

# Report of:

## Compliance with Canadian Building Codes

- **2019 Alberta Building Code - Part 9**
- **2018 British Columbia Building Code - Part 9**
- **2015 National Building Code of Canada - Part 9**
- **2012 Ontario Building Code - Part 9**

**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. Therefore 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 always 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. Obtain professional advice for any non-standard or non-residential application.

## PEAK® Aluminum Handrail Kit

### Engineering Review for Compliance with Canadian Building Codes Part 9 (Single Dwelling Unit)

Peak Products Manufacturing Inc.

June 22, 2020

RJC No. VAN.106169.0028

Prepared for:

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## **APPENDIX A: ASSEMBLY OF DRAWINGS**



## 1.0 OVERVIEW

The Peak® Aluminum Handrail Kit is intended to act as a guide and support on walking surfaces. The objectives were to complete a structural review of the structural components based on Limit States Design, in accordance with applicable material standards and Part 9 (Single Dwelling unit) of the following Canadian building codes:

- Alberta Building Code 2019
- British Columbia Building Code 2018
- National Building Code of Canada 2015
- Ontario Building Code 2012

The following specified loads apply:

- Concentrated load of 0.9 kN (applied in any direction along the handrail)

### A. Rail Elements

1. Handrail
2. Splice

### B. Connectors

1. Bracket
2. Wood stud/blocking connection

## 2.0 RAIL ELEMENTS

### 2.1 Continuous Rail Elements

The primary rail elements include the handrail and splice (which is used to join lengths of handrail together).

Our analysis was based on the following information:

- Loads: Prescribed by the Canadian building codes. See Section 1.0, Overview.
- Resistance: Completed in accordance with CAN/CSA S157-17, Strength in Aluminum Design.
- Section properties: Determined from drawings provided by Peak. Calculations were completed in accordance with CAN/CSA S157-17.
- Load configuration: Span and bearing lengths were provided by Peak.



## 3.0 CONNECTORS

### 3.1 Connectors

The general connectors included the bracket, and wood stud/blocking connection. An analysis was completed based on the worst-case configuration for these elements.

- Loads: Prescribed by the Canadian building codes. See Section 1.0, Overview.
- Resistance: Completed in accordance with CAN/CSA S157-17, Strength in Aluminum Design.
- Section properties: Determined by drawings provided by Peak. Calculations were completed in accordance with CAN/CSA S157-17.
- 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 connections.

## 4.0 RESULTS

A full set of calculations and results is presented in RJC #VAN.106169.0028 engineering review package, including:

- 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.



## 5.0 CONCLUSION

The Peak® Aluminum Handrail Kit meets the requirements within Part 9 (Single Dwelling Unit) of the Alberta Building Code 2019, British Columbia Building Code 2018, National Building Code of Canada 2015, and Ontario Building Code 2012. Limitations of compliance are defined in the assembly drawings presented in Appendix A.

Yours truly,

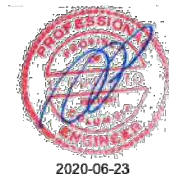
READ JONES CHRISTOFFERSEN LTD.

Hafeez Noormohamed, BEng, EIT  
Design Engineer

HNo/dch

Enc. Appendix A – Assembly Drawings

Reviewed by:



Leonard Pinalto, M.Sc., P.Eng., LEED® AP, FEC  
Principal



LARGE FORMAT



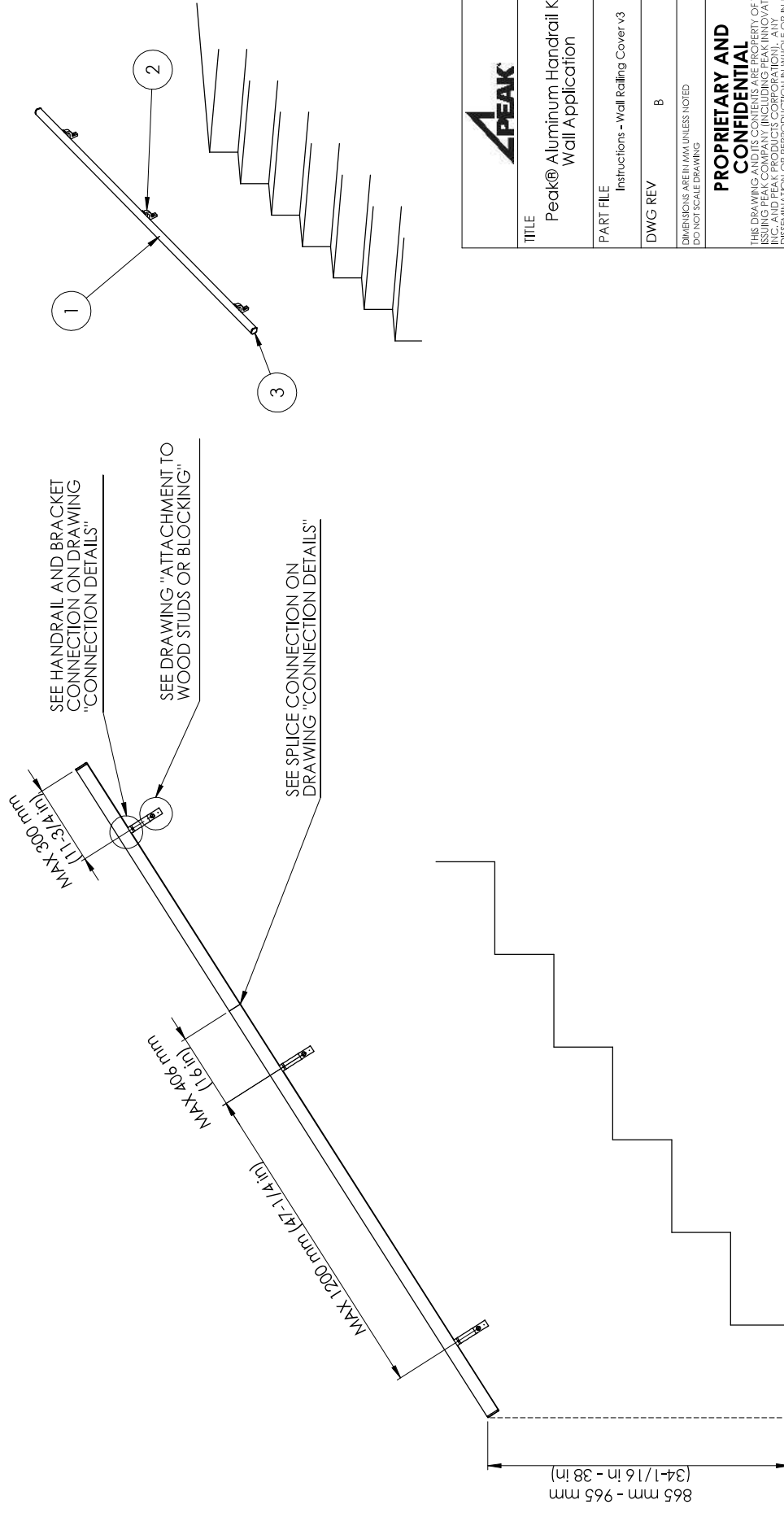
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# **APPENDIX A**

## ASSEMBLY DRAWINGS



<b>TITLE</b> Peak® Aluminum Handrail Kit - Wall Application	
<b>PART FILE</b> Instructions - Wall Railing Cover v3	
<b>DWG REV</b> B	
DIMENSIONS ARE IN MM UNLESS NOTED DO NOT SCALE DRAWING	
<b>PROPRIETARY AND CONFIDENTIAL</b> THE DRAWING AND ITS CONTENTS ARE PROPERTY OF THE ISSUING FIRM AND ARE NOT TO BE REPRODUCED, COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION DISSEMINATION OR REPRODUCTION IN WHOLE OR IN PART IS STRICTLY PROHIBITED.	
<b>SIZE</b> B	<b>DWG. NO.</b> Report - Wall Railing
<b>SCALE:</b> 1:20 <small>SEE REV</small> 2016-06-01-A	

ITEM NO.	DESCRIPTION	SKU
1	HANDRAIL	80173, 80174
2	BRACKET	80173, 80174, 80990, 80991
3	END CAP	80173, 80174, 80990, 80991

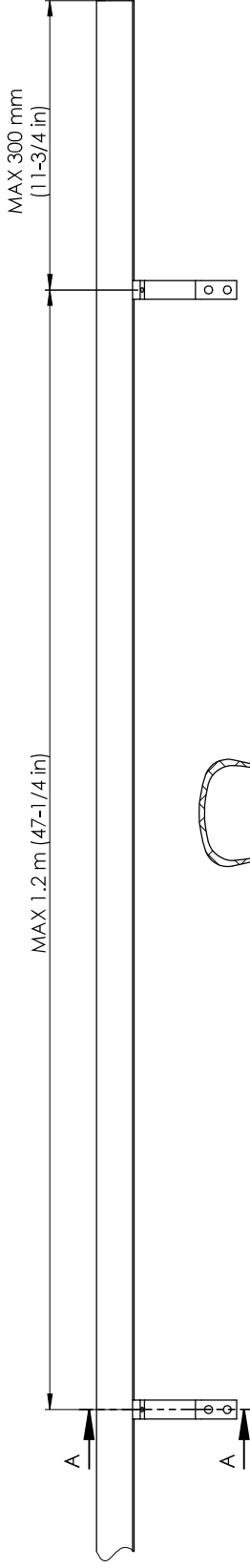


### ATTACHMENT TO WOOD STUDS OR BLOCKING

Requirements within section 9.8.7.7. of Alberta Building Code 2019, British Columbia Building Code 2018, National Building Code 2015 and Ontario Building Code 2012:

Handrails serving a single dwelling unit attached to wood studs or blocking:

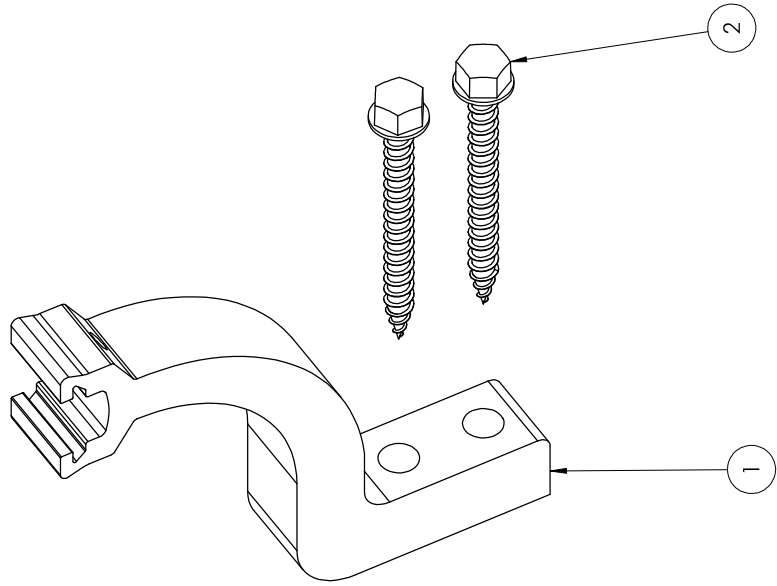
- a. The attachment points are no more than 1.2 m apart in the horizontal plane,
- b. The first attachment point at either end is no more than 300 mm from the end of the handrail, and
- c. The fasteners consist of not less than 2 No. 8 wood screws at each point, penetrating not less than 32 mm into solid wood.



SECTION A-A  
SCALE 1 : 2



<b>TITLE</b> Peak® Aluminum Handrail Kit - Attachment to Wood Studs or Blocking	
<b>PART FILE</b>	Report - Wood connection
<b>DWG REV</b>	B
DIMENSIONS ARE IN MM UNLESS NOTED DO NOT SCALE DRAWING	
<b>PROPRIETARY AND CONFIDENTIAL</b>	
THIS DRAWING AND ITS CONTENTS ARE PROPERTY OF THE INTEGRATED PEAK GROUP. NO PARTS, INFORMATION, OR ANY OTHER RIGHTS ARE TO BE REPRODUCED, COPIED, DISSEMINATED OR REPRODUCED IN WHOLE OR IN PART IS STRICTLY PROHIBITED.	
<b>SIZE</b>	DWG. NO.
<b>B</b>	Report Handrail Rail Connection Details
<b>SCALE: 1:5</b>	<b>SHEET REV:</b> 2016-06-01-A



TITLE  
Peak® Aluminum Handrail Kit -  
Post Connection Detail

PART FILE  
Wall mount exploded v3

DWG REV  
B

DIMENSIONS ARE IN MM UNLESS NOTED  
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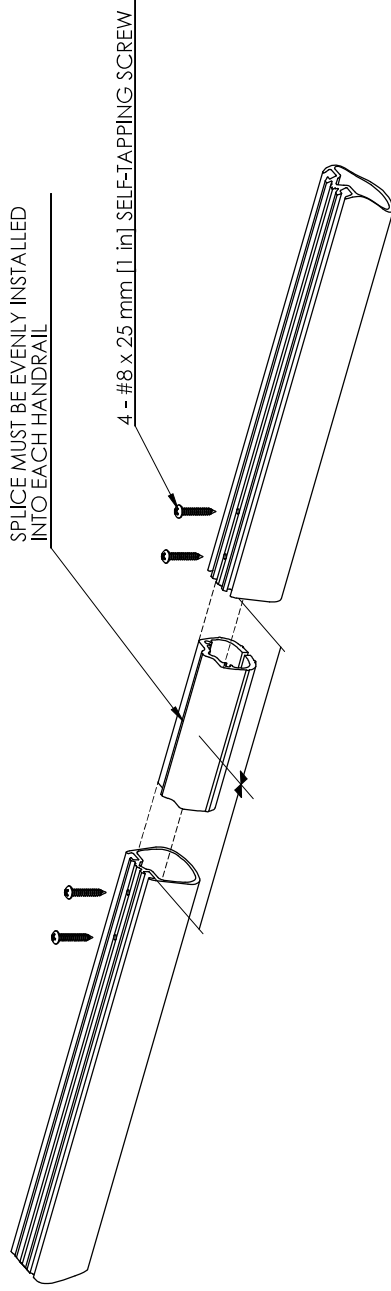
SIZE  
**B**

DWG. NO.  
Report Handrail Rail Connection Details

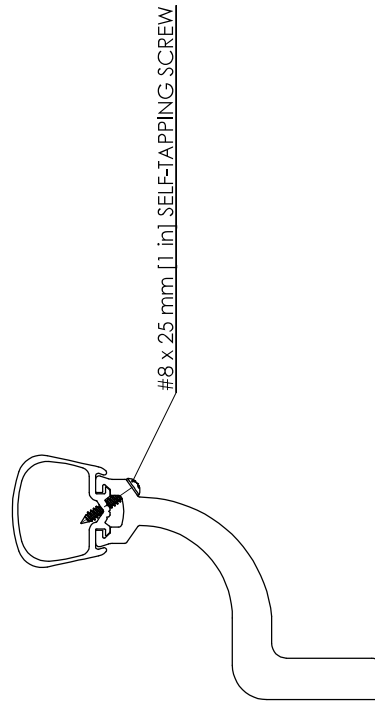
SCALE: 1:2  
SHEET NO. 2016-06-01-A

ITEM NO.	DESCRIPTION
1	BRACKET
2	1/4" x 3" LAG SCREWS

### SPLICE CONNECTION



### HANDRAIL AND BRACKET CONNECTION



TITLE	Peak® Aluminum Handrail Kit - Connection Details
PART FILE	Instructions - Splice
DWG REV	B
DIMENSIONS ARE IN MM UNLESS NOTED DO NOT SCALE DRAWING	
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SIZE	DWG. NO.
<b>B</b>	Report Handrail Rail Connection Details
SCALE: 1:3	SHEET NO. 2016-06-01-A