

CENDEK RAILINGS LTD. TEST REPORT

SCOPE OF WORK

REPORT OF 8 FT. CENTURY FASCIA WELDED SYSTEM (3-1/2 IN. SPACING) AND 8 FT. CENTURY SURFACE WELDED SYSTEM (3-1/2 IN. SPACING) TESTED IN ACCORDANCE WITH LOAD REQUIREMENTS OF THE FOLLOWING:

- 2015 NATIONAL BUILDING CODE OF CANADA (NBC), SECTION 4.1.5.14 *LOADS ON GUARDS AND HANDRAILS*
- 2012 ONTARIO BUILDING CODE (OBC), SECTION 4.1.5.14 *LOADS ON GUARDS*
- 2018 BRITISH COLUMBIA BUILDING CODE (BCBC), SECTION 4.1.5.14 *LOADS ON GUARDS AND HANDRAILS*

REPORT NUMBER

104281761COQ-001B

TEST DATE

03/13/20 – 04/14/20

ISSUE DATE

05/27/20

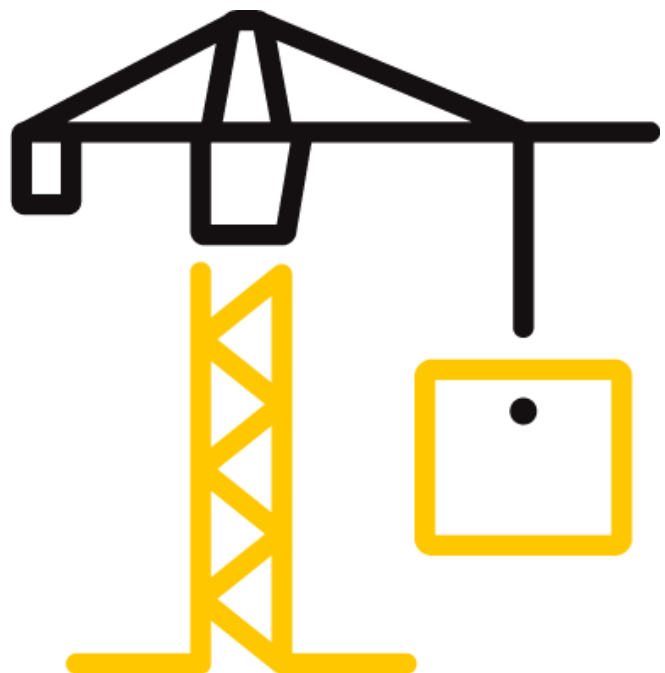
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TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104281761COQ-001B

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 4.1.5.14 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:

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

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TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104281761COQ-001B
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<p>Engineer's Disclaimer:</p> <ul style="list-style-type: none"> • Intertek Engineers do not assume professional responsibility of Engineer of Record. • Compliance to Building Codes must be approved by the Engineer of Record or Authority Having Jurisdiction. • Intertek Engineer's seal and signature are only for code review of loads, test setup, and witnessing. 	<p style="text-align: center;">Engineers Approval Stamp</p> <div style="text-align: center;">  <p>Dan Lungu, P.Eng. Project Engineer, Building & Construction Intertek</p> </div> <hr/> <div style="text-align: center;">  <p>Kal Kooner, P.Eng. Director, B&C Canada Intertek</p> </div>
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SECTION 2

SUMMARY OF TEST RESULTS

SYSTEM DESCRIPTION	TEST	PASS/FAIL
8 ft. Century Fascia Welded System – 3-1/2 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
8 ft. Century Surface Welded System – 3-1/2 in. Spacing	In-fill Load	Pass
	Vertical Uniform Load Test	Pass
	Horizontal Uniform Load Test	Pass
	Horizontal – Mid-Span Concentrated Load	Pass
	Horizontal – Adjacent to Post Concentrated Load	Pass
	Horizontal – Top of Post Concentrated Load	Pass

Refer to Appendix B for photos of testing.

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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 4.1.5.14 *Loads on Guards and Handrails*

2012 Ontario Building Code, Section 4.1.5.14 *Loads on Guards*

2018 British Columbia Building Code, Section 4.1.5.14 *Loads on Guards and Handrails*

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
P60688	Artech 1k lb S-Type Load Cell	20210-1K	05/01/20
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
D7810	Multi-Use Laboratory Equipment	Micro Mule	04/30/20
D7820	Tyco Electronics 0-20 in. Linear Transducer	PT1MA-20-UP-420E-M6	06/01/20

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 4.1.5.14 of the 2015 NBC, 2012 OBC, and 2018 BCBC, and the following tests were conducted:

2015 NBC / 2012 OBC / 2018 BCBC: SECTION 4.1.5.14 LOADS ON GUARDS AND HANDRAILS / LOADS ON GUARDS

- 1) The minimum specified horizontal load applied inward or outward at the minimum required height of every guard shall be 0.75 kN/m or a concentrated load of 1.0 kN applied at any point.
- 2) The minimum specified horizontal load applied inward at the minimum required height of every required guard shall be half that specified in Sentence (1).
- 3) 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 100 mm x 100 mm located at any point in the element or elements so as to produce the most critical effect.
- 4) The size of the opening between any two adjacent vertical elements within a *guard* shall not exceed 100 mm when each of these elements is subjected to a specified *live load* of 0.1 kN applied in opposite directions in the in-plane direction of the *guard* so as to produce the most critical effect. (2015 NBC and 2018 BCBC only)
- 5) The minimum specified load applied vertically at the top of every required *guard* shall be 1.5 kN/m.
- 6) None of the loads specified above need be considered to act simultaneously.

Notes 1: 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 100 mm x 100 mm square block on the center of the railing systems normal to the in-fill. After release of the load, the systems were evaluated for failure, any

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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 1.25 kN/m (86 plf) was applied horizontally to the top of the guardrail systems. For the fascia mounted system, an additional inward uniform load of 0.63 kN/m (43 lb/ft) was applied horizontally to the top of the guardrail system. 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

For the surface mounted system, the top of the guardrail system was subjected to three (3) 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, and
- 1.67 kN (375 lbs) was applied horizontally outwards at the top of post.

For the fascia mounted system, the top of the guardrail system was subjected to three (3) additional separate tests where a concentrated load of:

- 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.

SIZE OF OPENING

The opening between adjacent vertical elements was subjected to a specified live load of 0.1 kN applied in opposite directions and measured.

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SECTION 8

TEST SPECIMEN DESCRIPTION

The samples were identified as the following:

Table 1. Railing Configuration ¹					
Railing	Post	Post Spacing	Mounting Plate	Rails	In-fill
8 ft. Century Welded Fascia 3-1/2 Railing System	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 4-1/8 in. o/c
8 ft. Century Welded Surface 3-1/2 Railing System	2-1/2 in. x 2-1/2 in.	98-5/8 in.	4 in. x 4 in. x 1/4 in.	42-1/2 in. high	5/8 in. x 5/8 in. Picket spaced 4-1/8 in. o/c

Each railing had two (2) support legs under the bottom rail spaced at approximately 32 in. o/c. The support legs were rigidly fixed to the test frame by securing with one to two (1-2) #8 x 1-1/2 in. long deck screws (depending on configuration) 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 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 4.1.5.14 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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Date: 05/27/20

SECTION 11

APPENDIX A – TEST DATA (4 PAGES)

Company	Cendek Railings Ltd.	Technician(s)	Kevin Penner / Chad Carlsen
Project No.	G104281761	Reviewer	Baldeep Sandhu / Dan Lungu / Kal Kooner
Models	Welded Fascia 3-1/2, Welded Surface 3-1/2	Start/End Date	March 13 - April 14, 2020
Product Name	Century Aluminum Railings	Sample ID	VAN2003191123-001
Standard	2015 NBC/2012 OBC/2018 BCBC, Section 4.1.5.14		

Test Data Package

Table of Contents

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Load on Guards - Century Welded Fascia - Outward	2
Load on Guards - Century Welded Fascia - Inward	3
Load on Guards - Century Welded Surface	4

Test: **Loads on Guards - Section 4.1.5.14 (Outward)**

Date: 14-Apr-20

Client: Cendek Railings Ltd.

Product: **Century Welded Fascia 3-1/2**

Post Spacing: 8.21 ft 2.50 m

Height of Guard: 42 in 1067 mm

Opening in Guard: 3.50 in 89 mm

Method: 2015 National Building Code of Canada, 4.1.5.14 Loads on Guards and Handrails

2012 Ontario Building Code, 4.1.5.14 Loads on Guards

2018 British Columbia Building Code, 4.1.5.14 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)

Artech 1000 lbf Load Cell (Intertek ID# P60688, cal due May 1, 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)

Multi-Use Laboratory Equipment (M.U.L.E) Micro-Mule (Intertek ID# D7810, cal due April 30, 2020)

Tyco 0-20 in. Linear Transducer (Intertek ID# D7820, cal due June 1, 2020)

Time/Temp/RH: 8:30AM / 22.0°C / 49.0%

Project: G104281761

Eng/Tech: Kevin Penner

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 4 in. x 4 in.)	112	187	-	-	187	2.248	Pass
	Vertical Uniform Load (per ft)	103	171	1442	703	1406	1.739	Pass
	Horizontal Uniform Load (per ft)	51	86	721	351	703	6.501	Pass
	Midspan Horizontal Concentrated Load	225	375	-	-	375	3.905	Pass
	Adjacent to Post Concentrated Load	225	503	-	-	503	6.270	Pass
	Top of Post Concentrated Load	225	375	-	-	375	4.742	Pass
	Top of Post Ultimate Load	584.0 lbs max load achieved						
In-plane	Size of Opening	22.5	-	-	-	22.5	3.872	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
Outward	Individual Elements (over 100 mm in. x 100 mm)	0.5	0.83	-	-	0.83	57.1	Pass
	Vertical Uniform Load (per m)	1.5	2.5	1.96	3.13	6.25	44.2	Pass
	Horizontal Uniform Load (per m)	0.75	1.25	0.98	1.56	3.13	165.1	Pass
	Midspan Horizontal Concentrated Load	1	1.67	-	-	1.67	99.2	Pass
	Adjacent to Post Concentrated Load	1	2.24	-	-	2.24	159.3	Pass
	Top of Post Concentrated Load	1	1.67	-	-	1.67	120.4	Pass
	Top of Post Ultimate Load	2.60 kN max load achieved						
In-plane	Size of Opening	0.1	-	-	-	0.10	98.3	Pass

ULTIMATE LOAD: Railing assembly yielded until no further load could be applied.

Test: **Loads on Guards - Section 4.1.5.14 (Inward)**

Date: 14-Apr-20

Client: Cendek Railings Ltd.

Product: **Century Welded Fascia 3-1/2**

Post Spacing: 8.21 ft 2.50 m

Height of Guard: 42 in 1067 mm

Opening in Guard: 3.50 in 89 mm

Method: 2015 National Building Code of Canada, 4.1.5.14 Loads on Guards and Handrails

2012 Ontario Building Code, 4.1.5.14 Loads on Guards

2018 British Columbia Building Code, 4.1.5.14 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)

Artech 1000 lbf Load Cell (Intertek ID# P60688, cal due May 1, 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)

Multi-Use Laboratory Equipment (M.U.L.E) Micro-Mule (Intertek ID# D7810, cal due April 30, 2020)

Tyco 0-20 in. Linear Transducer (Intertek ID# D7820, cal due June 1, 2020)

Time/Temp/RH: 8:30AM / 22.0°C / 49.0%

Project: G104281761

Eng/Tech: Kevin Penner

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)	26	43	361	176	351	2.796	Pass
	Midspan Horizontal Concentrated Load	112	187	-	-	187	2.020	Pass
	Adjacent to Post Concentrated Load	112	252	-	-	252	2.732	Pass
	Top of Post Concentrated Load	112	187	-	-	187	2.899	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)	0.375	0.63	0.49	0.78	1.56	71.0	Pass
	Midspan Horizontal Concentrated Load	0.5	0.83	-	-	0.83	51.3	Pass
	Adjacent to Post Concentrated Load	0.5	1.12	-	-	1.12	69.4	Pass
	Top of Post Concentrated Load	0.5	0.83	-	-	0.83	73.6	Pass

Test: **Loads on Guards - Section 4.1.5.14**

Date: 13-Mar-20

Client: Cendek Railings Ltd.

Product: **Century Welded Surface 3-1/2**

Post Spacing: 8.22 ft 2.51 m

Height of Guard: 42 in 1067 mm

Opening in Guard: 3.50 in 89 mm

Method: 2015 National Building Code of Canada, 4.1.5.14 Loads on Guards and Handrails

2012 Ontario Building Code, 4.1.5.14 Loads on Guards

2018 British Columbia Building Code, 4.1.5.14 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)

Artech 1000 lbf Load Cell (Intertek ID# P60688, cal due May 1, 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 / 23.0°C / 49.0%

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 4 in. x 4 in.)	112	187	-	-	187	1.772	Pass
	Vertical Uniform Load (per ft)	103	171	1446	704	1407	0.108	Pass
	Horizontal Uniform Load (per ft)	51	86	723	352	704	4.218	Pass
	Midspan Horizontal Concentrated Load	225	375	-	-	375	3.307	Pass
	Adjacent to Post Concentrated Load	225	503	-	-	503	3.072	Pass
	Top of Post Concentrated Load	225	375	-	-	375	1.985	Pass
	Top of Post Ultimate Load	504 lbs max load achieved						
In-plane	Size of Opening	22.5	-	-	-	22.5	3.740	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
Outward	Individual Elements (over 100 mm in. x 100 mm)	0.5	0.83	-	-	0.83	45.0	Pass
	Vertical Uniform Load (per m)	1.5	2.5	1.96	3.13	6.26	2.7	Pass
	Horizontal Uniform Load (per m)	0.75	1.25	0.98	1.57	3.13	107.1	Pass
	Midspan Horizontal Concentrated Load	1	1.67	-	-	1.67	84.0	Pass
	Adjacent to Post Concentrated Load	1	2.24	-	-	2.24	50.4	Pass
	Top of Post Concentrated Load	1	1.67	-	-	1.67	95.0	Pass
	Top of Post Ultimate Load	2.24 kN max load achieved						
In-plane	Size of Opening	0.1	-	-	-	0.10	95.0	Pass

ULTIMATE LOAD: Baseplate to post connection failure; fasteners pulled out of screw chase.



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APPENDIX B – PHOTOS (3 PAGES)

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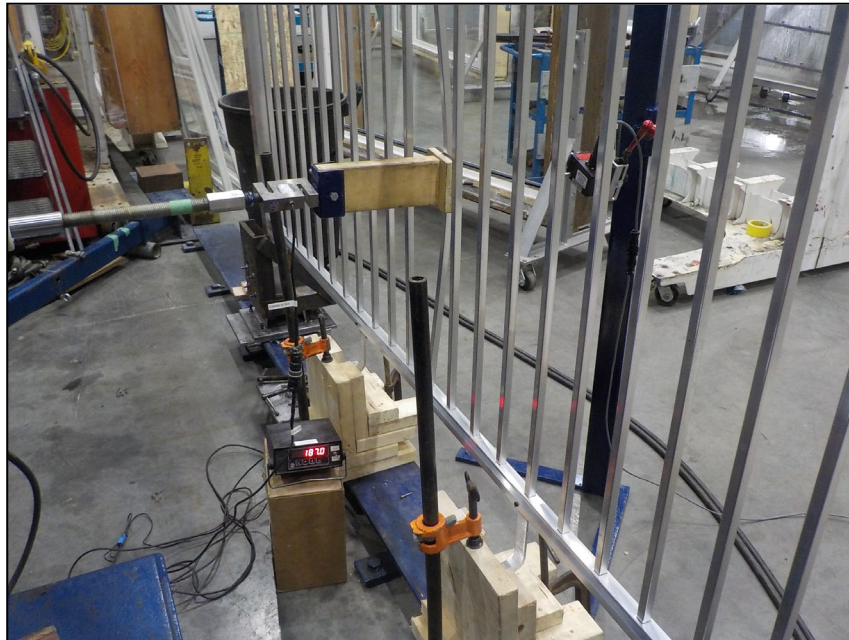


Figure 1 – Century Welded Fascia: In-fill Load Test

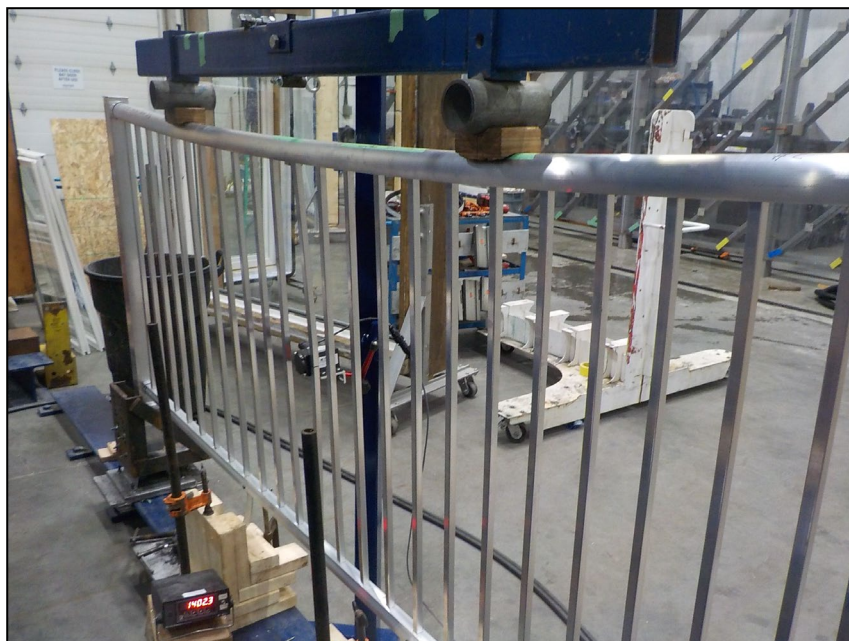


Figure 2 – Century Welded Fascia: Vertical Uniform Load Test

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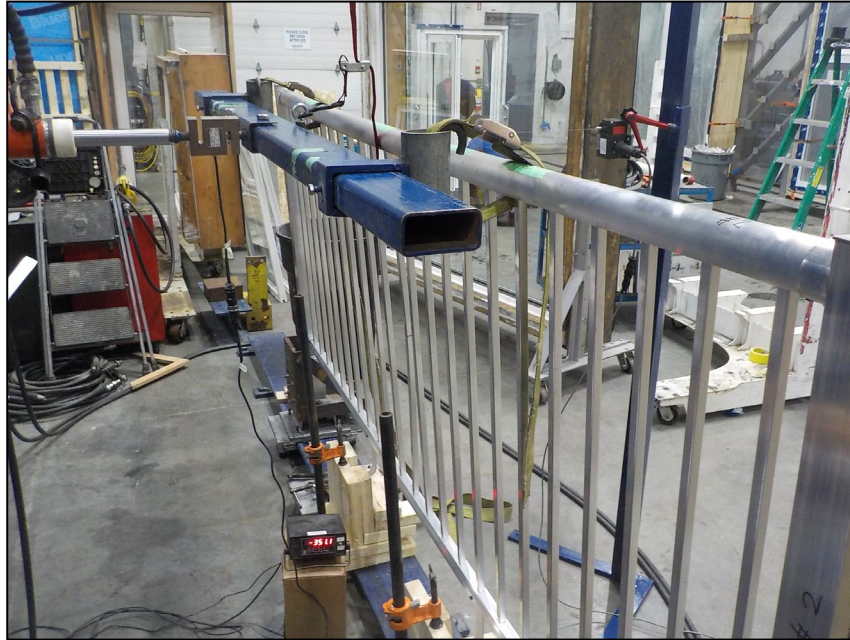


Figure 3 – Century Welded Fascia: Horizontal Uniform Load Test

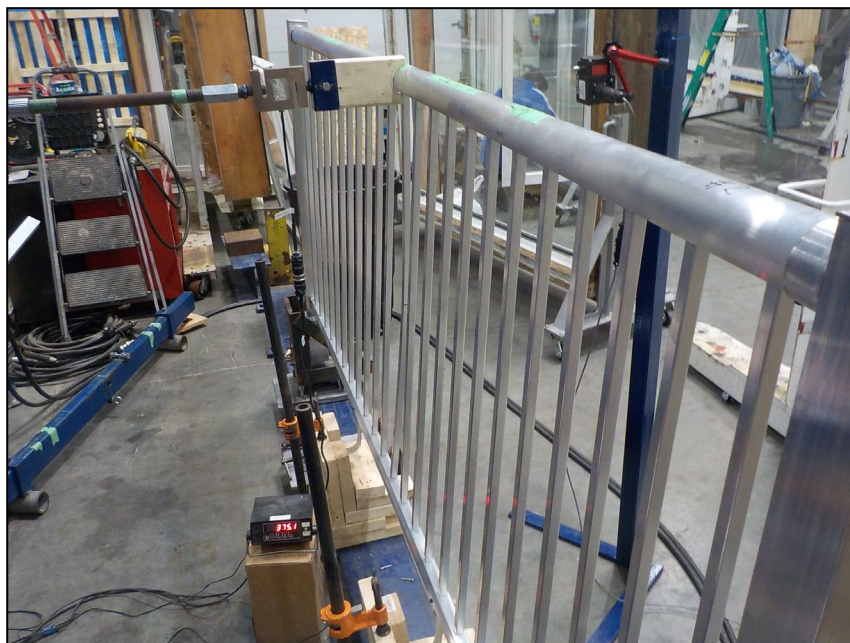


Figure 4 – Century Welded Fascia: Horizontal Mid-span Concentrated Load Test

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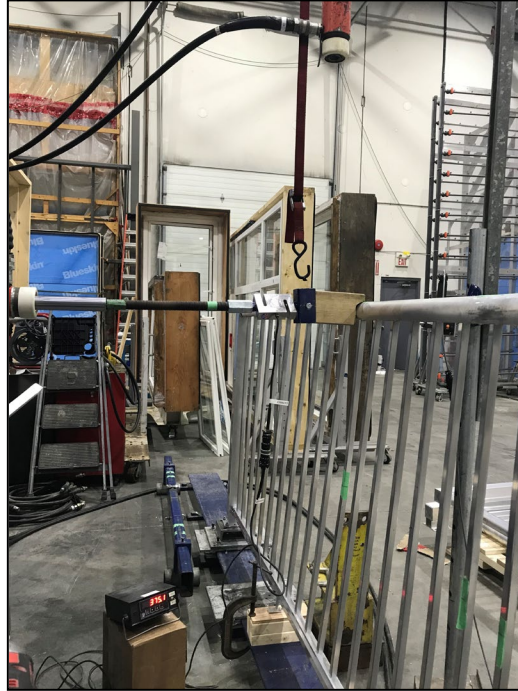


Figure 5 – Century Welded Surface: Horizontal Mid-span Concentrated Load Test



Figure 6 – Century Welded Surface: Horizontal Uniform Load Test



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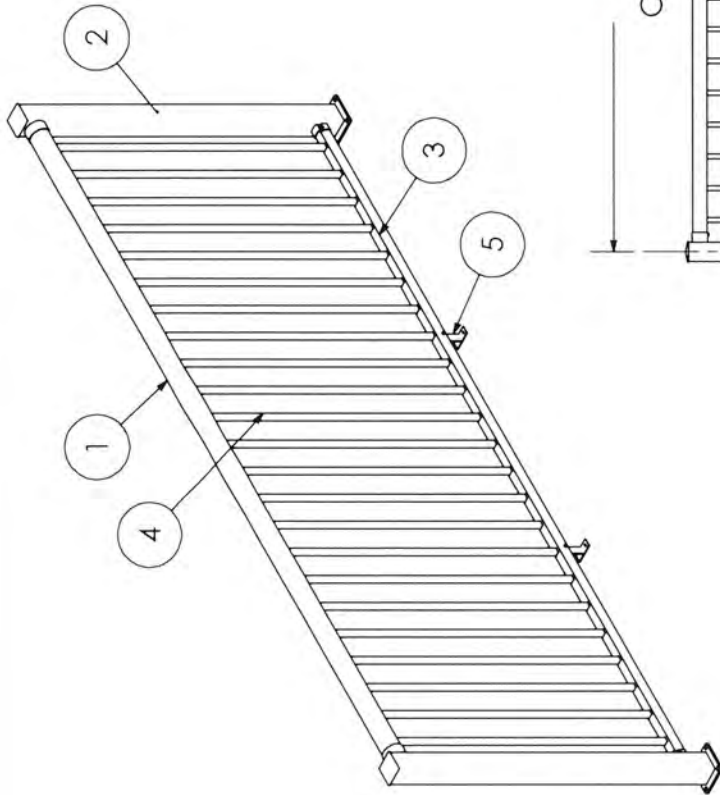
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APPENDIX C – DRAWINGS (10 PAGES)

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	0873PB	6063-T5	96in Bottom Rail-Welded-3.5in	1
4	0063PB	6063-T5	37-9/16 Welded Picket	23
5	0060P	6063-T5	Support Leg	2

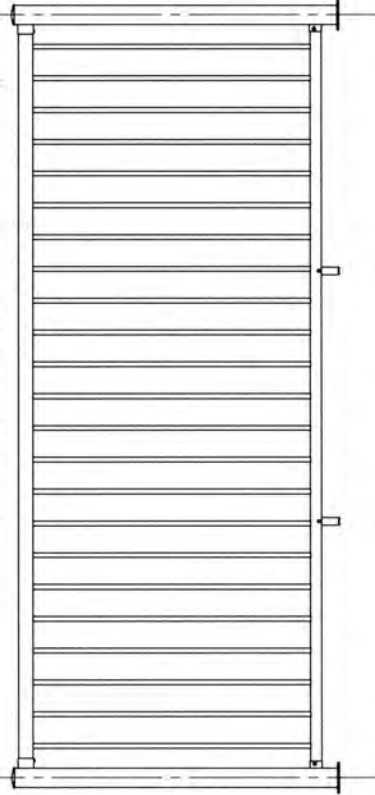
Intertek
 Valued Quality. Delivered.
 Test sample complies with these details.
 Deviations are noted.
 Report #: 104281761C0Q-001B
 Date: 05/27/20 Tech: C.C.



99.00in ~~98 5/8"~~

[2514.60mm]

Center to Center



42.50in

[1079.50mm]



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DRAWN BY	cchislett	5/1/2020
CHECKED		
MATERIAL		
DIE NO.		

ALL DIMENSION IN INCHES/MM

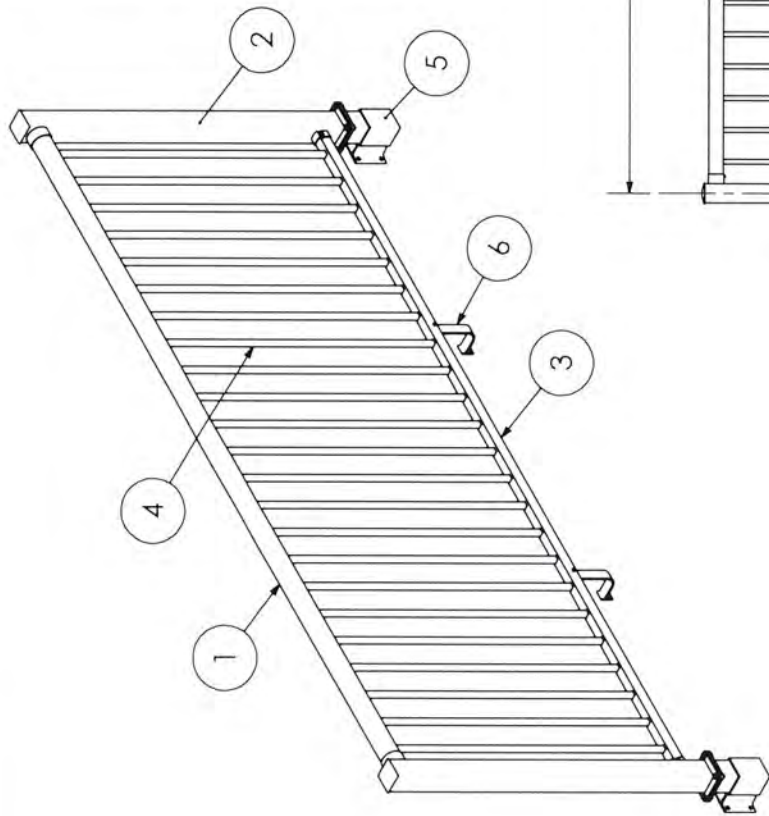
DESCRIPTION

96" Century Surface Welded System - 3-1/2" Spacing

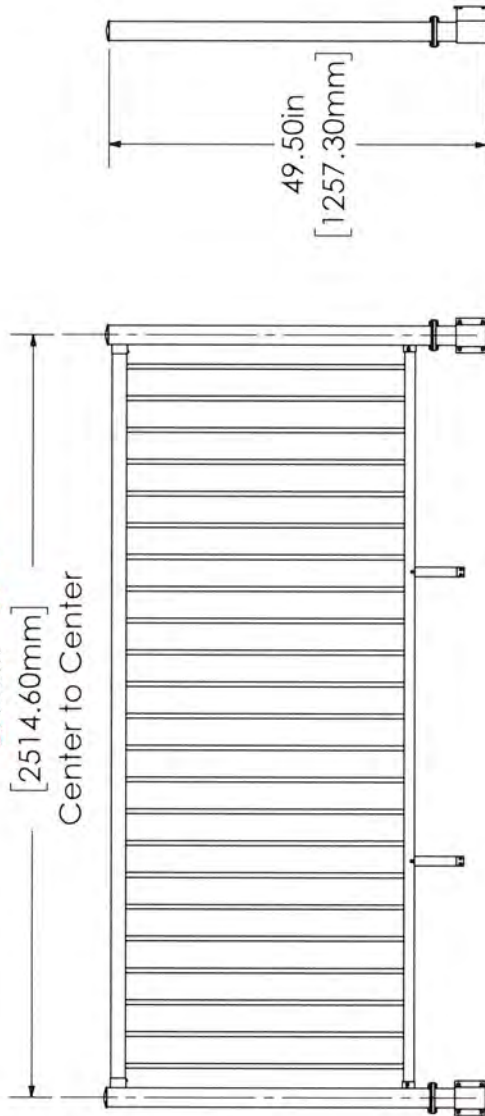
REV.	DESCRIPTION	DATE	INITIALS

Part No: NA	Eng No. 0868A
Weight 25.58 lbs	SHEET 1 OF 1
	Rev

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	0873PB	6063-T5	96in Bottom Rail-Welded-3.5in	1
4	0063PA	6063-T5	5/8" Picket 37-9/16" for 42" Welded Panels	23
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



22.00in **78 1/2"**
 [2514.60mm]
 Center to Center



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

CenDek
Railings Ltd.

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DRAWN BY: cchislett
 CHECKED: []
 MATERIAL: []
 DIE NO.: []

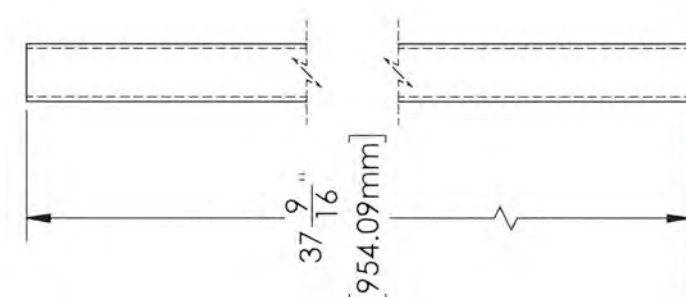
5/1/2020

ALL DIMENSION IN INCHES/MM

DESCRIPTION
 96" Fascia Century Welded System - 3-1/2" Spacing

Part No. NA	Eng No. 0869A
Weight - 30.70 lbs	SHEET 1 OF 1 Rev

REV.	DESCRIPTION	DATE	INITIALS

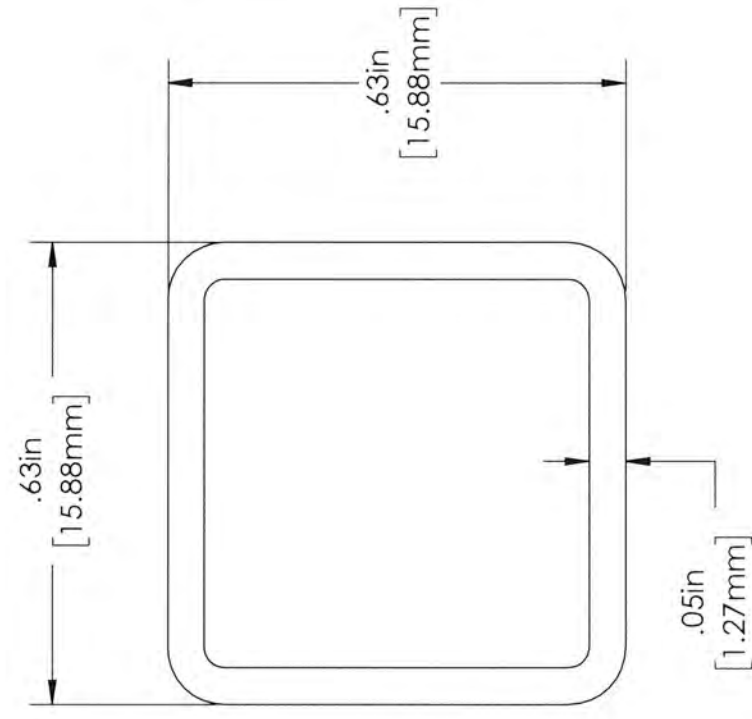


Inertek
 Valued Quality. Delivered.

Test sample complies with these details.
 Deviations are noted.

Report #: 10428176 (COQ-001B)

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



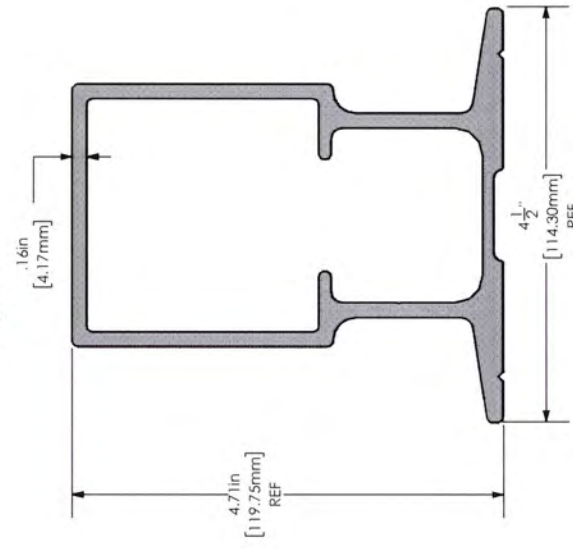
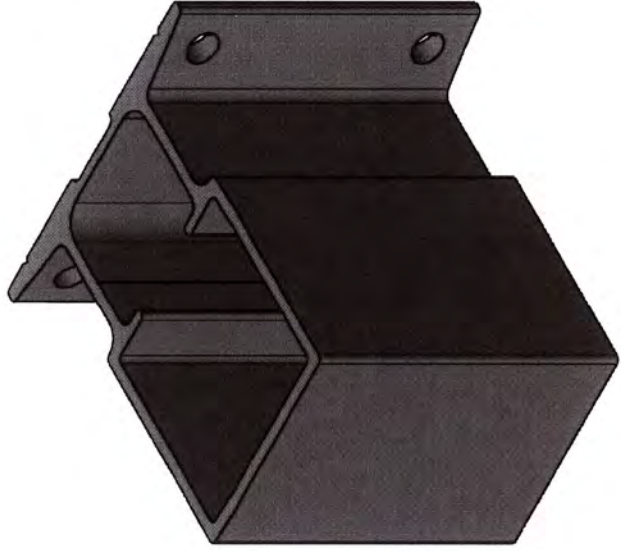
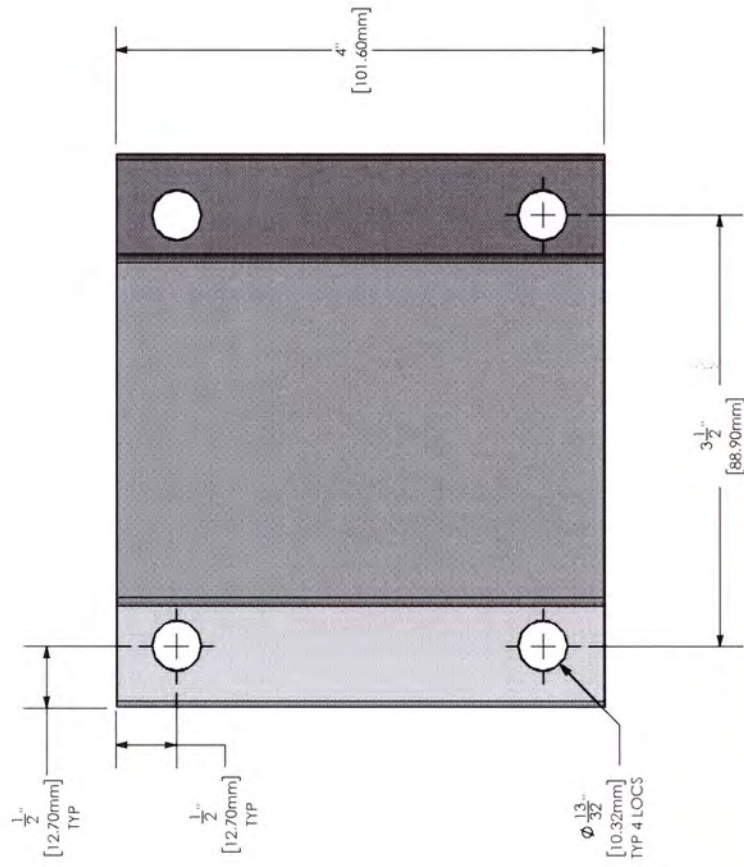
EXTRUSION TOLERANCE	
<1	±0.10
<1-2	±0.12
<2-3	±0.14
<3-4	±0.16
<4-6	±0.18
<6-12	±0.20
<12-19	±0.23
<19-25	±0.25
<25-38	±0.30
<38-50	±0.36
<50-100	±0.61
<100-150	±0.86
<150-200	±1.12
<200-250	±1.38

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

REV.	DESCRIPTION	DATE	INITIALS

4 3 2 1

D C B A



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

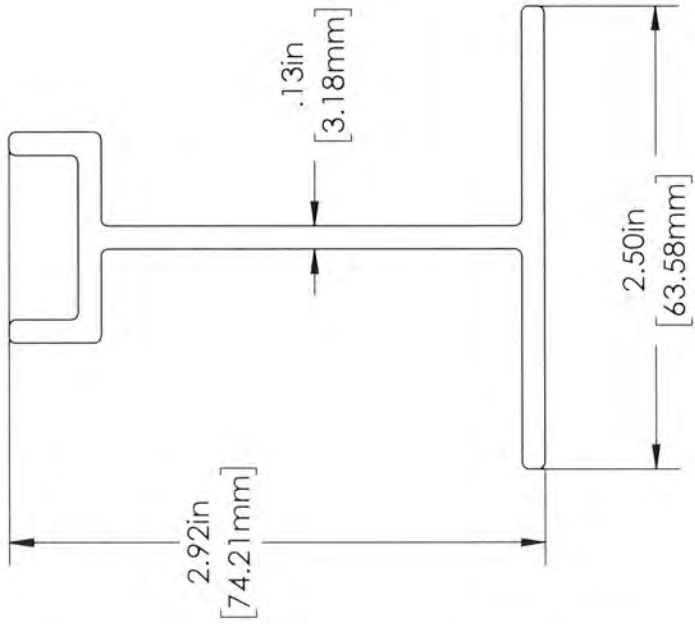
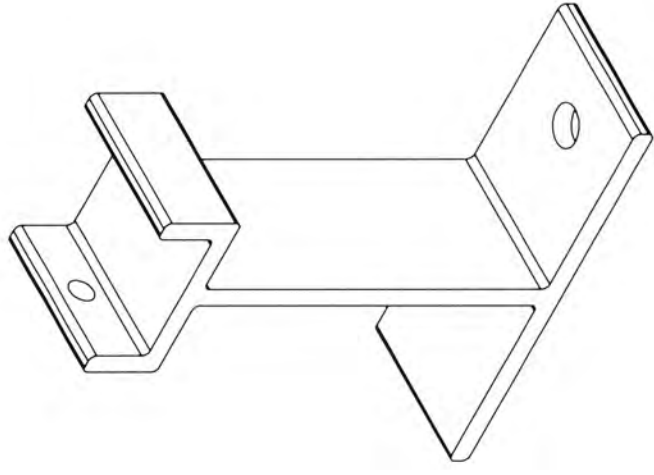
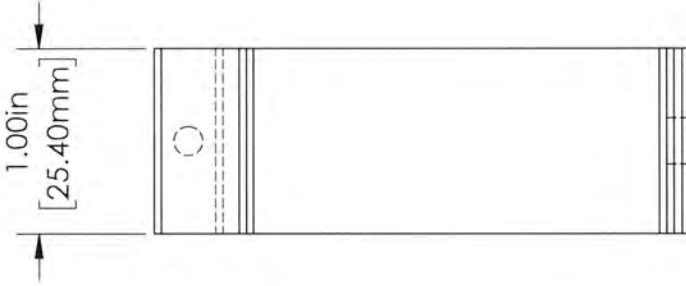
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DRAWN BY	cchislett	4/27/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.	696676	
ALL DIMENSION IN INCHES/MM		

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

REV.	DESCRIPTION	DATE	INITIALS

REV.	DESCRIPTION	DATE	INITIALS



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

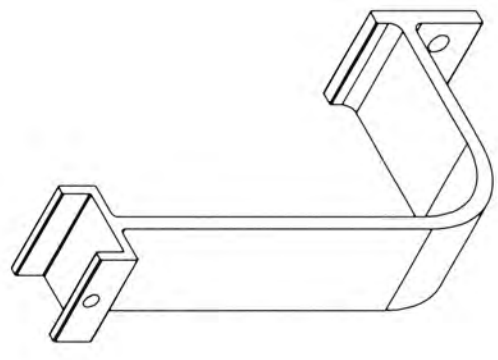
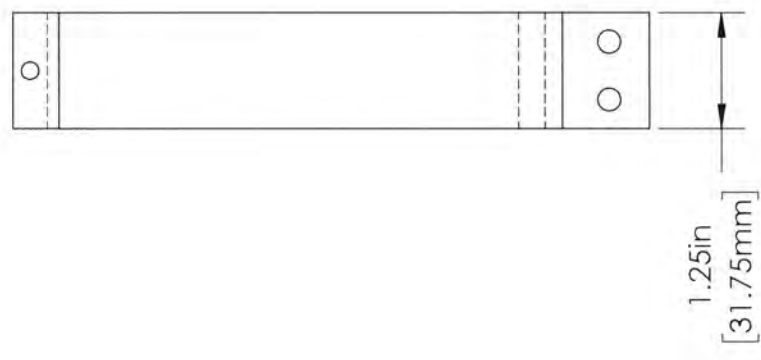
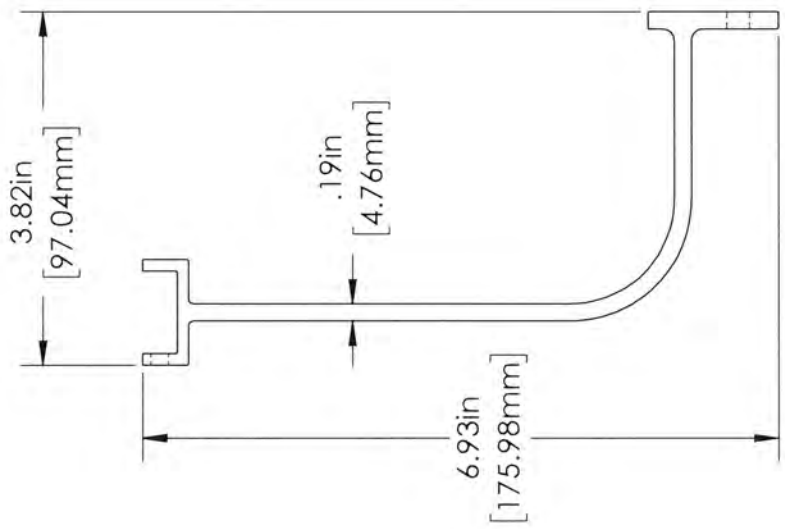
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 Railings Ltd.

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DRAWN BY	cchislett	4/30/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION
 Support Leg

Part No.	4600-LEG-60100	Eng No.	0060P
Weight	0.08 lbs	SHEET 1 OF 1	Rev 2

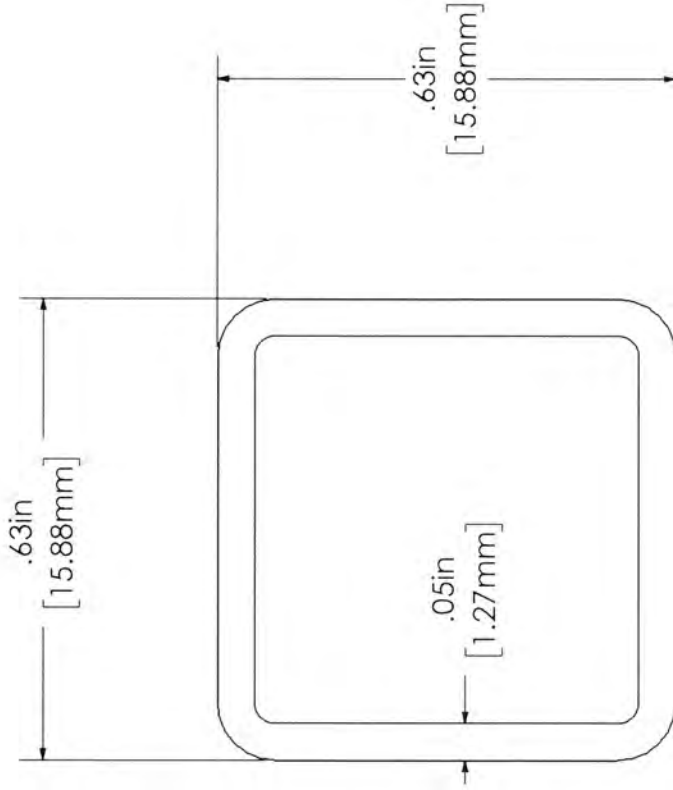
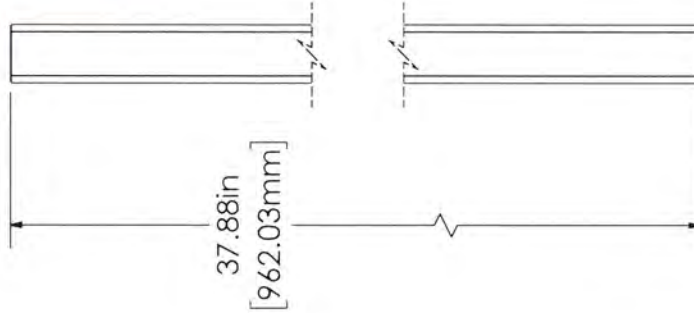


Inertek
 Valued Quality Delivered
Test sample complies with these details.
 Deviations are noted.
 Report #: 104281761 00Q-001 B
 Date: 05/27/20 Tech: C-C.

CenDek Railings Ltd.		DRAWN BY: cchislett		5/1/2020		
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		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-001B
 Date: 05/27/20 Tech: C.C.



EXTRUSION TOLERANCE	
Dimension (mm)	Tolerance
<1	+0.10
<1-2	+0.12
<2-3	+0.14
<3-4	+0.16
<4-6	+0.18
<6-12	+0.20
<12-18	+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

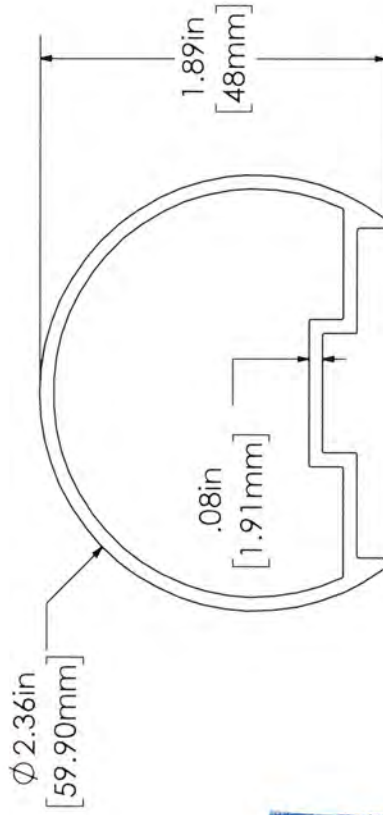
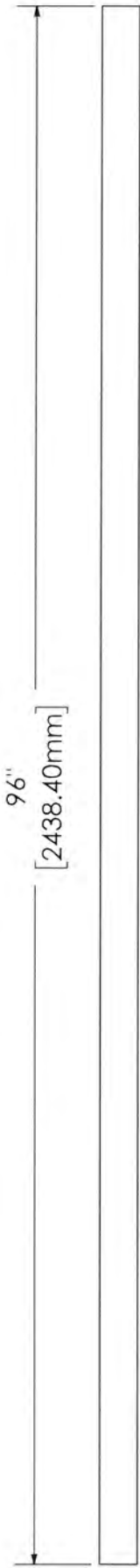
CUT LENGTH TOLERANCE		MACHINING TOLERANCE	
Dimension (mm)	Tolerance	Dimension (mm)	Tolerance
<100	+0.5	<10	+0.2
>100<500	+0.8	>10<20	+0.3
>500<1000	+1.0	>20<30	+0.4
>1000<1500	+1.5	>30<40	+0.5
>1500<3000	+1.8	>40<60	+0.6
>3000<6000	+2.0	>60<100	+0.8
Above 6000	+2.5	Above 100	+1.0

REV.	DESCRIPTION	DATE	INITIALS

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DRAWN BY	ccshleitt	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.	DYF10473127	
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



Intertek
Valued Quality. Delivered.

Test sample complies with these details.
Deviations are noted.

Report #: 10428176 (COQ-001B)

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



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

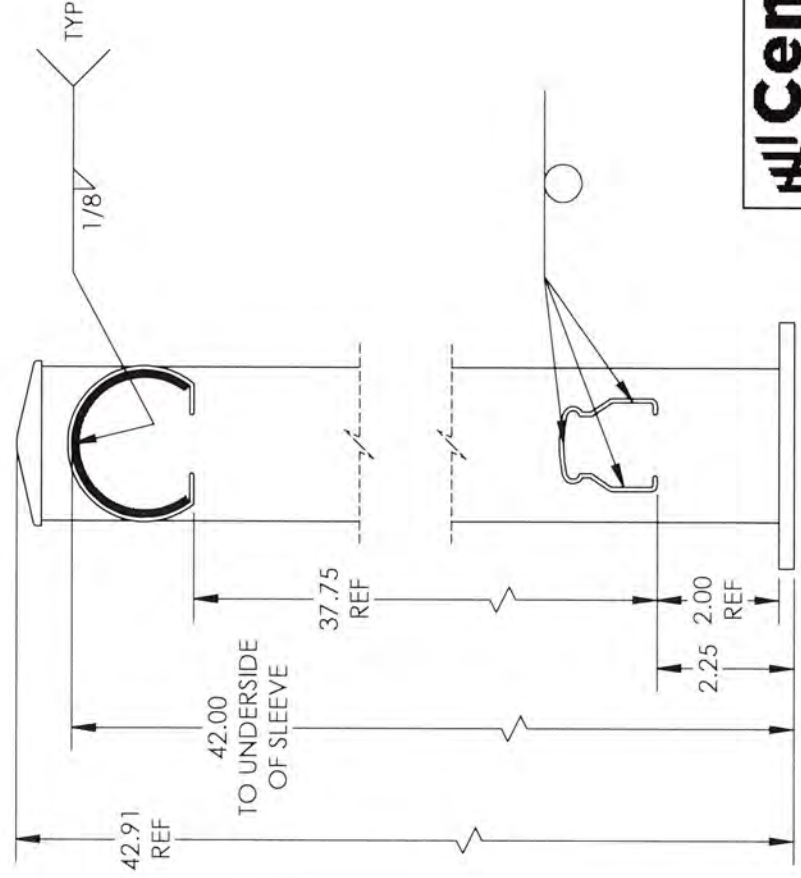
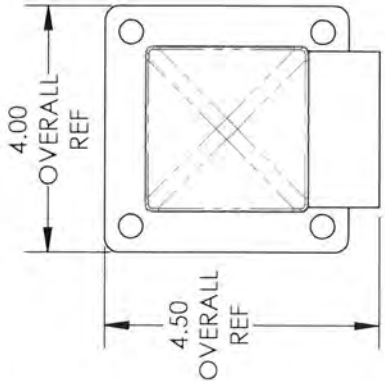
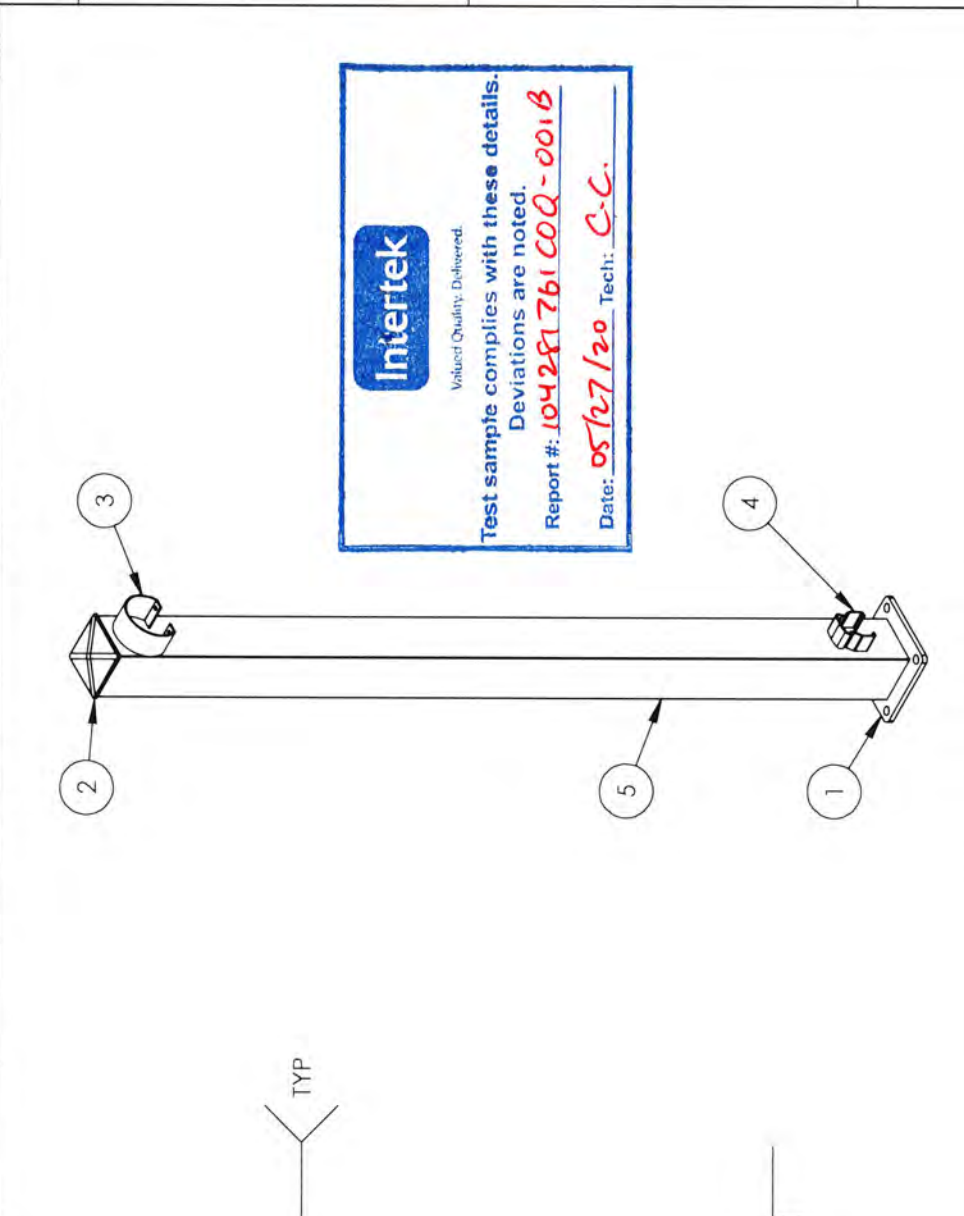
DESCRIPTION

Welded Top Rail Century Round
96in

REV.	DESCRIPTION	DATE	INITIALS

Part No. NA	Eng No. 0042PB
Weight 5.28 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

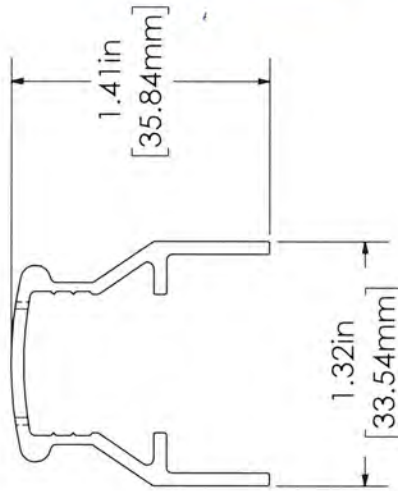
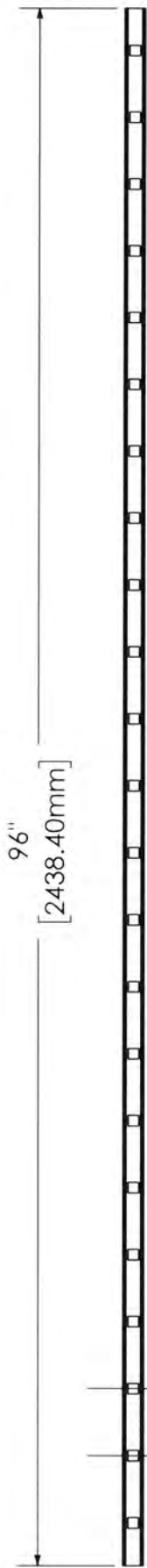


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DRAWN BY	cchsielt	5/1/2020
CHECKED		
MATERIAL	6063-T5	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

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

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



Intertek
 Validated Quality. Delivered.

Test sample complies with these details.
 Deviations are noted.

Report #: 10428176(COQ-001B)
 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		

DESCRIPTION	96in Bottom Rail-Welded -3.5in Spacing
Part No. NA	Weight 2.71 lbs
Eng No.	SHEET 1 OF 2
Rev	

REV.	DESCRIPTION	DATE	INITIALS

TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104281761COQ-001B

Date: 05/27/20

SECTION 12

REVISION LOG

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