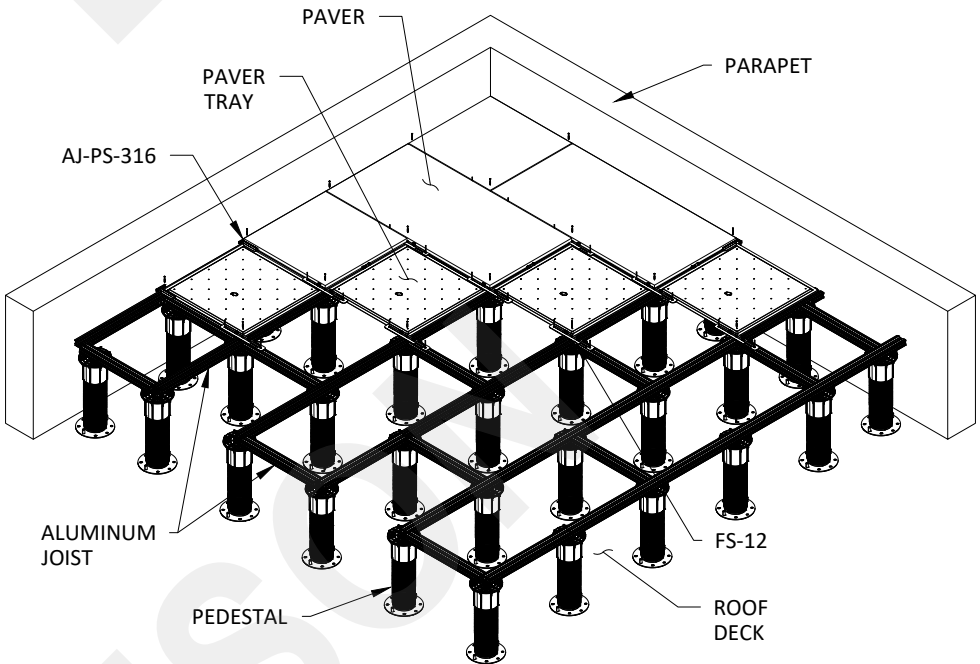


GENERAL NOTES:

1. This Bison 2cm Paver Aluminum Joist 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 2cm Paver Aluminum Joist 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 12 psf ± 2 psf
- B. Superimposed Dead Load
- Additional dead load features require additional pedestal supports or closer joist spacing and are outside the scope of these PEDs.
- C. Live Load 100 psf
- D. Positive Wind Load 60 psf
- E. Negative Wind Load - Reference General Note 4.
4. The Bison 2cm Paver Aluminum Joist Wind System is designed to resist uplift in accordance with the referenced codes provided the building meets the limitations of ASCE 7-22 as defined in Figures 30.3-5A (footnote 5) and 30.4-1 and the application is within the limits defined in Tables 2, 3A, or 3B.
5. The Bison 2cm Paver Aluminum Joist Wind System uplift capacity is determined based on FIU's NHERI Experimental Facility Project Number 2022-189e, Bison Project #6, Report 3: Bison Aluminum Joist System dated September 2022, Test Case 8b; 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 deck boards and provides data and design criteria that address uplift in compliance with FBC Section 104.11, FBC Section 3115.4.4, IBC Section 104.2.3, 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 2cm Paver Aluminum Joist 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 this document to verify the following:
- A. The design criteria as indicated herein are applicable to the site-specific conditions.
- B. Where Table 2 is utilized to evaluate system uplift capacity, the associated Table 2 notes are applied appropriately.
- C. Where Table 3A or 3B are utilized to evaluate system uplift capacity, the associated Table 3 notes are applied appropriately.
- D. 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.
8. Uplift capacity for the Bison 2cm Paver Aluminum Joist Wind System may be evaluated utilizing Table 2 to determine the maximum height 'h' for a given Basic Wind Speed 'V' or utilizing Table 3A or 3B to determine the maximum allowable roof component design pressures.
9. The Bison 2cm Paver Aluminum Joist 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, PE.
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 Bison 2cm Paver Aluminum Joist Wind System in compliance with this PED.

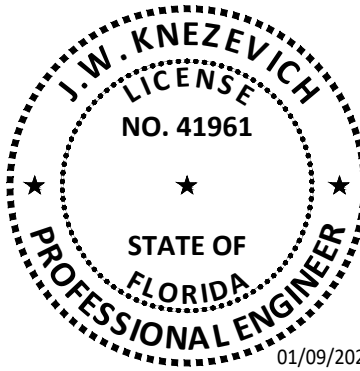
BISON 2cm PAVER ALUMINUM JOIST WIND SYSTEM NOTES:

1. 2 cm pavers shall be 0.787" (2 cm) thick ± 1/16" with a minimum weight of 9.0 psf and a maximum weight of 13.0 psf.
2. 2 cm pavers shall be porcelain pavers with a minimum ultimate flexural strength of 6,000 psi determined by testing in accordance with ASTM C1161. Alternatively, pavers may be tested in accordance with ASTM E2322 with paver size and supports consistent with that specified herein. ASTM E2322 testing may be conducted with or without the Bison Paver Tray and results shall verify an ultimate uniform load capacity of 600 psf. The A/E of record may accept alternative nationally recognized standards verifying the minimum paver flexural strength specified.
3. 2 cm pavers shall be supported on a galvanized steel Bison Paver Tray manufactured by Bison as detailed herein. Bison Paver Tray shall have a min. 0.037" thickness and conform to ASTM A653 CS Type B, galvanized with a G90 coating.
4. Pavers shall be adhered to Bison Paver Tray using 3M 550 Fast Cure Polyurethane Adhesive Sealant with a min 1/8" Ø bead pattern applied to the tray as detailed herein and in accordance with 3M's installation instructions. Reference Bison's Installation Guide for additional details.
5. Adhesive surface preparation: Bison Paver Tray and 2 cm paver shall be clean and dry prior to applying adhesive such that surfaces are free from grease, oil, water, dirt, and other contaminants.
6. Adhesive shall cure for 24 hours oriented with the paver on top such that the paver weight is applied to the tray. Cure prior to allowing foot traffic on pavers.
7. Alternate adhesives are acceptable provided paver to tray adhesion shall achieve an average tensile strength of 74 psi when tested in accordance with ASTM C297 utilizing the actual bonding area of the test sample and the adhesive is applied to the paver trays in accordance with System Notes 4-6 and details T1-T6.
8. Typical paver sizes are specified in Table 1A and 1B. Table 1A sizes shall be placed in stack bond only.
9. Paver trays shall be supported on aluminum joists utilizing the AJ-RS Bearing Pad on top of joists.
10. FS-12 splines shall engage paver joints as detailed herein and be fastened to joists at each intersection and a maximum spacing of 24".
11. 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.
12. Paver shall be installed with a cavity height between the bottom of paver tray and the top of the underlying roof surface of no less than 1.625" and no more than 18".
13. A solid parapet or curb with a minimum height of 12" 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.
14. Pedestal support system shall be either the Screwjack, Versadjust, or Level.It pedestal assemblies shown herein with a minimum weight of 0.4 psf.
15. Pedestal shall be placed at a maximum spacing of 24" o.c. each way with additional pedestals installed as required to support atypical conditions. Reference Bison installation instructions.
16. 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 4,500 hours of accelerated weathering in accordance with ASTM G155 shall exhibit less than a 10% change in yield strength.
17. All paver joint intersections shall utilize the FS-12 spline and screw detail shown herein to connect adjacent pavers and fasten to the joists. For atypical conditions, reference Paver Layout Diagram shown herein.
18. Screws used for connecting the FS-12 spline and the AJ-PS-316 to the aluminum joist shall be Bison #8 FS-Trim Screws manufactured from 304 or 316 stainless steel or shall be coated to prevent corrosion and/or hydrogen-assisted stress corrosion cracking. A 1/8" Ø pilot hole is required through both aluminum walls allowing full screw diameter to penetrate the first joist wall.
19. Fire response characteristics are not part of this PED. The A/E of Record shall verify the system complies with the requirements of the Authority Having Jurisdiction.
20. Installation of the paver system shall comply with Bison's installation instructions and this PED.



BISON 2cm PAVER ALUMINUM JOIST WIND SYSTEM ISOMETRIC

A1 NTS



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Bison 2cm Paver Aluminum Joist Wind System

Bison Innovative Products

BISON

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Revisions		Description	
No.	Date	By	Description
0	01/09/2025	JWK	IBC 2024 Update, formerly KC25-0828

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

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

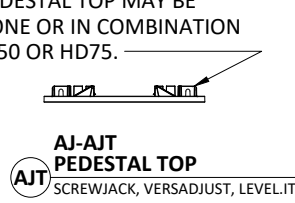
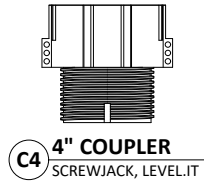
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Digitally signed by John W. Knezevich, PE

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KC25-0118
sheet 1 of 8

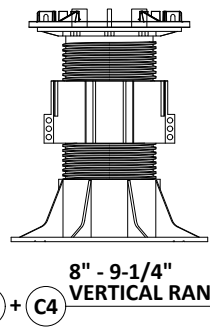
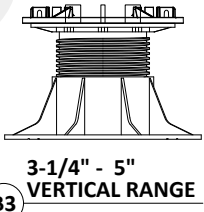
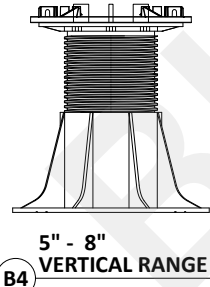
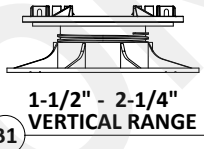
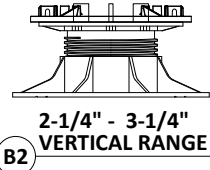
ACCEPTABLE PEDESTAL MODELS & COMPONENTS



AJ-AJT PEDESTAL TOP MAY BE USED ALONE OR IN COMBINATION WITH HD50 OR HD75.

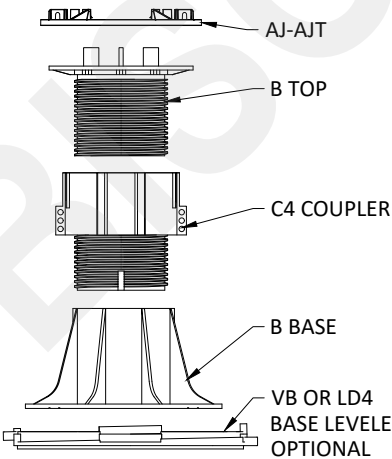
INTERCHANGABLE PEDESTAL COMPONENTS

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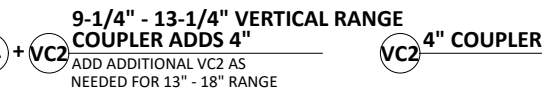
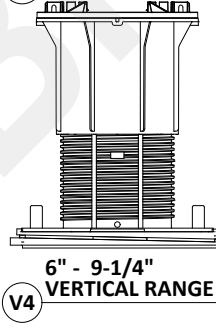
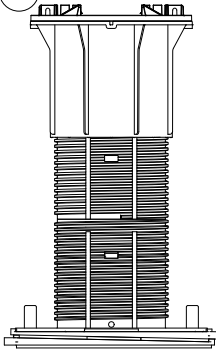
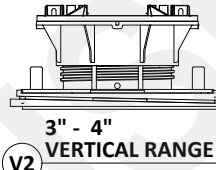
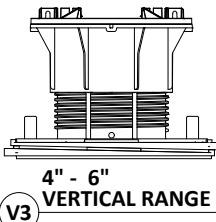
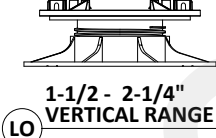
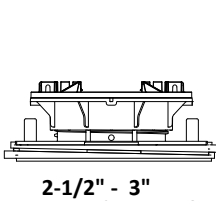


SCREWJACK PEDESTAL COMPONENTS

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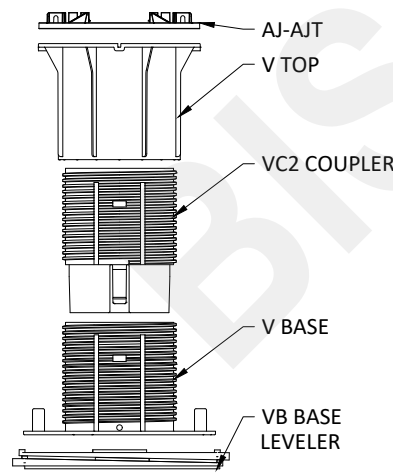


1 SCREWJACK PEDESTAL ASSEMBLY
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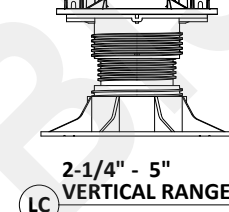
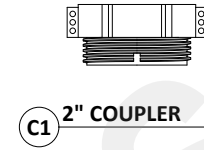
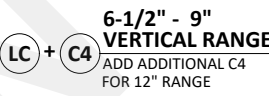
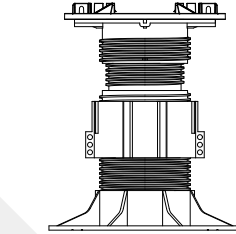
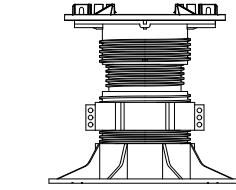
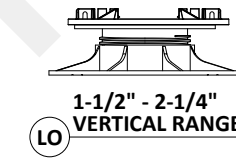


VERSADJUST PEDESTAL COMPONENTS

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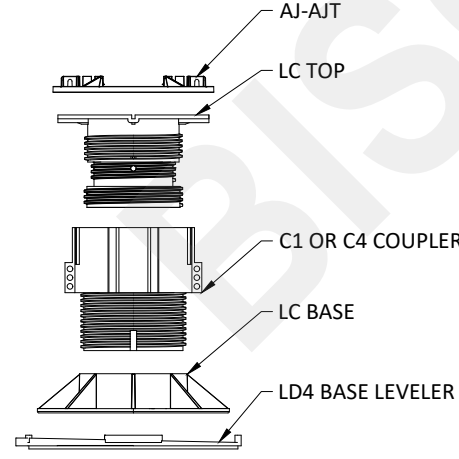


2 VERSADJUST PEDESTAL ASSEMBLY
SCALE: 1.5" = 1'-0"



LEVEL.IT PEDESTAL COMPONENTS

SCALE: 1.5" = 1'-0"



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

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No.	Date	By	Description
0	01/09/2025	JWK	IBC 2024 Update, formerly KC25-0828

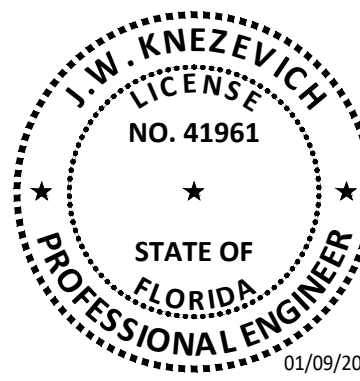
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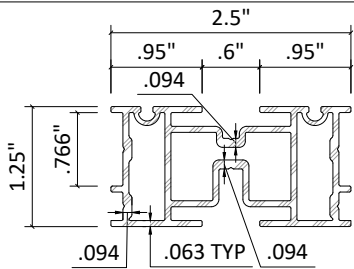
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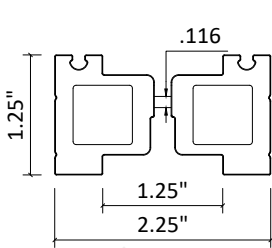
Drawing No. **KC25-0118**
sheet 2 of 8





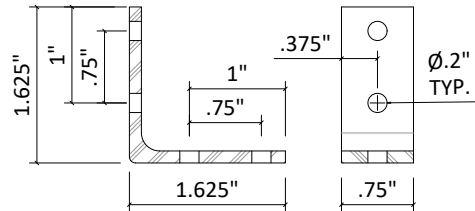
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ALUMINUM JOIST

P1 SCALE: 6" = 1'-0" 6063-T6 ALUM



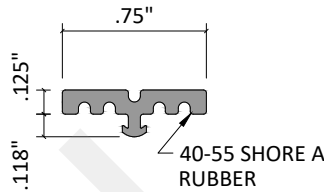
AJ-JP END CAP

P2 SCALE: 6" = 1'-0" B-PP-2025



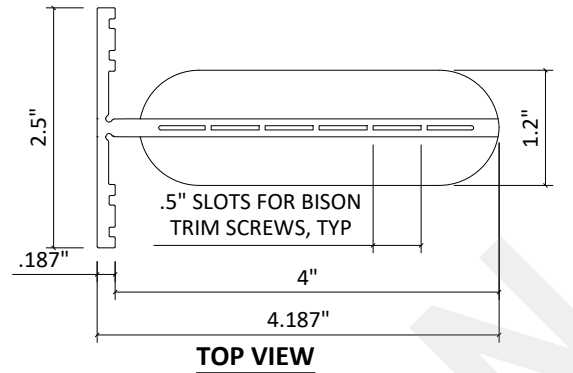
AJ-AB ANGLE BRACE

P3 SCALE: 6" = 1'-0" 6063-T6 ALUM



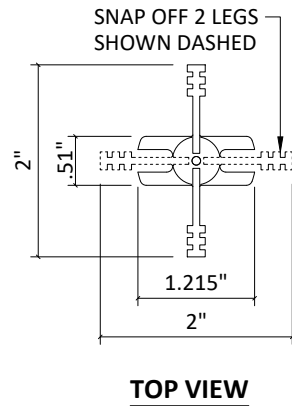
AJ-RS BEARING PAD

P4 SCALE: 1'-0"=1'-0"



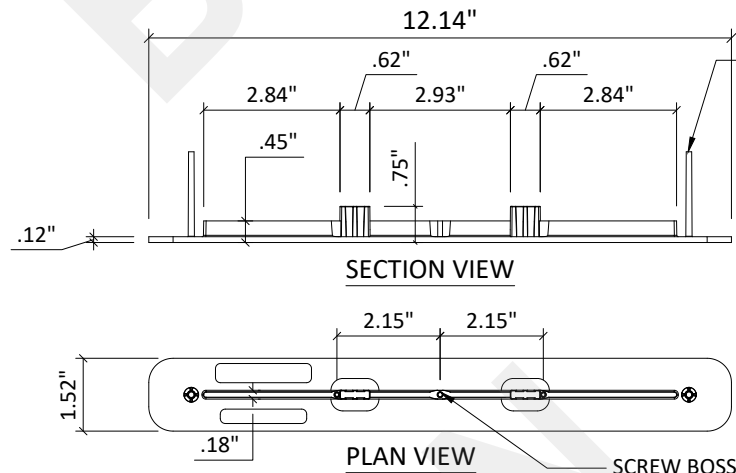
AJ-PS-316
PERIMETER SPACER

P5 SCALE: 6" = 1'-0" B-PP-2025



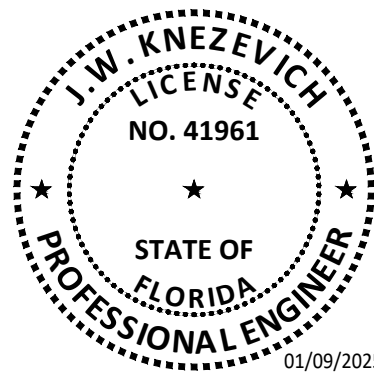
AJ-TL-316
TWIST LOC TAB SET

P6 SCALE: 6" = 1'-0" B-PP-2025



FS-12 SPLINE

FS12 SCALE: 3" = 1'-0"



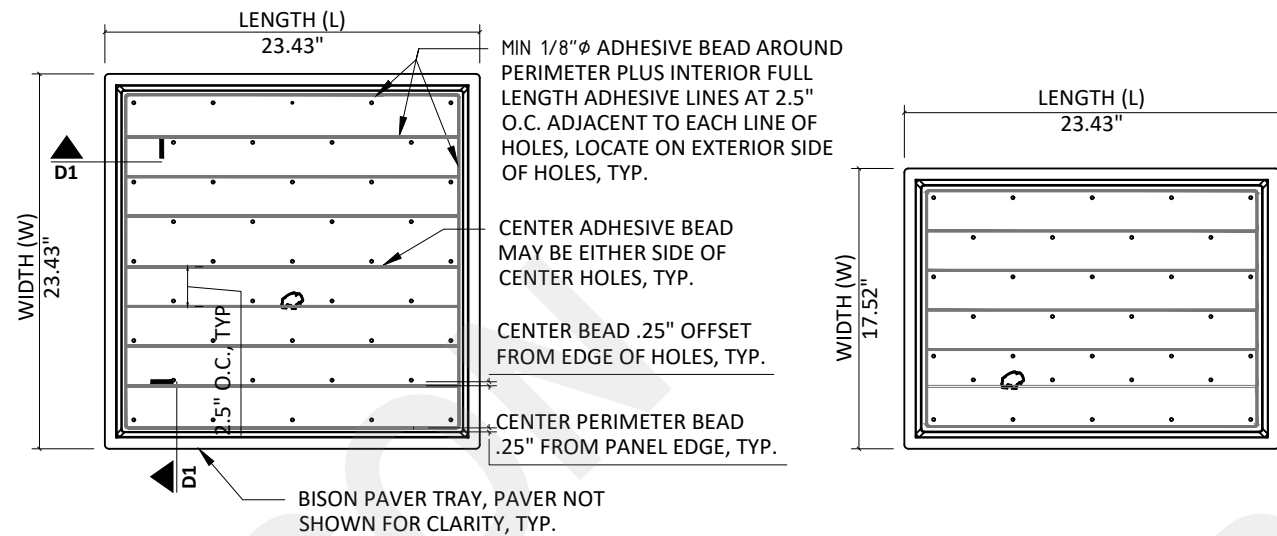
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Date: 01/09/2025

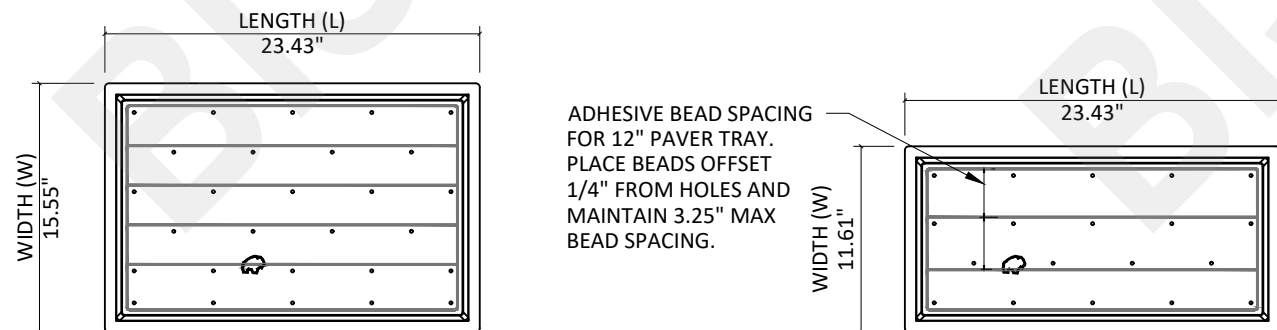
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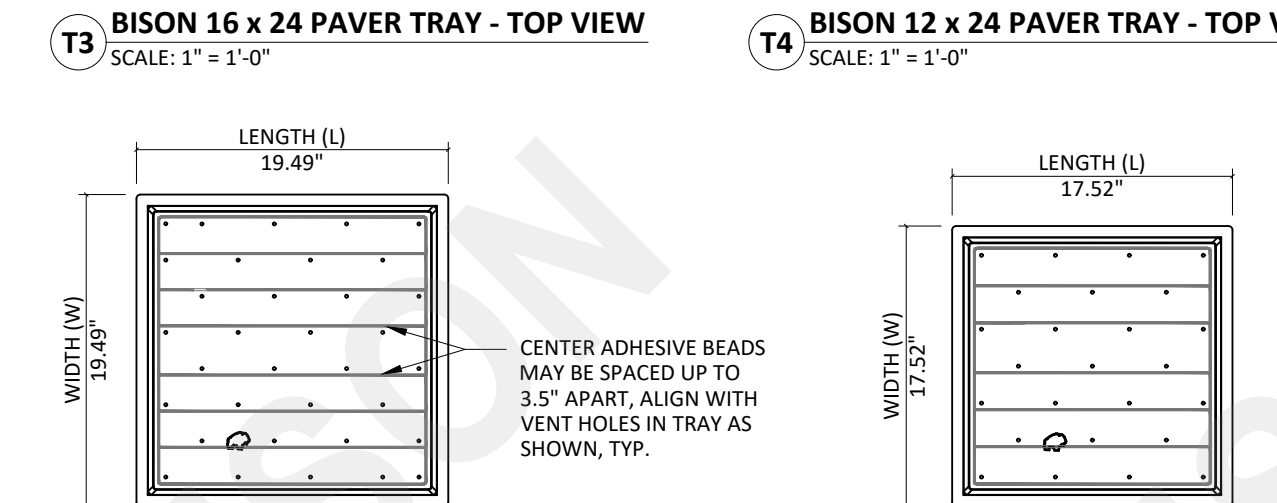
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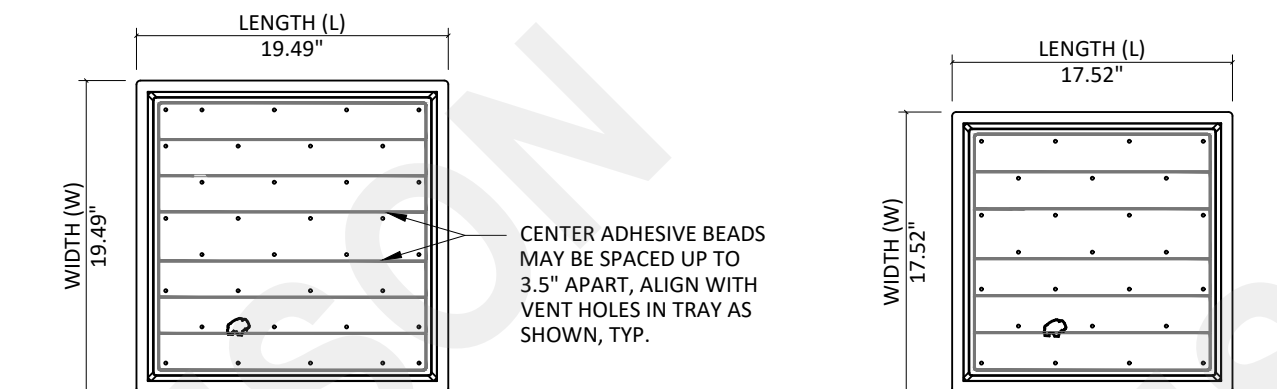
T1 BISON 24 x 24 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"



T2 BISON 18 x 24 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"



T3 BISON 16 x 24 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"



T4 BISON 12 x 24 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"

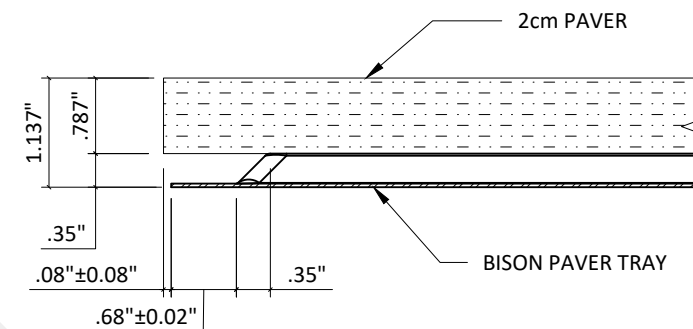


T5 BISON 20 x 20 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"

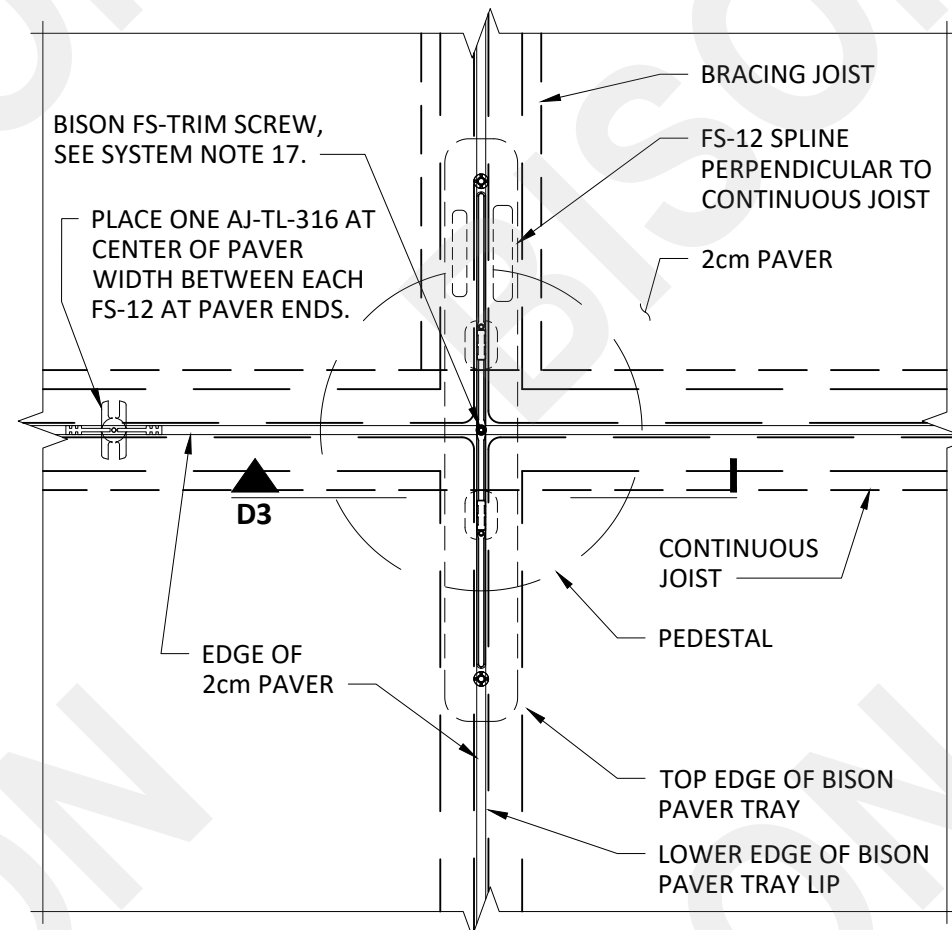


T6 BISON 18 x 18 PAVER TRAY - TOP VIEW
SCALE: 1" = 1'-0"

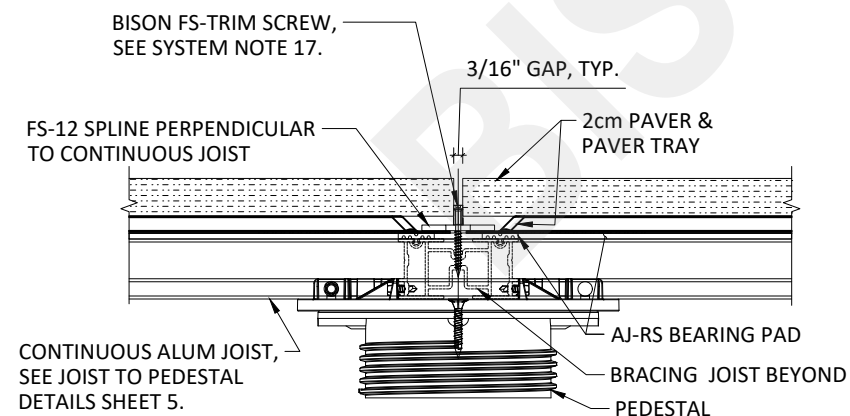
BISON PAVER TRAYS WITH ADHESIVE LAYOUTS



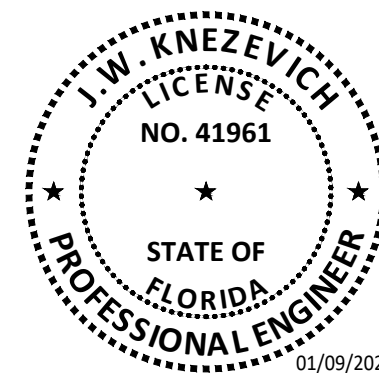
D1 BISON PAVER TRAY & 2cm PAVER EDGE DETAIL
SCALE: 6" = 1'-0"



D2 FS-12 SPLINE CONNECTION - PLAN VIEW
SCALE: 3" = 1'-0"



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



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Scale: AS NOTED

Drawn by: JWK

Date: 01/09/2025

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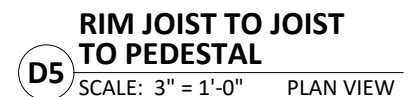
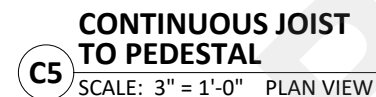
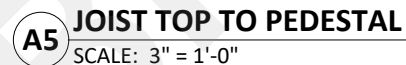
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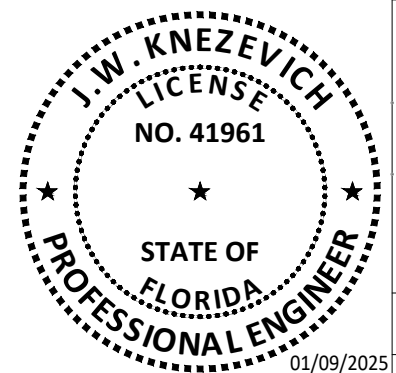
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01/09/2025

Bison 2cm Paver Aluminum Joist Wind System
Paver Length 18" to 48"

Table 1A: Paver Length 18" - 24"

Allowable Paver & Tray Sizes		
W (in)	L (in)	Paver Tray Type
24	24	T1
18	24	T2
16	24	T3
12	24	T4
20	20	T5
18	18	T6

Table 1B: Paver Length 36" - 48"

Allowable Paver & Tray Sizes		
W (in)	L (in)	Paver Tray Type
24	48	T1 + T1
18	48	T2 + T2
16	48	T3 + T3
12	48	T4 + T4
20	40	T5 + T5
18	36	T6 + T6

TABLE 1A & 1B NOTES:

- Table 1A provides the paver sizes that may be used for the typical paver when the layout uses paver lengths of 18" to 24".
- Table 1B provides the paver sizes that may be used for the typical paver when the layout uses paver lengths of 36" to 48".
- Reference Table 2, 3A, or 3B for these typical paver sizes.
- Table 1A paver sizes shall be used in stack bond only.
- Table 1B paver sizes may be used in stack or running bond.
- Sizes outside these ranges may only be used at terminating conditions with joist support and an 8" minimum paver size shall be maintained.

Table 2: ASCE 7-22

Max Height vs Wind Speed			
Basic Wind Speed 'V' (mph)	Maximum Height 'h' (feet)		
	Exp B	Exp C	Exp D
≤ 95	500	495	295
≤ 100	500	299	163
≤ 105	454	185	93
≤ 110	320	117	54
≤ 115	229	76	32
≤ 120	166	50	20
≤ 130	91	22	N.A.
≤ 140	52	N.A.	N.A.
≤ 150	31	N.A.	N.A.
≤ 160	19	N.A.	N.A.
> 160	N.A.	N.A.	N.A.

TABLE 2 NOTES:

- The 'V' and 'h' limits provided in Table 2 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 2 are outside the scope of these documents.

Table 3A: ASCE 7-22; Mean Roof Height ≤ 60 feet

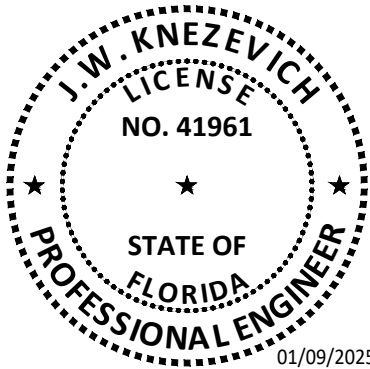
Allowable Uplift Wind Pressures				
USD / ASD	Zone 1'	Zone 1	Zone 2	Zone 3
USD	-36.9 psf	-64.2 psf	-84.6 psf	-115.3 psf
ASD	-22.1 psf	-38.5 psf	-50.8 psf	-69.2 psf

Table 3B: 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.	-53.9 psf	-84.6 psf	-115.3 psf
ASD	N.A.	-32.4 psf	-50.8 psf	-69.2 psf

TABLE 3A & 3B NOTES:

- As an alternative to the Velocity vs Height values in Table 2, allowable uplift pressure for roof zones 1', 1, 2, & 3 as shown in Tables 3A & 3B 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 = 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 3A for Allowable Uplift Wind Pressures.
 - Mean Roof Height > 60 feet with GCp from Figure 30.4-1 and reference Table 3B for Allowable Uplift Wind Pressures.
- The allowable uplift pressures noted herein shall be greater than a building's roof component design pressures.



Revisions	No.	Date	By	Description
	0	01/09/2025	JWK	IBC 2024 Update, formerly KC25-0828

Scale: AS NOTED

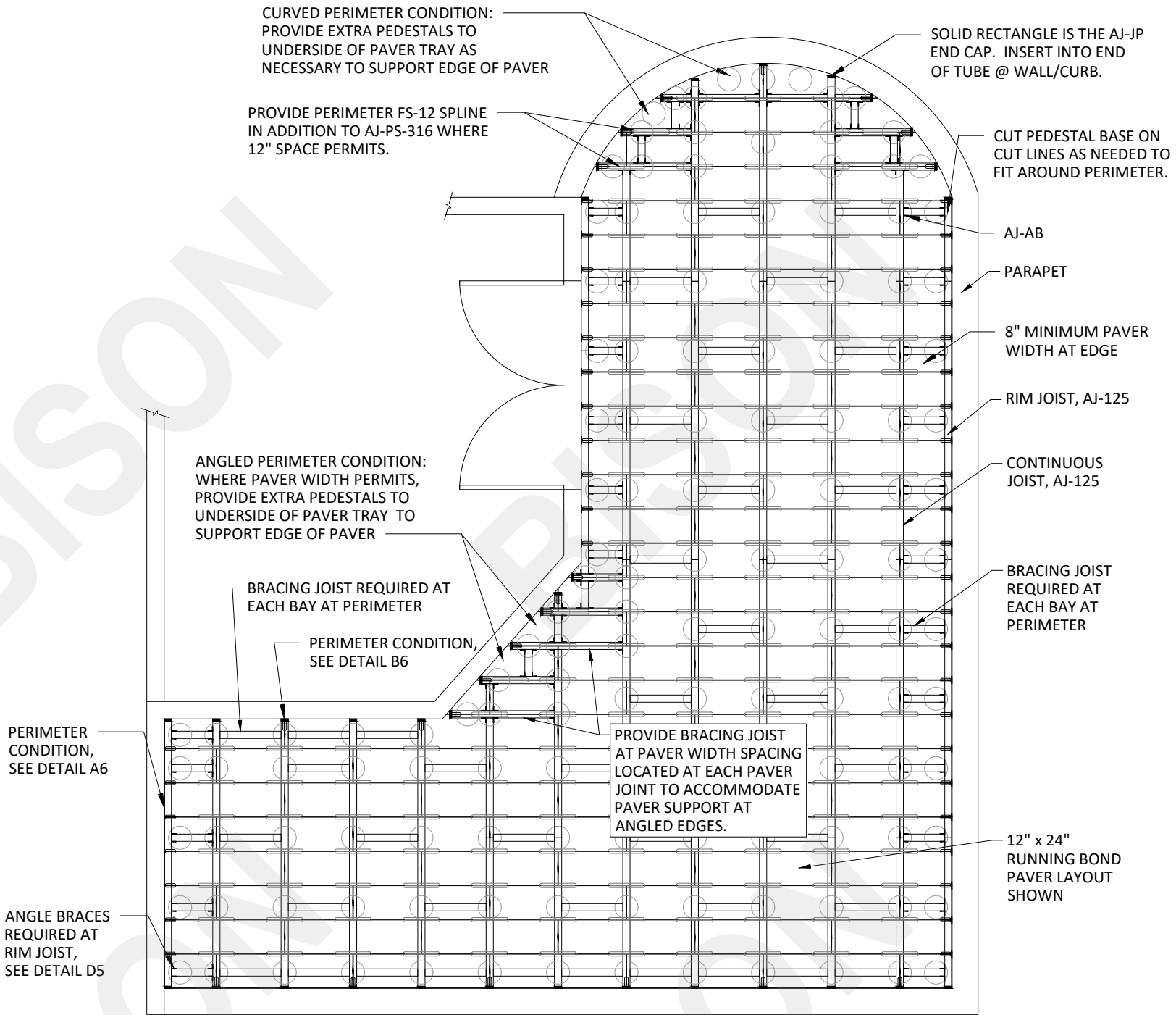
Drawn by: JWK

Date: 01/09/2025

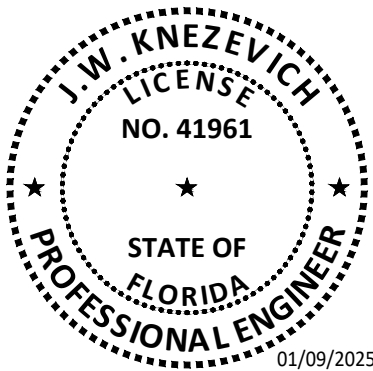
J.W. Knezevich
Professional Engineer
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A8 BISON 2cm PAVER ALUMINUM JOIST WIND SYSTEM LAYOUT DIAGRAM
SCALE: 1/4" = 1'-0"



Revisions		Description	
No.	Date	By	Description
0	01/09/2025	JWK	IBC 2024 Update, formerly KC25-0828

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

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