

CENDEK RAILINGS LTD.

TEST REPORT

SCOPE OF WORK

REPORT OF 8 FT. CENTURY ROUND WELDED PANEL – WB MOUNT AND 8 FT. CENTURY ROUND COMPONENT PANEL – WB MOUNT TESTED IN ACCORDANCE WITH ASTM E935-13E¹, *STANDARD TEST METHODS FOR PERFORMANCE OF PERMANENT METAL RAILING SYSTEMS AND RAILS FOR BUILDINGS*

REPORT NUMBER

104715588COQ-002B

TEST DATE

07/16/21 – 07/19/21

ISSUE DATE

07/22/21

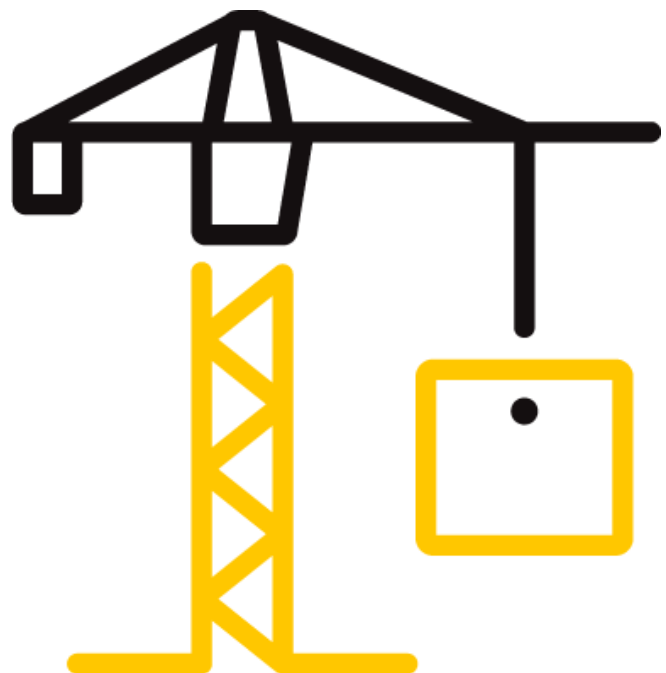
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DOCUMENT CONTROL NUMBER

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TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104715588COQ-002B

Date: 07/22/21

REPORT ISSUED TO CENDEK RAILINGS LTD.



9685 Agur St.
Summerland, BC, V0H 1Z2
Canada

SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by Cendek Railings Ltd., 9685 Agur St., Summerland, BC, V0H 1Z2, Canada, to perform testing on the 8 ft. Century Round Welded Panel – WB Mount and 8 ft. Century Round Component Panel – WB Mount railing systems in accordance with ASTM E935-13e¹, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*. The scope of the testing as requested by Cendek Railings Ltd., was to assess the ability of the guard systems to resist the load requirements of Section 9.8.8.2 of the 2015 NBC, 2012 OBC, 2019 NBC-AE, and 2018 BCBC. Results obtained are tested values. Testing was conducted at the Intertek test facility in Coquitlam, BC, Canada from July 16, 2021 to July 19, 2021.

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:	Sr. Tech – Building & Construction	TITLE:	Manager – Building & Construction
SIGNATURE:		SIGNATURE:	
DATE:	07/22/21	DATE:	07/22/21

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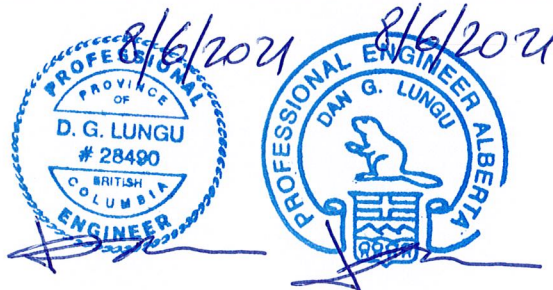
Engineer's Disclaimer:

- 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 is limited to the review of applicable code required loads, review of test setup, and witnessing of laboratory testing.
- Additional disclaimers are shown in Notes of Section 7 and Section 8

Engineers Approval Stamp



Kal Kooner, P.Eng.
Director, Building & Construction
Intertek



Dan Lungu, P.Eng.
Engineer, Building & Construction
Intertek

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SECTION 2

SUMMARY OF TEST RESULTS

SYSTEM DESCRIPTION	TEST	PASS/FAIL
8 ft. Century Round Welded Panel – WB Mount	In-fill Load	Pass
	Vertical Uniform Load Test	Pass
	Horizontal Uniform Load Test	Pass
	Horizontal – Mid-Span Concentrated Load	Pass
	Horizontal – Adjacent to Wall Mount Concentrated Load	Pass
8 ft. Century Round Component Panel – WB Mount	In-fill Load	Pass
	Vertical Uniform Load Test	Pass
	Horizontal Uniform Load Test	Pass
	Horizontal – Mid-Span Concentrated Load	Pass
	Horizontal – Adjacent to Wall Mount Concentrated Load	Pass

Refer to Appendix B for photos of testing.

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SECTION 3

TEST LOADS

The guard specimens were evaluated in accordance with the following:

ASTM E935-13e¹, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*

The required test loads were based on the Specified Loads per the following Building Code articles with the Safety Factors applied as indicated in this report:

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*

2019 National Building Code – Alberta Edition, 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 July 9, 2021 (Coquitlam ID# VAN2107090927-001). 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

Calibration of test equipment was performed by Intertek B&C in accordance with ISO 17025 requirements.

ASSET #	DESCRIPTION	MODEL	CAL DUE DATE
P60692	Artech 5k lb S-Type Load Cell	20210-5k	10/22/21
P60688	Artech 1k lb S-Type Load Cell	20210-1k	06/04/22
P60554	T&D Temperature and Humidity Indicator	TR-72Ui	09/10/21
P60444	Extech Stopwatch	365515	03/05/22
P60494	Stanley Tape Measure	FatMax	09/08/21
52650	Mitutoyo 8 in. Digital Caliper	CD-8	06/08/22
D7810	Micro Mule	Intertek-York	12/07/21
D7820	Tyco Electronics Linear Transducer	PT1MA-20-UP-420E-M6	07/30/21

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SECTION 6

LIST OF OFFICIAL OBSERVERS

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

The above observer(s) witnessed part of the test program.

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. Testing was conducted with reference to the specified load requirements of the following:

2015 NBC / 2012 OBC / 2019 NBC-AE / 2018 BCBC: SECTION 9.8.8.2 LOADS ON GUARDS

- 1) The minimum specified horizontal load applied inward or outward at the top of every required 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 when possible.
- 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: A safety factor of 1.67-2.5 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 material resistance factors below, as defined in the CAN/CSA S157, *Strength Design in Aluminum* standard.

- $\phi=0.90$ resistance factor for bending failure mode, resulting safety factor = 1.67
- $\phi=0.75$ resistance factor for ductile failure mode, resulting safety factor = 2.0

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- $\phi=0.67$ resistance factor for brittle failure mode, resulting safety factor = 2.24
- $\phi=0.60$ resistance factor for wood fastener connections, resulting safety factor = 2.5

IN-FILL LOAD TEST

A test load was applied using a 300 mm x 300 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 evidence of disengagements of any component and visible cracks in any component.

UNIFORM LOAD TEST

Uniform test loads were applied vertically to the top of the guardrail system and horizontally to the top of the guardrail system. The test 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

Concentrated test loads were applied horizontally outwards at the midspan of the top of the guard and at the top rail adjacent to the wall connection to verify the connection capacity. As there were no posts in the railing system, the concentrated load at the top of post was not evaluated.

After completion of the above load tests, the concentrated load at the top rail adjacent to the wall connection 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							
PART NAME	PART NUMBER	QTY	PART DIMENSIONS				REPORTED MATERIAL
			LENGTH	WIDTH	HEIGHT	NOMINAL THICKNESS	
8 FT. CENTURY ROUND WELDED PANEL – WB MOUNT							
Top Rail Wall Bracket	4104-WAL-10100	2	3.5 in.	2.5 in.	1.375 in.	0.125 in.	Aluminum
Bottom Rail Wall Bracket	4100-WAL-10100	2	2.38 in.	1.75 in.	1.03 in.	0.125 in.	Aluminum
Top Rail	N/A	1	96.0 in.	2.36 in.	1.89 in.	0.08 in.	Aluminum
Bottom Rail	N/A	1	96.0 in.	1.32 in.	1.41 in.	0.07 in.	Aluminum
Support Leg	4600-LEG-60100	2	2.50 in.	1.00 in.	2.92 in.	0.125 in.	Aluminum
Infill - Picket	N/A	21	0.625 in.	0.625 in.	39.0 in.	0.050 in.	Aluminum
8 FT. CENTURY ROUND COMPONENT PANEL – WB MOUNT							
Top Rail Wall Bracket	4104-WAL-10100	2	3.5 in.	2.5 in.	1.375 in.	0.125 in.	Aluminum
Bottom Rail Wall Bracket	4100-WAL-10100	2	2.38 in.	1.75 in.	1.03 in.	0.125 in.	Aluminum
Top Rail	N/A	1	96.0 in.	2.36 in.	1.89 in.	0.08 in.	Aluminum
Bottom Rail	N/A	1	96.0 in.	1.32 in.	1.41 in.	0.07 in.	Aluminum
Support Leg	4600-LEG-60100	2	2.50 in.	1.00 in.	2.92 in.	0.125 in.	Aluminum
Infill - Picket	N/A	21	0.625 in.	0.625 in.	39.0 in.	0.050 in.	Aluminum

Note 3: Each railing had two (2) support legs positioned under the bottom rail spaced 32.75 in. from each end and were set on a steel test frame. For detailed drawings of the test samples and components, refer to Appendix C and D.

Note 4: As the railing systems had no posts, the assemblies were attached to a wood support through wall brackets. Per the client’s request, the guard assemblies were attached using supplied #12 x 2 in. long Pan Head Robertson steel sheet metal screws (0.416 in. head diameter x 0.158 in. shank diameter). The wood support was constructed from 2 layers of nominal 2 in. x 12 in. SPF lumber.

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SECTION 9 TEST RESULTS

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

SECTION 10 CONCLUSION

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Cendek Railings Ltd. on the 8 ft. Century Round Welded Panel – WB Mount and 8 ft. Century Round Component Panel – WB Mount railing systems per ASTM E935-13e1, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*. The scope of the testing as requested by Cendek Railings Ltd., was to assess the ability of the guard systems to resist the loads as prescribed in the following building code articles:

- 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*
- 2019 National Building Code – Alberta Edition, Section 9.8.8.2 *Loads on Guards*
- 2018 British Columbia Building Code, Section 9.8.8.2 *Loads on Guards*

The Cendek Railings Ltd. 8 ft. Century Round Welded Panel – WB Mount and 8 ft. Century Round Component Panel – WB Mount railing systems identified and evaluated in this report have met the load requirements using the safety factors as defined in Section 7, Note 1 of this report. Overall compliance with the Building Codes must be evaluated and approved by the Engineer of Record and Authority Having Jurisdiction.

The conclusions of this test may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.



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SECTION 11

APPENDIX A – TEST DATA (3 PAGES)

Company	Cendek Railings Ltd.	Technician(s)	Kevin Penner
Project No.	G104715588	Reviewer	Baldeep Sandhu
Models	8 ft. Century Round Welded, 8 ft. Century Round Component	Start/End Date	July 16-19, 2021
Product Name	Same as above	Sample ID	VAN2107090927-001
Standard	2015 NBC/2018 BCBC/2019 NBC-AE/2012 OBC, Section 9.8.8.2		

Test Data Package

Table of Contents

Sheet	Page
Table of Contents (This Sheet)	1
Loads on Guards - 8 ft. Century Round Welded Panel - WB Mount	2
Loads on Guards - 8 ft. Century Round Component Panel - WB Mount	3

Test: **Loads on Guards - Section 9.8.8.2**
 Date: 16-Jul-21
 Client: Cendek Railings Ltd.
 Product: **8 ft. Century Round Welded Panel - WB Mount**
 Post Spacing: 8.04 ft 2.45 m
 Height of Guard: 42.1 in 1070 mm
 Opening in Guard: 3.88 in 98 mm (between pickets)
 2.25 in 57 mm (under bottom rail)

Project: G104715588
 Eng/Tech: Kevin Penner
 Reviewer: Baldeep Sandhu
 Location: Coquitlam, BC, Canada

Method: ASTM E2353-16, *Standard Test Methods for Performance of Glazing in Permanent Railing Systems, Guards, and Balustrades*
 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*
 2019 National Building Code of Canada - Alberta Edition, Section 9.8.8.2 *Loads on Guards*
 2018 British Columbia Building Code, Section 9.8.8.2 *Loads on Guards*

Safety Factor: 1.67 (based on a resistance factor $\phi = 0.9$ for aluminum)
 2.50 (based on a resistance factor $\phi = 0.6$ for wood fastener connection)

Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due October 22, 2021)
 T&D TR-72Ui Temperature and Humidity Logger (Intertek ID# P60554, cal due September 10, 2021)
 Stopwatch (Intertek ID# P60444, cal due March 5, 2022)
 Stanley Tape Measure (Intertek ID# P60494, cal due September 8, 2021)
 Mitutoyo Digital Caliper (Intertek ID# 52650, cal due June 8, 2022)
 Micro Mule Measurement System (Intertek ID# D7810, cal due December 7, 2021)
 Tyco Electronics Linear Transducer (Intertek ID# D7820, cal due July 30, 2021)

Time/Temp/RH: 10:15AM / 22.9°C / 49.0%

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 11.8 in. x 11.8 in.)	112	187	-	-	187	1.612	Pass
	Vertical Uniform Load (per ft)	103	257	2076	1033	2066	0.170	Pass
	Horizontal Uniform Load (per ft)	34	86	692	344	689	2.214	Pass
	Midspan Horizontal Concentrated Load	225	375	-	-	375	1.844	Pass
	Adjacent to Post Concentrated Load	225	562	-	-	562	0.083	Pass
	Adjacent to Post Concentrated Load Ultimate Load	Maximum load of 2771.9 lb; reached limitation of SPF lumber substrate						

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	1.25	-	-	1.25	40.9	Pass
	Vertical Uniform Load (per m)	1.5	3.75	2.82	4.60	9.19	4.3	Pass
	Horizontal Uniform Load (per m)	0.5	1.25	0.94	1.53	3.06	56.2	Pass
	Midspan Horizontal Concentrated Load	1	2.22	-	-	2.22	46.8	Pass
	Adjacent to Post Concentrated Load	1	2.50	-	-	2.50	2.1	Pass
	Adjacent to Post Concentrated Load Ultimate Load	Maximum load of 12.3 kN; reached limitation of SPF lumber substrate						

ULTIMATE LOAD: Maximum load of 2771.9 lb (12.3 kN); reached limitation of SPF lumber substrate

Test:	Loads on Guards - Section 9.8.8.2		Project:	G104715588
Date:	19-Jul-21		Eng/Tech:	Kevin Penner
Client:	Cendek Railings Ltd.		Reviewer:	Baldeep Sandhu
Product:	8 ft. Century Round Component Panel - WB Mount		Location:	Coquitlam, BC, Canada
Post Spacing:	8.04 ft	2.45 m		
Height of Guard:	42.1 in	1070 mm		
Opening in Guard:	3.88 in	98 mm	(between pickets)	
	2.25 in	57 mm	(under bottom rail)	
Method:	ASTM E2353-16, <i>Standard Test Methods for Performance of Glazing in Permanent Railing Systems, Guards, and Balustrades</i> 2015 National Building Code of Canada, Section 9.8.8.2 <i>Loads on Guards</i> 2012 Ontario Building Code, Section 9.8.8.2 <i>Loads on Guards</i> 2019 National Building Code of Canada - Alberta Edition, Section 9.8.8.2 <i>Loads on Guards</i> 2018 British Columbia Building Code, Section 9.8.8.2 <i>Loads on Guards</i>			
Safety Factor:	1.67 (based on a resistance factor $\phi = 0.9$ for aluminum) 2.50 (based on a resistance factor $\phi = 0.6$ for wood fastener connection)			
Equipment:	Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due October 22, 2021) T&D TR-72Ui Temperature and Humidity Logger (Intertek ID# P60554, cal due September 10, 2021) Stopwatch (Intertek ID# P60444, cal due March 5, 2022) Stanley Tape Measure (Intertek ID# P60494, cal due September 8, 2021) Mitutoyo Digital Caliper (Intertek ID# 52650, cal due June 8, 2022) Micro Mule Measurement System (Intertek ID# D7810, cal due December 7, 2021) Tyco Electronics Linear Transducer (Intertek ID# D7820, cal due July 30, 2021)			
Time/Temp/RH:	12:50PM / 22.9°C / 49.0%			

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 11.8 in. x 11.8 in.)	112	187	-	-	187	2.186	Pass
	Vertical Uniform Load (per ft)	103	257	2076	1033	2066	0.385	Pass
	Horizontal Uniform Load (per ft)	34	86	692	344	689	2.106	Pass
	Midspan Horizontal Concentrated Load	225	375	-	-	375	1.655	Pass
	Adjacent to Post Concentrated Load	225	562	-	-	562	0.134	Pass
	Adjacent to Post Concentrated Load Ultimate Load	Maximum load of 2604.1 lb; reached limitation of SPF lumber substrate						

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	1.25	-	-	1.25	55.5	Pass
	Vertical Uniform Load (per m)	1.5	3.75	2.82	4.60	9.19	9.8	Pass
	Horizontal Uniform Load (per m)	0.5	1.25	0.94	1.53	3.06	53.5	Pass
	Midspan Horizontal Concentrated Load	1	2.22	-	-	2.22	42.0	Pass
	Adjacent to Post Concentrated Load	1	2.50	-	-	2.50	3.4	Pass
	Adjacent to Post Concentrated Load Ultimate Load	Maximum load of 11.6 kN; reached limitation of SPF lumber substrate						

ULTIMATE LOAD: Maximum load of 2604.1 lb (11.6 kN); reached limitation of SPF lumber substrate



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APPENDIX B – PHOTOS (3 PAGES)

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Figure 1 – 8 ft. Century Round Welded Panel – In-fill Load Test



Figure 2 – 8 ft. Century Round Welded Panel – Uniform Load (Horizontal)

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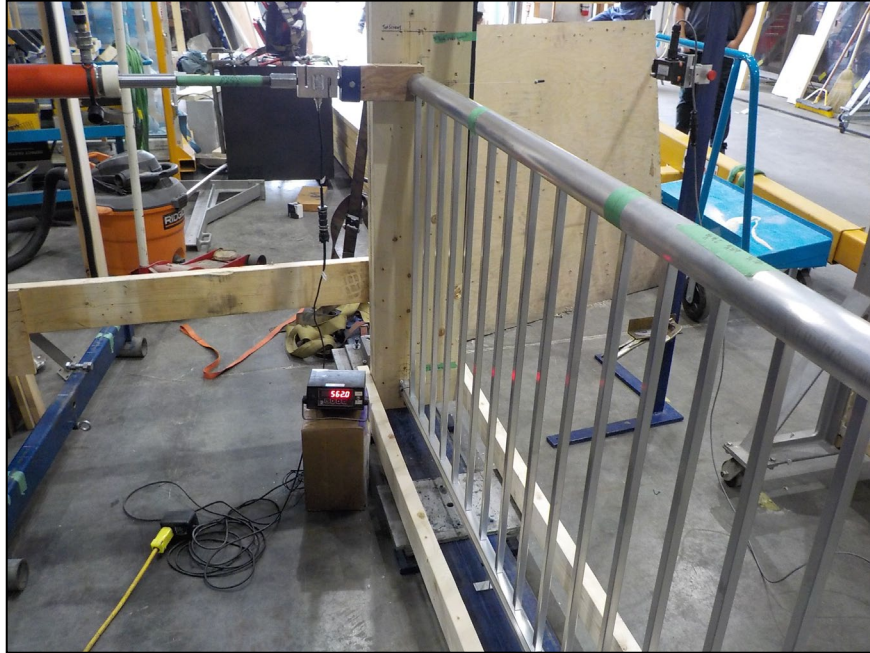


Figure 3 – 8 ft. Century Round Welded Panel – Concentrated Load (Adjacent to Wall Connection)



Figure 4 – 8 ft. Century Round Component Panel – In-fill Load Test

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Figure 5 – 8 ft. Century Round Component Panel – Uniform Load (Vertical)

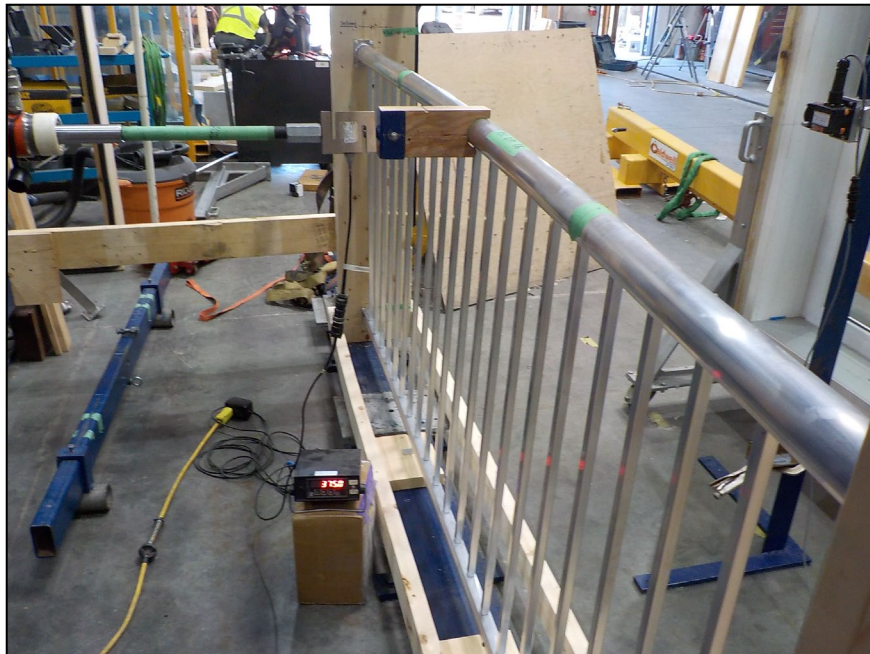


Figure 6 – 8 ft. Century Round Component Panel – Concentrated Load (Mid-span Top Rail)



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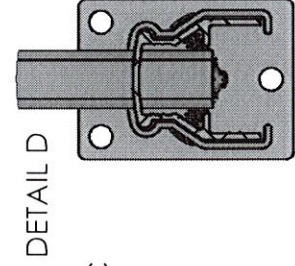
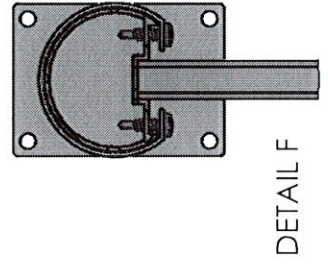
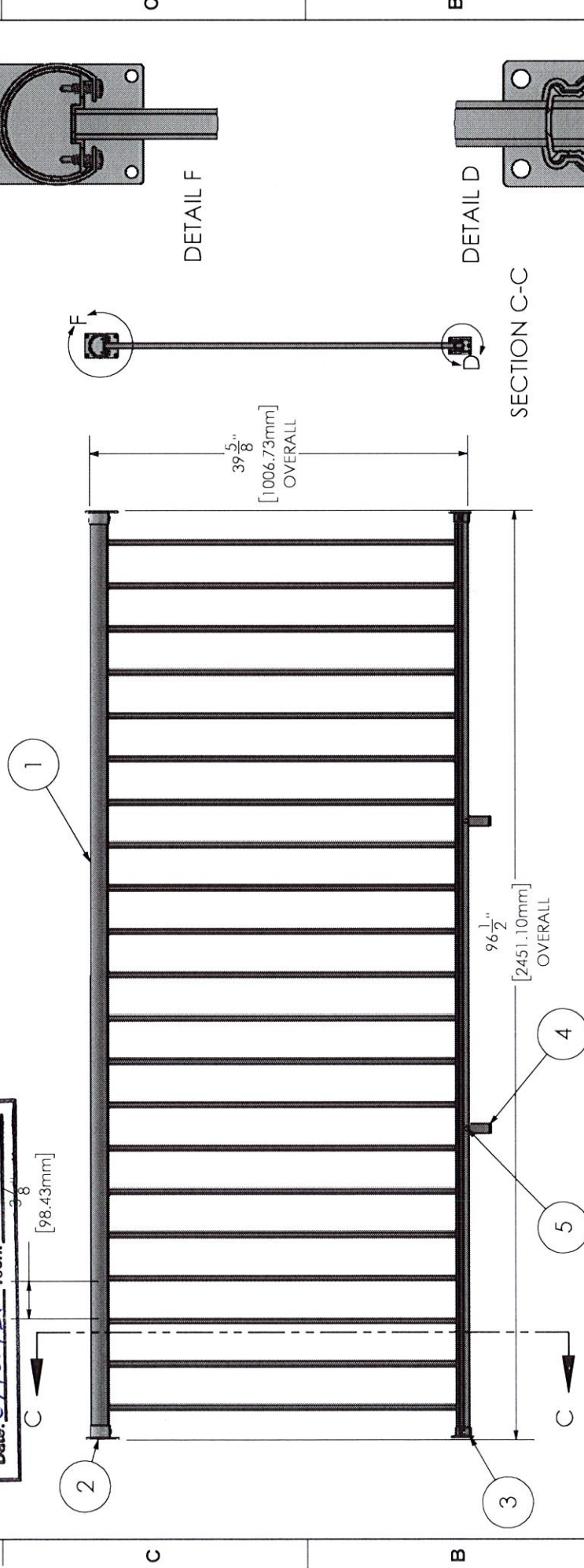
Date: 07/22/21

APPENDIX C – CENTURY ROUND WELDED PANEL DRAWINGS (7 PAGES)

4 3 2 1

intertek
 Test sample complies with these details.
 Deviations are noted.
 Report #: 104715588COQ-002B
 Date: 07/22/21 Tech: C.C.

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	2594A	NA	Century Welded 8' 5/8" Panel	1
2	0032AA	4104-WAL-10100	Top Wall Bracket Round	2
3	0033A	4100-WAL-10100	Bottom Wall Bracket	2
4	0060PA	4600-LEG-60100	Surface Support Leg - SL	2
5	0096PA	9000-SLB-20001	Screw #10x3/4" P/H Soc Tek Zinc	12



SECTION C-C

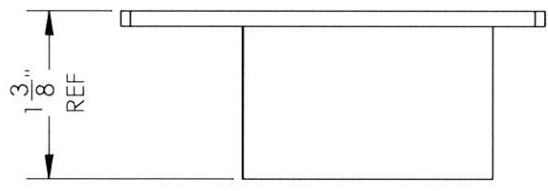
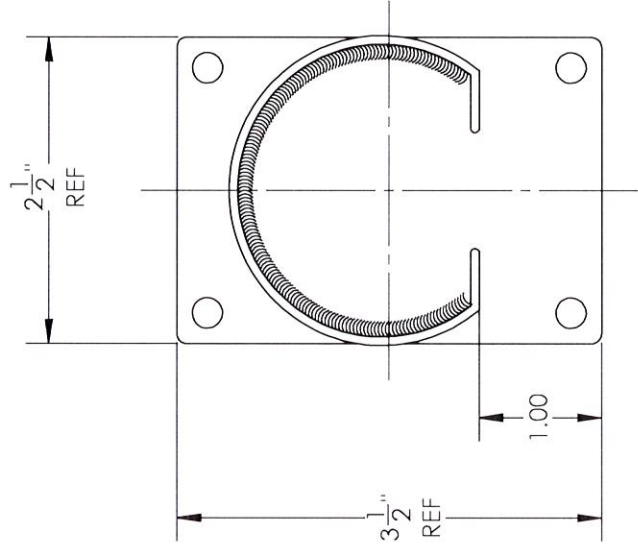
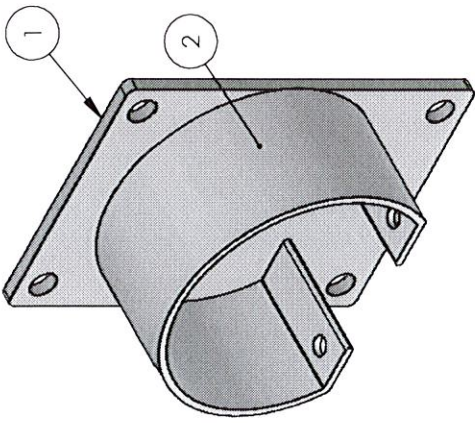
DRAWN BY		Engl	ALL DIMENSION IN INCHES/mm
CREATED	2021-07-19		
MATERIAL			
DIE NO.			

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DESCRIPTION	Part No. NA	Eng No. 2590A
Century Round 8' 5/8" Welded Panel WB System		
Weight	17.05 lbs	
SHEET 1 OF 1		Rev -

3 2 1

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0014PE	1700-FLA-16007	Flat Bar Cut 1/8" x 2-1/2" x 3-1/2" Uni/Rnd WB, 90° WB x4	1
2	0012PA	1604-SLE-20025	Top Rail Sleeve Round cut WB, Post Sleeve	1



intertek

Test sample complies with these details.
Deviations are noted.

Report #: 10471558800-002B

Date: 07/22/21 Tech: C.L.

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Railings Ltd.

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DRAWN BY	cchislett	2/19/2021
CHECKED		
MATERIAL	Material <not specified>	
DIE NO.		
ALL DIMENSION IN INCHES/mm		

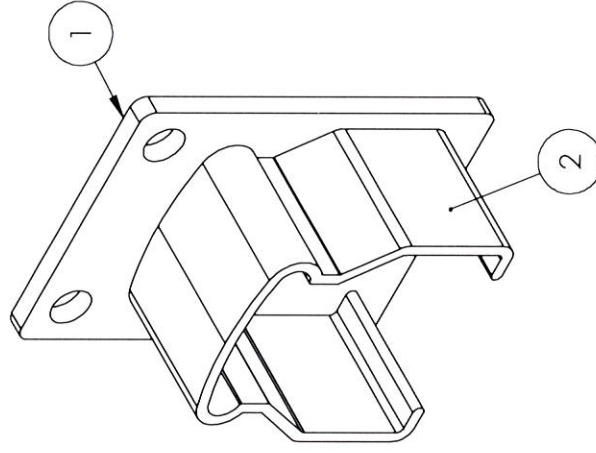
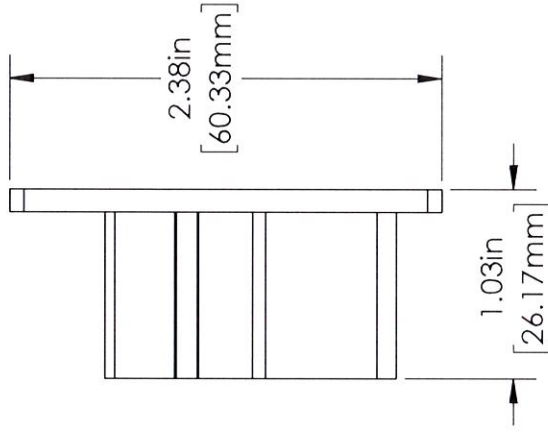
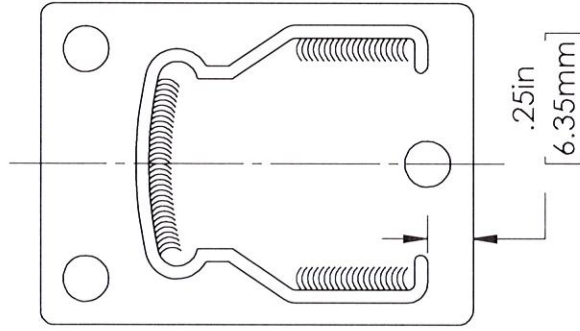
DESCRIPTION Top Wall Bracket Round	
Part No. 4104-WAL-10100	Eng. No. 0032AA
Weight 0.16 lbs	SHEET 1 OF 2 Rev 1

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 10471558800-002G

Date: 07/22/21 Tech: C.C.



ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0014PH	1700-FLA-13002	Flat Bar Cut 1/8" x 1-3/4" x 2-3/8" BR WB, BR 90° WB x3	1
2	0051PA	1600-SLE-10011	Bottom Rail Sleeve Welded Cut WB	1



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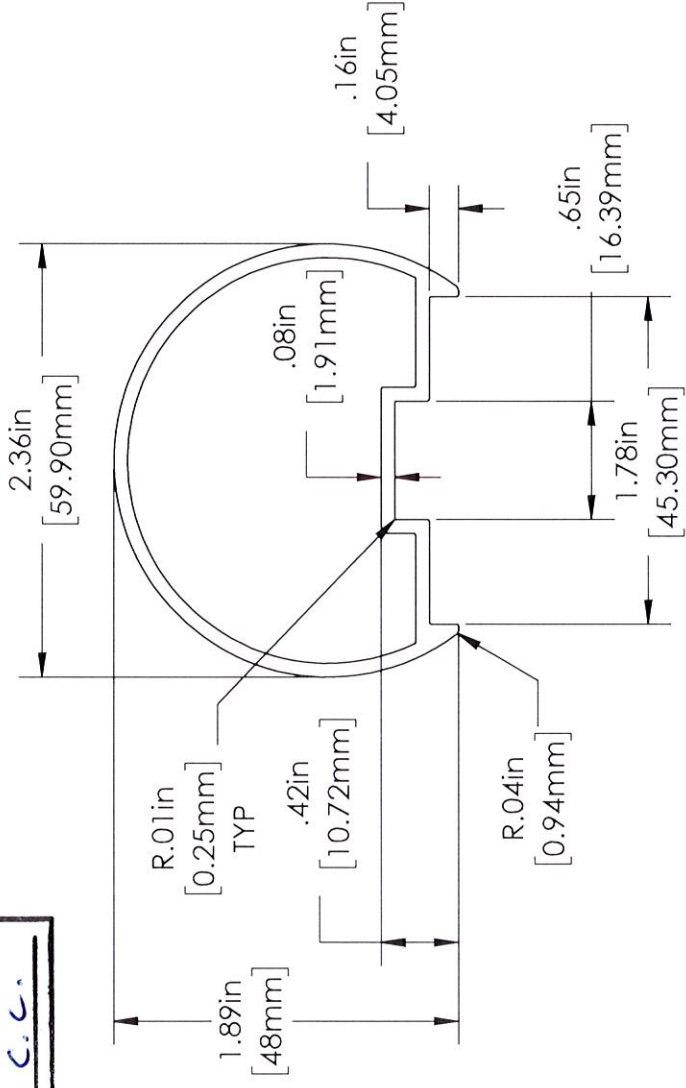
DRAWN BY	Admin
CREATED	10/3/2017
MATERIAL	Material <not specified>
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION	
Bottom Wall Bracket	
Part No.	4100-WAL-10100
Weight	0.08 lbs
Part No.	Eng No. 0033A
SHEET 1 OF 2	
REV	REV

REVISIONS

DATE INITIALS

intertek
 Test sample complies with these details.
 Deviations are noted.
 Report #: 1047155 88COQ-002B
 Date: 07/22/21 Tech: C.C.



DESCRIPTION Century TR Weld	
Port No.	Eng. Rev. 0042P
Weight	0.22 lbs
SHEET 1 OF 1	
Rev	

DRAWN BY	Admin
CREATED	2017-08-11
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/MM	

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REV.	DESCRIPTION	DATE	INITIALS

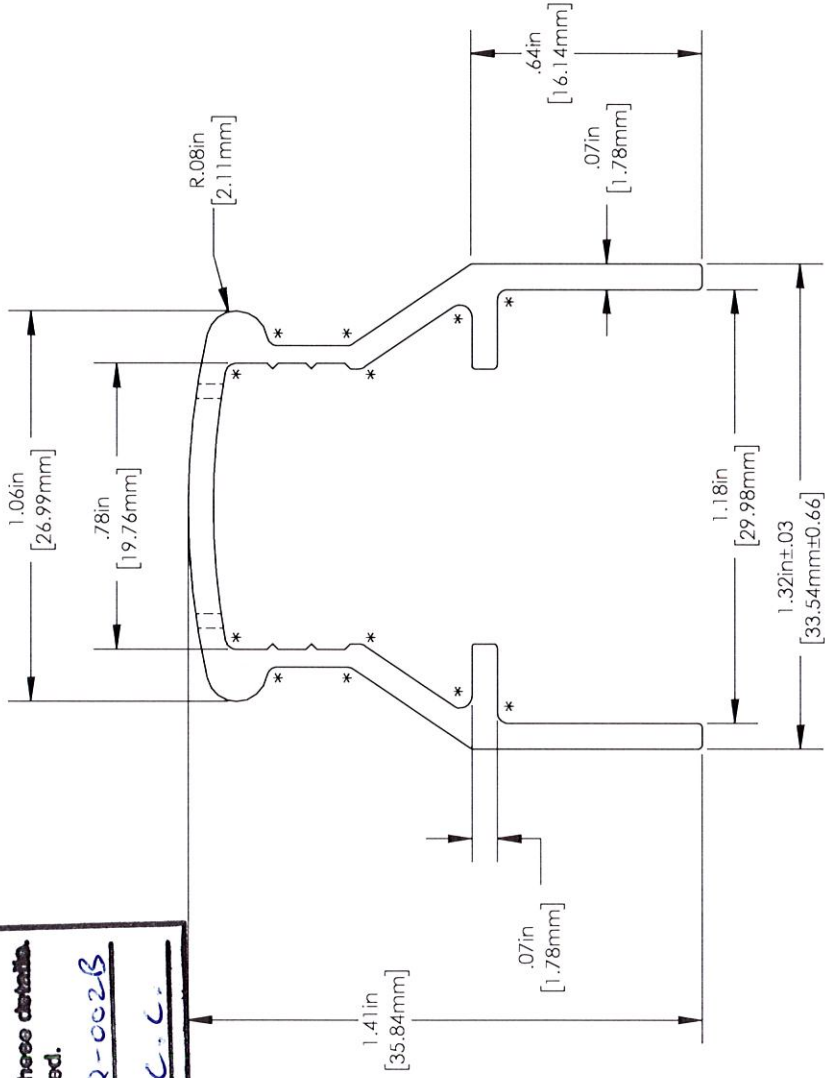
D C B A

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 10471558820Q-0026

Date: 07/22/21 Tech: C.C.



* R0.3in [0.80mm]



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DRAWN BY	cchislett	7/21/2021
CHECKED		
MATERIAL	6063-T5 - CenDek	
DIE NO.		
ALL DIMENSION IN INCHES/MM		

DESCRIPTION

5/8" Punched Welded Bottom Rail
20'6"

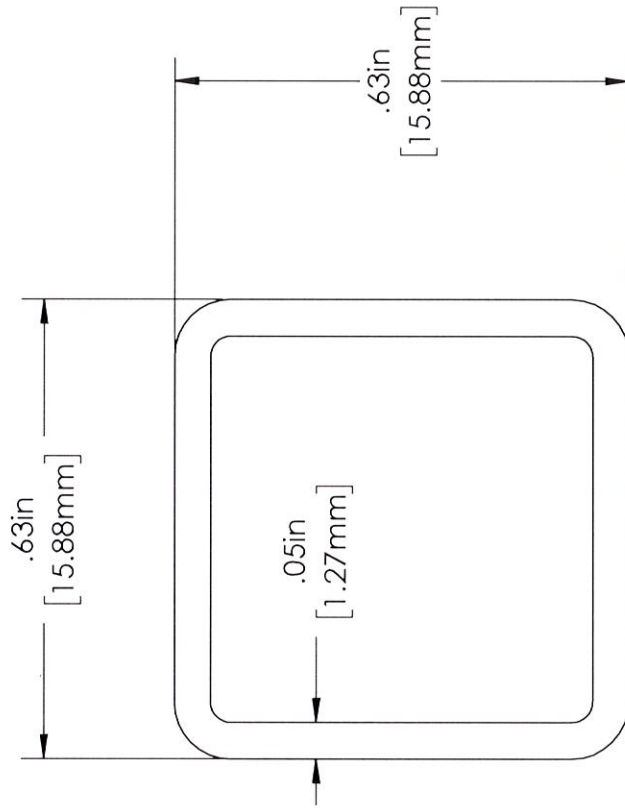
Part No.	1200-BOT-17246	Eng. No.	0317PE
Weight	6.97 lbs/ft	SHEET 1 OF 1	REV

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 104715588 CQR-002-B

Date: 07/22/21 Tech: C.L.



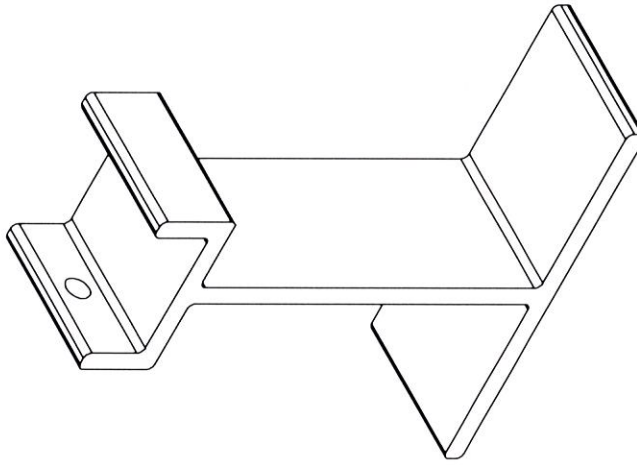
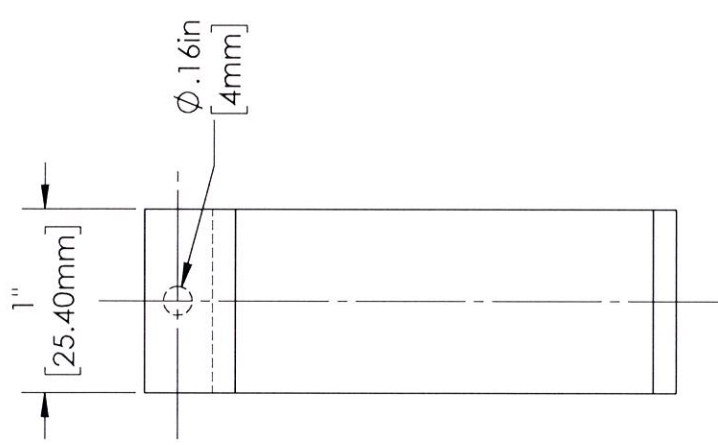
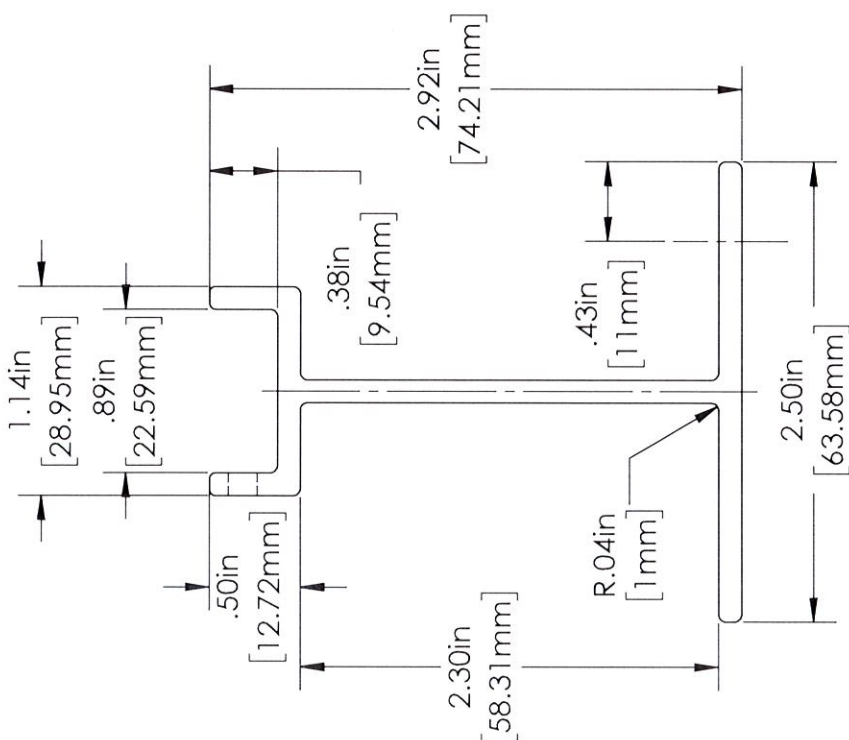
PROPRIETARY AND CONFIDENTIAL
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DRAWN BY	A.dmin
CREATED	9/19/2017
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION
5/8" Picket

Part No.	Eng No.
Weight 0.41 lbs	SHEET 1 OF 2
	Rev -

REV.	DESCRIPTION	DATE	INITIALS
-		07/21/2021	SB



intertek

Test sample complies with these details.
Deviations are noted.

Report #: 10471558820Q-002B

Date: 07/22/21 Tech: C.C.



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DRAWN BY	Admin
CREATED	10/2/2017
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION
Surface Support Leg - SL

Part No	4600-LEG-60100	Eng No	0060PA
Weight	0.08 lbs	SHEET 2 OF 2	

TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104715588COQ-002B

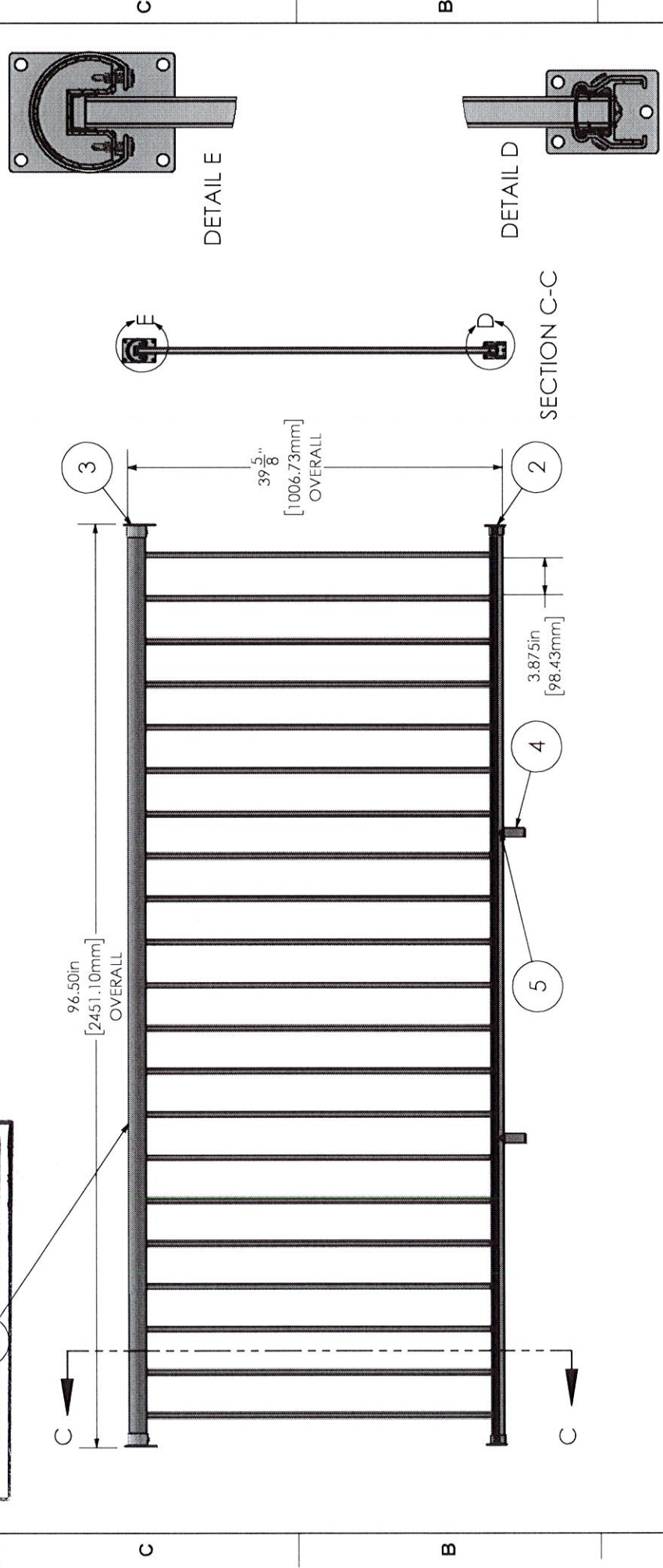
Date: 07/22/21

APPENDIX D – CENTURY ROUND COMPONENT PANEL DRAWINGS (7 PAGES)

1 2 3 4

intertek
 Test sample complies with these details.
 Deviations are noted.
 Report #: 104715588000 - 002.B
 Date: 07/22/21 Tech: C.C.

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	2593A	NA	Century Round 8' 5/8" Component Panel	1
2	0033A	4100-WAL-10100	Bottom Wall Bracket	2
3	0032AA	4104-WAL-10100	Top Wall Bracket Round	2
4	0060PA	4600-LEG-60100	Surface Support Leg - SL	2
5	0096PA	9000-SLB-20001	Screw #10x3/4" P/H Soc Tek Zinc	12

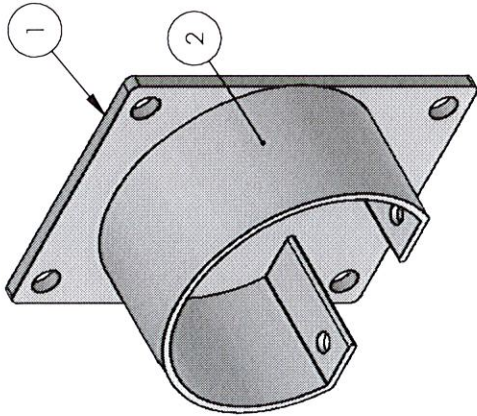


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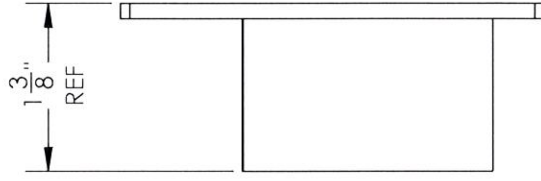
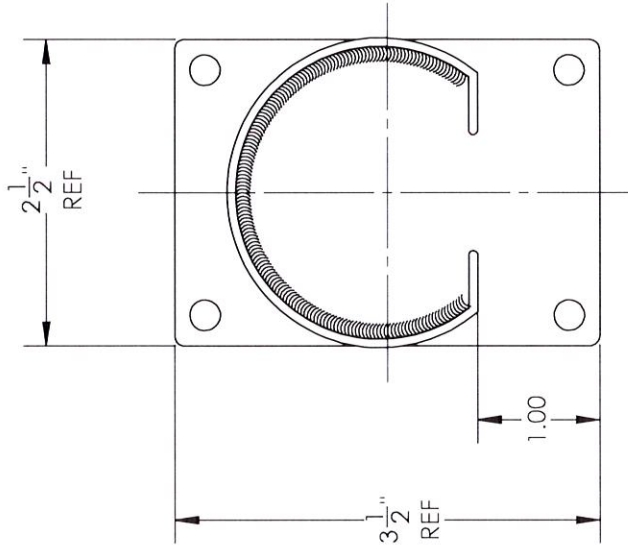
DRAWN BY	Engl
CREATED	2021-07-19
MATERIAL	
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION	
Century Round 8' 5/8" Component Panel WB System	
Part No. NA	Eng. No. 2591A
Weight 19.32 lbs	SHEET 1 OF 1 Rev -

1 2 3 4



intertek
 Test sample complies with these details.
 Deviations are noted.
 Report #: 104715588COQ-002B
 Date: 07/22/21 Tech: C.C.



ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0014PE	1700-FLA-16007	Flat Bar Cut 1/8" x 2-1/2" x 3-1/2" Uni/Rnd WB, 90° WB x4	1
2	0012PA	1604-SLE-20025	Top Rail Sleeve Round cut WB, Post Sleeve	1



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DRAWN BY	cchislett	2/19/2021
CHECKED		
MATERIAL	Material <not specified>	
DIE NO.		
ALL DIMENSION IN INCHES/mm		

DESCRIPTION Top Wall Bracket Round		
Part No. 4104-WAL-10100	Eng. No. 0032AA	
Weight 0.16 lbs	SHEET 1 OF 2	Rev 1

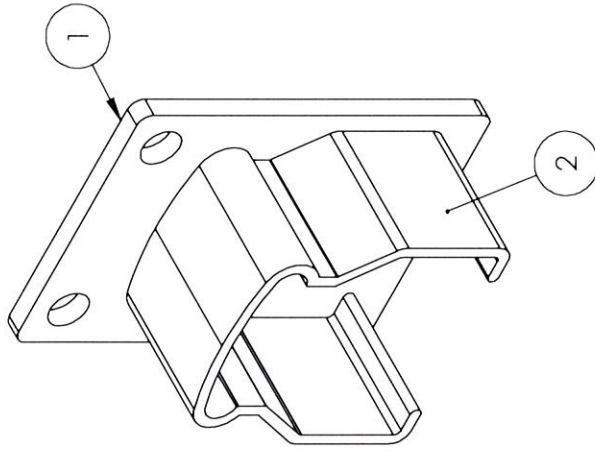
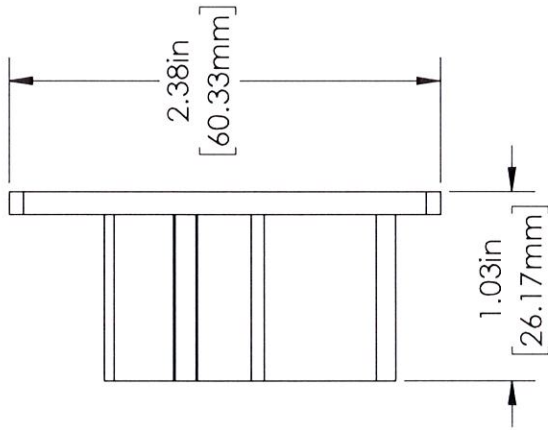
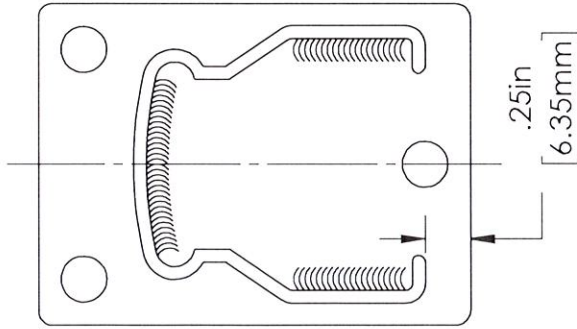
intertek

Test sample complies with these details.
Deviations are noted.

Report #: 104715388COQ-0025

Date: 07/22/21 Tech: C.C.

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0014PH	1700-FLA-13002	Flat Bar Cut 1/8" x 1-3/4" x 2-3/8" BR WB, BR 90° WB x3	1
2	0051PA	1600-SLE-10011	Bottom Rail Sleeve Welded Cut WB	1



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DRAWN BY	Admin
CREATED	10/3/2017
MATERIAL	Material <not specified>
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION
Bottom Wall Bracket

REVISIONS
DESCRIPTION

DATE INITIALS

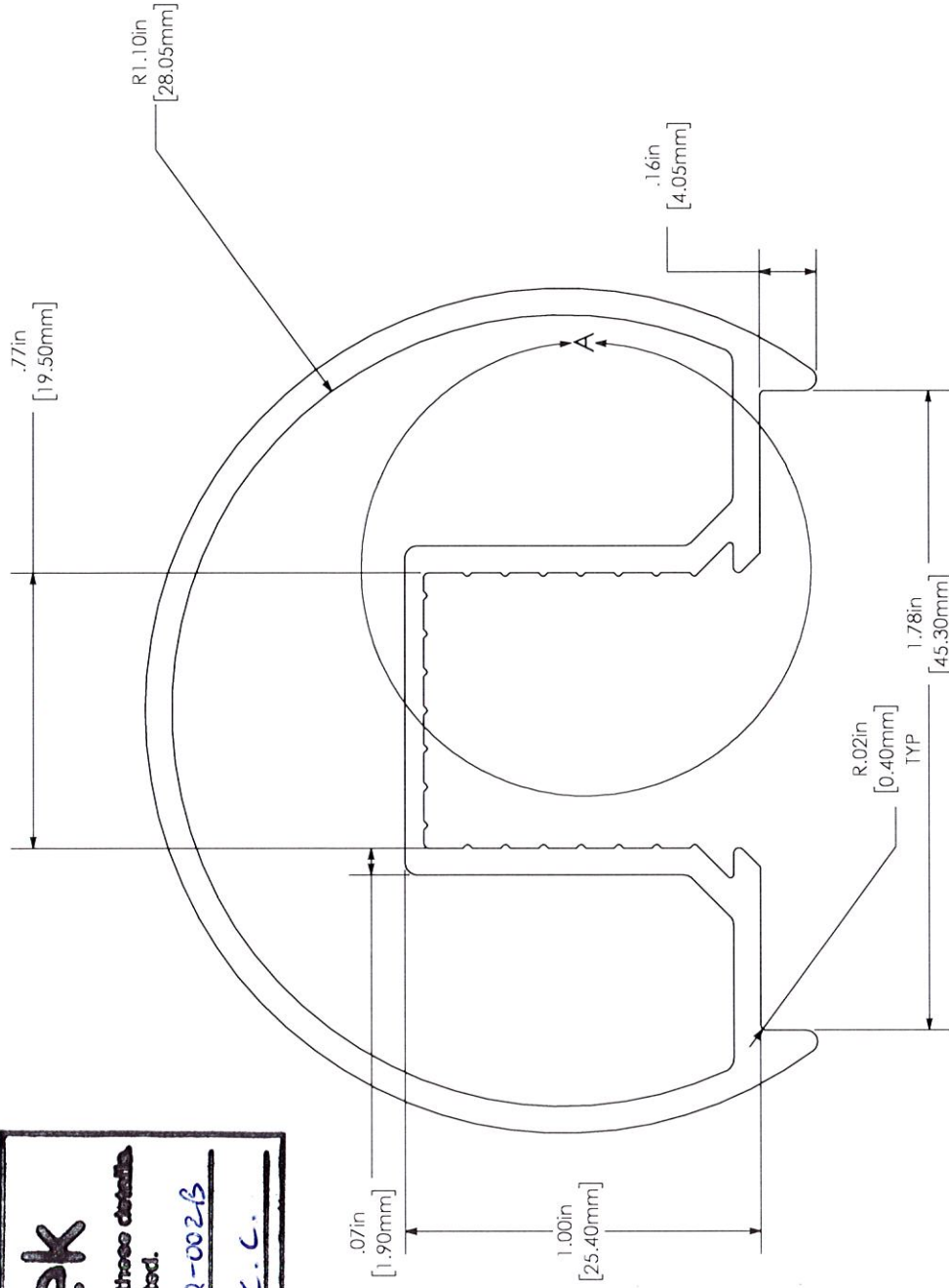
Part No. 4100-WAL-10100 Eng. No. 0033A
Weight 0.08 lbs SHEET 1 OF 2 Rev -

intertek

Test sample complies with these details
Deviations are noted.

Report #: 104715588 COQ-002B

Date: 07/22/21 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
<12-19	±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

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

REVISIONS

REV.	DESCRIPTION	DATE	INITIALS



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DRAWN BY	Admin
CREATED	2/27/2018
MATERIAL	6063-T5
DIE NO.	DYG12073190
ALL DIMENSION IN INCHES/MM	

DESCRIPTION
Century Top Rail Die

Part No.	Weight	lbs	Rev
	0.77		1

Back No. 0041P

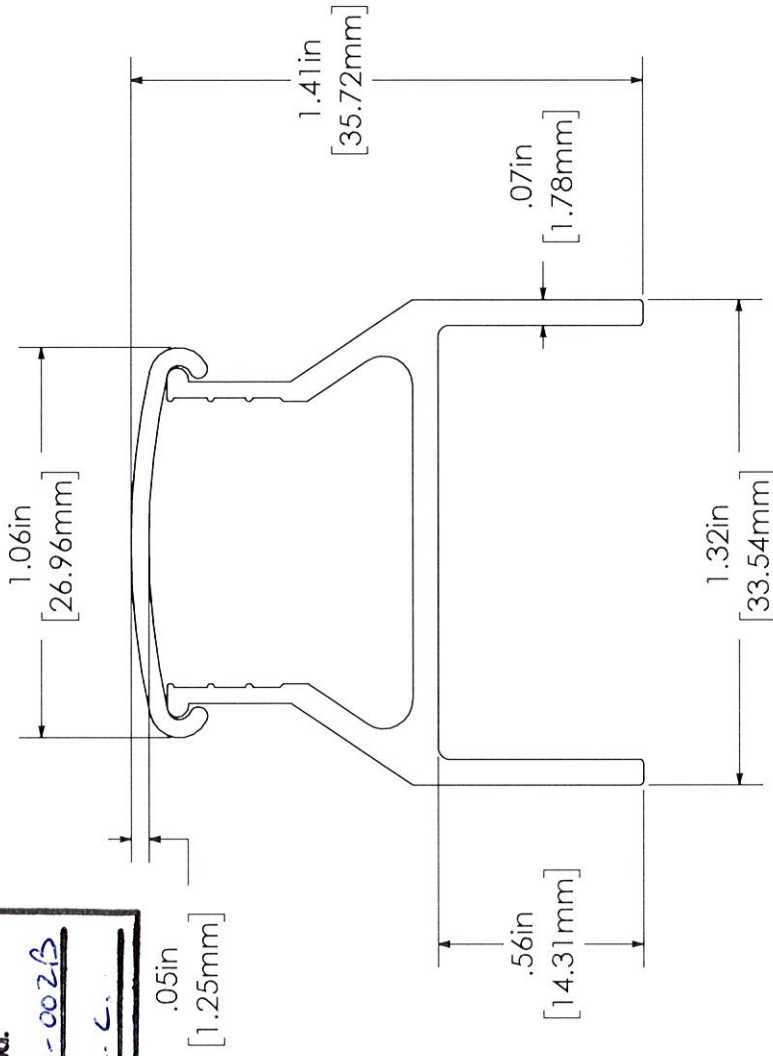
SHEET 1 OF 1

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 10-1715588C00-002B

Date: 07/22/21 Tech: C. C.



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DRAWN BY	Admin
CREATED	8/13/2019
MATERIAL	
DIE NO.	

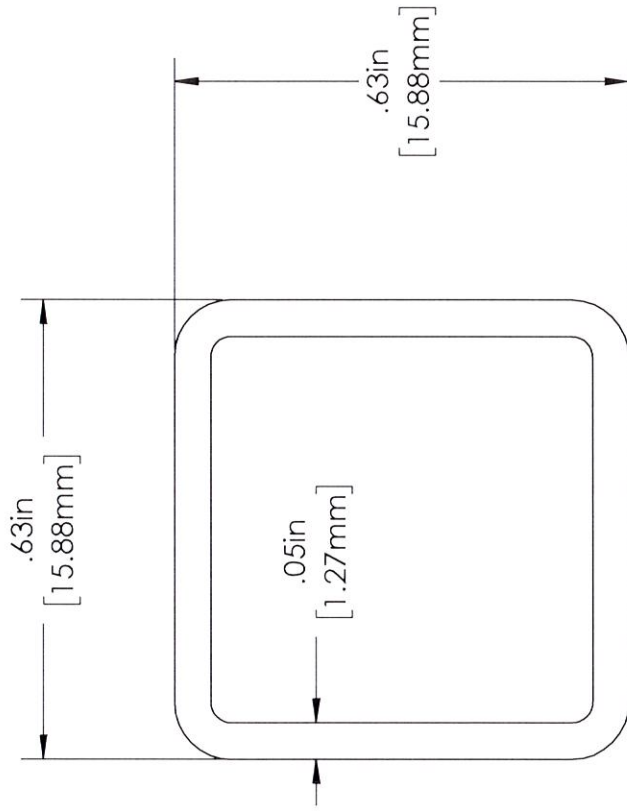
ALL DIMENSION IN INCHES/mm

DESCRIPTION
5/8" Picket Bottom Rail

Part No.	Weight	lbs
ENGIN. NO.		

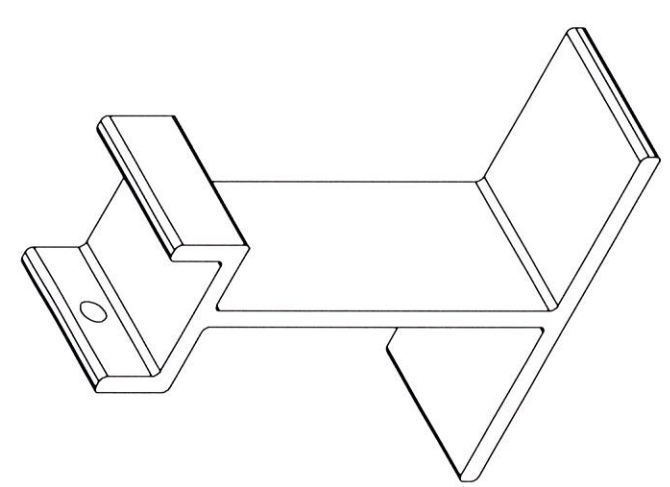
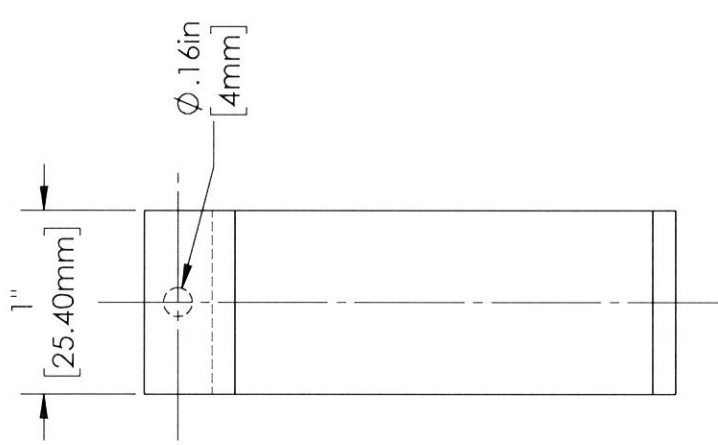
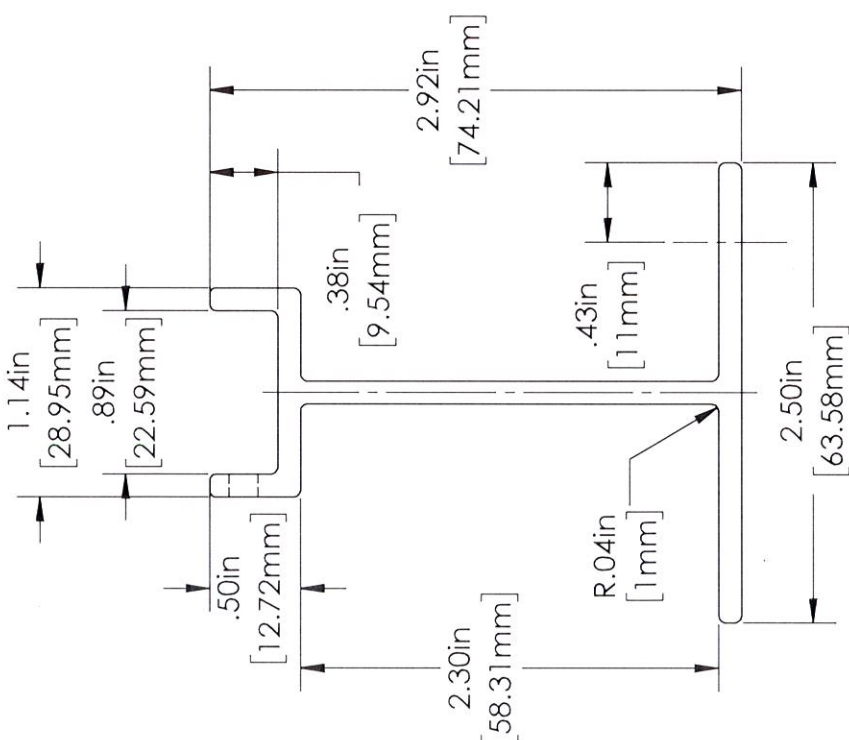
REV.	DESCRIPTION	DATE	INITIALS

intertek
 Test sample complies with these details.
 Deviations are noted.
 Report #: 104715588 C00-002B
 Date: 07/22/21 Tech: C. C.



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	CREATED	9/19/2017	
	MATERIAL	6063-T5	
	DIE NO.		
ALL DIMENSION IN INCHES/mm			Part No.
			Weight
			0.41 lbs
			SHEET 1 OF 2
			Rev -

REV.	DESCRIPTION	DATE	INITIALS
-		07/21/2021	SB



intertek
 Test sample complies with these details
 Deviations are noted.
 Report #: 104715538 CQ-002B
 Date: 07/22/24 Tech: C.C.

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DRAWN BY	Admin
CREATED	10/2/2017
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION
 Surface Support Leg - SL

Part No.	4600-LEG-60100	Eng. No.	0060PA
Weight	0.08 lbs	SHEET 2 OF 2	

TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 104715588COQ-002B

Date: 07/22/21

SECTION 12

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	07/22/21	N/A	Original Report Issue