PEAK® Cable Railing

36"H System

2024 International Residential Code Report

⚠WARNING No representation or warranty is given that your particular application of these products complies with relevant building codes or that the fasteners provided or used are appropriate for your application. Consult with professionals and local building officials before beginning work: (i) to ensure compliance with relevant building codes for your application and for your proposed use of fasteners; (ii) to ensure the integrity of the structural components in connection with which these products are to be used; (iii) to identify appropriate safety gear that is to be used during installation such as a safety harness when working above ground; (iv) to ensure that the work area is free from utilities, services and hazards; and (v) to clarify any instructions or warnings that may not be clear. Work in a safe manner wearing protective gear such as gloves, eyewear, headwear, footwear and clothing. When using tools comply with operation manuals and instructions. Metal and glass may have sharp edges and could fragment or splinter during or as a result of handling or cutting. Do not use these products in connection with any substance that is or may be harmful or corrosive to the products. Inspect and maintain these products and the structural components that they are used in connection with on a regular basis, using professionals when appropriate.

Peak™ 36” Cable Railing System

Engineering Review for Compliance with 2024 International Residential Code

Peak Products USA Corporation
www.peakproducts.com

Submitted November 14, 2024 by
RDH Building Science Inc.
4333 Still Creek Drive #400
Burnaby BC V5C 6S6

Contents

Appendices

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

- Stainless Steel Cable Infill at Railing Assembly (1/8" dia 1x19) – Dwg. Title "Peak Cable Railing – Railing Assembly"
- Stainless Steel Cable Infill at Stair Assembly (1/8" dia 1x19) - Dwg. Title "Peak Cable Railing – Stair Assembly"

1.2 Rail Elements

- Post – Dwg. Title "Peak Cable Railing Posts"
- Hand rail – See Report Assembly Drawings
- Base rail – See Report Assembly Drawings
- Stair hand rail – See Report Assembly Drawings

1.3 Connectors

- → Base rail support bracket – 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”

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

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

RDH prepared this report for the use of Peak™ Products USA Corporation. The material in it reflects RDH's judgement in light of information available to RDH at the time of preparation, including but not limited to material data sheets, independent testing, and physical mock-ups. Any use that a third party makes of this report, or any reliance or decisions to be based on it, is the responsibility of such third parties. RDH accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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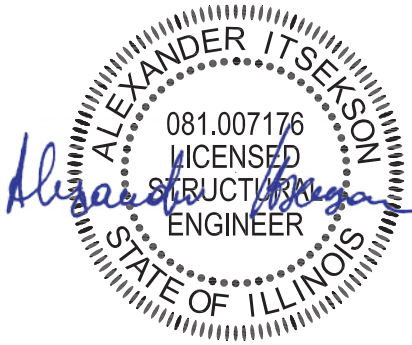
11/20/2024



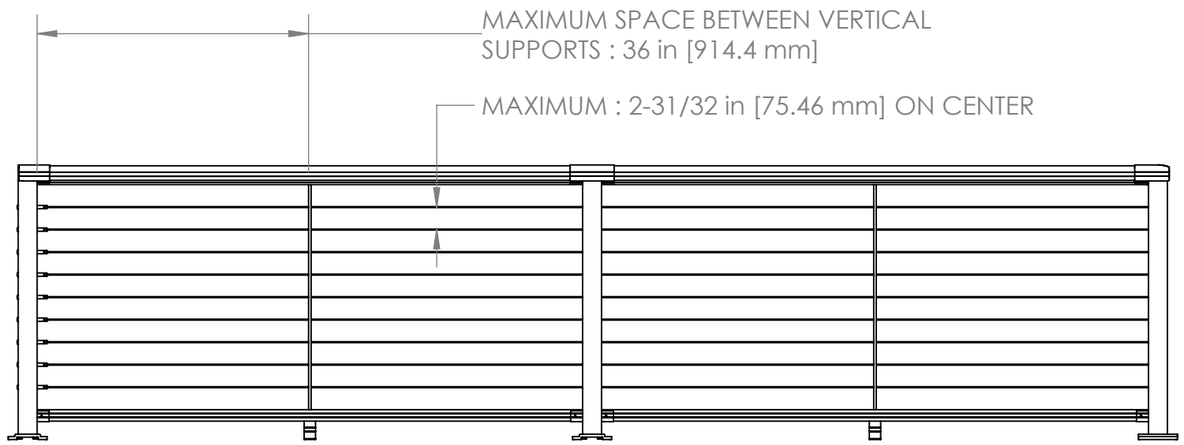
Appendix A

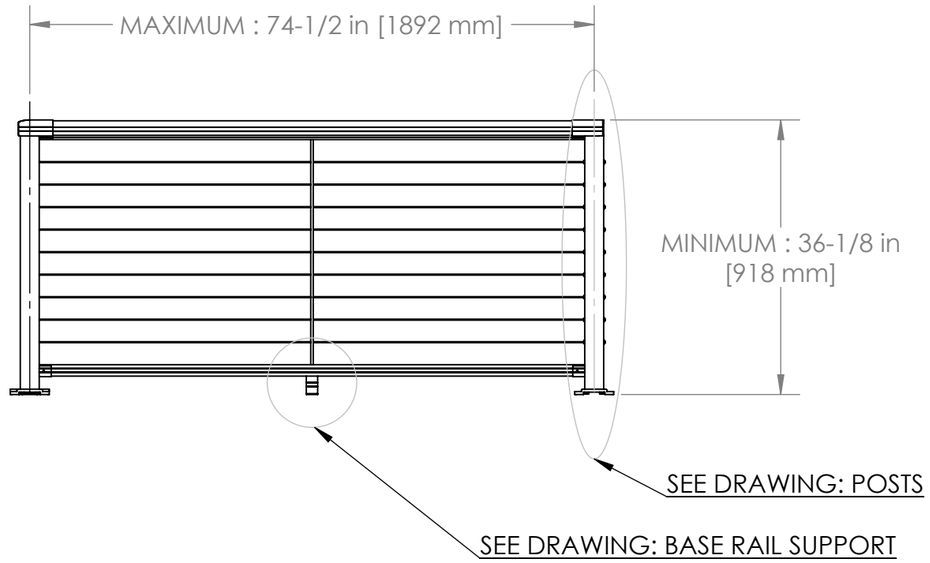
List of Components

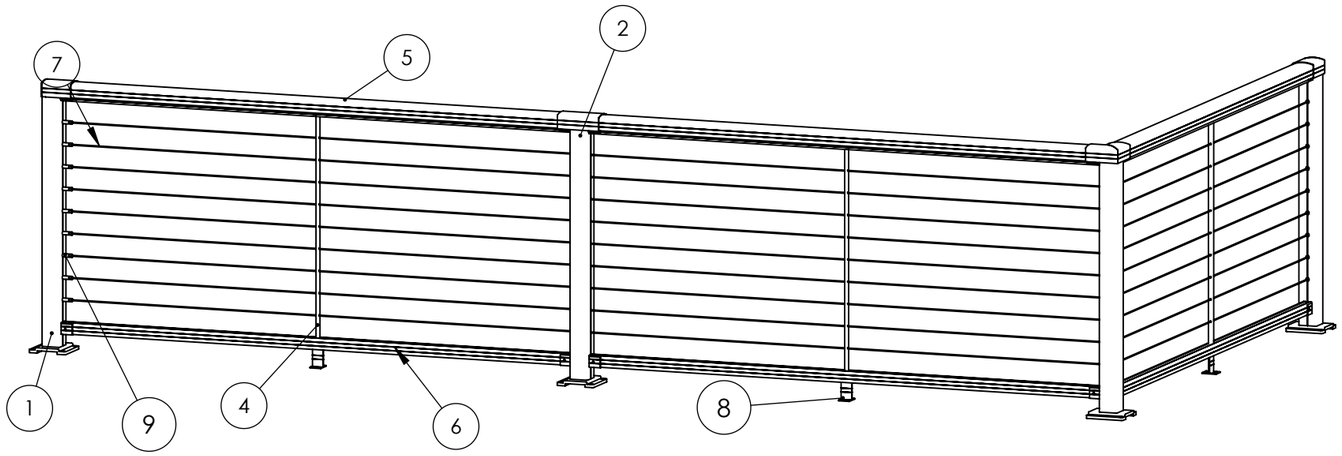
SKU (White)	SKU (Matte Black)	Description	Drawing No.
36400	36401	CABLE END POST 36”	36400-36401 CABLE POST END 36IN
36410	36411	CABLE MID POST 36”	36410-36411 CABLE POST MID 36IN
36420	36421	CABLE CORNER POST 36”	36420-36421 CABLE POST CORNER 36IN
36440	36441	CABLE RAIL 4’	36440-36441 CABLE RAIL 4FT-36IN
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 36IN	36400, 36401
2	MID POST 36IN	36410, 36411
3	CORNER POST 36IN	36420 , 36421
4	PICKET	36440, 36441, 36445, 36446
5	HANDRAIL	36440, 36441, 36445, 36446
6	BASERAIL	36440, 36441, 36445, 36446
7	CABLE	42495, 42496
8	BASE RAIL SUPPORT	36440, 36441, 36445, 36446
9	CABLE FITTING	42491

PEAK

TITLE

Peak® Cable Railing
Railing Assembly

PART FILE

Report Drawing_36in Cable

DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**

DWG. NO.

Report assembly P9 Cables - 36XXX

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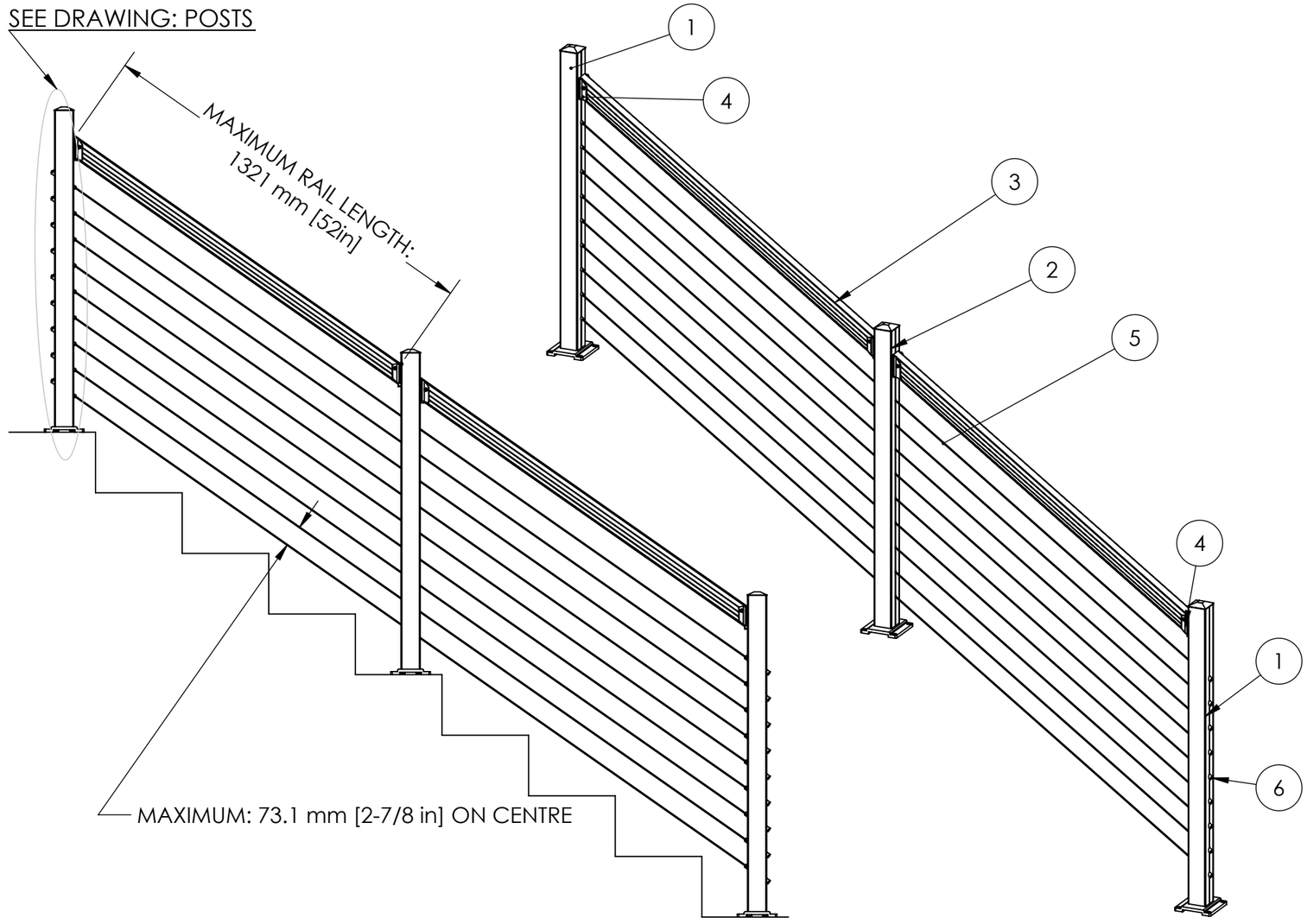
SHT REV 2017-05-16



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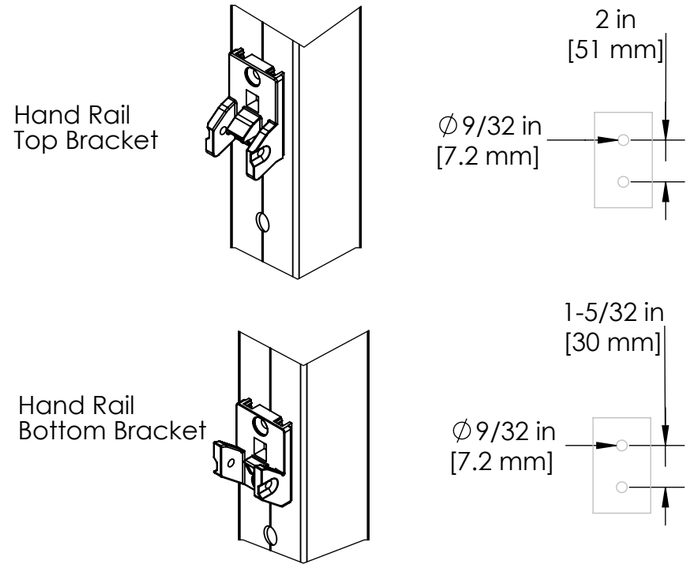

IMPORTANT:

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

PEAK®

TITLE

Peak® Cable Railing
Stair Assembly

PART FILE

Report Drawing_Cable-Oct 2023

DWG REV C

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**

DWG. NO.

Report assembly P9 Cables - 93XXX

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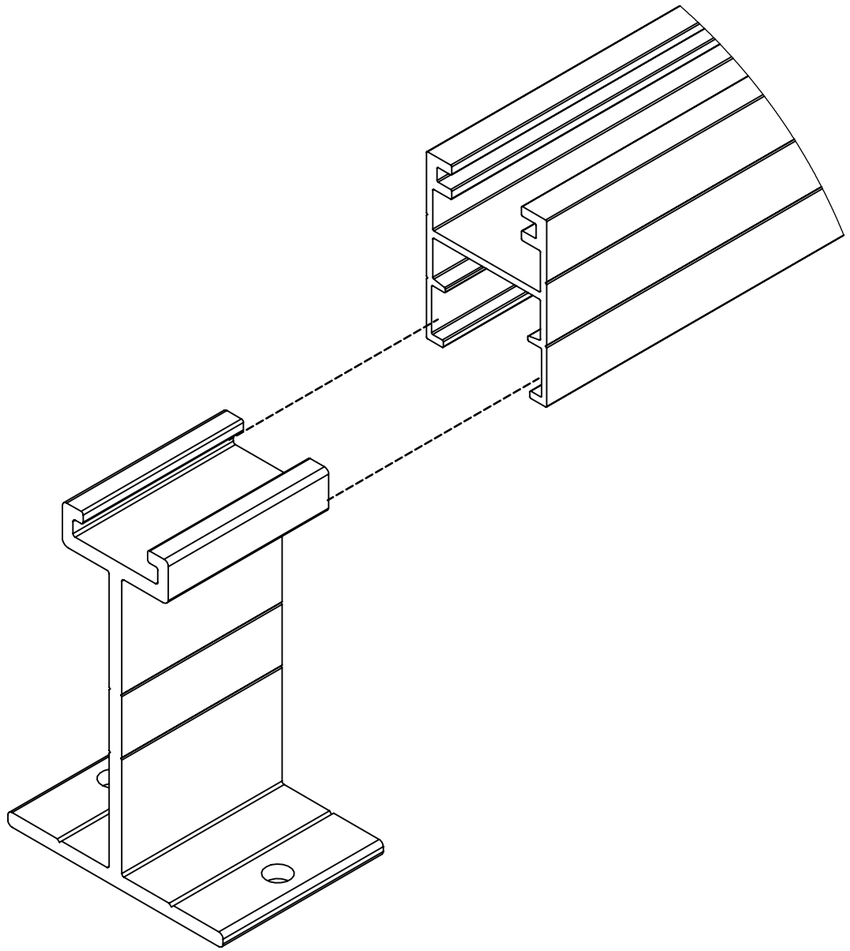

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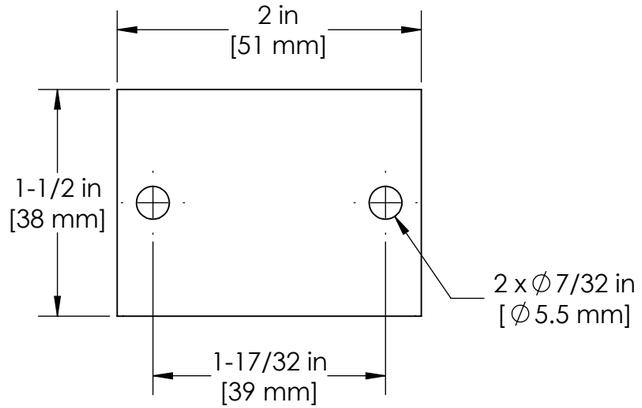

PEAK

TITLE

BASE RAIL SUPPORT

PART FILE

Report assembly - base rail support -93XXX

DWG REV A

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE B

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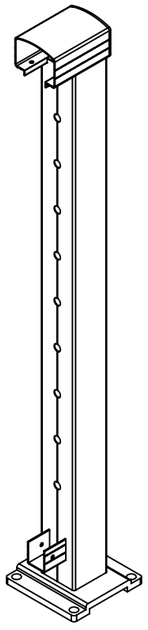

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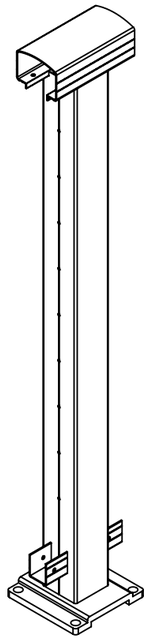

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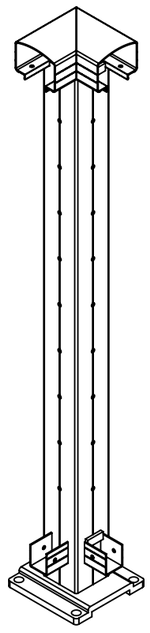

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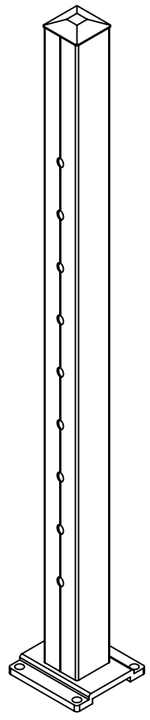

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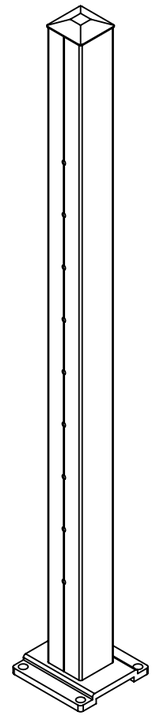
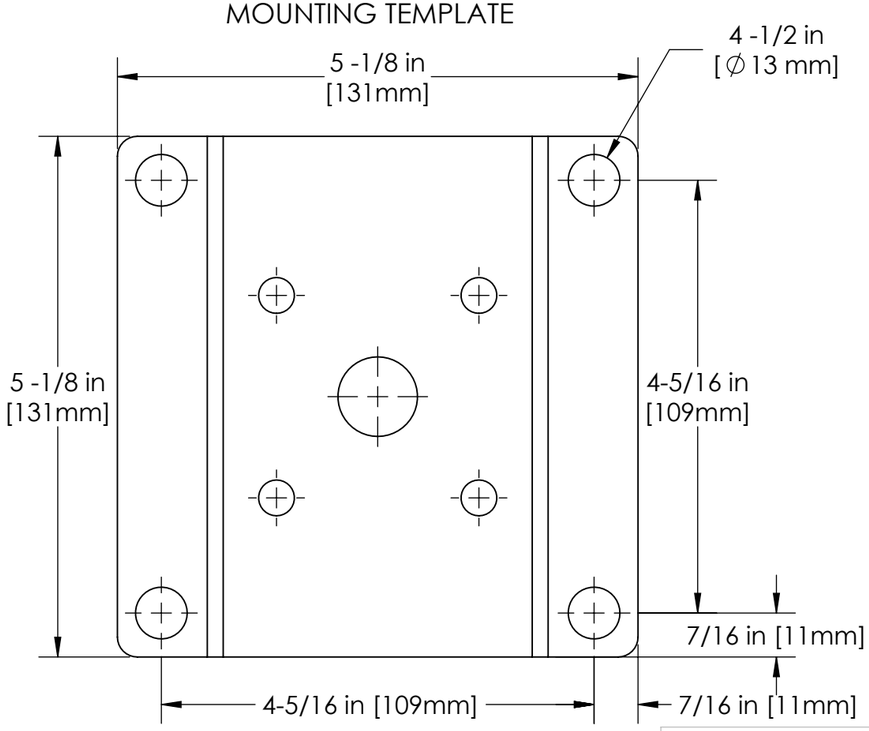
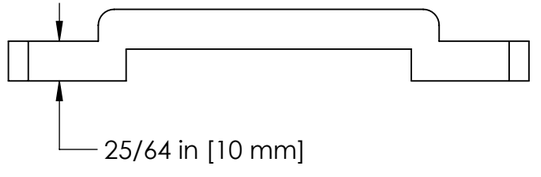
END



STAIR POST
MID

MOUNTING TEMPLATE





DESCRIPTION	SKU
END POST	36400, 36401
MID POST	36410, 36411
CORNER POST	36420, 36421
STAIR POST END	42430, 42431
STAIR POST MID	42435, 42436

PEAK

TITLE

Peak® Cable Rail Posts

PART FILE

post-Base_10mm

DWG REV

A

DIMENSIONS ARE IN MM UNLESS NOTED
DO NOT SCALE DRAWING

SIZE **B**

DWG. NO.

Report Posts US P9 - 36k

SCALE: 1:8

SHT REV

2017-05-16