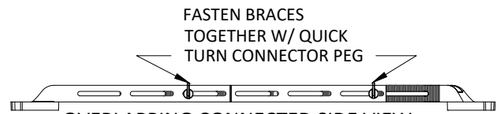
GENERAL NOTES:

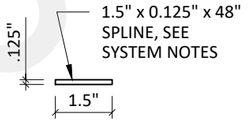
1. This Bison Slab Paver FS-150 High Wind System is an Independent Exterior Elevated Flooring System structurally designed and tested in accordance with the Florida Building Code, Building, 8th Edition, (2023) non-HVHZ regions, (FBC) and the 2024 International Building Code (IBC).
2. This Product Evaluation Document (PED) is prepared by the Product Engineer and is generic. It does not include information prepared for a specific site.
3. The Bison Slab Paver FS-150 High Wind System is designed and tested to resist the following Design Loads used in Strength Design Load Combinations in accordance with Section 1605.2 of the FBC:
   A. System Dead Load 26.5 psf ± 2 psf
   B. Superimposed Dead Load 10 psf
      Additional dead load features require additional pedestal supports and are outside the scope of these PEDs. Contact Bison technical support.
   C. Live Load 100 psf
   D. Positive Wind Load 60 psf
   E. Negative Wind Load - General Note 4.
4. The Bison Slab Paver FS-150 High Wind System is designed to resist uplift in accordance with the referenced code provided the building meets the limitations of ASCE 7-22 as defined in Figures 30.3-5A (footnote 5) or 30.4-1 and the application is within the limits defined in Tables 1 through 3.
5. The paver system uplift capacity is determined based on FIU's International Hurricane Research Center Test Report Numbers 2015-45:2 and 2015-058:6 and Design Guidelines for Roof Pavers Against Wind Uplift, ASCE/SEI Structures Congress, April 2015. This wind tunnel testing and research address the pressure equalization below the roof pavers and provides data and design criteria that address roof paver uplift in compliance with FBC Section 104.11, FBC Section 3115.4.4, and ASCE 7-22 Sections 30.1.5, 30.12 & Ch. 31.
6. For non-conforming buildings or buildings utilizing wind tunnel testing to determine uplift loads, the Design Professional of Record shall evaluate the uplift resistance considering the site specific conditions of the project or consult with the project's wind consultant.
7. This Bison Slab Paver FS-150 High Wind System is suitable for use only with the direct involvement of the Design Professional of Record for a specific site, a Licensed Professional Engineer or Registered Architect. The Design Professional of Record shall review these document to verify the following:
   A. The design criteria as indicated herein are applicable to the site-specific conditions.
   B. Where Table 1 is utilized to evaluate paver uplift capacity, the associated Table 1 notes are applied appropriately.
   C. Where Table 2A or 2B are utilized to evaluate paver uplift capacity, the associated Table 2 notes are applied appropriately.
   D. The ledger connections, parapet, and existing structure are designed to resist the superimposed loads shown herein.
   E. The roofing system has the capacity to support the Dead and Live loads and is compatible with the Independent Exterior Elevated Flooring System as shown herein.
   F. The slab Pavers utilized meet the requirement outlined in the Bison Slab Paver FS-150 High Wind System notes.
8. Uplift capacity for the paver system may be evaluated utilizing Table 1 to determine the maximum height 'h' for a given Basic Wind Speed 'V' or utilizing Table 2A or 2B to determine the maximum allowable roof component design pressures.
9. The Bison Slab Paver FS-150 High Wind System is not intended to be part of a Ballasted Roofing System and does not shield the underlying roofing system from wind loads. The underlying roofing system shall be capable of resisting the full design wind loads as appropriate for a specific project.
10. This PED addresses the structural performance of the system. Architectural, MEP, and fire classification issues are the responsibility of the Design Professional of Record.
11. For IBC compliance, reference IBC Section 1511.9.1 for perimeter enclosure requirements and IBC Section 1511.9.2 for fire classification requirements.
12. This PED shall bear the original or digitally authenticated signature, date, and seal of John W. Knezevich, P.E.
13. This PED is invalid if altered by any means.
14. This PED is the installation instructions portion of a product evaluation and shall only be used with the corresponding Product Evaluation Report.
15. Contractor shall obtain approval of the A/E of Record prior to ordering materials and coordinate material order with the approved system. Contractor shall install the paver system in compliance with this PED.

BISON SLAB PAVER FS-150 HIGH WIND SYSTEM NOTES:

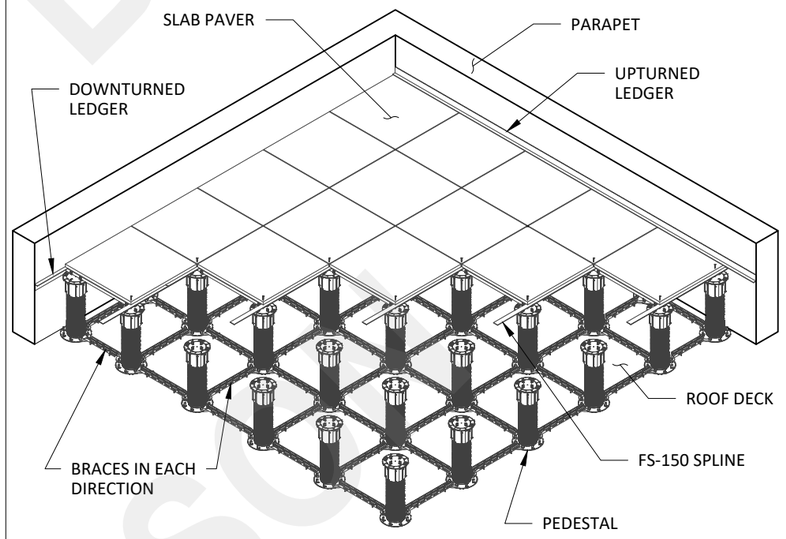
1. Slab pavers shall be concrete or stone with a 1-15/16" ± 3/16" thickness.
2. Concrete pavers shall have a minimum compressive strength, f'c = 5,000 psi when tested in accordance with ASTM C39.
3. Stone pavers shall have a minimum compressive strength of 12,000 psi when tested in accordance with ASTM C-170 and a minimum modulus of rupture of 2,000 psi when tested in accordance with ASTM C99. Values shall be based on the lowest values obtained testing parallel and perpendicular to bed under wet and dry condition
4. The A/E of Record may accept alternative nationally recognized standards verifying the compressive strength and modulus of rupture of the concrete or stone pavers.
5. Slab pavers shall have a continuous perimeter kerf cut to accommodate the required FS-150 spline. Kerf cuts shall be as detailed herein.
6. Typical paver size shall be a minimum of 18" x 18" and a maximum of 24" x 24". Rectangular and irregular shaped pavers within these sizes are acceptable. At perimeter rows or atypical locations such as diagonal or curved perimeters, a minimum paver dimension of 8" shall be maintained and the paver shall be engaged by a perimeter ledger support with FS-150 splines engaging the appropriate paver edge or edges. Additional pedestals shall be used at all edge discontinuities with the FS-150 spline fastened to all intersected pedestals.
7. Pavers may be placed in stack or running bond.
8. A solid parapet or curb with a minimum height of 12 inches above the finished pavers is required at the perimeter of paver installations. A flush curb is acceptable at entrances to enclosed spaces and interior deck finish transitions.
9. All pavers shall be continuously supported at the perimeter of the installation and all discontinuous interior edges with the ledger support details shown herein.
10. Pavers shall be installed with a 3/16" gap between pavers and a maximum gap of 3/16" between edge paver and perimeter constraint. Spacers shall be used to control the gap.
11. Pavers shall be installed with a cavity height between the bottom of pavers and the top of the underlying roof surface of no less than 1/2" and no more than 18".
12. Pedestal support system shall be either the Screwjack, Versadjust, or Level.It pedestal assemblies shown herein with a minimum weight of 0.4 psf.
13. Pedestals shall be placed at a maximum spacing of 24" o.c. each way and at all paver intersections with additional pedestals installed as required to support atypical conditions. Reference Bison installation instructions.
14. Pedestal braces shall be used between pedestals in each direction as shown in the F1 isometric detail.
15. Pedestals and braces shall be fabricated from Bison's B-PP-2025 polypropylene copolymer with a minimum tensile strength at yield in accordance with ASTM D638 of 3,200 psi loaded at 0.2"/min and a minimum flexural modulus in accordance with ASTM D790 of 275 ksi. B-PP-2025 subjected to 4500 hours of accelerated weathering in accordance with ASTM G155 exhibits less than a 10% change in yield strength.
16. FS-150 spline shall be fabricated from Bison's B-PP-2150 homopolymer polypropylene with a minimum tensile strength in accordance with ASTM D638 of 4,800 psi and a minimum flexural modulus in accordance with ASTM D790 of 180 ksi.
17. FS-150 splines shall be 0.125" x 1.5" flat strips with a maximum length of 4 feet and a minimum length of 1/2 paver dimension.
18. FS-150 splines shall be utilized between all pavers in one consistent direction of the installation. Splines shall be placed from edge to edge of installation, with splines butting at midpoint of an individual paver.
19. All paver joint intersections shall utilize the FS-150 spline and screw detail shown herein to connect adjacent pavers and fasten to the pedestals. For atypical conditions, reference Paver Layout Diagram shown herein.
20. Screws used for connecting the FS-150 spline to the pedestals shall be Bison FS-Trim Screws. Full screw diameter shall penetrate the pedestal a minimum of 1/8".
21. Installation of the paver system shall comply with Bison's installation instructions and this PED.



BB **BRACE**
SCALE: 1.5" = 1'-0"



FS150 **FS-150 SPLINE**
SCALE: 3" = 1'-0"



F1 **BISON SLAB PAVER FS-150 HIGH WIND SYSTEM ISOMETRIC**
NTS

J.W. KNEZEVICH LICENSE NO. 41961 STATE OF FLORIDA PROFESSIONAL ENGINEER
01/09/2025

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Bison Slab Paver
FS-150 High Wind System

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Client / Manufacturer:

Revisions

No.	Date	By	Description
0	01/09/2025	JWK	IBC 2024 Update, formerly KC23-0827

Scale: AS NOTED
Drawn by: JWK
Date: 01/09/2025

J.W. Knezevich
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Digitally signed by John W. Knezevich, PE

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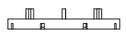
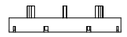
Drawing No.
KC25-0117
sheet 1 of 6

ACCEPTABLE PEDESTAL MODELS & COMPONENTS

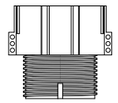
VB BASE LEVELER
SCREWJACK, VERSADJUST



HD50 1/2" PEDESTAL
SCREWJACK, VERSADJUST, LEVEL.IT



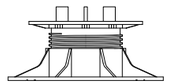
HD75 3/4" PEDESTAL
SCREWJACK, VERSADJUST, LEVEL.IT



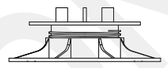
C4 4" COUPLER
SCREWJACK, LEVEL.IT

INTERCHANGABLE PEDESTAL COMPONENTS

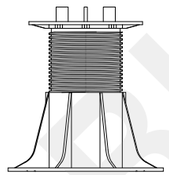
SCALE: 1.5" = 1'-0"



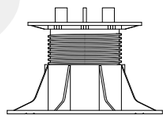
B2 2" - 3" VERTICAL RANGE



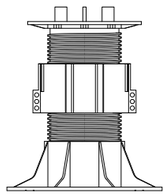
B1 1-1/4" - 2" VERTICAL RANGE



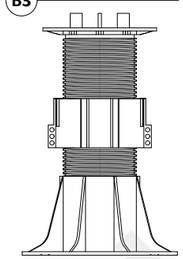
B4 4-3/4" - 7-3/4" VERTICAL RANGE



B3 3" - 4-3/4" VERTICAL RANGE

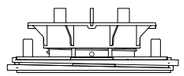


B3 + **C4** 7-3/4" - 9" VERTICAL RANGE

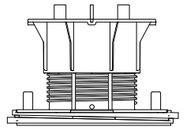


B4 + **C4** 9" - 12" VERTICAL RANGE
ADD ADDITIONAL C4 AS NEEDED FOR 12" TO 18" RANGE

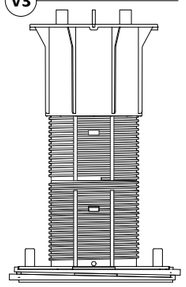
VT316 TAB CAP



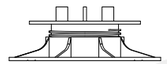
V1 2-1/4" - 2-3/4" VERTICAL RANGE



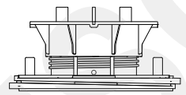
V3 3-3/4" - 5-3/4" VERTICAL RANGE



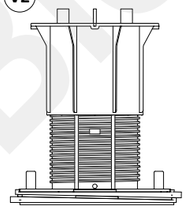
V4 + **VC2** 9" - 13" VERTICAL RANGE
COUPLER ADDS 4"
ADD ADDITIONAL VC2 AS NEEDED FOR 13" - 18" RANGE



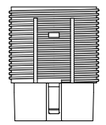
LO 1-1/4 - 2" VERTICAL RANGE



V2 2-3/4" - 3-3/4" VERTICAL RANGE

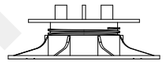


V4 5-3/4" - 9" VERTICAL RANGE

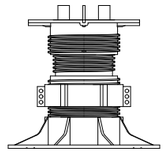


VC2 4" COUPLER

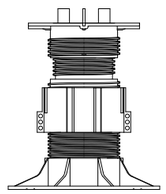
LT316 TAB CAP



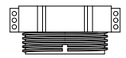
LO 1-1/4" - 2" VERTICAL RANGE



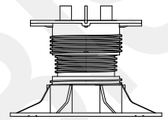
LC + **C1** 4-3/4" - 6-1/4" VERTICAL RANGE



LC + **C4** 6-1/4" - 8-3/4" VERTICAL RANGE
ADD ADDITIONAL C4 FOR 12" RANGE



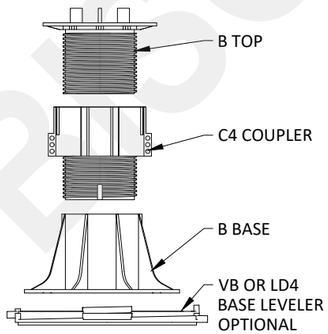
C1 2" COUPLER



LC 2" - 4-3/4" VERTICAL RANGE

SCREWJACK PEDESTAL COMPONENTS

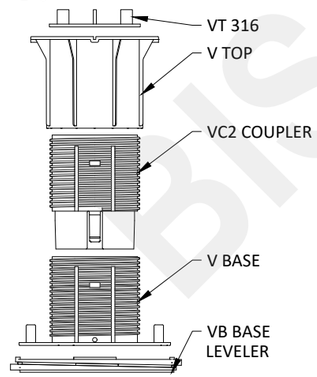
SCALE: 1.5" = 1'-0"



1 SCREWJACK PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"

VERSADJUST PEDESTAL COMPONENTS

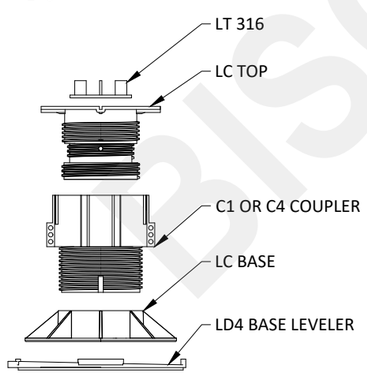
SCALE: 1.5" = 1'-0"



2 VERSADJUST PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"

LEVEL.IT PEDESTAL COMPONENTS

SCALE: 1.5" = 1'-0"



3 LEVEL.IT PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"

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Client / Manufacturer:
Bison Innovative Products
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Denver, CO 80204
T: 800-333-4234

Revisions

No.	Date	By	Descripton
0	01/09/2025	JWK	IBC 2024 Update, formerly KC23-0827

Scale: AS NOTED
Drawn by: JWK
Date: 01/09/2025

J.W. Knezevich
Professional Engineer
FL License No. PE 41961

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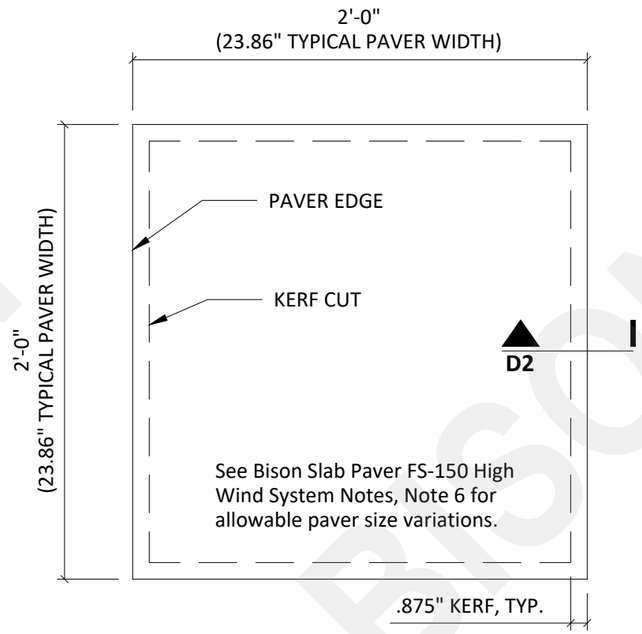
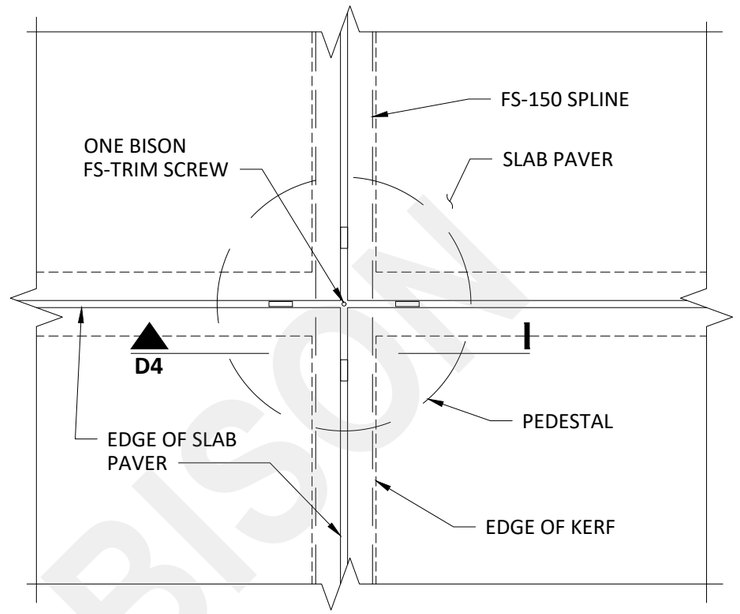
01/09/2025

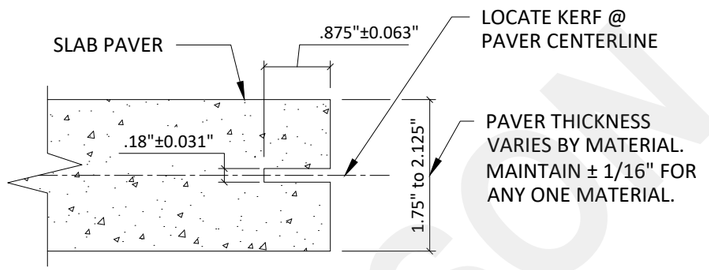
Drawing No.
KC25-0117
sheet 2 of 6



D1 SLAB PAVER TOP VIEW
SCALE: 1.5" = 1'-0"



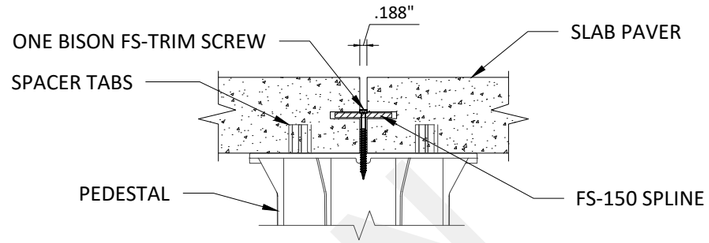
D3 FS-150 SPLINE CONNECTION - PLAN VIEW
SCALE: 3" = 1'-0"



SLAB KERF NOTES:

1. PROVIDE SLAB KERF AT ALL SIDES RECEIVING FS-150 SPLINE AND AT DOWNTURNED LEDGER SUPPORTS.
2. KERF MAY BE PROVIDED AT ALL SIDES TO FACILITATE COORDINATION OF PAVER LOCATIONS.

D2 TYPICAL SLAB KERF
SCALE: 6" = 1'-0"



D4 FS-150 SPLINE CONNECTION - SECTION
SCALE: 3" = 1'-0"

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Revisions

No.	Date	By	Description
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Scale: AS NOTED
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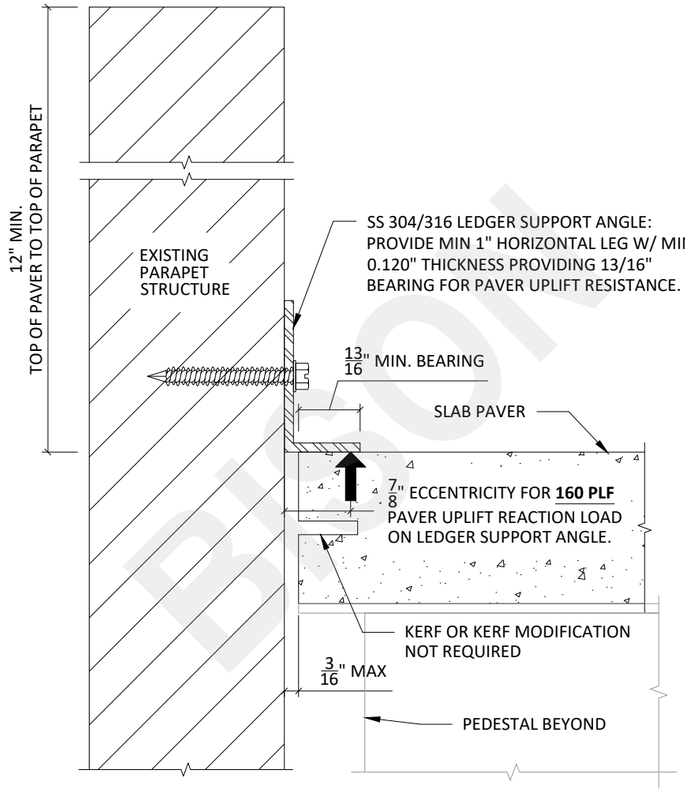
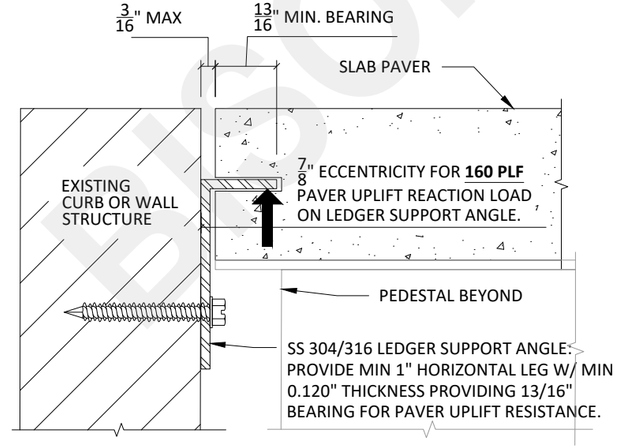
KC25-0117



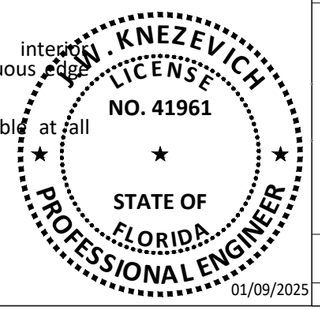
D5 UPTURNED LEDGER SUPPORT @ PARAPET
SCALE: 6" = 1'-0"



D6 DOWNTURNED LEDGER SUPPORT @ THRESHOLD
SCALE: 6" = 1'-0"

LEDGER SUPPORT NOTES:

1. Pavers shall be supported at all discontinuous edges with a ledger as shown.
2. Ledger support element may be upturned or downturned at all locations.
3. Connections to parapets are outside the scope of these Product Evaluation Documents as parapet conditions vary considerably. Design Professional of Record shall design the connections to parapet and verify the parapet is designed to resist a superimposed load as designated on the ledger support details with consideration for the moment induced by the eccentricity of the superimposed load.
4. Ledger anchorage shall be designed by the Design Professional of Record to support the USD superimposed load shown accounting for tension to resist rotation due to the eccentricity shown.
5. Alternative ledger support details are acceptable provided the minimum engagement of the paver in bearing is provided.
6. Uplift on the top surface of the parapet is in addition to the applied uplift load.
7. Loads are USD factored loads.
8. Fasten angle directly to structure, not through finishes except for maximum 1/8" thick flashing materials. Where fasteners penetrate waterproofing, architect shall provide for waterproofing of penetrations.
9. Splice ledger support as needed. Butt ends at splice and provide minimum 2 fasteners per piece. Provide first and last fastener a maximum of 3" horizontally from end of angle.
10. A minimum 12" high parapet is required at the perimeter of paver area unless the perimeter is more than 15 feet from a building edge.
11. Threshold conditions are acceptable at interior discontinuous edges provided the discontinuous edge is more than 15 feet from a building edge.
12. Threshold conditions at doors are acceptable at all interior areas.



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Bison Slab Paver
FS-150 High Wind System

Client / Manufacturer:
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Revisions

No.	Date	By	Description
0	01/09/2025	JWK	IBC 2024 Update, formerly KC23-0827

Scale: AS NOTED
Drawn by: JWK
Date: 01/09/2025

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sheet 4 of 6

Bison Slab Paver FS-150 High Wind System

Table 1: ASCE 7-22

Max Height vs Wind Speed			
Basic Wind Speed 'V' (mph)	Maximum Height 'h' (feet)		
	Exp B	Exp C	Exp D
≤ 135	500	500	500
≤ 140	500	500	334
≤ 145	500	391	223
≤ 150	500	280	151
≤ 155	486	203	103
≤ 160	383	149	72
≤ 165	304	110	50
≤ 170	243	82	35
≤ 175	195	61	25
≤ 180	158	47	18
> 180	N.A.	N.A.	N.A.

TABLE 1 NOTES:

1. The 'V' and 'h' limits provided in Table 1 are based upon the following:
   - A. Basic Wind Speed 'V' is determined based on Risk Category and local requirements.
   - B. Exposure Category "B", "C", or "D" is determined based on location and local requirements.
   - C. Roof deck surfaces are consistent with monoslope roofs ≤ 3 degrees.
   - D. Building is an enclosed building with GCpi = 0.18. The system is not rated for open, partially enclosed, or partially open buildings.
   - E. Site conditions, and shape and location of host building are representative of a Topographic Factor, Kzt = 1.0, a Ground Elevation Factor, Ke ≤ 1.0, and a Directionality Factor Kd = 0.85.
3. For N.A. values, the paver system is not adequate at any height 'h' for the noted Exposure and Wind Speed 'V'.
4. Values of 'h' or 'V' beyond those shown in Table 1 are outside the scope of these documents.

Table 2A - Mean Roof Height ≤ 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	-81.8 psf	-142.4 psf	-187.9 psf	-256.1 psf
ASD	-49.1 psf	-85.5 psf	-112.7 psf	-153.6 psf

Table 2B - Mean Roof Height > 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	N.A.	-119.7 psf	-187.9 psf	-256.1 psf
ASD	N.A.	-71.8 psf	-112.7 psf	-153.6 psf

TABLE 2A & 2B NOTES:

1. As an alternative to the Velocity vs Height values in Table 1, allowable uplift pressure for roof zones 1', 1, 2, & 3 as shown in Tables 2A & 2B may be utilized provided the building and component wind load calculations comply with the criteria below. For clarity, both USD and ASD allowable uplift pressures are provided.
   - A. Basic Wind Speed is determined based on Risk Category and local requirements.
   - B. Exposure Category "B", "C", or "D" is determined based on location and local requirements.
   - C. Building is an enclosed building with GCpi = 0.18. The system is not rated for open, partially enclosed, or partially open buildings.
   - D. Topographic Factor, Kzt as required for local conditions.
   - E. Effective Wind Area = 10 square feet.
   - F. Directionality Factor, Kd = 0.85
   - G. Ground Elevation Factor, Ke as permitted for local conditions.
   - H. Parapet Height = 1 ft. Load ratings are not applicable for loads reduced due to parapet height.
   - I. Roof deck surfaces are consistent with monoslope roofs ≤ 3 degrees.
   - J. Mean Roof Height ≤ 60 feet with GCp from Figure 30.3-2A (see Figure 30.3-5A, footnote 5) and reference Table 2A for Allowable Uplift Wind Pressures.
   - K. Mean Roof Height > 60 feet with GCp from Figure 30.4-1 and reference Table 2B for Allowable Uplift Wind Pressures.
2. The allowable uplift pressures noted herein shall be greater than a building's roof component design pressures.

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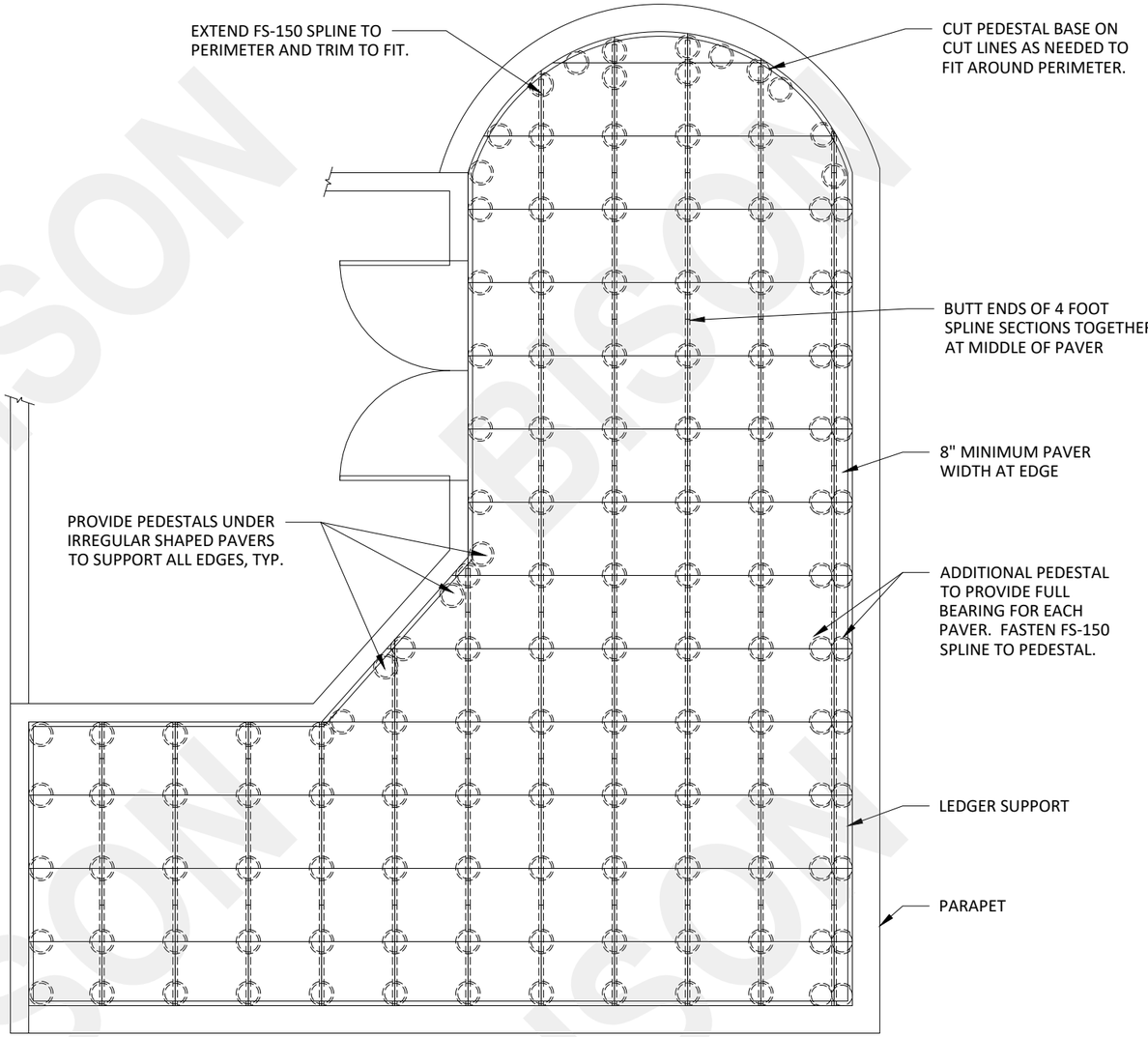

D7 **BISON SLAB PAVER FS-150 HIGH WIND SYSTEM LAYOUT DIAGRAM**
SCALE: 1/4" = 1'-0"

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