

# CENDEK RAILINGS LTD. TEST REPORT

## SCOPE OF WORK

REPORT OF 8 FT. CENTURY FASCIA COMPONENT SYSTEM (3-7/8 IN. SPACING) AND 8 FT. CENTURY FASCIA WELDED SYSTEM (3-7/8 IN. SPACING) TESTED IN ACCORDANCE WITH LOAD REQUIREMENTS OF THE FOLLOWING:

- 2015 NATIONAL BUILDING CODE OF CANADA (NBC), SECTION 9.8.8.2 *LOADS ON GUARDS*
- 2012 ONTARIO BUILDING CODE (OBC), SECTION 9.8.8.2 *LOADS ON GUARDS*
- 2018 BRITISH COLUMBIA BUILDING CODE (BCBC), SECTION 9.8.8.2 *LOADS ON GUARDS*

## REPORT NUMBER

104281761COQ-001A

## TEST DATE

04/08/20 – 04/09/20

## ISSUE DATE

05/27/20

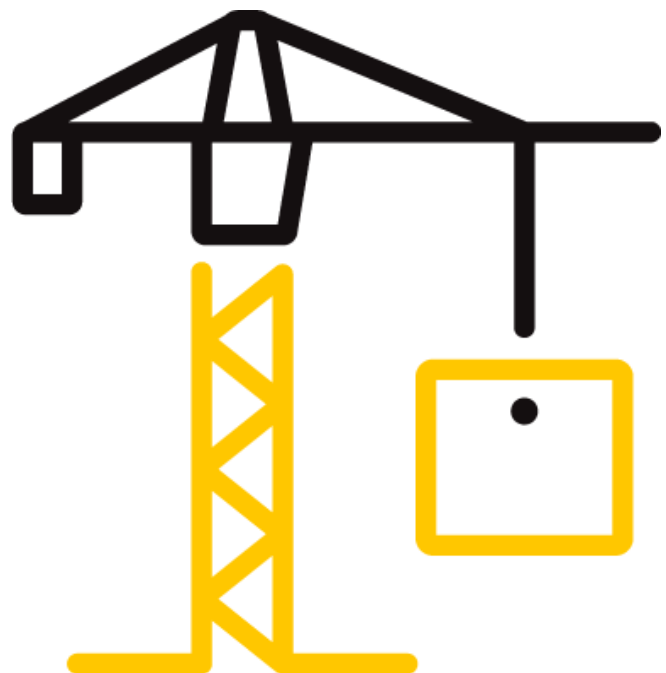
## PAGES

28

## DOCUMENT CONTROL NUMBER

GFT-OP-10c (AUGUST 27, 2018)

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## TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104281761COQ-001A

Date: 05/27/20

### REPORT ISSUED TO

#### CENDEK RAILINGS LTD.

9685 Agur Street  
Summerland, BC V0H 1Z2  
Canada



### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by Cendek Railings Ltd., 9685 Agur Street, Summerland, BC, V0H 1Z2, Canada, to perform testing in accordance with the load requirements of Section 9.8.8.2 of the 2015 NBC, 2012 OBC, and 2018 BCBC on their aluminum railing systems. Results obtained are tested values. Testing was conducted at the Intertek test facility in Coquitlam, BC, Canada.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Chris Chang	<b>REVIEWED BY:</b>	Baldeep Sandhu
<b>TITLE:</b>	Senior Tech – Building & Construction	<b>TITLE:</b>	Manager – Building & Construction
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	05/27/20	<b>DATE:</b>	05/27/20

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**TEST REPORT FOR CENDEK RAILINGS LTD.**

Report No.: 104281761COQ-001A  
Date: 05/27/20

<p>Engineer's Disclaimer:</p> <ul style="list-style-type: none"> <li>• Intertek Engineers do not assume professional responsibility of Engineer of Record.</li> <li>• Compliance to Building Codes must be approved by the Engineer of Record or Authority Having Jurisdiction.</li> <li>• Intertek Engineer's seal and signature are only for code review of loads, test setup, and witnessing.</li> </ul>	<p style="text-align: center;">Engineers Approval Stamp</p> <div style="text-align: center;">  </div> <p>Dan Lungu, P.Eng. Project Engineer, Building &amp; Construction Intertek</p> <hr/> <div style="text-align: center;">  </div> <p>Kal Kooner, P.Eng. Director, B&amp;C Canada Intertek</p>
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**SECTION 2**

**SUMMARY OF TEST RESULTS**

SYSTEM DESCRIPTION	TEST	PASS/FAIL
8 ft. Century Fascia Component System – 3-7/8 in. Spacing	In-fill Load	Pass
	Vertical Uniform Load Test	Pass
	Outward – Horizontal Uniform Load Test	Pass
	Outward – Horizontal – Mid-Span Concentrated Load	Pass
	Outward – Horizontal – Adjacent to Post Concentrated Load	Pass
	Outward – Horizontal – Top of Post Concentrated Load	Pass
	Inward – Horizontal Uniform Load Test	Pass
	Inward – Horizontal – Mid-Span Concentrated Load	Pass
	Inward – Horizontal – Adjacent to Post Concentrated Load	Pass
	Inward – Horizontal – Top of Post Concentrated Load	Pass
8 ft. Century Fascia Welded System – 3-7/8 in. Spacing	In-fill Load	Pass
	Vertical Uniform Load Test	Pass
	Outward – Horizontal Uniform Load Test	Pass
	Outward – Horizontal – Mid-Span Concentrated Load	Pass
	Outward – Horizontal – Adjacent to Post Concentrated Load	Pass
	Outward – Horizontal – Top of Post Concentrated Load	Pass
	Inward – Horizontal Uniform Load Test	Pass
	Inward – Horizontal – Mid-Span Concentrated Load	Pass
	Inward – Horizontal – Adjacent to Post Concentrated Load	Pass
	Inward – Horizontal – Top of Post Concentrated Load	Pass

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### SECTION 3

#### TEST LOADS

The specimens were evaluated under loading in accordance with selected sections of the following:

**2015 National Building Code of Canada**, Section 9.8.8.2 *Loads on Guards*

**2012 Ontario Building Code**, Section 9.8.8.2 *Loads on Guards*

**2018 British Columbia Building Code**, Section 9.8.8.2 *Loads on Guards*

### SECTION 4

#### MATERIAL SOURCE

The client submitted the railing systems to the Evaluation Center on March 11, 2020 (VAN2003191123-001). The samples were received in good condition and were suitable for testing unless noted otherwise. The samples were not independently selected for testing.

### SECTION 5

#### EQUIPMENT

ASSET #	DESCRIPTION	MODEL	CAL DUE DATE
P60692	Artech 5k lb S-Type Load Cell	20210-5k	09/19/20
P60554	T&D Temperature and Humidity Logger	TR-72Ui	09/04/20
P60444	Extech Stopwatch	365515	02/05/21
52650	Mitutoyo 8 in. Digital Caliper	CD-8	05/24/20

### SECTION 6

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Kevin Penner	Intertek B&C
Chad Carlsen	Intertek B&C
Chris Chang	Intertek B&C
Kal Kooner	Intertek B&C
Dan Lungu	Intertek B&C

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### SECTION 7

#### TESTING PROCEDURE

The evaluation was conducted in accordance with the testing procedures of ASTM E935-13e1, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*. The test specimens were loaded at a rate to achieve the specified loads between 10 seconds and 5 minutes. The specified test loads were held for one minute before the load was released. For each test, deflection measurements were taken at the point of load application. The test loads were based on requirements of Section 9.8.82 of the 2015 NBC, 2012 OBC, and 2018 BCBC, and the following tests were conducted:

#### 2015 NBC / 2012 OBC / 2018 BCBC: SECTION 9.8.8.2 – LOADS ON GUARDS

- 1) The minimum specified horizontal load applied inward or outward at the minimum required height of every guard shall be 0.5 kN/m or a concentrated load of 1.0 kN applied at any point.
- 2) Individual elements within the *guard*, including solid panels and pickets, shall be designed for a concentrated load of 0.5 kN applied over an area of 300 mm x 300 mm located at any point in the element or elements so as to engage 3 balusters.
- 3) The minimum specified load applied vertically at the top of every required *guard* shall be 1.5 kN/m.
- 4) None of the loads specified above need be considered to act simultaneously.

Note 1: The minimum specified horizontal load applied inward at the minimum required height of the guard was half of that specified in Sentence (1) per Section 4.1.5.14, Clause (2) of the 2015 NBC.

Note 2: A safety factor of 1.67-2.24 was applied to the above loads, based on an assumed failure mode and tested material. The safety factor was calculated by dividing the live load factor of 1.5 by the resistance factor, as defined in the CAN/CSA S157, *Strength Design in Aluminum* standard.

#### IN-FILL LOAD TEST

A load of 0.83 kN (187 lbs) was applied using a 300 mm x 300 mm square block on the center of the railing systems normal to the in-fill so as to engage 3 balusters. After release of the load, the systems were evaluated for failure, any evidence of disengagements of any component and visible cracks in any component.

#### UNIFORM LOAD TEST

A uniform load of 2.5 kN/m (171 plf) was applied vertically to the top of the guardrail systems. An outward uniform load of 0.83 kN/m (57 plf) and an inward uniform load of 0.42 kN/m (29 lb/ft) was

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applied horizontally to the top of the guardrail systems. The loads were applied using quarter point loads. After release of the load, the systems were evaluated for failure, any evidence of disengagements of any component and visible cracks in any component.

**CONCENTRATED LOAD TEST**

The top of the guardrail systems was subjected to six (6) separate tests where a concentrated load of:

- 1.67 kN (375 lbs) was applied horizontally outwards at the midspan of the top of the guard,
- 2.24 kN (503 lbs) was applied horizontally outwards at the top rail adjacent to the post connection to verify the connection capacity,
- 1.67 kN (375 lbs) was applied horizontally outwards at the top of post,
- 0.83 kN (187 lbs) was applied horizontally inwards at the midspan of the top of the guard,
- 1.12 kN (252 lbs) was applied horizontally inwards at the top rail adjacent to the post connection to verify the connection capacity,
- 0.83 kN (187 lbs) was applied horizontally inwards at the top of post.

After completion of the above load tests, the horizontal top of post in the outwards direction was loaded until failure. The maximum load was recorded and reported in the test data sheets of Appendix A.

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### SECTION 8

#### TEST SPECIMEN DESCRIPTION

The samples were identified as the following:

Table 1. Railing Configuration <sup>1</sup>					
Railing	Post	Post Spacing	Mounting Plate	Rails	In-fill
8 ft. Century Fascia Component System – 3-7/8 in. Spacing	2-1/2 in. x 2-1/2 in.	98-1/2 in.	4-1/2 in. x 4 in. fascia	49-1/2 in. high	5/8 in. x 5/8 in. Picket spaced 4-1/2 in. o/c
8 ft. Century Fascia Welded System – 3-7/8 in. Spacing	2-1/2 in. x 2-1/2 in.	98-1/2 in.	4-1/2 in. x 4 in. fascia	49-1/2 in. high	5/8 in. x 5/8 in. Picket spaced 4-1/2 in. o/c

Each railing had two (2) support legs under the bottom rail spaced at 33 in. o/c. The support legs were rigidly fixed to the test frame by securing with two (2) #8 x 1-1/2 in. long deck screws into nominal 2x4 SPF lumber, which was then clamped to the steel test frame. For detailed drawings of the test samples and components, refer to Appendix C.

Note 1: The supporting structure attachment was outside the scope of this evaluation, and is subject to evaluation and approval by the Engineer of Record and the Authority Having Jurisdiction (AHJ). The guard assemblies were attached to a rigid test support using steel plates with four (4) 3/8 in. Grade 5 bolts on each post.



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### SECTION 9

#### TEST RESULTS

A full set of test results is included in Appendix A.

### SECTION 10

#### CONCLUSION

The Cendek Railings Ltd. Aluminum Railing Systems identified and evaluated in this report have met the load requirements of Section 9.8.8.2 of the 2015 NBC, 2012 OBC, and 2018 BCBC using a safety factor as defined in Section 7, Note 2 of this report. Overall compliance with the Building Codes must be evaluated and approved by the Engineer of Record and Authority Having Jurisdiction.



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**SECTION 11**

**APPENDIX A – TEST DATA (5 PAGES)**

<b>Company</b>	Cendek Railings Ltd.	<b>Technician(s)</b>	Kevin Penner / Chad Carlsen
<b>Project No.</b>	G104281761	<b>Reviewer</b>	Baldeep Sandhu / Dan Lungu / Kal Kooner
<b>Models</b>	Component Fascia 3-7/8, Welded Fascia 3-7/8	<b>Start/End Date</b>	April 8-9, 2020
<b>Product Name</b>	Century Aluminum Railings	<b>Sample ID</b>	VAN2003191123-001
<b>Standard</b>	<b>2015 NBC/2012 OBC/2018 BCBC, Section 9.8.8.2</b>		

**Test Data Package**

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Load on Guards - Century Welded Fascia - Inward	5

Test: **Loads on Guards - Outwards (residential)**  
 Date: 8-Apr-20  
 Client: Cendek Railings Ltd.  
 Product: **Century Component Fascia 3-7/8**

Project: G104281761  
 Eng/Tech: Kevin Penner  
 Chad Carlsen  
 Reviewer: Baldeep Sandhu  
 Location: Coquitlam, BC, Canada

Post Spacing: 8.21 ft 2.50 m  
 Height of Guard: 42.25 in 1073 mm  
 Opening in Guard: 3.88 in 98 mm  
 Method: 2015 National Building Code of Canada, 9.8.8.2 *Loads on Guards*  
 2012 Ontario Building Code, 9.8.8.2 *Loads on Guards*  
 2018 British Columbia Building Code, 9.8.8.2 *Loads on Guards and Handrails*

Safety Factor: 1.67 (based on a resistance factor  $\phi = 0.9$  for aluminum)  
 2.24 (based on a resistance factor  $\phi = 0.67$  for connection)

Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due September 19, 2020)  
 T&D TR-72Ui Thermorecorder (Intertek ID# P60554, cal due September 4, 2020)  
 Stopwatch (Intertek ID# P60444, cal due February 5, 2021)  
 Mitutoyo Digital Caliper (Intertek ID# 52650, cal due May 24, 2020)

Time/Temp/RH: 8:30AM / 19.7°C / 34.0%

Direction	Test	Design Load (Inward/Outward) (lbf)	Factored Load	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Deflections (in.)	Pass/Fail
Outward	Individual Elements (over 12 in. x 12 in.)	112	187	-	-	187	1.870	Pass
	Vertical Uniform Load (per ft)	103	171	1442	703	1406	2.673	Pass
	Horizontal Uniform Load (per ft)	34	57	481	234	469	3.560	Pass
	Midspan Horizontal Concentrated Load	225	375	-	-	375	3.420	Pass
	Adjacent to Post Concentrated Load	225	503	-	-	503	6.430	Pass
	Top of Post Concentrated Load	225	375	-	-	375	4.014	Pass
	Top of Post Ultimate Load	538.5 lbs max load achieved						

Direction	Test	Design Load (Inward/Outward) (kN)	Factored Load	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Deflections (mm)	Pass/Fail
Outward	Individual Elements (over 300 mm in. x 300 mm)	0.5	0.83	-	-	0.83	47.5	Pass
	Vertical Uniform Load (per m)	1.5	2.5	1.96	3.13	6.25	67.9	Pass
	Horizontal Uniform Load (per m)	0.5	0.83	0.65	1.04	2.08	90.4	Pass
	Midspan Horizontal Concentrated Load	1	1.67	-	-	1.67	86.9	Pass
	Adjacent to Post Concentrated Load	1	2.24	-	-	2.24	163.3	Pass
	Top of Post Concentrated Load	1	1.67	-	-	1.67	102.0	Pass
	Top of Post Ultimate Load	2.40 kN max load achieved						

**Mode of Failure:** Baseplate to post connection failed; fastener heads broke

**Test: Loads on Guards - Inwards (residential)**

Date: 8-Apr-20  
 Client: Cendek Railings Ltd.  
 Product: **Century Component Fascia 3-7/8**  
 Post Spacing: 8.21 ft 2.50 m  
 Height of Guard: 42.25 in 1073 mm  
 Opening in Guard: 3.88 in 98 mm  
 Method: 2015 National Building Code of Canada, 9.8.8.2 *Loads on Guards*  
 2012 Ontario Building Code, 9.8.8.2 *Loads on Guards*  
 2018 British Columbia Building Code, 9.8.8.2 *Loads on Guards and Handrails*

Project: G104281761  
 Eng/Tech: Kevin Penner  
 Chad Carlsen  
 Reviewer: Baldeep Sandhu  
 Location: Coquitlam, BC, Canada

Safety Factor: 1.67 (based on a resistance factor  $\phi = 0.9$  for aluminum)  
 2.24 (based on a resistance factor  $\phi = 0.67$  for connection)

Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due September 19, 2020)  
 T&D TR-72Ui Thermorecorder (Intertek ID# P60554, cal due September 4, 2020)  
 Stopwatch (Intertek ID# P60444, cal due February 5, 2021)  
 Mitutoyo Digital Caliper (Intertek ID# 52650, cal due May 24, 2020)

Time/Temp/RH: 8:30AM / 19.7°C / 34.0%

Direction	Test	Design Load (Inward/Outward) (lbf)	Factored Load	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Deflections (in.)	Pass/Fail
Inward	Horizontal Uniform Load (per ft)	17	29	240	117	234	1.435	Pass
	Midspan Horizontal Concentrated Load	112	187	-	-	187	1.752	Pass
	Adjacent to Post Concentrated Load	112	252	-	-	252	2.802	Pass
	Top of Post Concentrated Load	112	187	-	-	187	2.451	Pass

Direction	Test	Design Load (Inward/Outward) (kN)	Factored Load	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Deflections (mm)	Pass/Fail
Inward	Horizontal Uniform Load (per m)	0.25	0.42	0.33	0.52	1.04	36.4	Pass
	Midspan Horizontal Concentrated Load	0.5	0.83	-	-	0.83	44.5	Pass
	Adjacent to Post Concentrated Load	0.5	1.12	-	-	1.12	71.2	Pass
	Top of Post Concentrated Load	0.5	0.83	-	-	0.83	62.2	Pass

Test: **Loads on Guards - Outwards (residential)**

Date: 9-Apr-20

Client: Cendek Railings Ltd.

Product: **Century Welded Fascia 3-7/8**

Post Spacing: 8.21 ft 2.50 m

Height of Guard: 42.25 in 1073 mm

Opening in Guard: 3.88 in 98 mm

Method: 2015 National Building Code of Canada, 9.8.8.2 *Loads on Guards*

2012 Ontario Building Code, 9.8.8.2 *Loads on Guards*

2018 British Columbia Building Code, 9.8.8.2 *Loads on Guards and Handrails*

Safety Factor: 1.67 (based on a resistance factor  $\phi = 0.9$  for aluminum)

2.24 (based on a resistance factor  $\phi = 0.67$  for connection)

Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due September 19, 2020)

T&D TR-72Ui Thermorecorder (Intertek ID# P60554, cal due September 4, 2020)

Stopwatch (Intertek ID# P60444, cal due February 5, 2021)

Mitutoyo Digital Caliper (Intertek ID# 52650, cal due May 24, 2020)

Time/Temp/RH: 8:30AM / 20.1°C / 45.0%

Project: G104281761

Eng/Tech: Kevin Penner

Chad Carlsen

Reviewer: Baldeep Sandhu

Location: Coquitlam, BC, Canada

Direction	Test	Design Load (Inward/Outward) (lbf)	Factored Load	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Deflections (in.)	Pass/Fail
Outward	Individual Elements (over 12 in. x 12 in.)	112	187	-	-	187	1.327	<b>Pass</b>
	Vertical Uniform Load (per ft)	103	171	1442	703	1406	2.434	<b>Pass</b>
	Horizontal Uniform Load (per ft)	34	57	481	234	469	4.161	<b>Pass</b>
	Midspan Horizontal Concentrated Load	225	375	-	-	375	5.860	<b>Pass</b>
	Adjacent to Post Concentrated Load	225	503	-	-	503	6.340	<b>Pass</b>
	Top of Post Concentrated Load	225	375	-	-	375	4.013	<b>Pass</b>
	Top of Post Ultimate Load	585.5 lbs max load achieved						

Direction	Test	Design Load (Inward/Outward) (kN)	Factored Load	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Deflections (mm)	Pass/Fail
Outward	Individual Elements (over 300 mm in. x 300 mm)	0.5	0.83	-	-	0.83	33.7	<b>Pass</b>
	Vertical Uniform Load (per m)	1.5	2.5	1.96	3.13	6.25	61.8	<b>Pass</b>
	Horizontal Uniform Load (per m)	0.5	0.83	0.65	1.04	2.08	105.7	<b>Pass</b>
	Midspan Horizontal Concentrated Load	1	1.67	-	-	1.67	148.8	<b>Pass</b>
	Adjacent to Post Concentrated Load	1	2.24	-	-	2.24	161.0	<b>Pass</b>
	Top of Post Concentrated Load	1	1.67	-	-	1.67	101.9	<b>Pass</b>
	Top of Post Ultimate Load	2.60 kN max load achieved						

**Mode of Failure:** Railing assembly yielded until no further load could be applied.

Test: **Loads on Guards - Inwards (residential)**

Date: 9-Apr-20

Client: Cendek Railings Ltd.

Product: **Century Welded Fascia 3-7/8**

Post Spacing: 8.21 ft 2.50 m

Height of Guard: 42.25 in 1073 mm

Opening in Guard: 3.88 in 98 mm

Method: 2015 National Building Code of Canada, 9.8.8.2 *Loads on Guards*

2012 Ontario Building Code, 9.8.8.2 *Loads on Guards*

2018 British Columbia Building Code, 9.8.8.2 *Loads on Guards and Handrails*

Safety Factor: 1.67 (based on a resistance factor  $\phi = 0.9$  for aluminum)

2.24 (based on a resistance factor  $\phi = 0.67$  for connection)

Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due September 19, 2020)

T&D TR-72Ui Thermorecorder (Intertek ID# P60554, cal due September 4, 2020)

Stopwatch (Intertek ID# P60444, cal due February 5, 2021)

Mitutoyo Digital Caliper (Intertek ID# 52650, cal due May 24, 2020)

Time/Temp/RH: 8:30AM / 20.1°C / 45.0%

Project: G104281761

Eng/Tech: Kevin Penner

Chad Carlsen

Reviewer: Baldeep Sandhu

Location: Coquitlam, BC, Canada

Direction	Test	Design Load (Inward/Outward) (lbf)	Factored Load	Calculated Moment (lbf-ft)	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Deflections (in.)	Pass/Fail
Inward	Horizontal Uniform Load (per ft)	17	29	240	117	234	1.586	Pass
	Midspan Horizontal Concentrated Load	112	187	-	-	187	2.695	Pass
	Adjacent to Post Concentrated Load	112	252	-	-	252	2.654	Pass
	Top of Post Concentrated Load	112	187	-	-	187	2.402	Pass

Direction	Test	Design Load (Inward/Outward) (kN)	Factored Load	Calculated Moment (kNm)	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Deflections (mm)	Pass/Fail
Inward	Horizontal Uniform Load (per m)	0.25	0.42	0.33	0.52	1.04	40.3	Pass
	Midspan Horizontal Concentrated Load	0.5	0.83	-	-	0.83	68.4	Pass
	Adjacent to Post Concentrated Load	0.5	1.12	-	-	1.12	67.4	Pass
	Top of Post Concentrated Load	0.5	0.83	-	-	0.83	61.0	Pass



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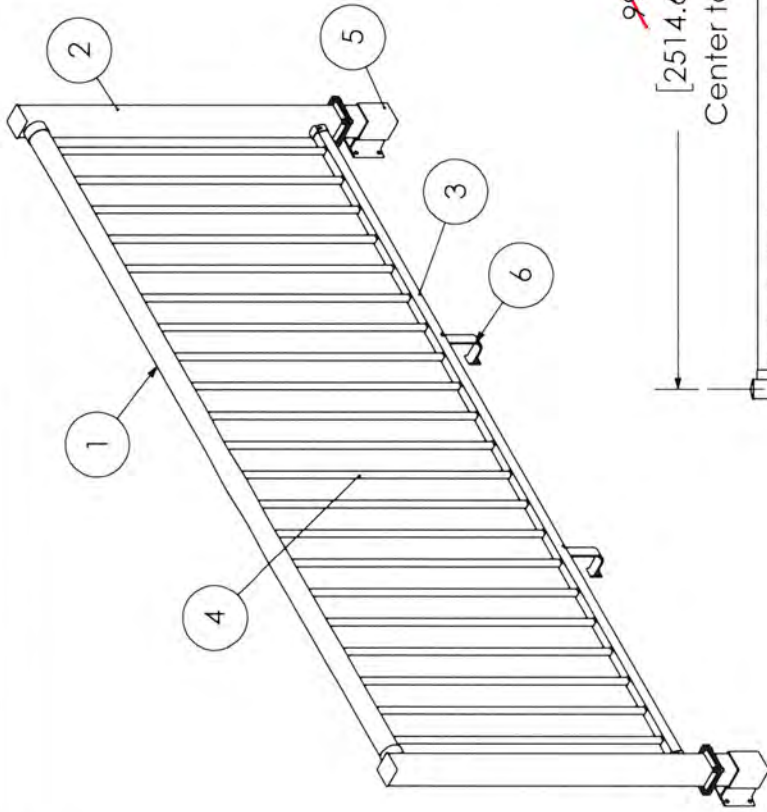
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**APPENDIX C – DRAWINGS (11 PAGES)**

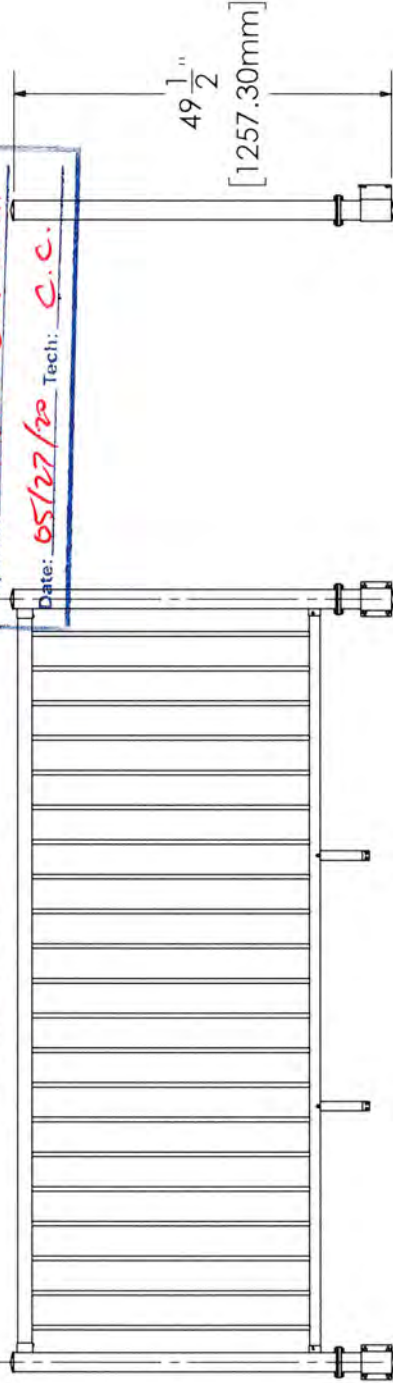


ITEM NO.	Eng No.	Material	DESCRIPTION	QTY.
1	0042PB	6063-T5	Welded Top Rail Century Round 96in	1
2	0086A	6063-T5	2-1/2" End Post for 42" High Railing Round Profile	2
3	0058PB	6063-T5	96in Bottom Rail - Welded-3.875 Spacing	1
4	0063PA	6063-T5	5/8" Picket 37-9/16" for 42" Welded Panels	21
5	0217A	6063-T5	2 1/2" Line/End/Stair Fascia Bracket (w/baseplate)	2
6	0076PA	6063-T5	2" Offset Fascia Support Leg for 2-1/2" Post	2



**Intertek**  
 Valued Quality. Delivered.  
 Test sample complies with these details.  
 Deviations are noted.  
 Report #: 104281261COQ-001A  
 Date: 05/27/20 Tech: C.C.

98 1/2"  
 [2514.60mm]  
 Center to Center



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DRAWN BY	cchsleitt	5/1/2020
CHECKED		
MATERIAL		
DIE NO.		
ALL DIMENSION IN INCHES/MM		

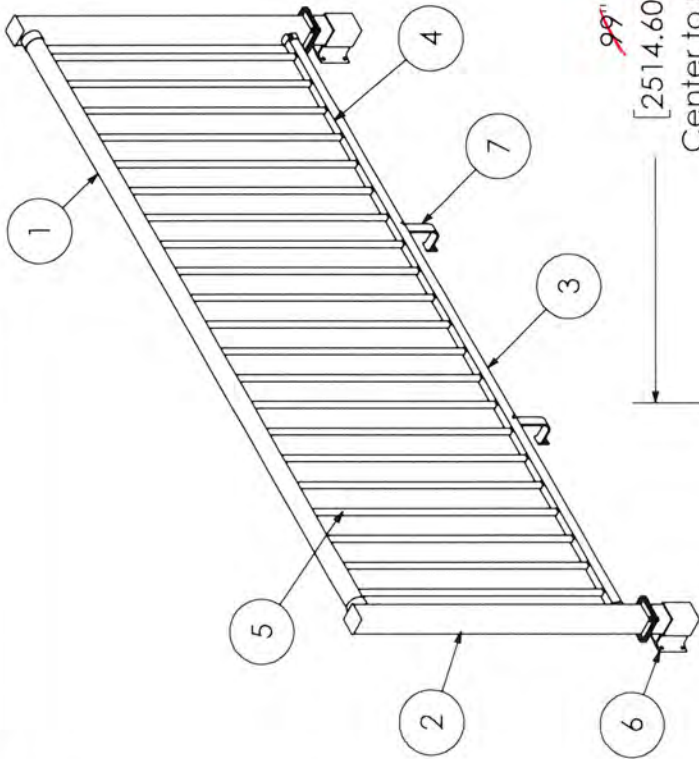
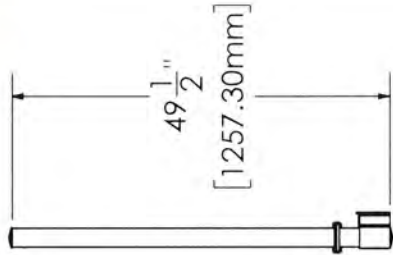
**DESCRIPTION**

96" Fascia Century Welded System -  
 3-7/8" Spacing

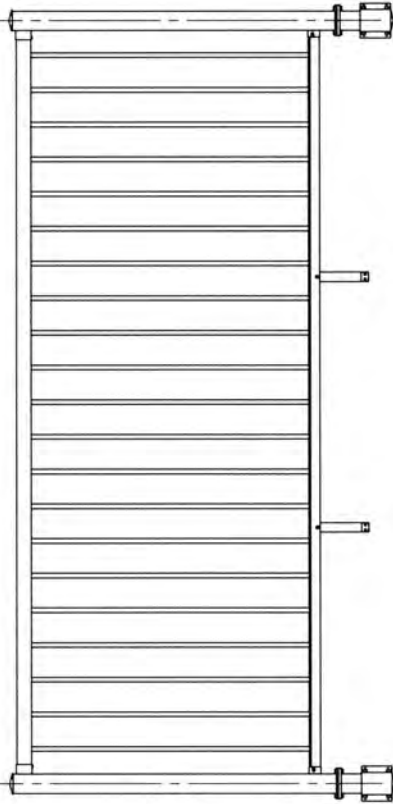
REV.	DESCRIPTION	DATE	INITIALS

Part No: NA	Eng No: 0870A
Weight: 29.90 lbs	SHEET 1 OF 1
	Rev

Item No.	Eng No.	Material	DESCRIPTION	QTY.
1	0041PB	6063-T5	Century Top Rail 96in	1
2	0086A	6063-T5	2-1/2" End Post for 42" High Railing Round Profile	2
3	0057PB	6063-T5	96in Bottom Rail - Component	1
4	0111PB	6063-T5	96in BR Straight Clip	1
5	0198P	6063-T5	5/8" Picket 37-7/8" for Component	21
6	0217A	6063-T5	2 1/2" Line/End/Stair Fascia Bracket (w/baseplate)	2
7	0076PA	6063-T5	2" Offset Fascia Support Leg for 2-1/2" Post	2



99" 98 1/2" [2514.60mm] Center to Center



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DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL		
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION	
96" Century Fascia Component System-3-7/8" Spacing	
Part No. NA	Eng No. 0866A
Weight 32.01 lbs	SHEET 1 OF 1 Rev

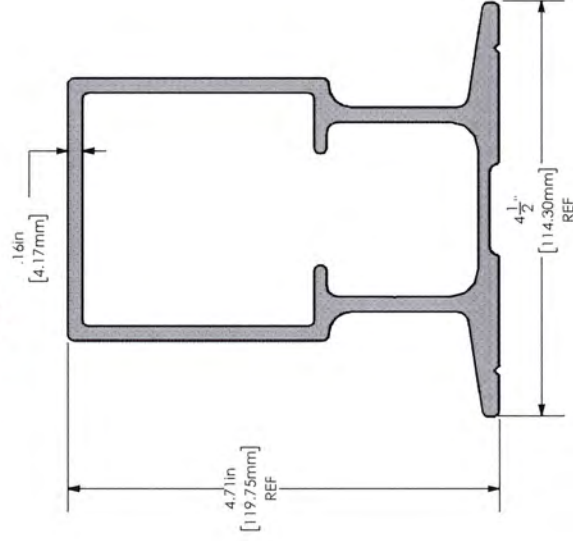
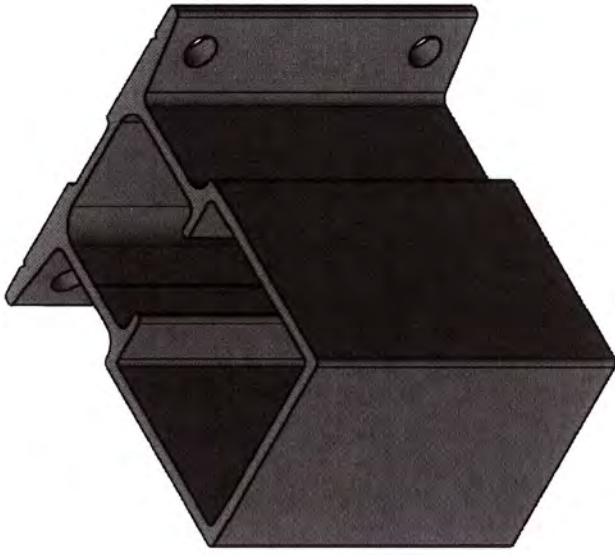
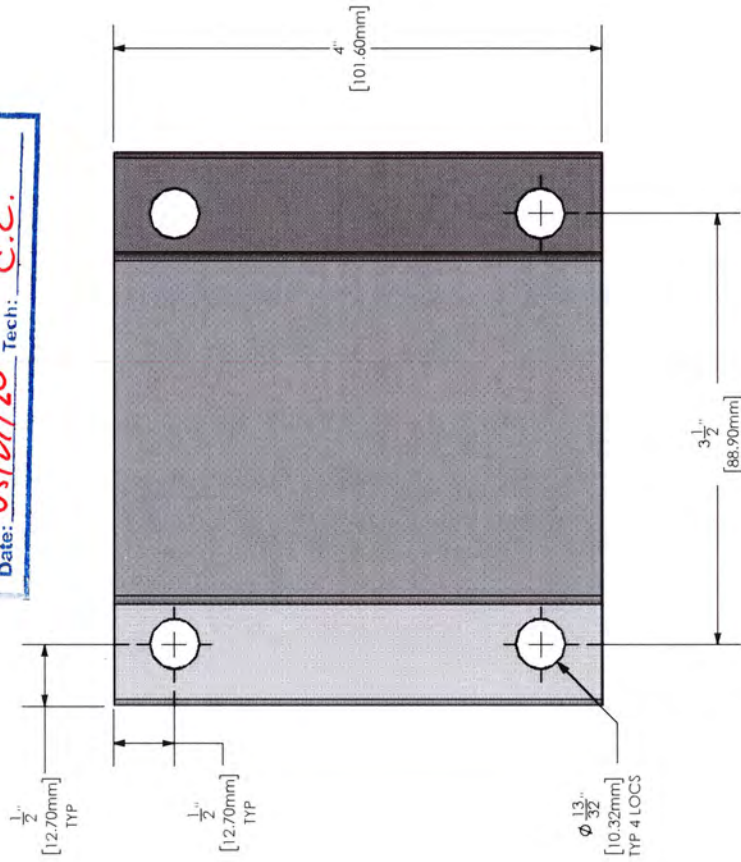
REV.	DESCRIPTION	DATE	INITIALS

**Intertek**  
 Valued Quality Delivered

**Test sample complies with these details.**  
 Deviations are noted.

Report #: **104281761 COQ-001A**

Date: **05/27/20** Tech: **C.C.**



**CenDek**  
 Railings Ltd.

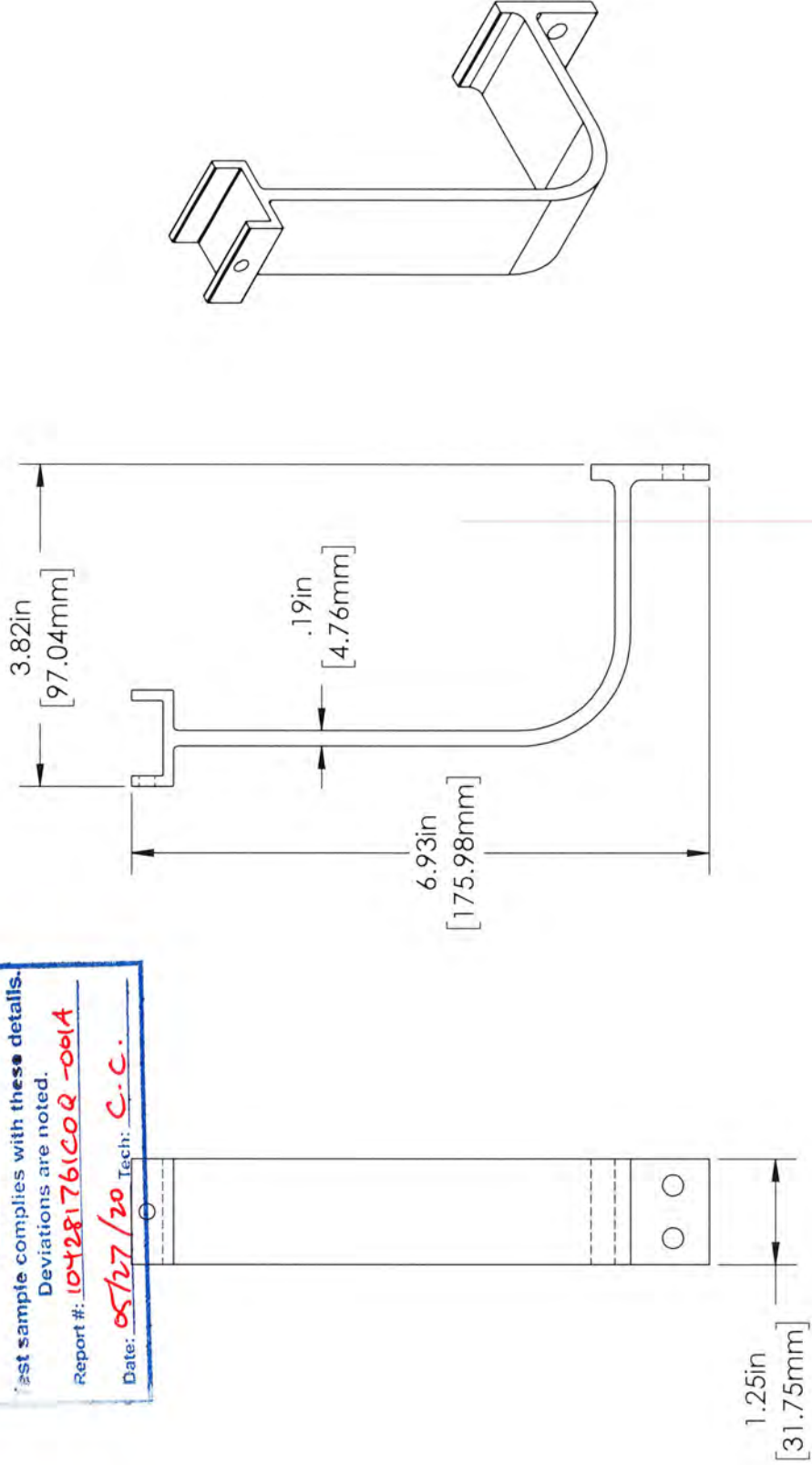
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DRAWN BY	cchislett	4/27/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.	696676	
ALL DIMENSION IN INCHES/mm		

<b>DESCRIPTION</b>	
2-1/2" Line/End/Stair Fascia Bracket	
Material 4"	
Part No. 1700-FAS-04004	Eng No. 0172P
Weight 1.22 lbs	SHEET 1 OF 1
	Rev

REV.	DESCRIPTION	DATE	INITIALS

**Inertek**  
 Valued Quality. Delivered.  
 Fast sample complies with these details.  
 Deviations are noted.  
 Report #: 104281761COR-001A  
 Date: 05/27/20 Tech: C.C.



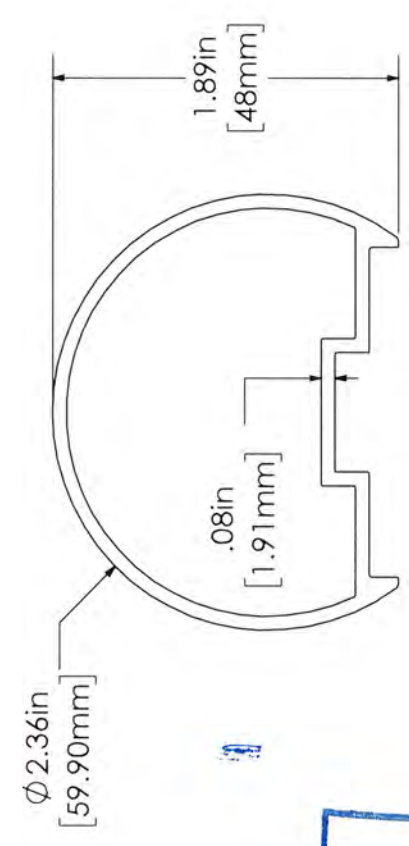
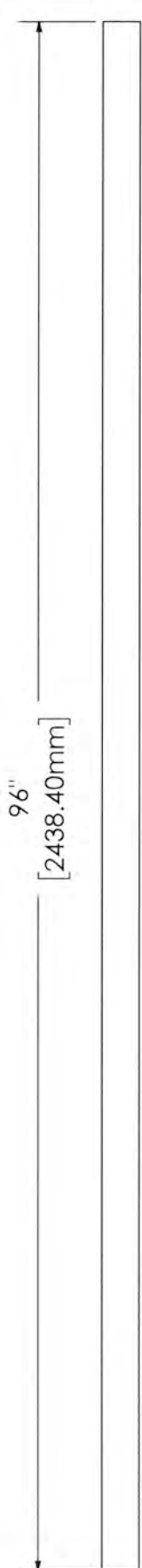
**CenDek**  
 Railings Ltd.

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DRAWN BY	cchislett	5/11/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/mm		

DESCRIPTION		
2" Offset Fascia Support Leg for 2-1/2" Post		
Part No. 4600-LEG-60400	Eng No. 0076PA	
Weight 109.42 lbs	SHEET 1 OF 1	Rev

REV.	DESCRIPTION	DATE	INITIALS



**Intertek**  
 Valued Quality. Delivered.  
 Test sample complies with these details.  
 Deviations are noted.  
 Report #: 104281761 COQ-001A  
 Date: 05/27/20 Tech: C.C.

**CenDek**  
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DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

<b>DESCRIPTION</b>	
Welded Top Rail Century Round 96in	
Part No. NA	Eng No. 0042PB
Weight 5.28 lbs	SHEET 1 OF 1
	Rev

REV.	DESCRIPTION	DATE	INITIALS

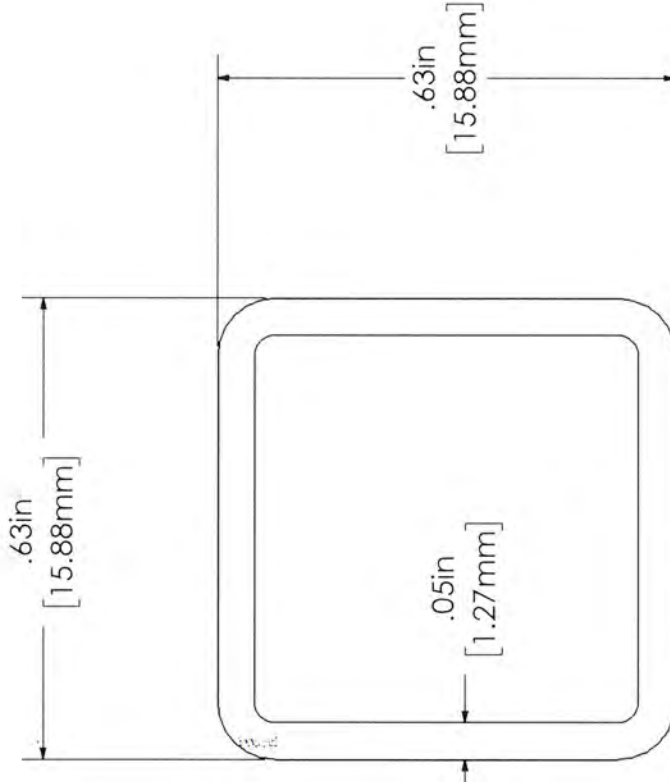
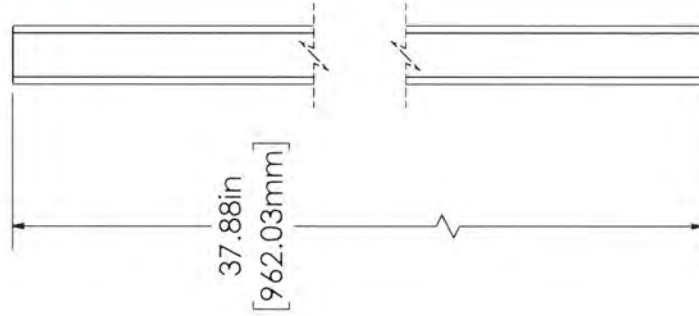
**REVISIONS**

**Invertek**  
Valued Quality. Delivered.

Each sample complies with these details.  
Deviations are noted.

Report #: 104781761 COQ -001A

Date: 05/27/20 Tech: C.C.



EXTRUSION TOLERANCE	CUT LENGTH TOLERANCE	MACHINING TOLERANCE	
Dimension (mm)	Tolerance	Dimension (mm)	
<1	±0.10	≤10	±0.2
<1-2	±0.12	>10<20	±0.3
<2-3	±0.14	>20<30	±0.4
<3-4	±0.16	>30<40	±0.5
<4-6	±0.18	>40<60	±0.6
<6-12	±0.20	>60<100	±0.8
<12-19	±0.23	Above 100	±1.0
<19-25	±0.25		
<25-38	±0.30		
<38-50	±0.36		
<50-100	±0.61		
<100-150	±0.86		
<150-200	±1.12		
<200-250	±1.38		

REV.	DESCRIPTION	DATE	INITIALS

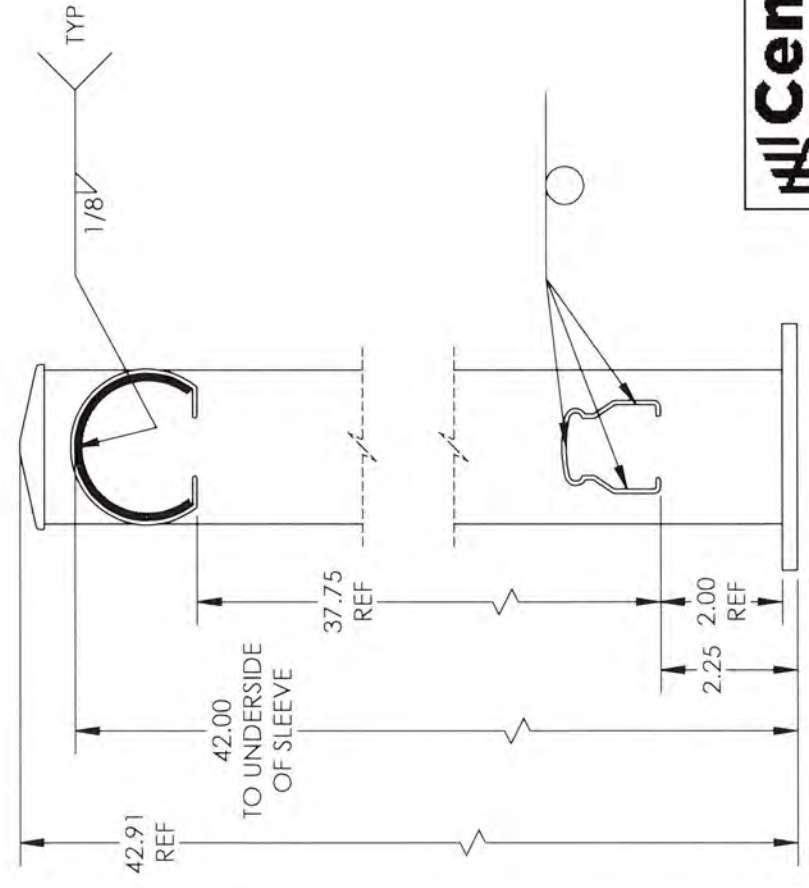
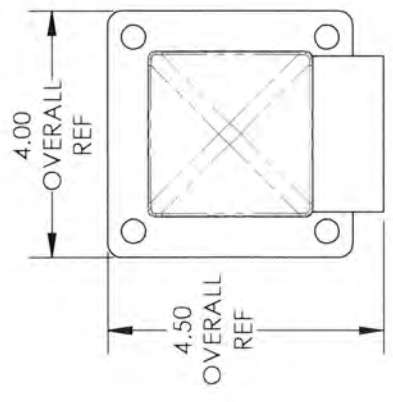
**CenDek**  
Railings Ltd.

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DRAWN BY	ccshleitt	5/11/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.	DYFI0473127	
ALL DIMENSION IN INCHES/MM		

DESCRIPTION	
5/8" Picket 37-7/8" for Component	
Part No. 1400-PIC-13178	Eng No. 0198P
Weight 0.41 lbs	SHEET 1 OF 1
	Rev

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0054PB	4700-BAS-70400	4" X 4" Baseplate for 2-1/2" Post	1
2	0078P	2000-CAP-20002	Pyramid Cap 2.50 Post	1
3	0012PA	1604-SLE-20025	Top Rail Sleeve Round cut WB, Post Sleeve	1
4	0051PA	1600-SLE-10011	Bottom Rail Sleeve Welded Cut WB	1
5	0071P	1500-POS-24214	2-1/2" Post Material 42-1/4"	1



**Intertek**  
 Valued Quality. Delivered.

Test sample complies with these details.  
 Deviations are noted.  
 Report #: 04281761 COQ-00AA  
 Date: 05/27/20 Tech: C-C.

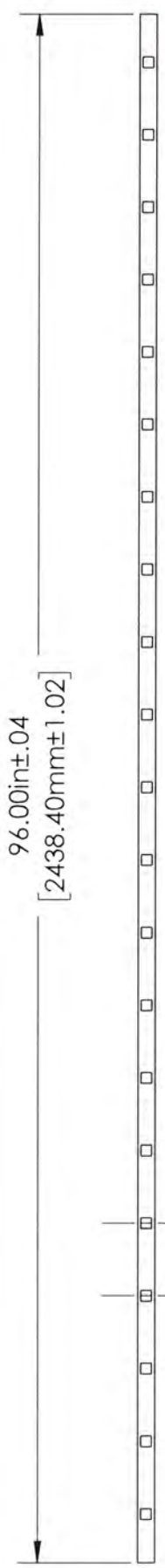
**CenDek**  
 Railings Ltd.

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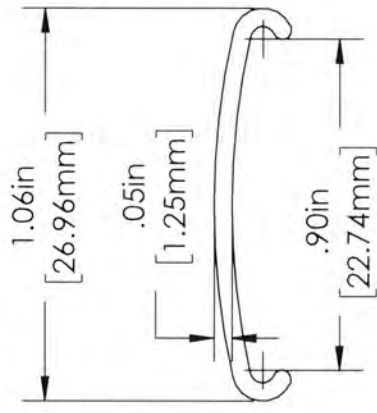
DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION		
2-1/2" End Post for 42" High Railing Round Profile		
Part No.	5104-POS-27042	Eng No. 0086A
Weight	4.03 lbs	SHEET 1 OF 1 Rev. 2

REVISIONS			
REV.	DESCRIPTION	DATE	INITIALS
1	WELD TABLE	11/15/18	CC



4.50in  
[114.30mm]



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DRAWN	cchislett	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE #	DYG12071120	

DESCRIPTION  
 96in BR Straight Clip

DWG NO	0111PB	REV	0
ALL DIMENSION IN INCHES/MM			

REVISIONS			
REV.	DESCRIPTION	DATE	INITIALS

0.54 lbs

SHEET 1 OF 1



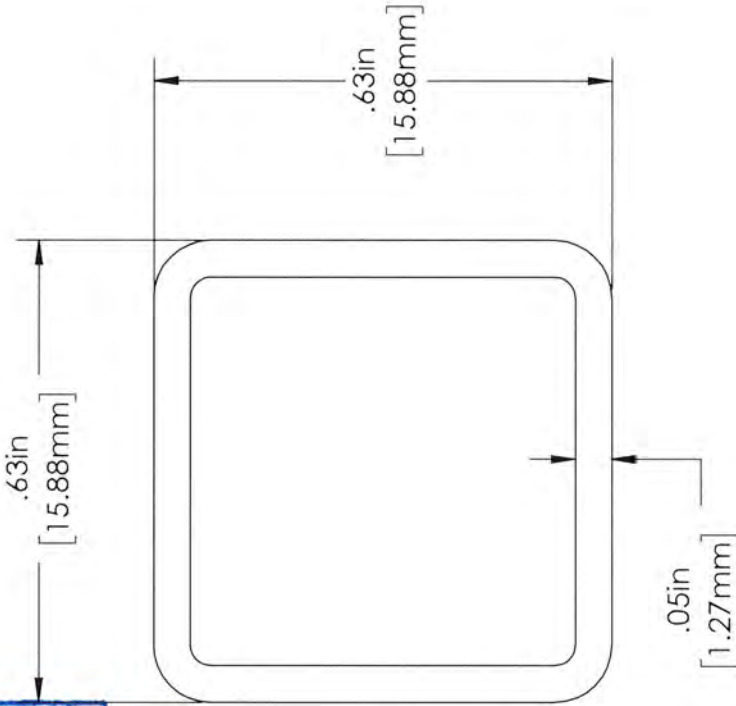
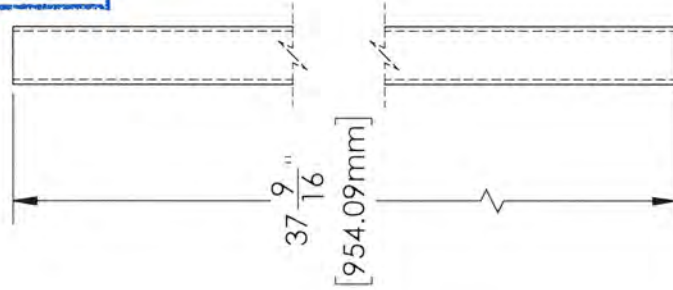


Valued Quality. Delivered.

Test sample complies with these details.  
Deviations are noted.

Report #: 104281761000-001A

Date: 05/27/20 Tech: C.C.



EXTRUSION TOLERANCE	
<1	+0.10
<1-2	+0.12
<2-3	+0.14
<3-4	+0.16
<4-6	+0.18
<6-12	+0.20
<12-19	+0.23
<19-25	+0.25
<25-38	+0.30
<38-50	+0.36
<50-100	+0.61
<100-150	+0.86
<150-200	+1.12
<200-250	+1.38



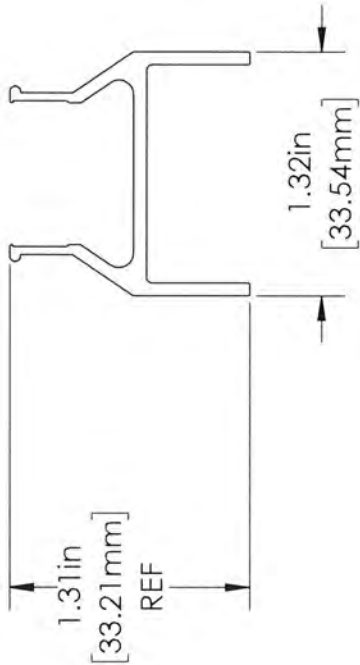
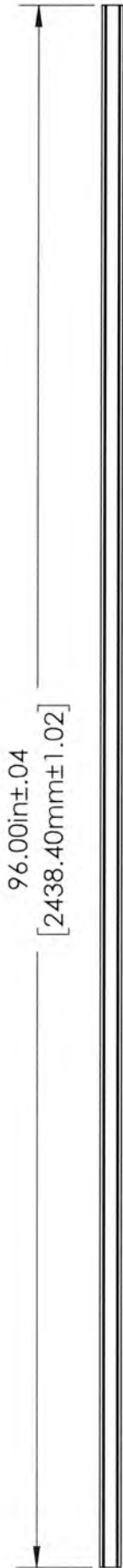
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DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION  
5/8" Picket 37-9/16" for 42"  
Welded Panels

Part No.	1400-PIC-33791	Eng No.	0063PA
Weight	0.40 lbs	SHEET	1 OF 2
		Rev	0

REV.	DESCRIPTION	DATE	INITIALS



**Inertek**  
Validated Quality Delivered.

Test sample complies with these details.  
Deviations are noted.  
Report #: 104281761C0Q-001A  
Date: 05/27/20 Tech: C.C.

**CenDek**  
Railings Ltd.

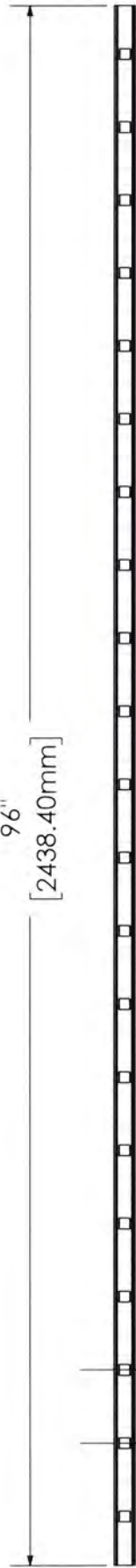
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DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION 96in Bottom Rail - Component		
Part No. NA	Weight 2.53 lbs	Eng No. 0057PB
		SHEET 1 OF 1
		Rev

REV.	DESCRIPTION	DATE	INITIALS

96"  
[2438.40mm]



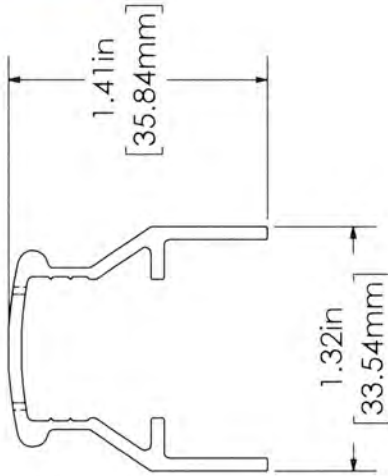
4 1/2"  
[114.30mm]

**Inertek**  
Validated Quality. Delivered.

Test sample complies with these details.  
Deviations are noted.

Report #: 10428176(COQ-00A)

Date: 05/27/20 Tech: C.C.



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OR WHOLE WITHOUT THE PERMISSION  
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DRAWN BY	ccshleitt	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION  
96in Bottom Rail - Welded-3.875  
Spacing

REV.	DESCRIPTION	DATE	INITIALS

Part No. NA	Eng No. 0058PB
Weight 2.72 lbs	SHEET 1 OF 2
	Rev

## TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104281761COQ-001A

Date: 05/27/20

### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	05/27/20	N/A	Original Report Issue