 1/16 inch to precisely level the top on substrates with slope of up to 5/8 inch per foot.

D. PERIMETER CONTAINMENT

1. 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.

E. PEDESTAL JOIST PLATE SYSTEM

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1. Joist Plate is placed directly on a 4x6 treated wood joist (or where existing deck joists are 2x6 or 2x 8, "sister" another treated wood 2x to the sides of existing joists).
2. Joist Plate serves as a spacer both horizontally and vertically, at each quadrant of the paver or gauged natural product (stone or equivalent) suitable for a walking surface.
3. Screw or nail in, but with a stabilized edge restraint (perimeter containment – see paragraph above) for the pavers, and at the proper spacing for the pavers will serve to align and level pavers which are applied directly to wood joists.
 - a. If the pavers are an inconsistent depth, or the wood is not exactly level, the top and/or bottom shims can be used to adjust for the inconsistency.
4. The Joist Plate System can be used over built up roof decks where fixed heights are allowed, 1/8" above membrane.

3.4 PAVER INSTALLATION

- A. Install pavers in accordance with paver manufacturer's written instructions. Carefully align the Top Cap joint spacers with paver edges. Level pavers in each succeeding row.
- B. Install pavers tightly butted into pedestals. Form minimum joint widths.
- C. Shim or adjust to level and as necessary to prevent rocking of pavers.
- D. Installation Tolerances:
 1. Step in Face Alignment Between Paver Faces: Plus or minus 1/16 inch.
 2. Jog in Joint Alignment Between Paver Sections: Maximum 1/16 inch.
- F. Do not use pavers with chips, cracks, voids, stains, or other defects which might be exposed to view in the finished work.
- G. Machine cut pavers as necessary to fit the conditions indicated. Joints shall be no wider than the typical paver to paver joint.

3.5 FIELD QUALITY CONTROL

- A. Continuing and Final Inspection: Inspect often during installation to assure that grid (spacer) lines are straight and consistent, and that pavers are level, and where necessary, install Top or Bottom Shims;

confirm that heights in excess of fifteen (15) inches have been braced in accordance with MANUFACTURERS written instructions.

3.6 CLEANING

- A. Clean soiled surfaces using solution which will not harm concrete pavers. Consult paver supplier for recommended type.
- B. Use non-metallic tools in cleaning operations.

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	Model No.	Description	Height Range	Max Height
	 V1-18 V1-316	Adjustable Pedestal* (Select 1/8" or 3/16" Tab Size)	2 1/4" - 2 3/4"	2 3/4"
	 V2-18 V2-316	Adjustable Pedestal* (Select 1/8" or 3/16" Tab Size)	2 3/4" - 3 3/4"	3 3/4"
	 V3-18 V3-316	Adjustable Pedestal* (Select 1/8" or 3/16" Tab Size)	3 3/4" - 5 3/4"	5 3/4"
	 V4-18 V4-316	Adjustable Pedestal* (Select 1/8" or 3/16" Tab Size)	5 3/4" - 9"	9"
	 VC2	Quick Clip Coupler	Insert VC2 into V4 Base or other VC2s Adds 4" each	Utilize up to 4 VC2's to reach 24" Must use Bison Brace for 24"-36" in height
Tabs	 VT18 VT316	Tab	1/8" wide 3/16" wide	
	 VT18 VT316	Use for Ultra Low Support (Select 1/8" or 3/16" Tab Size)	1/8"	1/8"
Accessories	 HD25-18 HD25-316 HD50-18 HD50-316 HD75-18 HD75-316	Fixed Height Stackable Pedestals (Select 1/8" or 3/16" Tab Size)	1/4" 1/2" 3/4"	Stack up to 4
	 LO-18 LO-316	Low Height Adjustable Pedestal (Select 1/8" or 3/16" Tab Size)	1 1/4" - 2"	2"
	 B11	Flexible Shim	1/16"	1/16"
	 PS1	Rigid Shim	1/8"	1/8"
	 LD4	Base Leveler	1/4"-1" per foot slope Add up to 2 more with Versadjust	3/8" center thickness
	 FS1	Wood Tile Fastening Kit	Secure Bison Wood Tiles to pedestal system.	
	 BB Wedge	Bison Wedge Spacers	adds 3/16" in width nominal	
	 JT	Joist Top (Works with 2"x and 4"x Lumber)	adds 3/16" in height	
	 FIB	Floating Insulation Base	12" x 12" x 11/16" For use over roofing systems with less than 40 psi bearing capacity	
	 FFB	Floating Foundation Base	12" x 12" x 1/4" For use on grade (soil) under each pedestal.	

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END OF SECTION