



42" H System

2024 International Residential Code Report

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Peak™ 42” Cable Railing System

Engineering Review for Compliance with 2024 International Residential Code

Peak Products USA Corporation
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Submitted November 14, 2024 by
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1 Overview

The Peak™ Cable Railing System is intended to act as a guard or barrier to protect the public from a fall. The objectives were to complete a structural review of the structural components based in accordance with applicable material standards and the 2024 International Residential Code (IRC).

The following specified loads apply:

- Concentrated load of 200 pounds applied in any direction at any point along the top rail.
- Horizontally applied normal load of 50 pounds on an area equal to 1 square foot.

Material resistances will be determined in accordance with the respective design code AA-ADM-1 Aluminum Design Manual 2020.

In this report, the following structural components were reviewed:

1.1 Infill Elements

- 1/8" dia, 1x19 Stainless Steel Cable Infill per ASTM A495 Type 316 at Railing Assembly - Dwg. Title "Peak Cable Railing - Railing Assembly"
- 1/8" dia, 1x19 Stainless Steel Cable Infill per ASTM A495 Type 316 at Stair Assembly - Dwg. Title "Peak Cable Railing - Stair Assembly"

1.2 Rail Elements

- Mid-Post with part name "post-mid-extru-cable3_42" - Dwg. Title "Peak Cable Railing Posts"
- End-Post with part name "post-end-extr-cable7_42in" - Dwg. Title "Peak Cable Railing Posts"
- Corner-Post with part name "post-corner-extru-cable2_42in" - Dwg. Title "Peak Cable Railing Posts"
- Hand rail with part name "hand-rail_cable1_42in" - See Report Assembly Drawings
- Base rail with part name "base-rail_cable rail" - See Report Assembly Drawings
- Stair hand rail with part name "AR35-RAIL-TR2-V14.6_Main-Cable"- See Report Assembly Drawings

1.3 Connectors

- Base rail support bracket with part name “AR36-base rail support” – Dwg. Title “Base Rail Support”
- Stair hand rail bracket – “Hand Rail Top Bracket” detail and “Hand Rail Bottom Bracket” Detail on Dwg. Title “Peak Cable Railing Stair Assembly”
- Post Base with part name “post-Base_cable4_42in” – Dwg. Title “42” Cable Rail Post_Part”

The complete list of all components (including non-structural components) for the system is included in Appendix A.

2 Infill Elements

The primary infill elements include the following:

- 1/8” dia 1x19 Stainless Steel Cable

This review is based on information and drawings provided by Peak™ Products USA Corporation (Peak) for the element listed above.

2.1 Cable Infill Elements

Our analysis is based on the following information:

- Loads: Prescribed by the 2024 International Residential Code. See Section 1.0 Overview.
- Resistance: ASCE/SEI 19-10 Structural Applications of Steel cables for Buildings.
- Load configuration: Spans were provided by Peak™.
- Cable terminations shall be sized for a minimum breaking strength of 1800 lbs.

3 Rail Elements

3.1 General Rail Elements

The general rail elements include the hand rail, stair hand rail, base rail, and posts. An analysis was completed based on the worst-case configuration for these elements.

- Loads: Prescribed by the 2024 International Residential Code. See Section 1.0 Overview.
- Resistance: Completed in accordance with the AA-ADM-1, Aluminum Design Manual 2020.
- Section properties: Information was provided by Peak™. Calculations were completed in accordance with AA-ADM-1.
- Fastener resistance: Completed in accordance with AISC 360-16 and AAMA TIR A9-14.

- Load configuration: Span and dimensions were provided by Peak™. Posts were modeled as cantilevers, fixed at the base. The results from our analysis show the maximum span that can be achieved, as calculated from the material and fastener resistances.

4 Connectors

4.1 General Connectors

The general connectors include the following:

- Base rail support bracket
- Stair hand and base rail brackets
- Post base

An analysis was completed based on the worst-case configuration for these elements.

- Loads: Prescribed by the 2024 International Residential Code. See Section 1.0 Overview.
- Resistance: Completed in accordance with the AA-ADM-1, Aluminum Design Manual 2020.
- Section properties: Determined from drawings provided by Peak™. Calculations were completed in accordance with AA-ADM-1.
- Load configuration: Span and dimensions were provided by Peak™.
- Connections to the base building are not included as part of this review, including but not limited to the rail and post connections.

5 Results

A full set of calculations and results is presented in RDH compiled engineering review package. The engineering package includes:

- Dimensioned drawings of each component, including extrusion drawings
- Calculation sheets for the structural capacity of components listed in 1.0 Overview.

The above documents contain proprietary information and as such, have not been included in this report.

6 Conclusion

The Peak™ Aluminum Railing System meets the requirements within the 2024 International Residential Code. Limitations of compliance are defined in the assembly drawings presented in Appendix B.

Yours truly,



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Encl. Appendix A – List of Components
Appendix B – Assembly Drawings

Limits of Commission

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11/20/2024



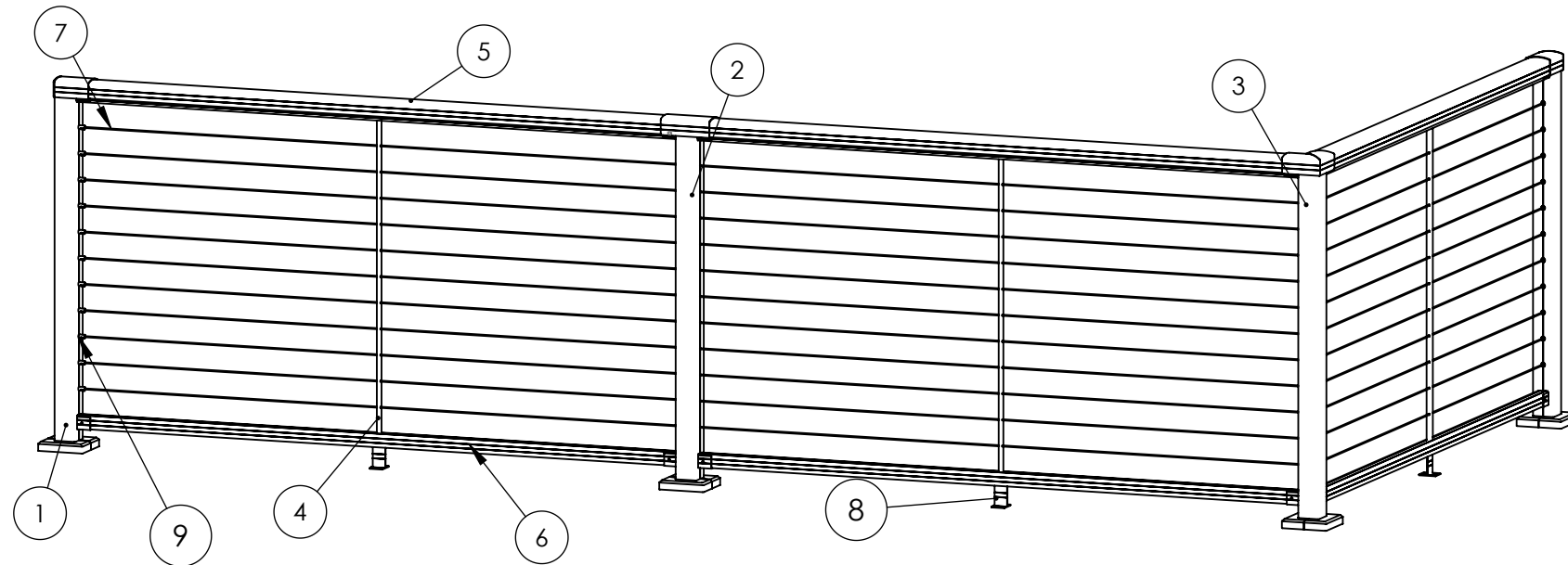
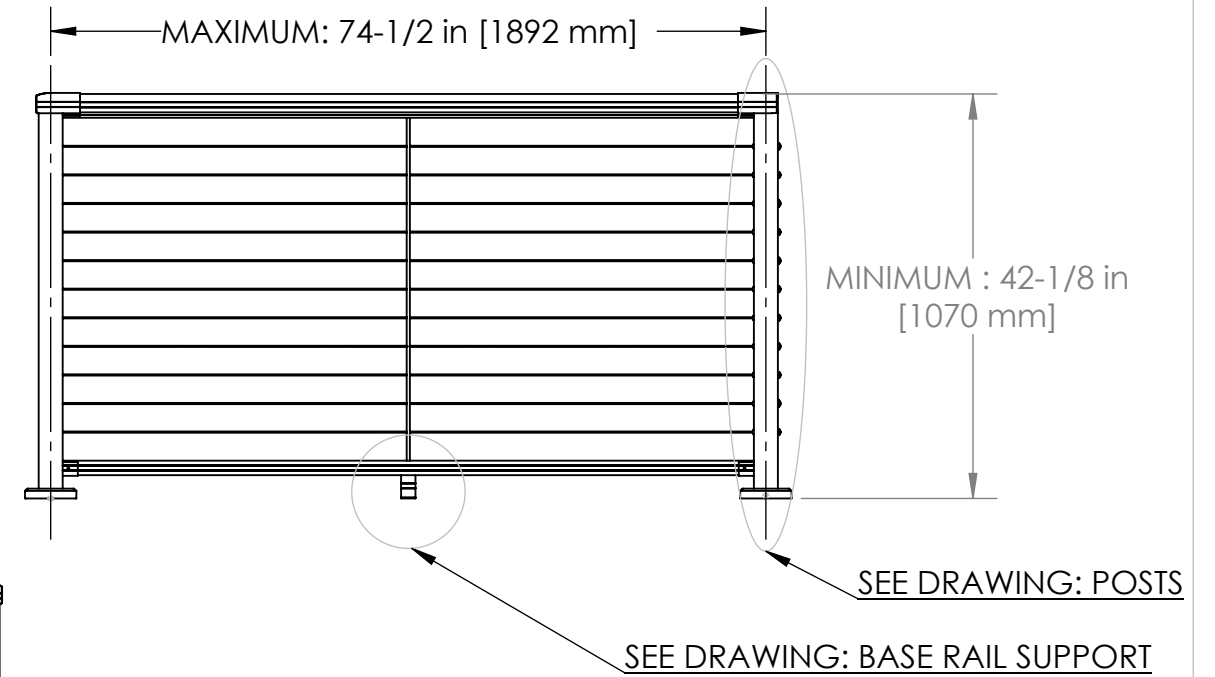
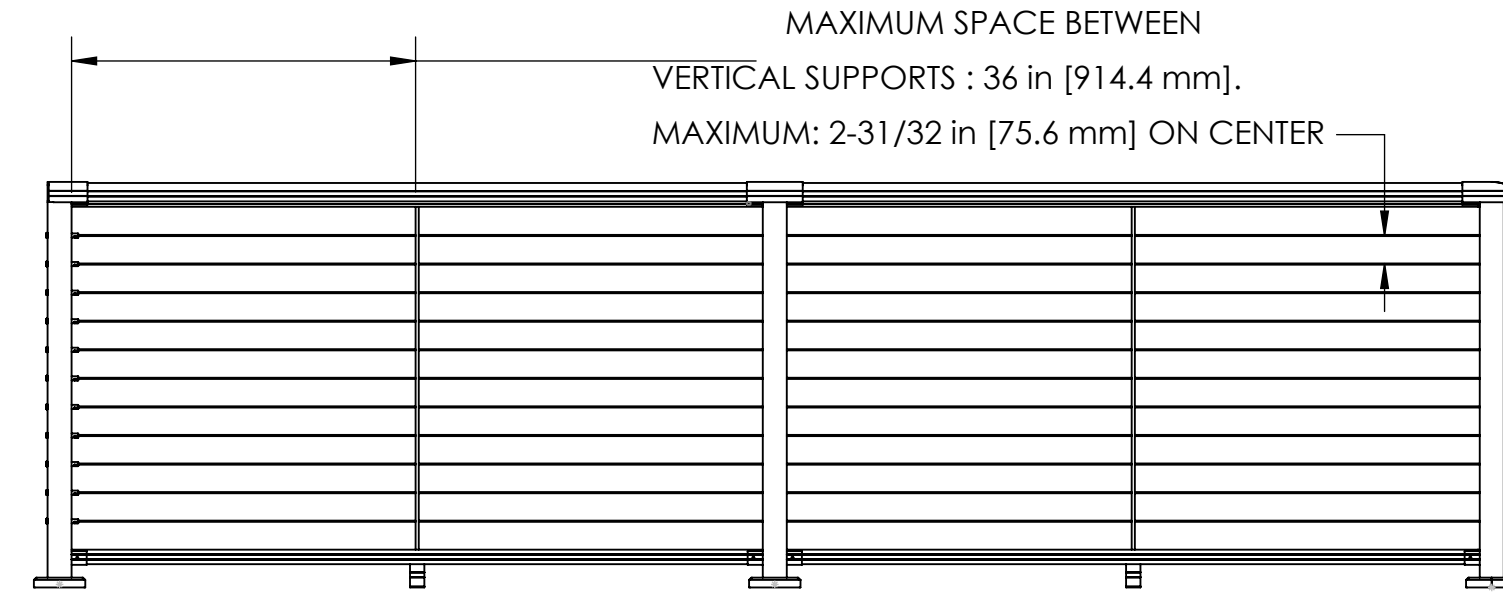
Appendix A

List of Components

SKU	SKU	Description	Drawing No.
(White)	(Matte Black)		
36400	36401	CABLE END POST 36"	36400-36401 CABLE POST END 36IN
36410	36411	CABLE MID POST 36"	36410-36411 CABLE POST MID 36IN
36420	36421	CABLE CORNER POST 36"	36420-36421 CABLE POST CORNER 36IN
36440	36441	CABLE RAIL 4'	36440-36441 CABLE RAIL 4FT-36IN
36445	36446	CABLE RAIL 6'	36445-36446 CABLE RAIL 6FT-36IN
36450	36451	CABLE STAIR RAIL 4'6"	36450-36451 54IN CABLE RAIL_STAIR HR
42400	42401	CABLE END POST 42"	42400-42401 CABLE POST END 42IN
42410	42411	CABLE MID POST 42"	42410-42411 CABLE POST MID 42IN
42420	42421	CABLE CORNER POST 42"	42420-42421 CABLE POST CORNER 42IN
42440	42441	CABLE RAIL 4'	42440-42441 CABLE RAIL 4FT-42IN
42445	42446	CABLE RAIL 6'	42445-42446 CABLE RAIL 6FT-42IN
42430	42431	CABLE STAIR END POST 42"	42430-42431 CABLE STAIR POST END 42IN
42435	42436	CABLE STAIR MID POST 42"	42435-42436 CABLE STAIR POST MID 42IN
42491	42491	CABLE CONNECTOR	42491 CABLE CONNECTOR
42492	42492	CABLE STAIR CONNECTOR	42492 CABLE STAIR CONNECTOR
42495	42495	CABLE 100'	42495 CABLE 100FT
42496	42496	CABLE 500'	42496 CABLE 500FT

Appendix B

Assembly Drawings



IMPORTANT:

1. CABLE LENGTH: MAXIMUM 30 ft [9.14 M]
2. CABLE TENSION: MINIMUM 150 lbf [667 N]

ITEM NO.	DESCRIPTION	SKU
1	END POST 42IN	42400, 42401
2	MID POST 42IN	42410, 42411
3	CORNER POST 42IN	42420 , 42421
4	PICKET	42440, 42441, 42445, 42446
5	HANDRAIL	42440, 42441, 42445, 42446
6	BASERAIL	42440, 42441, 42445, 42446
7	CABLE	42495, 42496
8	BASE RAIL SUPPORT	42440, 42441, 42445, 42446
9	CABLE FITTING	42491



TITLE
Peak® Cable Railing
Railing Assembly

PART FILE
Report Drawing_Cable-Oct 2023

DWG REV
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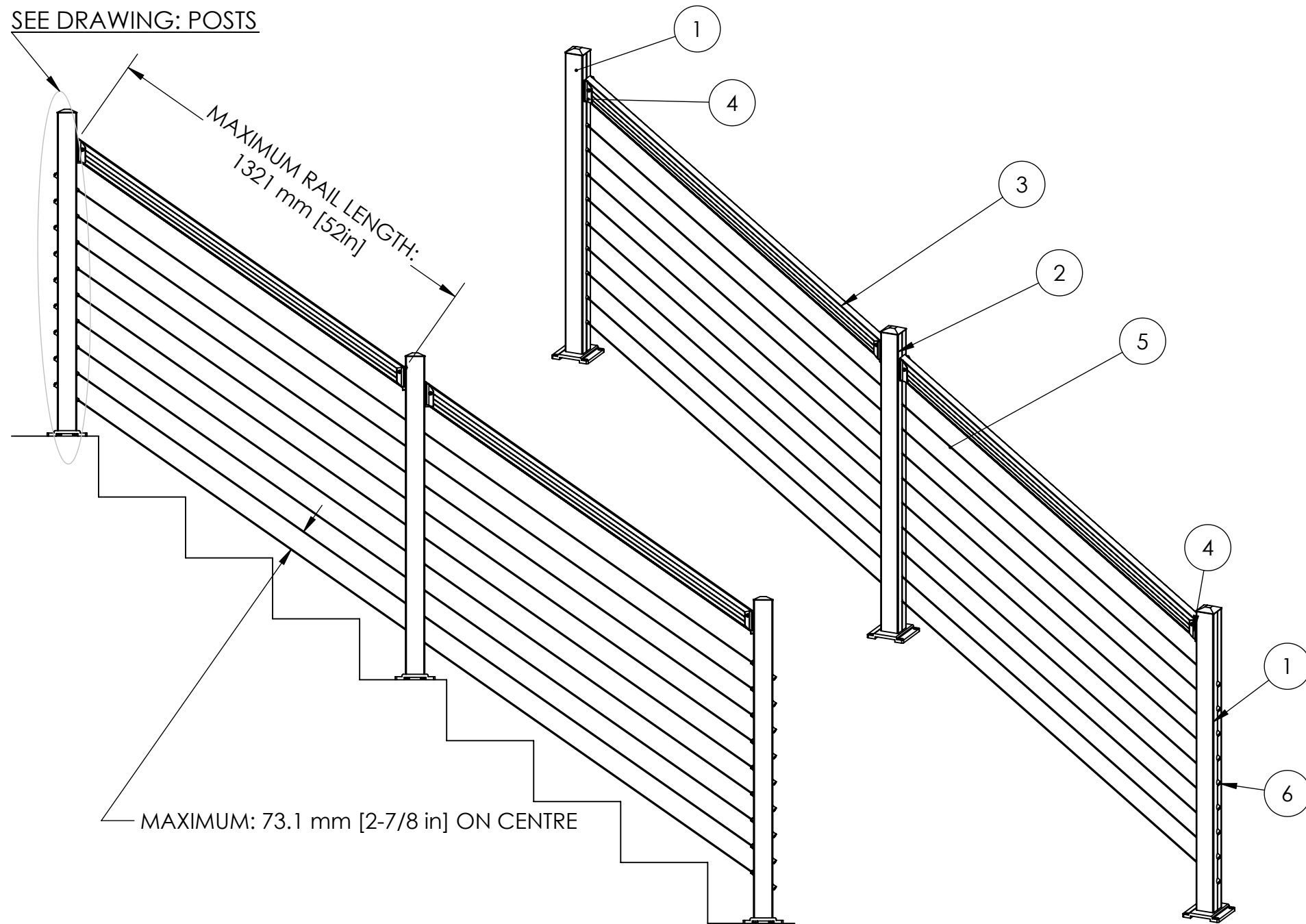
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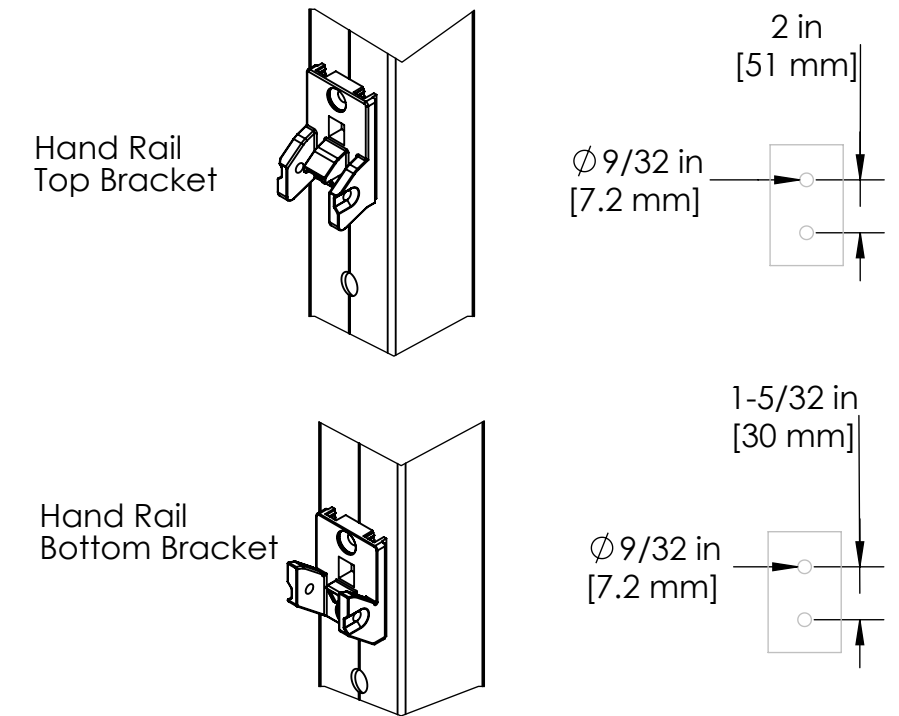
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Report assembly P9 Cables - 93XXX

SCALE: 1:32 SHT REV 2017-05-16 Sheet 1 of 4

SEE DRAWING: POSTS



BRACKET MOUNTING TEMPLATE



IMPORTANT:

1. CABLE LENGTH: MAXIMUM 30 FT [9.14 M]
2. CABLE TENSION: MINIMUM 220 LBF [979 N]

ITEM NO.	DESCRIPTION	SKU
1	STAIR END POST	42430, 42431
2	STAIR MID POST	42435, 42436
3	HANDRAIL	36450, 36451
4	HANDRAIL BRACKET	36450, 36451
5	CABLE	42495, 42496
6	CABLE STAIR FITTING	42492



TITLE
Peak® Cable Railing
Stair Assembly

PART FILE
Report Drawing_Cable-Oct 2023

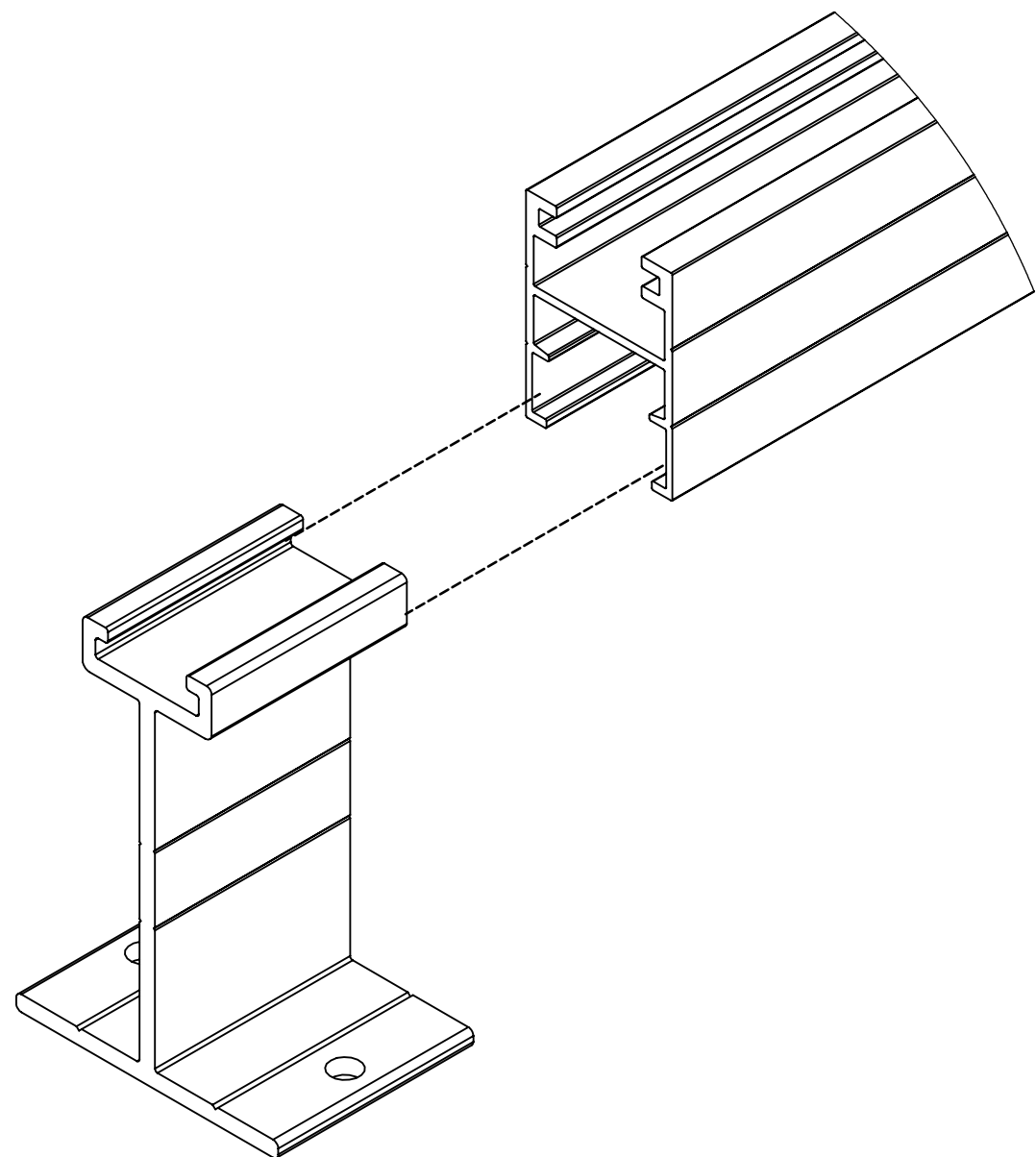
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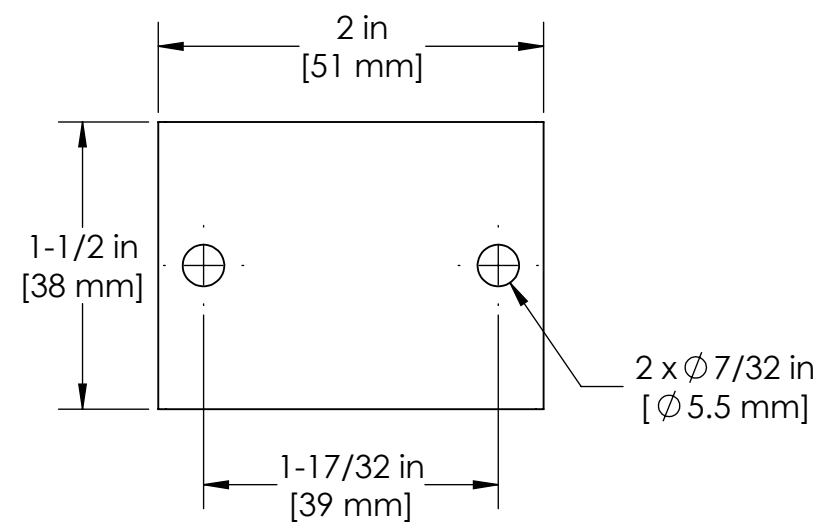
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SIZE DWG. NO.
B Report assembly P9 Cables - 93XXX

SCALE: 1:33.32017-05-16 Sheet 2 of 4



MOUNTING TEMPLATE:



TITLE
BASE RAIL SUPPORT

PART FILE
 Report assembly - base rail support -93XXX

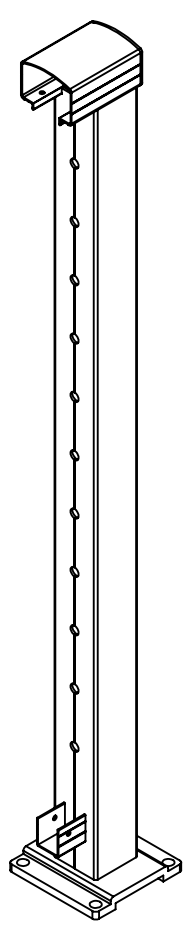
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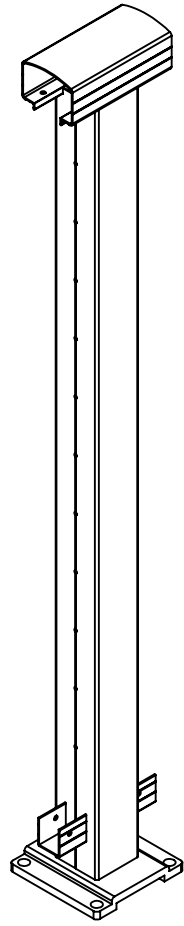
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B Report Assembly - BASE RAIL SUPPORT - 93XXX

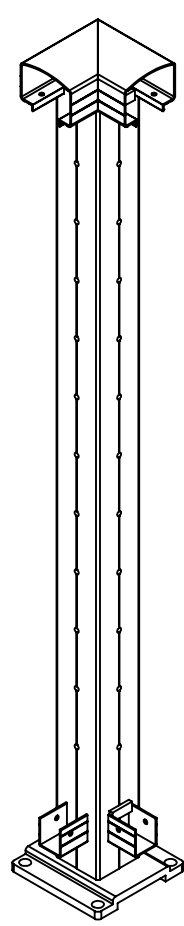
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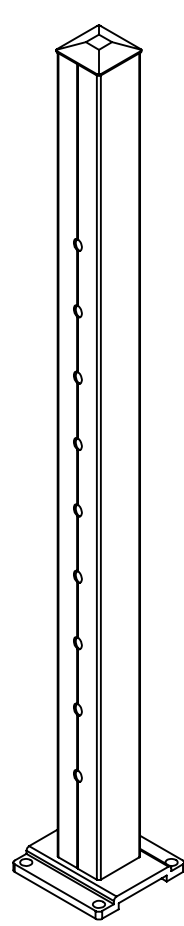
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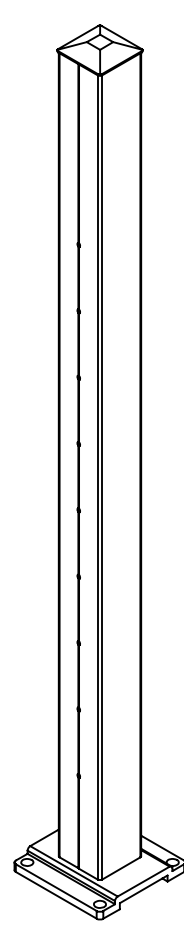
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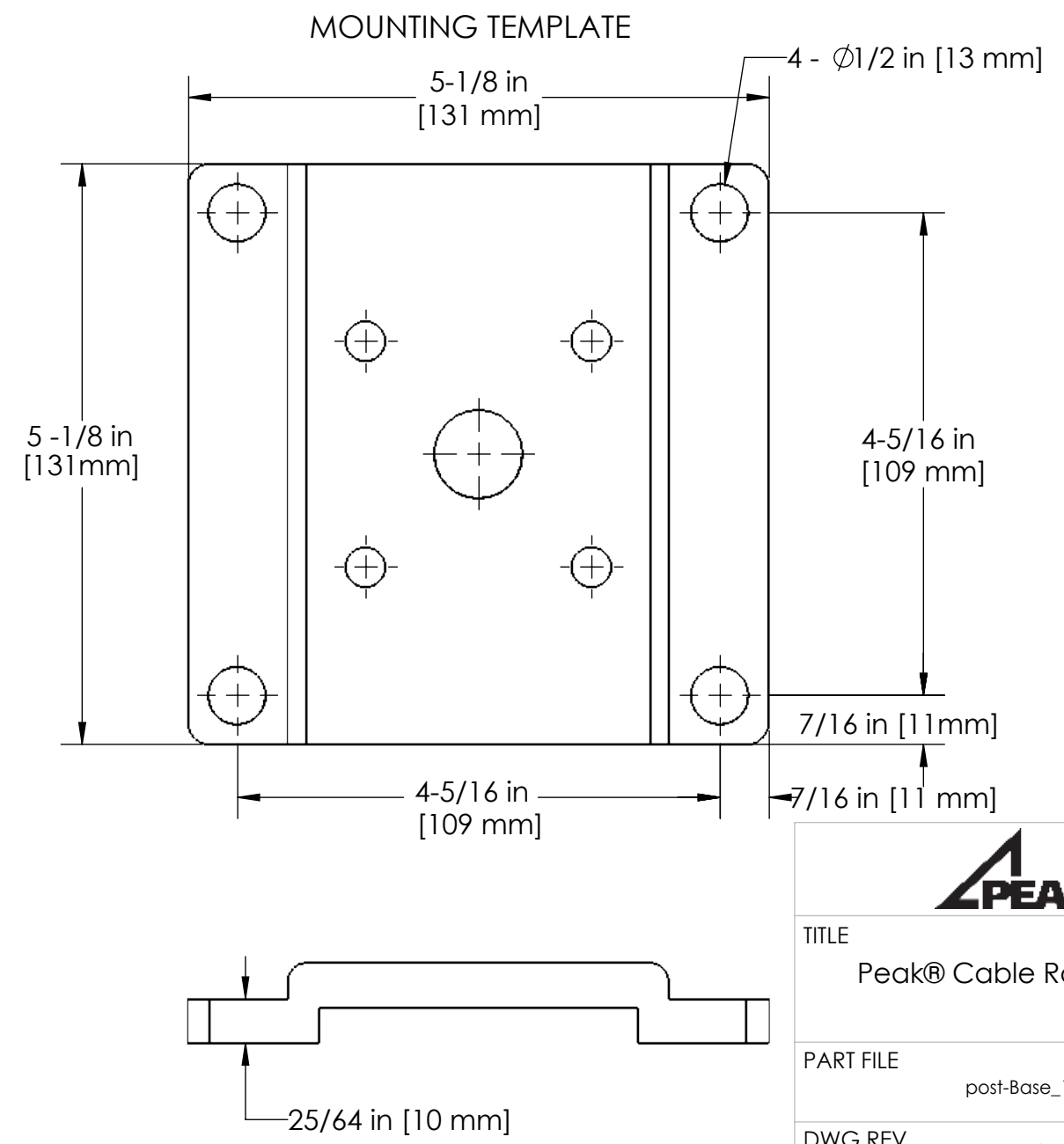
CORNER POST



STAIR POST
END



STAIR POST
MID



DESCRIPTION	SKU
END POST	42400, 42401
MID POST	42410, 42411
CORNER POST	42420, 42421
STAIR POST END	42430, 42431
STAIR POST MID	42435, 42436



TITLE		Peak® Cable Railing Posts	
PART FILE		post-Base_10mm	
DWG REV		A	
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SIZE	DWG. NO.		
B	Report Posts CAN P9 - 93k		
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