

GENERAL NOTES:

1.

This Bison Slab Paver FS-12 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-12 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-12 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 NHERI Experimental Facility Test Report Numbers 228e-02:3A PL & 3C L, 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-12 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 or 3 are utilized to evaluate paver uplift capacity, the associated Table 1 & 3 notes are applied appropriately.

C.

Where Table 2A, 2B, 4A, & 4B are utilized to evaluate paver uplift capacity, the associated Table 2A, 2B, 4A, & 4B 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-12 High Wind System notes.
8.

Uplift capacity for the paver system may be evaluated utilizing Table 1 or 3 to determine the maximum height 'h' for a given Basic Wind Speed 'V' or utilizing Table 2A, 2B, 4A, or 4B to determine the maximum allowable roof component design pressures.
9.

The Bison Slab Paver FS-12 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-12 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-12 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-12 splines engaging the appropriate paver edge or edges. Additional pedestals shall be used at all edge discontinuities with the FS-12 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 at least flush with the finished pavers is required at the perimeter and discontinuous edges of paver installations.
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.

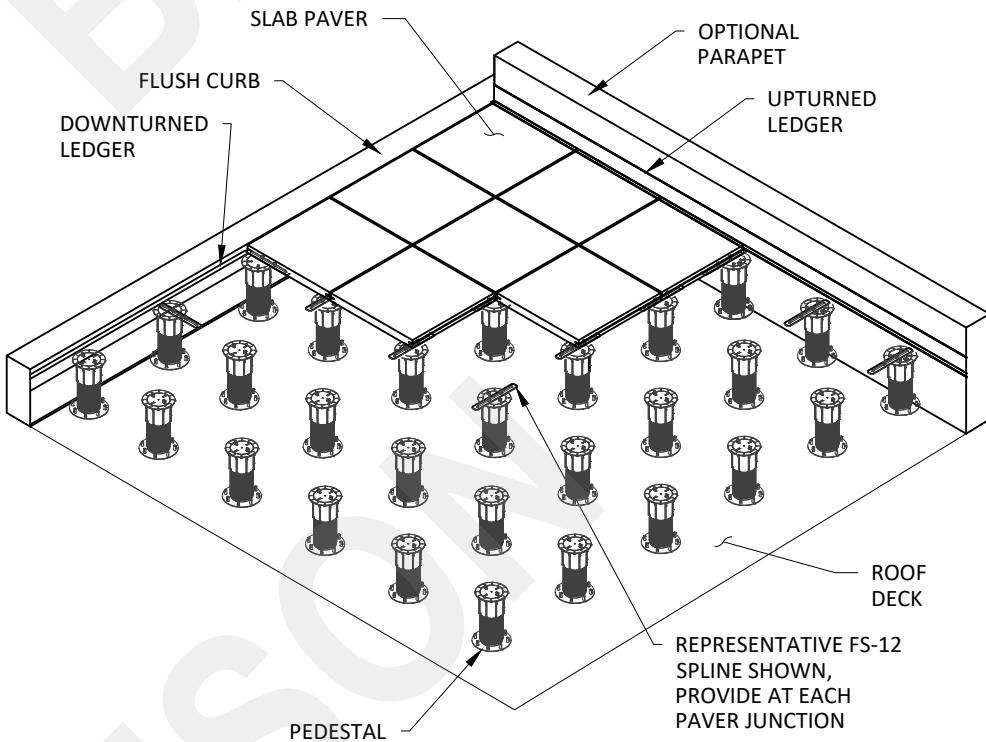
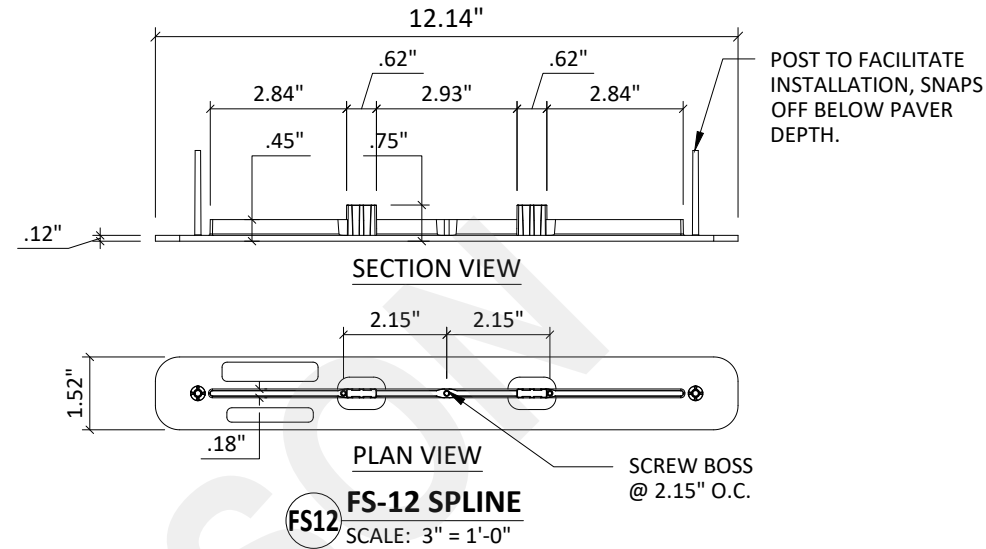
Pedestals shall be placed at a maximum spacing of 24" o.c. each way and at all paver intersections with additional pedestals installed as required to support atypical conditions. Reference Bison installation instructions.
14.

Pedestals and FS-12 spline 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.
15.

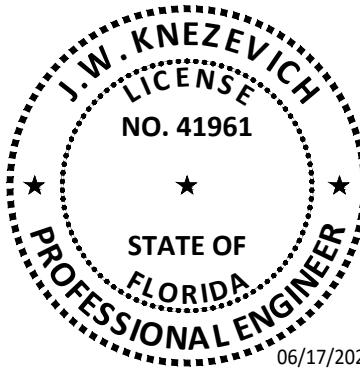
All paver joint intersections shall utilize the FS-12 spline and screw detail shown herein to connect adjacent pavers and fasten to the pedestals. For atypical conditions, reference Layout Diagram shown herein.
16.

Screws used for connecting the FS-12 spline to the pedestals shall be Bison FS-Trim Screws. Full screw diameter shall penetrate the pedestal a minimum of 1/8".
17.

Installation of the paver system shall comply with Bison's installation instructions and this PED.



F1 BISON SLAB PAVER FS-12 HIGH WIND SYSTEM ISOMETRIC
NTS



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CONSULTING

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Bison Slab Paver
FS-12 High Wind System

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Revisions		Description	By	Date
No.	0	JWK Issued for FBC 2023 Approval		06/16/2026

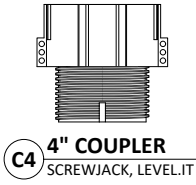
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Date: 6/16/2026

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

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Digitally signed by John W. Knezevich
Signature must be verified on any electronic copies.

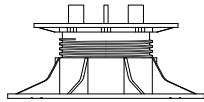
Drawing No.
KC26-0507
sheet 1 of 6

ACCEPTABLE PEDESTAL MODELS & COMPONENTS

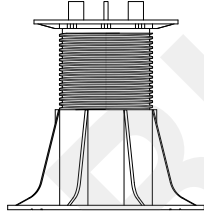


INTERCHANGABLE PEDESTAL COMPONENTS

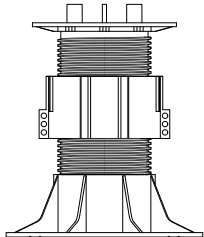
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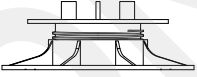
B2
2" - 3"
VERTICAL RANGE



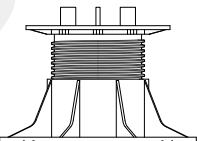
B4
4-3/4" - 7-3/4"
VERTICAL RANGE



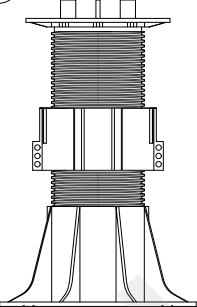
B3 + C4
7-3/4" - 9"
VERTICAL RANGE



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



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

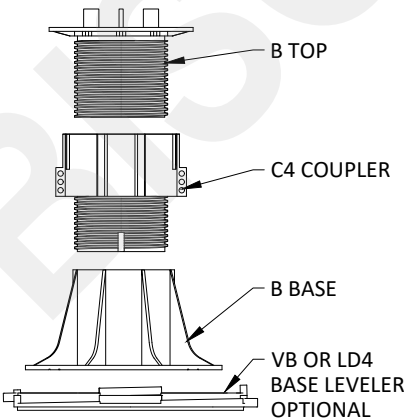


B4 + C4
9" - 12"
VERTICAL RANGE

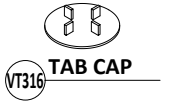
ADD ADDITIONAL C4 AS
NEEDED FOR 12" TO 18"
RANGE

SCREWJACK PEDESTAL COMPONENTS

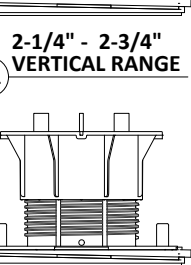
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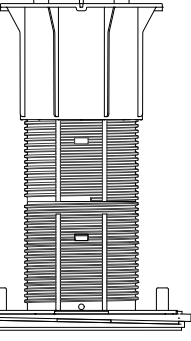
1
SCREWJACK PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"



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

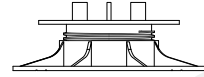


V3
3-3/4" - 5-3/4"
VERTICAL RANGE

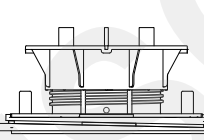


V4 + VC2
9" - 13"
VERTICAL RANGE

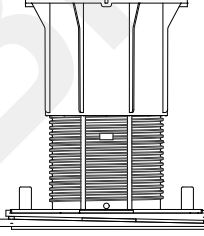
COUPLER ADDS 4"
ADD ADDITIONAL VC2 AS
NEEDED FOR 13" - 18" RANGE



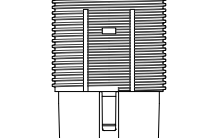
LO
1-1/4" - 2"
VERTICAL RANGE



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



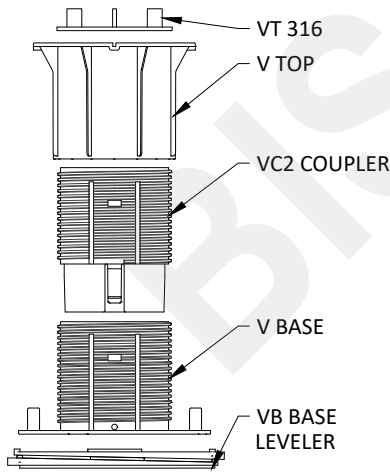
V4
5-3/4" - 9"
VERTICAL RANGE



VC2
4" COUPLER

VERSADJUST PEDESTAL COMPONENTS

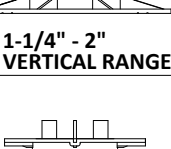
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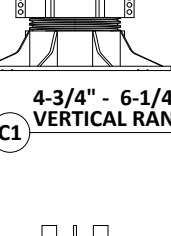
2
VERSADJUST PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"



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



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

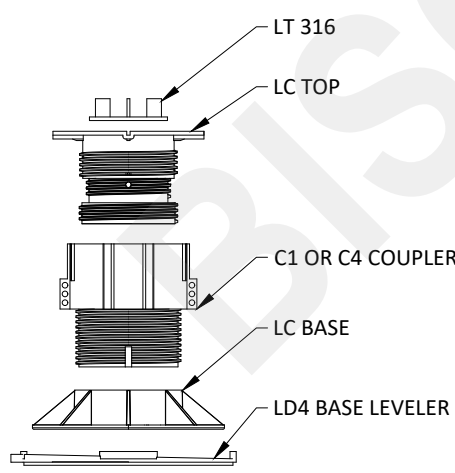


LC + C4
6-1/4" - 8-3/4"
VERTICAL RANGE

ADD ADDITIONAL C4
FOR 12" RANGE

LEVEL.IT PEDESTAL COMPONENTS

SCALE: 1.5" = 1'-0"



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

Revisions		Description	
No.	Date	By	
0	06/16/2026	JWK	Issued for FBC 2023 Approval

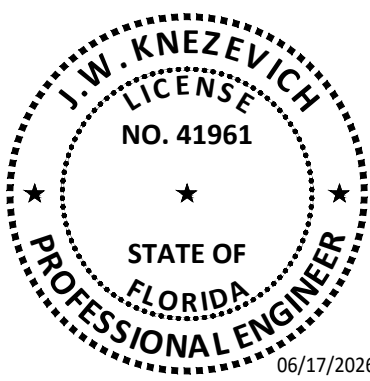
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Date: 6/16/2026

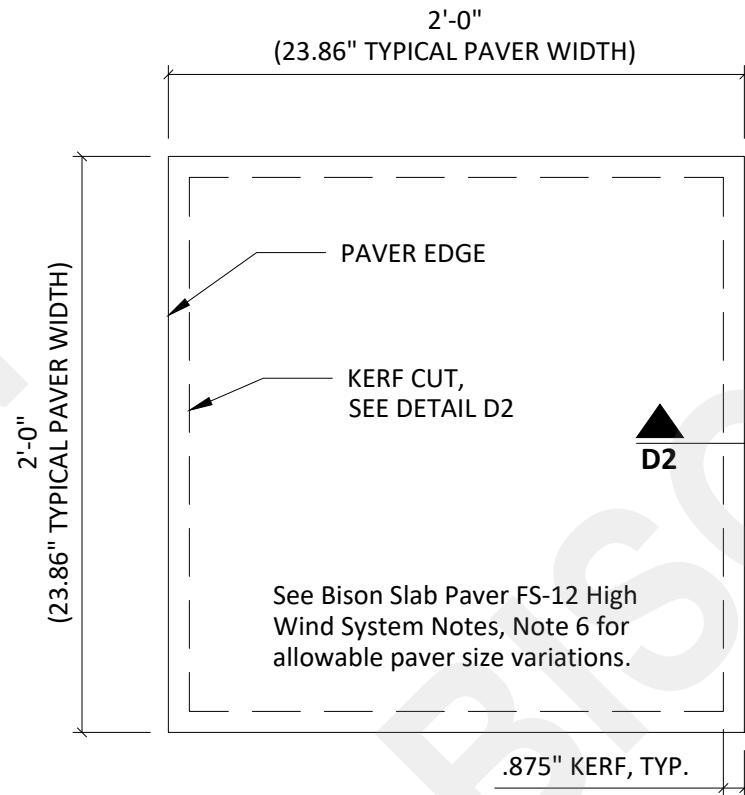
J.W. Knezevich
Professional Engineer
FL License No. PE 41961

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signed and sealed by
John W. Knezevich, PE
on the date adjacent to
the seal.

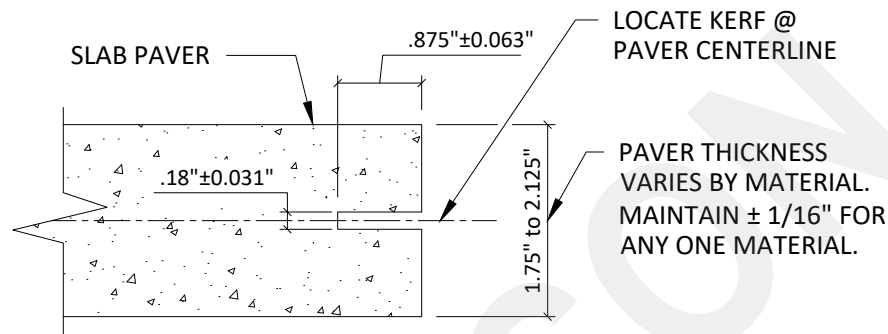
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Drawing No.
KC26-0507
sheet 2 of 6





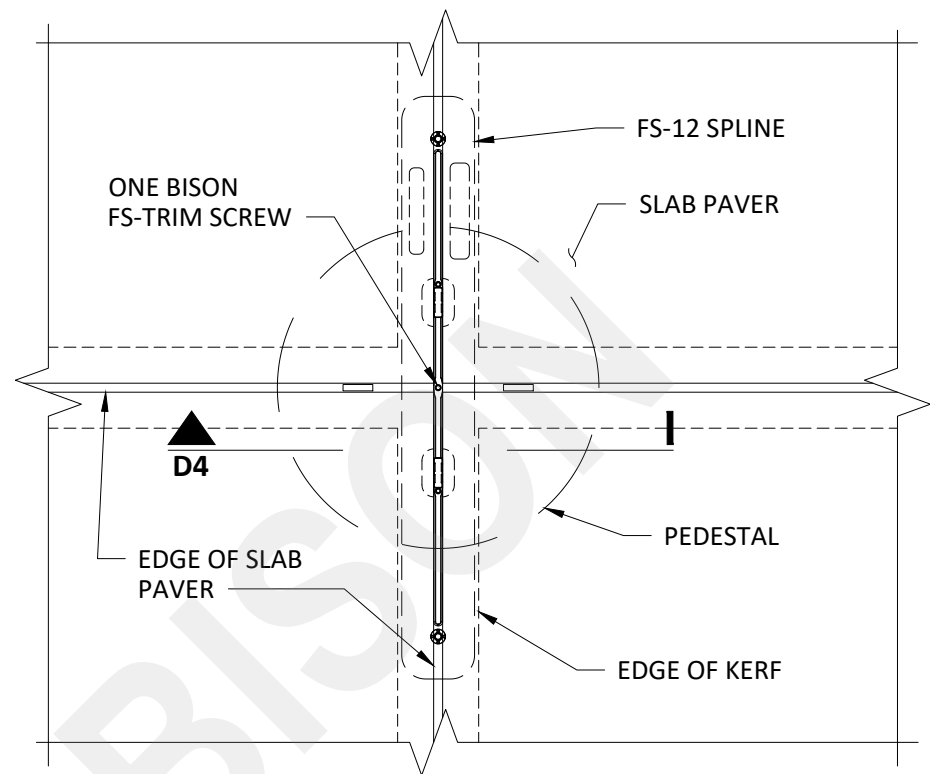
D1 SLAB PAVER TOP VIEW
SCALE: 1.5" = 1'-0"



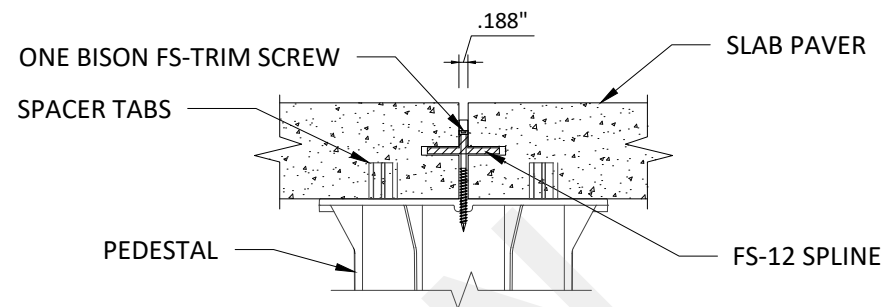
SLAB KERF NOTES:

1. PROVIDE SLAB KERF AT ALL SIDES RECEIVING FS-12 SPLINE AND AT DOWNTURNED LEDGER SUPPORTS.
2. KERF MAY BE PROVIDED AT ALL SIDES TO FACILITATE COORDINATION OF PAVER LOCATIONS.

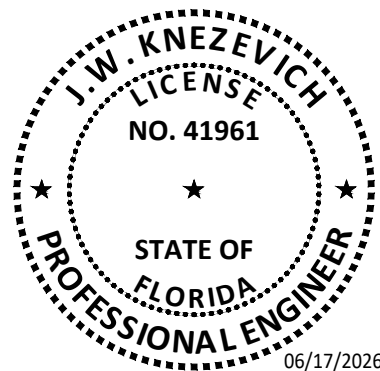
D2 TYPICAL SLAB KERF
SCALE: 6" = 1'-0"



D3 FS-12 SPLINE CONNECTION - PLAN VIEW
SCALE: 3" = 1'-0"



D4 FS-12 SPLINE CONNECTION - SECTION
SCALE: 3" = 1'-0"



Revisions		Description	
No.	Date	By	Description
0	06/16/2026	JWK	Issued for FBC 2023 Approval

Scale: AS NOTED

Drawn by: JWK

Date: 6/16/2026

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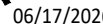
Signature must be verified on any electronic copies.

Drawing No.
KC26-0507
sheet 3 of 6



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 or curbs are outside the scope of these Product Evaluation Documents as parapet and curb conditions vary considerably. Design Professional of Record shall design the connections to parapet or curb and verify the parapet or curb 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 or curb 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.



FLUSH PARAPET CONDITON

TABLES FOR USE WITH FLUSH OR 12-INCH PARAPET CONDITIONS

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
≤ 100	500	500	311
≤ 105	500	321	177
≤ 110	487	203	103
≤ 115	349	131	62
≤ 120	253	86	38
≤ 125	186	58	23
≤ 130	139	39	15
≤ 135	104	27	N.A.
≤ 140	79	19	N.A.
≤ 150	47	N.A.	N.A.
≤ 160	29	N.A.	N.A.
≤ 170	18	N.A.	N.A.
> 170	N.A.	N.A.	N.A.

Table 2A: ASCE 7-22; Mean Roof Height ≤ 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	-41.2 psf	-71.7 psf	-94.6 psf	-129.0 psf
ASD	-24.7 psf	-43.0 psf	-56.8 psf	-77.4 psf

Table 2B: ASCE 7-22; Mean Roof Height > 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	N.A.	-60.3 psf	-94.6 psf	-129.0 psf
ASD	N.A.	-36.2 psf	-56.8 psf	-77.4 psf

12-INCH PARAPET CONDITON

TABLES FOR USE WITH 12-INCH PARAPET CONDITION ONLY

Table 3: ASCE 7-22

Max Height vs Wind Speed			
Basic Wind Speed 'V' (mph)	Maximum Height 'h' (feet)		
	Exp B	Exp C	Exp D
≤ 125	500	500	500
≤ 130	500	500	352
≤ 135	500	398	228
≤ 140	500	278	150
≤ 145	476	197	100
≤ 150	369	141	68
≤ 155	288	102	46
≤ 160	227	75	32
≤ 165	180	55	22
≤ 170	144	41	16
≤ 175	116	31	N.A.
≤ 180	94	23	N.A.
> 180	N.A.	N.A.	N.A.

Table 4A: ASCE 7-22; Mean Roof Height ≤ 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	-71.2 psf	-123.9 psf	-163.5 psf	-222.8 psf
ASD	-42.7 psf	-74.3 psf	-98.1 psf	-133.7 psf

Table 4B: ASCE 7-22; Mean Roof Height > 60 feet

Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	N.A.	-104.1 psf	-163.5 psf	-222.8 psf
ASD	N.A.	-62.5 psf	-98.1 psf	-133.7 psf

TABLE 1 & 3 NOTES:

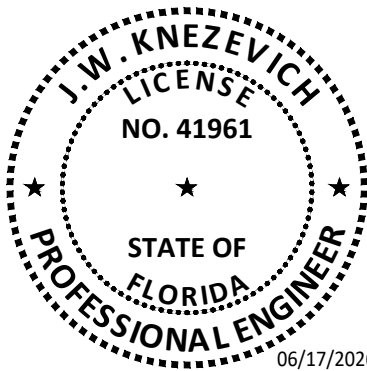
- The 'V' and 'h' limits provided in Table 1 & 3 are based upon the following:
 - Basic Wind Speed 'V' is determined based on Risk Category and local requirements.
 - Exposure Category "B", "C", or "D" is determined based on location and local requirements.
 - Roof deck surfaces are consistent with monoslope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

TABLE 2A, 2B, 4A, & 4B NOTES:

- As an alternative to the Velocity vs Height values in Table 1 or 3, allowable uplift pressure for roof zones 1', 1, 2, & 3 as shown in Tables 2A, 2B, 4A, & 4B 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.
 - Basic Wind Speed is determined based on Risk Category and local requirements.
 - Exposure Category "B", "C", or "D" is determined based on location and local requirements.
 - Building is an enclosed building with GCpi = 0.18. The system is not rated for open, partially enclosed, or partially open buildings.
 - Topographic Factor, Kzt as required for local conditions.
 - Effective Wind Area = 10 square feet.
 - Directionality Factor, Kd = 0.85
 - Ground Elevation Factor, Ke as permitted for local conditions.
 - Parapet Height = 0 or 1 ft. Load ratings are not applicable for loads reduced due to parapet height.
 - Roof deck surfaces are consistent with monoslope roofs ≤ 3 degrees.
 - Mean Roof Height ≤ 60 feet with GCp from Figure 30.3-2A (see Figure 30.3-5A, footnote 5) and reference Table 2A or 4A for Allowable Uplift Wind Pressures.
 - Mean Roof Height > 60 feet with GCp from Figure 30.4-1 and reference Table 2B or 4B for Allowable Uplift Wind Pressures.
- The allowable uplift pressures noted herein shall be greater than a building's roof component design pressures.

12-INCH PARAPET CONDITION NOTES:

- Tables 3, 4A, & 4B are only applicable when the following conditions are met:
 - 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.
 - Flush curb conditions are acceptable at interior discontinuous edges provided the discontinuous edge is more than 15 feet from a building edge.
 - Flush curb conditions at doors are acceptable at all interior areas.



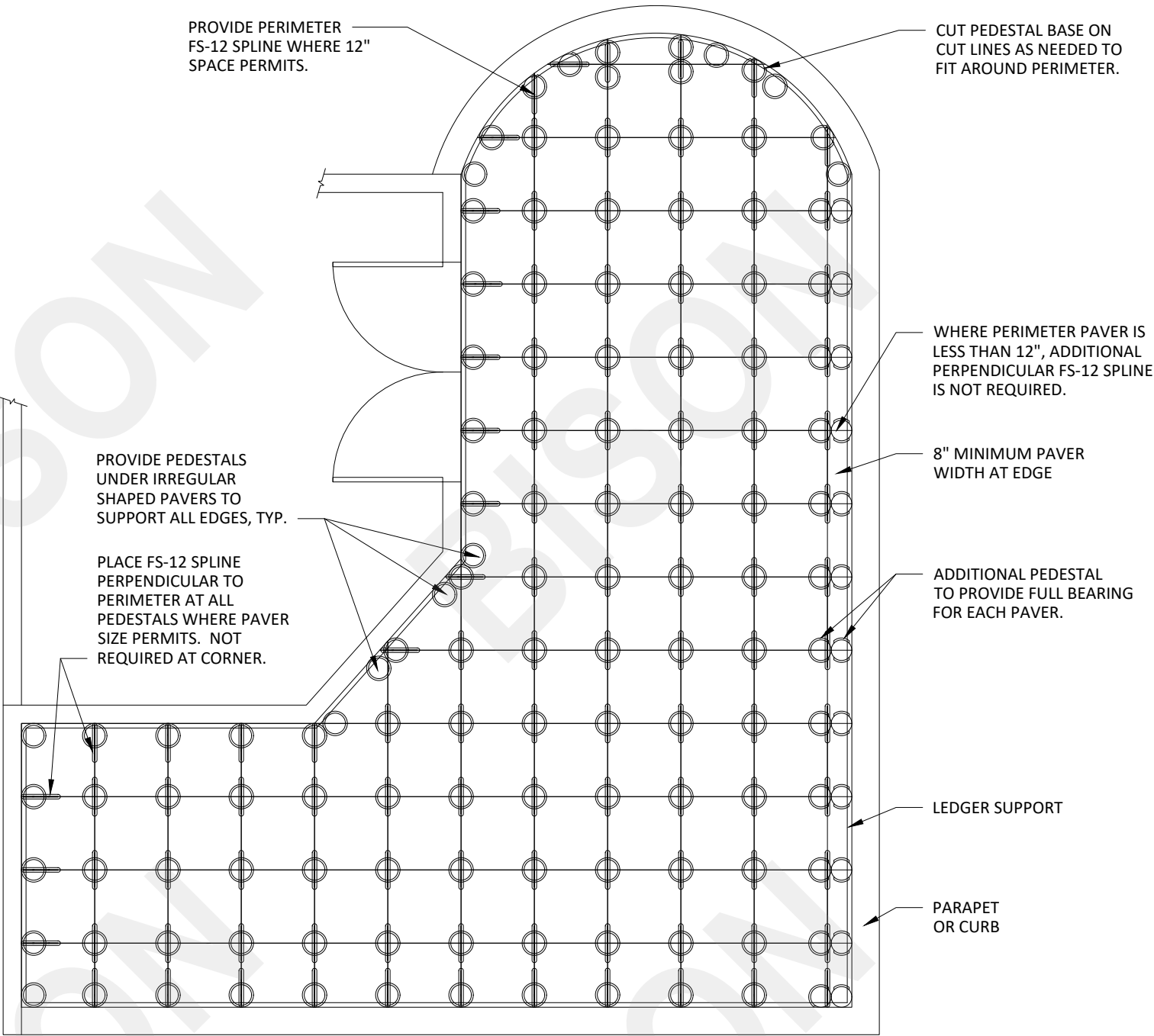
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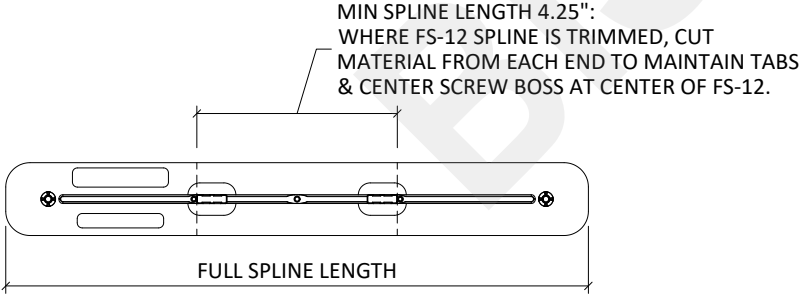
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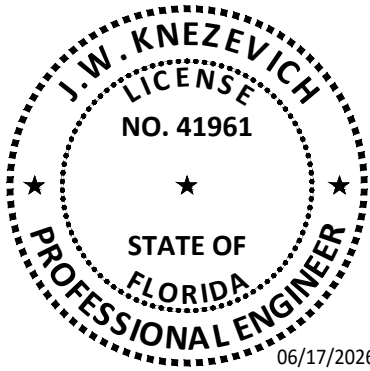
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D7 BISON SLAB PAVER FS-12 HIGH WIND SYSTEM LAYOUT DIAGRAM
SCALE: 1/4" = 1'-0"



D8 FS-12 SPLINE TRIM POINTS
SCALE: 3" = 1'-0"



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Bison Slab Paver
FS-12 High Wind System

Bison Innovative Products

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Revisions		Description	
No.	Date	By	
0	06/16/2026	JWK	Issued for FBC 2023 Approval

Scale: AS NOTED
Drawn by: JWK
Date: 6/16/2026
J.W. Knezevich
Professional Engineer
FL License No. PE 41961

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