

CENDEK RAILINGS LTD.

TEST REPORT

SCOPE OF WORK

REPORT OF CENDEK RAILINGS LTD. 6 FT. CENTURY WELDED PICKET FASCIA MOUNT RAILING SYSTEM TESTED IN ACCORDANCE WITH ASTM E935-21, *STANDARD TEST METHODS FOR PERFORMANCE OF PERMANENT METAL RAILING SYSTEMS AND RAILS FOR BUILDINGS*

REPORT NUMBER

105973968COQ-001

TEST DATES

10/18/24

ISSUE DATE

11/04/24

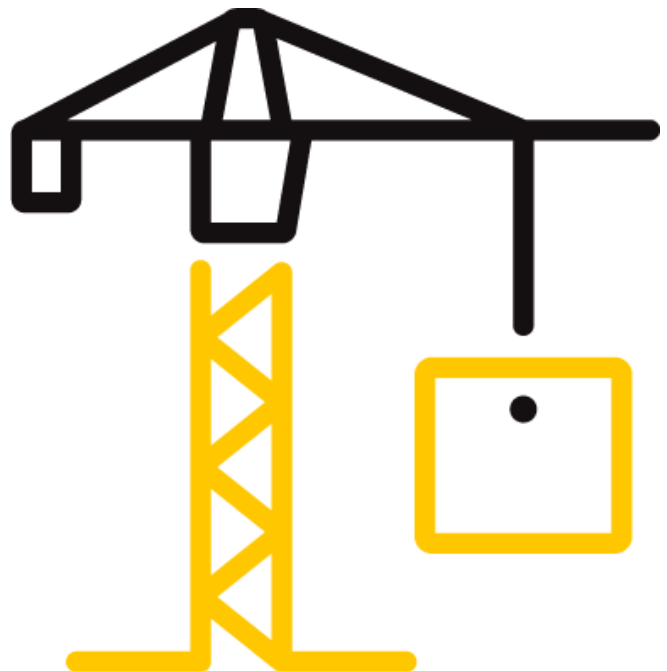
PAGES

24

DOCUMENT CONTROL NUMBER

GFT-OP-10c (09/29/20)

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TEST REPORT FOR CENDEK RAILINGS LTD.

Report No.: 105973968COQ-001

Date: 11/04/24

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 on the 6 ft. Century Welded Picket Fascia Mount Railing System in accordance with ASTM E935-21, *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 system to resist the load requirements of Section 1607.9 of the 2024 IBC and R301.5 of the 2024 IRC. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek test facility in Coquitlam, BC, Canada on October 18, 2024.

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, P.Eng.	REVIEWED BY:	Baldeep Sandhu
TITLE:	Senior Technician – Building & Construction	TITLE:	Manager – Building & Construction
SIGNATURE:		SIGNATURE:	
DATE:	11/04/24	DATE:	11/04/24

EGBC Permit No.: 1000953

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SECTION 2

SUMMARY OF TEST RESULTS

SYSTEM DESCRIPTION	TEST	PASS/FAIL
6 ft. Century Welded Picket Fascia Mount Railing System	In-fill Load	Pass
	Uniform Load	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 METHOD

The guard specimen was evaluated in accordance with the following:

ASTM E935-21, *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.

2024 International Building Code (IBC)

- Section 1607.9 *Loads on Handrails, Guards, Grab Bars and Seats*

2024 International Residential Code (IRC)

- R301.5 *Live Load*

SECTION 4

MATERIAL SOURCE

The client submitted the railing system to the Evaluation Center on September 19, 2024 (Coquitlam ID# VAN2409230952-001). The sample was received in good condition and was suitable for testing unless noted otherwise. The sample was not independently selected for testing.

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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	01/15/25
D7830	Extech Temperature and Humidity Logger	RH550	11/07/24
P60624	Extech Stopwatch	365515	12/15/24
52650	Mitutoyo 8 in. Digital Caliper	CD-8	06/28/25
P60494	Stanley Tape Measure	FatMax	10/19/24

SECTION 6 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Chris Chang	Intertek B&C
Stanley Miguel	Intertek B&C

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

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SECTION 7**TESTING PROCEDURE**

The evaluation was conducted in accordance with the testing procedures of ASTM E935-21, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*. The test specimen was 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. Testing was conducted with reference to the specified load requirements of the following:

IN-FILL LOAD TEST

The in-fill load test was conducted in accordance with Section 1607.9.1.2 *Guard Component Loads* of the 2024 IBC and Table R301.5 *Minimum Uniformly Distributed Live Loads* of the 2024 IRC. Testing was conducted with reference to Section 4.5.1.2 *Guard System Component Loads* of ASCE/SEI 7-22, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* with a safety factor of 2.5. A load of 125 lbs was applied using a 1 square foot block normal to the in-fill. After release of the load, the system was evaluated for failure, any evidence of disengagements of any component and/or visible cracking from any component.

UNIFORM LOAD TEST

The uniform load test was conducted in accordance with Section 1607.9.1.1 *Uniform Load* of the 2024 IBC and Table R301.5 *Minimum Uniformly Distributed Live Loads* of the 2024 IRC. Testing was conducted with reference to Section 4.5.1.1 *Uniform Load* of ASCE/SEI 7-22, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* with a safety factor of 2.5. The top rail of the guardrail system was subjected to a uniform load of 125 plf applied horizontally. The load was applied using quarter point loads. After release of the load, the system was evaluated for failure, any evidence of disengagements of any component and visible cracks in any component.

CONCENTRATED LOAD TEST

The concentrated load tests were conducted in accordance with Section 1607.9.1 *Concentrated Load* of the 2024 IBC and Table R301.5 *Minimum Uniformly Distributed Live Loads* of the 2024 IRC. Testing was conducted with reference to Section 4.5.1 *Loads on Handrail and Guardrail Systems* of ASCE/SEI 7-22, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* with a safety factor of 2.5. The top rail of the guardrail system was subjected to three (3) separate horizontal tests where a concentrated load of 500 lbs was applied:

- horizontally at the mid-span of the top rail,
- horizontally at the top rail adjacent to the post connection to verify the connection capacity, and
- horizontally at the top of the post.

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After release of the load, the system was evaluated for failure, any evidence of disengagements of any component and/or visible cracking from any component.

SECTION 8

TEST SPECIMEN DESCRIPTION

The sample was identified as the following:

TABLE 1. RAILING CONFIGURATION						
PART NAME	QTY	PART DIMENSIONS				REPORTED MATERIAL
		LENGTH	WIDTH	HEIGHT	NOMINAL THICKNESS	
Post	2	42.25 in.	2.50 in.	2.50 in.	0.07 in.	6063-T5 Aluminum
Baseplate	2	4.00 in.	4.00 in.	0.25 in.	N/A	6063-T5 Aluminum
Fascia Bracket	2	5.29 in.	4.50 in.	7.00 in.	N/A	6063-T5 Aluminum
Top Rail	1	71.29 in.	2.36 in.	1.89 in.	0.07 in.	6063-T5 Aluminum
Bottom Rail	1	71.29 in.	1.32 in.	1.41 in.	0.07 in.	6063-T5 Aluminum
Infill - Picket	16	37.56 in.	0.63 in.	0.63 in.	0.05 in.	6063-T5 Aluminum
Support Leg	1	3.82 in.	1.25 in.	6.93 in.	0.19 in.	6063-T5 Aluminum

Note 1: For detailed drawings of the test samples and components, refer to Appendix C.

SECTION 9

TEST RESULTS

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

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SECTION 10**CONCLUSION**

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Cendek Railings Ltd. on the 6 ft. Century Welded Picket Fascia Mount Railing System per ASTM E935-21, *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 system to resist the loads as prescribed in the following building code articles:

2024 International Building Code (IBC)

- Section 1607.9 *Loads on Handrails, Guards, Grab Bars and Seats*

2024 International Residential Code (IRC)

- R301.5 *Live Load*

The Cendek Railings Ltd. 6 ft. Century Welded Picket Fascia Mount Railing System identified and evaluated in this report has met the load requirements of the above criteria. 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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Date: 11/04/24

SECTION 11

APPENDIX A – TEST DATA (2 PAGES)

Company	Cendek Railings Ltd.	Technician(s)	Chris Chang / Stanley Miguel
Project No.	G105973968	Reviewer	Baldeep Sandhu
Models	Fascia Mount	Start/End Date	October 18, 2024
Product Name	6 ft. Century Welded Picket	Sample ID	VAN2409230952-001
Standard	2024 IBC/IRC		

Test Data Package

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Sheet	Page
Table of Contents (This Sheet)	1
6 ft. Century Welded Picket - Fascia Mount	2

Test: **Loads on Guards** Project: G105973968
Date: 18-Oct-24 Eng/Tech: Chris Chang
Client: Cendek Railings Ltd. Stanley Miguel
Product: **6 ft. Century Welded - Fascia Mount** Reviewer: Coquitlam, BC, Canada
Post Spacing: 6.21 ft 1.89 m
Height of Guard: 42.1 in 1070 mm
Opening in Guard: 3.88 in 98 mm (between pickets)
Method: ASTM E935-13e1, *Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings*
2024 International Building Code (IBC)
2024 International Residential Code (IRC)
Safety Factor: 2.50
Equipment: Artech 5000 lbf Load Cell (Intertek ID# P60692, cal due January 15, 2025)
Extech RH550 Temperature and Humidity Logger (Intertek ID# D7830, cal due November 7, 2024)
Stopwatch (Intertek ID# P60624, cal due December 15, 2024)
Mitutoyo Digital Caliper (Intertek ID# 52650, cal due June 28, 2025)
Stanley Tape Measure (Intertek ID# P60494, cal due October 19, 2024)
Time/Temp/RH: 1:25PM / 22.5°C / 48.3%

Direction	Test	Design Load (Inward/Outward) (lbf)	Factored Load	Equivalent Quarter-Point Load (lbf)	Required Proof Load (lbf)	Pass/Fail
Outward	Individual Elements (over 12 in. x 12 in.) (most critical location)	50	125	-	125	Pass
	Horizontal Uniform Load (per ft)	50	125	388	776	Pass
	Midspan Horizontal Concentrated Load	200	500	-	500	Pass
	Top Rail Adjacent to Connection Concentrated Load	200	500	-	500	Pass
	Top of Post	200	500	-	500	Pass

Direction	Test	Design Load (Inward/Outward) (kN)	Factored Load	Equivalent Quarter-Point Load (kN)	Required Proof Load (kN)	Pass/Fail
Outward	Individual Elements (over 305 mm in. x 305 mm) (most critical location)	0.22	0.56	-	0.56	Pass
	Horizontal Uniform Load (per m)	0.73	1.83	1.73	3.45	Pass
	Midspan Horizontal Concentrated Load	0.89	2.22	-	2.22	Pass
	Top Rail Adjacent to Connection Concentrated Load	0.89	2.22	-	2.22	Pass
	Top of Post	0.89	2.22	-	2.22	Pass

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SECTION 11

APPENDIX B – PHOTOS (2 PAGES)

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Figure 1. In-fill Load Test



Figure 2. Uniform Load Test

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Figure 3. Horizontal –Mid-span of Top Rail Concentrated Load

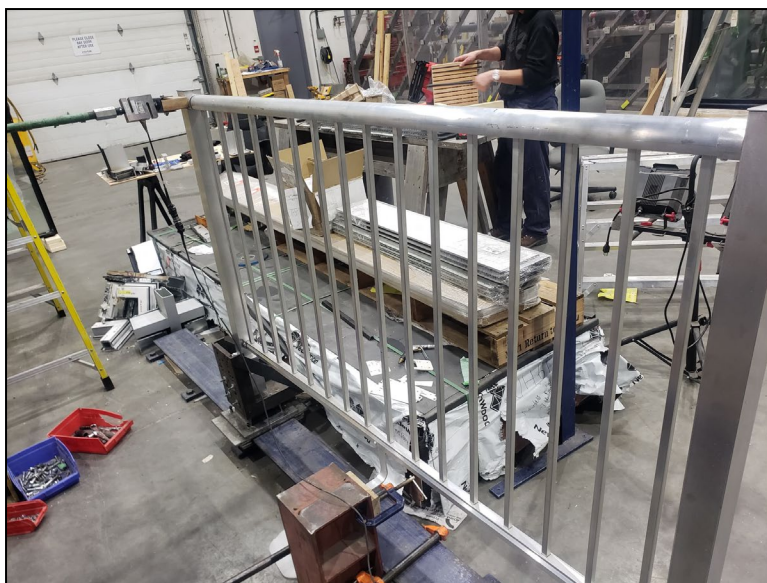


Figure 4. Horizontal – Top of Post Concentrated Load

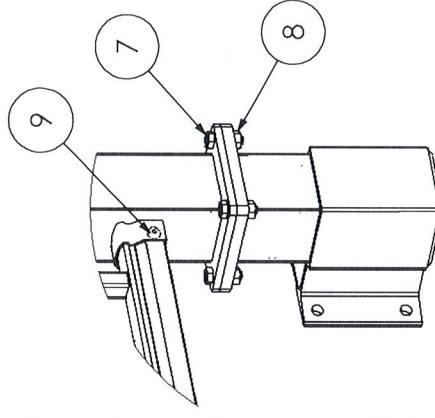
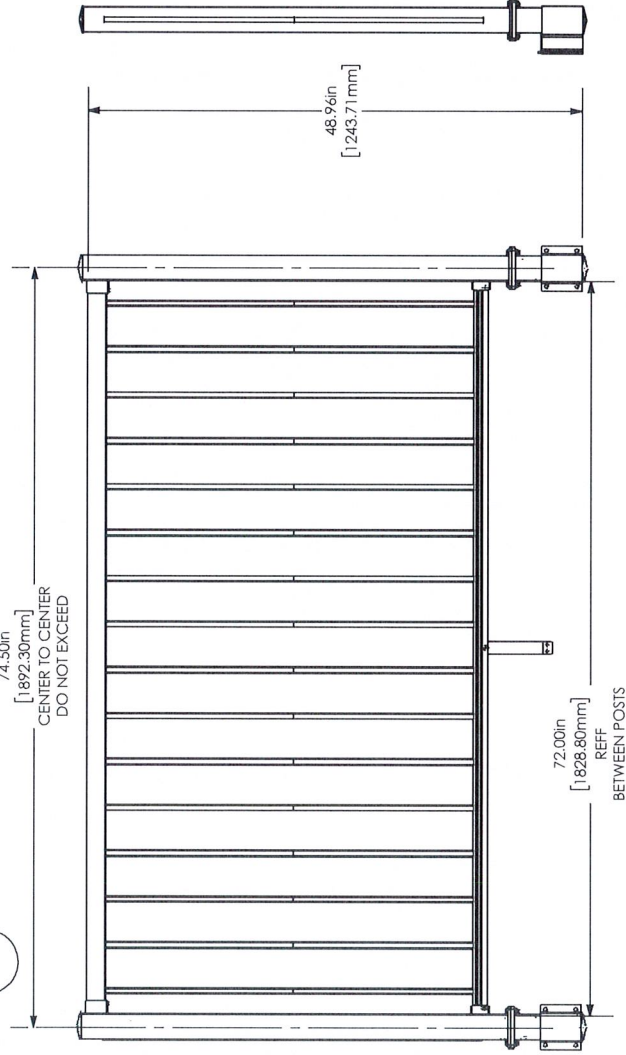
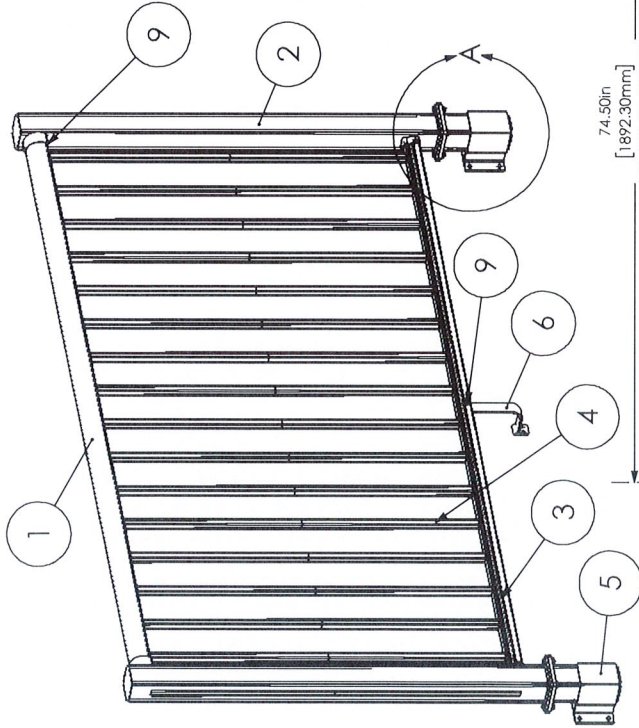
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SECTION 12

APPENDIX C – DRAWINGS (8 PAGES)



DETAIL A

SCALE 1:6

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 105973968 COQ-001

Date: 11/04/24 Tech: C.C.

ITEM NO.	Eng No.	Material	DESCRIPTION	QTY.
1	0042P	6063-T5	Century Welded Top Rail 6'	1
2	0863AB1	6063-T5	2-1/2" End Post Round 42"	2
3	0326P	6063-T5	Bottom Rail Welded 5/8" 3-7/8" Straight 6'	1
4	0063P	6063-T5	5/8" Picket 37-9/16"	17
5	0217A	6063-T5	Fascia Bracket 2-1/2" Line/End/Stair with baseplate	2
6	0076PG	6063-T5	Support Leg 2" Offset Fascia for 2-1/2" 1-1/4"	1
7	2077P	AISI 304	Bolt Hex 5/16" x 1" NC Stainless	8
8	2557P	AISI 304	Nut Hex 5/16" Nyloc NC Stainless	8
9	0096PA	C1018	Screw #10x3/4" PH Robertson TEK Zinc	10

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Railings Ltd.

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DRAWN BY Admin
CREATED 7/14/2018
MATERIAL
DIE NO.

ALL DIMENSION IN INCHES/MM

DESCRIPTION
6' Century Fascia Welded Picket
System

REV.	DESCRIPTION	DATE	INITIALS
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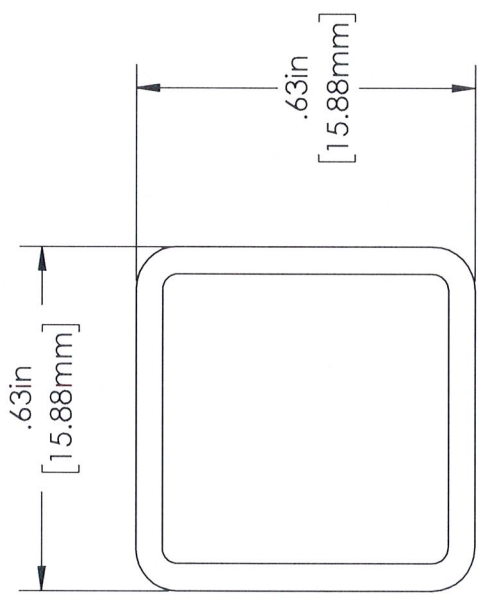
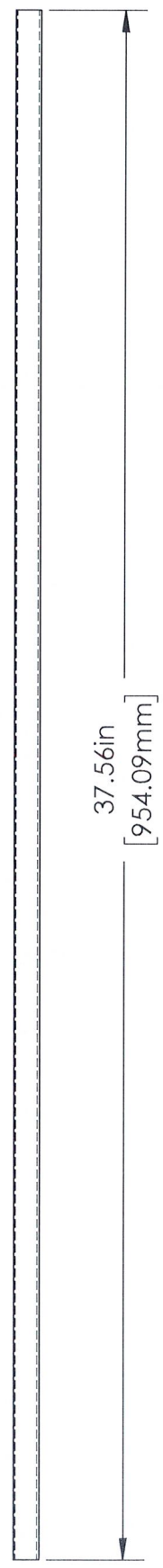
Part No. Eng No. 0482A
Weight 26.37 Lbs SHEET 1 OF 1 Rev -

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 105973968 CQ-001

Date: 4/04/24 Tech: C.C.



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DRAWN BY	Admin
CREATED	1/5/2018
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION
5/8" Picket

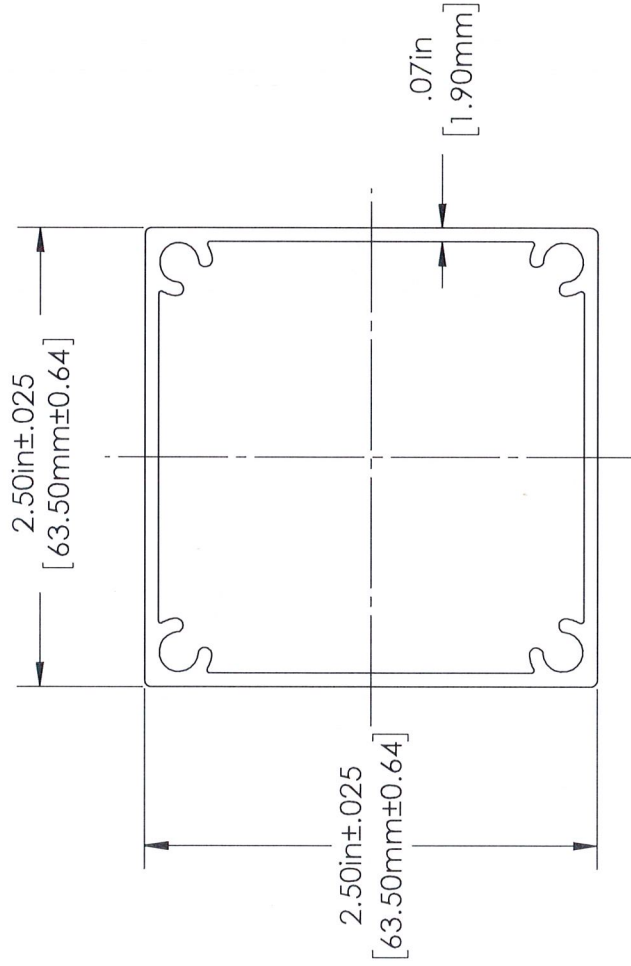
Part No.	Eng No.
Weight	0.43 Lbs
	SHEET 2 OF 2
Rev	-

intertek

Test sample complies with these details.
Deviations are noted.

Report #: 105973968002-001

Date: 11/04/24 Tech: C.C.



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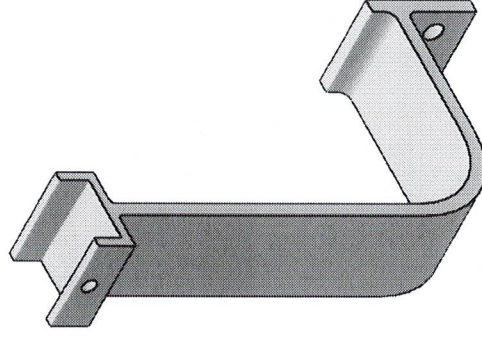
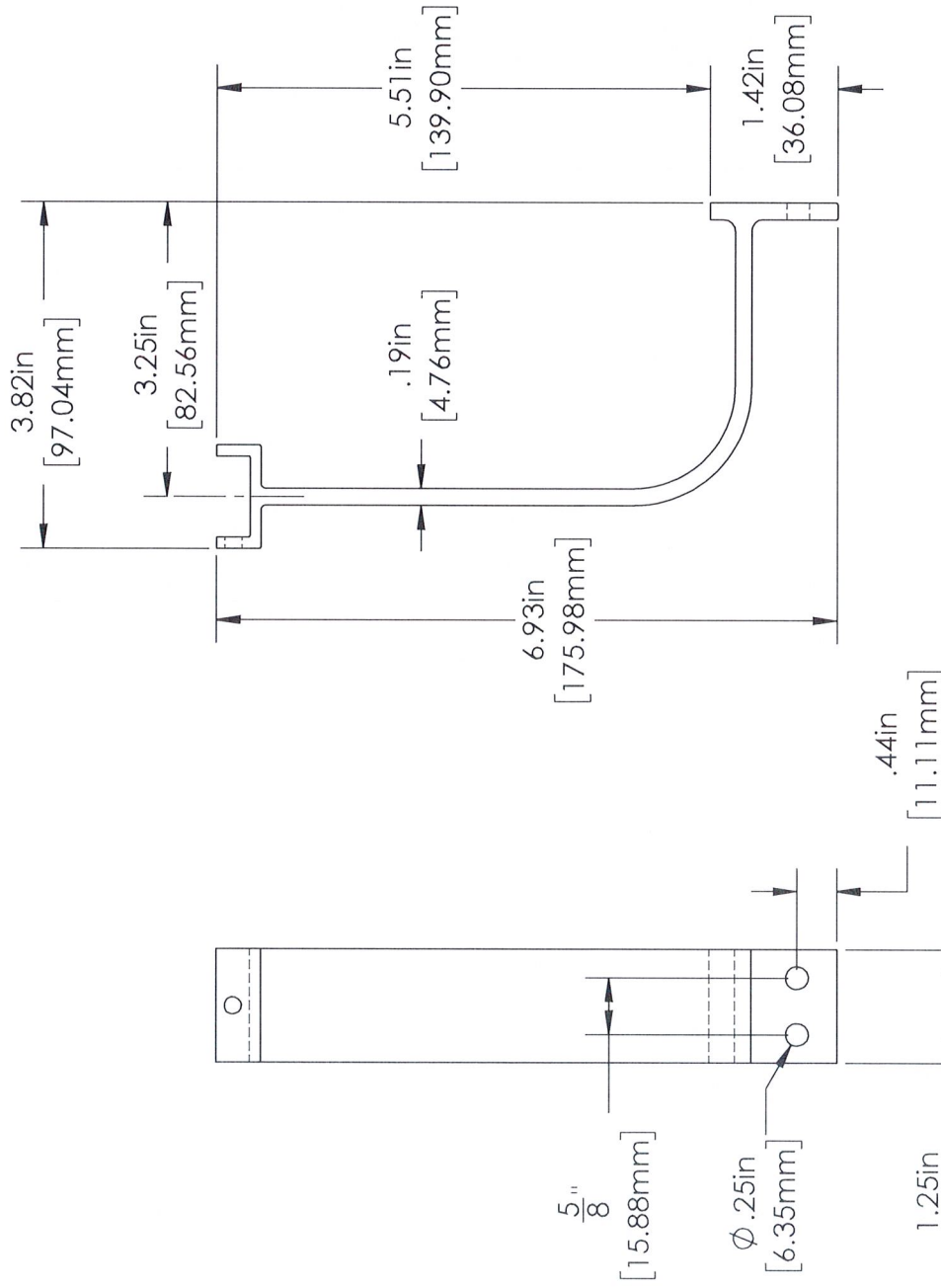
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DRAWN BY Admin
CREATED 11/6/2017
MATERIAL 6063-T5
DIE NO. DYG12076190
ALL DIMENSION IN INCHES/MM

DESCRIPTION
2-1/2" Post Material 12"

REVISIONS		
REV.	DESCRIPTION	DATE

Part No.	Eng No. 0071PV
Weight	SHEET 2 OF 2
0.98 Lbs	Rev 2



intertek

Test sample complies with these details.
Deviations are noted.

Report #: 105973968C02-001

Date: 11/04/24 Tech: C.C.

REV.	DESCRIPTION	REVISIONS	DATE	INITIALS

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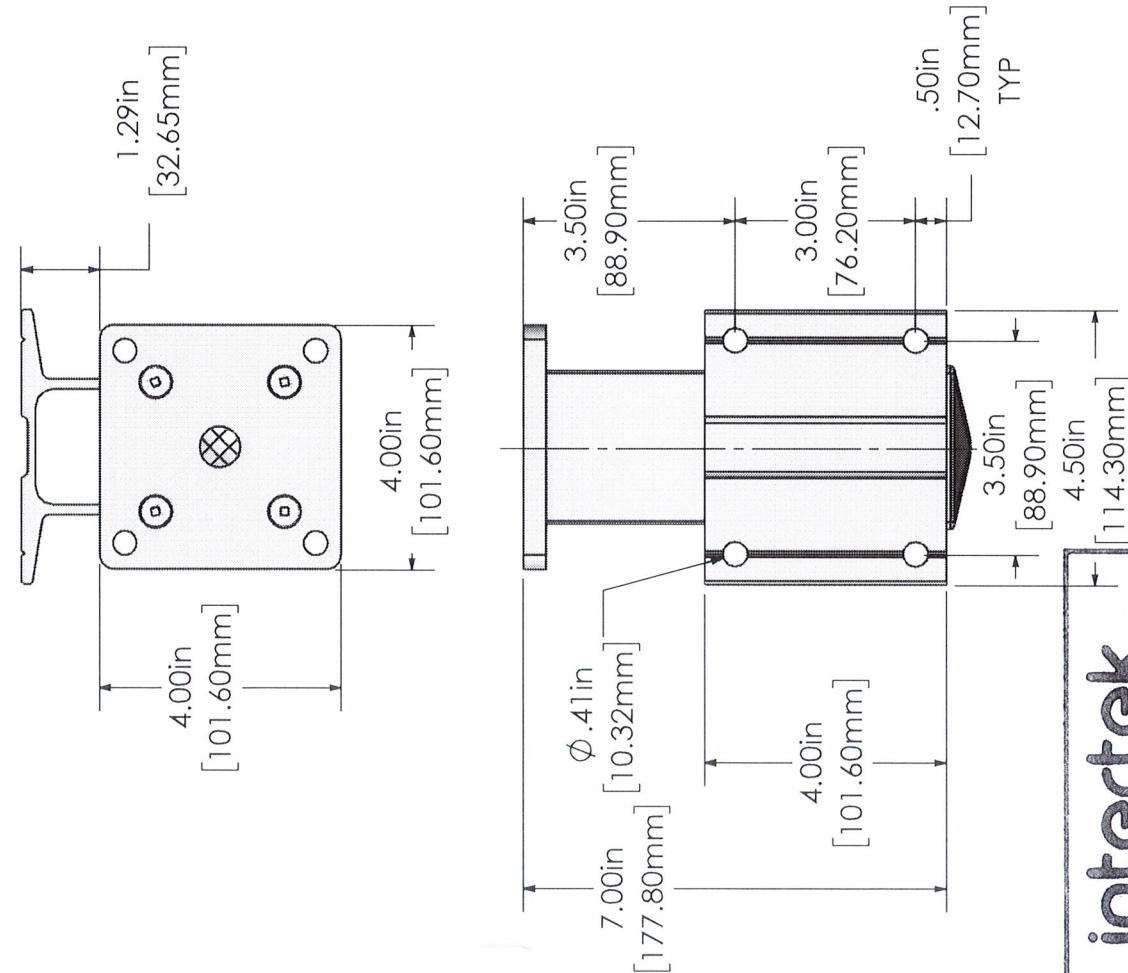
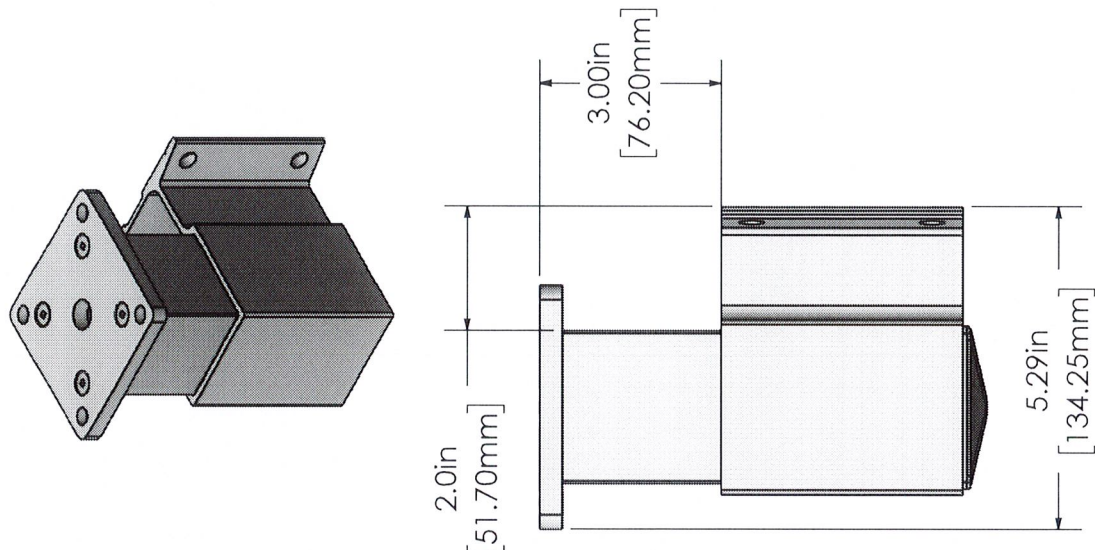
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CREATED	12/22/2017
MATERIAL	6063-T5
DIE NO.	

ALL DIMENSION IN INCHES/mm

DESCRIPTION

Support Leg 2" Offset Fascia for 2-
1/2" 1-1/4"

Part No. D000667	Eng No. 0076PG
Weight 0.24 Lbs	SHEET 1 OF 1 Rev -



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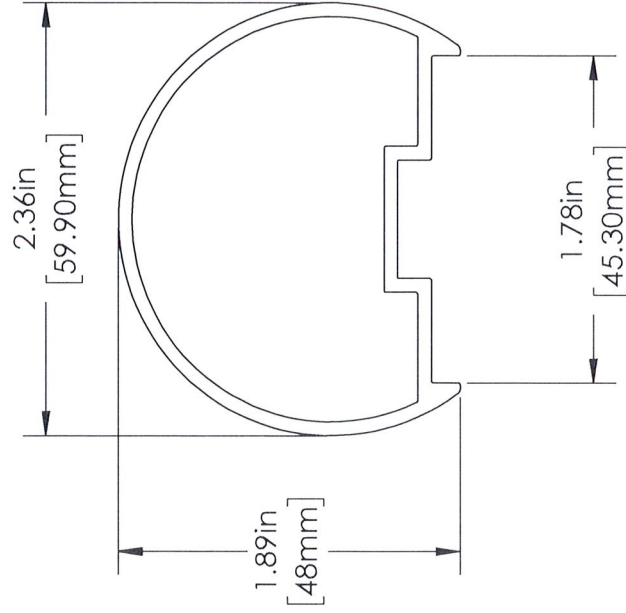
DRAWN BY	Admin	DESCRIPTION
CREATED	10/21/2024	Fascia Bracket 2-1/2" Line/End/Stair
MATERIAL	6063-T5	with baseplate
DIE NO.		
ALL DIMENSION IN INCHES/MM		
Part No.	D000610	Eng No. 0217A
Weight	2.39 Lbs	SHEET 2 OF 2
		Rev 2

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Test sample complies with these details.
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DRAWN BY Admin
CREATED 11/3/2017
MATERIAL 6063-T5
DIE NO.
ALL DIMENSION IN INCHES/MM

DESCRIPTION
Century TR Weld

REV.	REVISIONS	
	DESCRIPTION	DATE

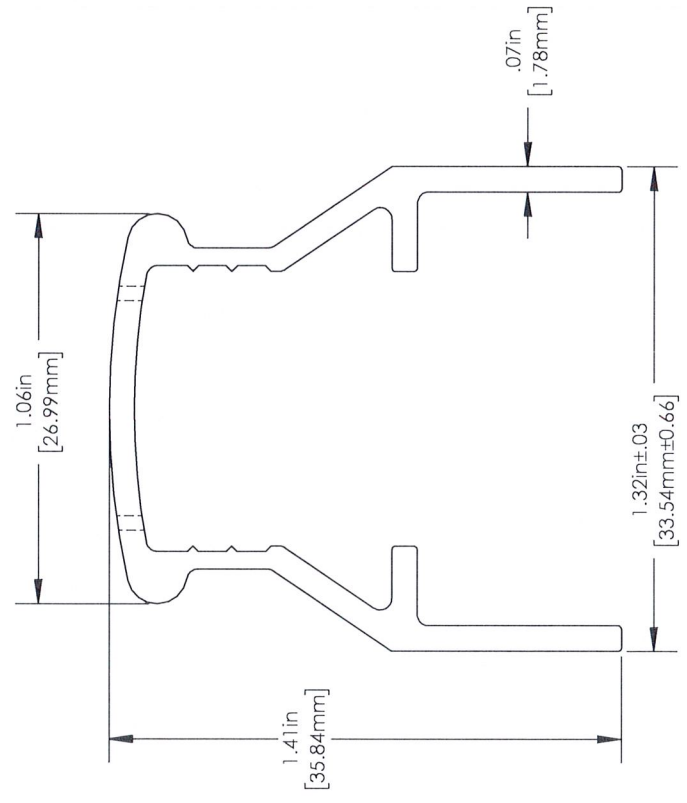
Part No.	Eng No. 0042P
Weight	0.22 Lbs
	Rev -

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DRAWN BY	Admin
CREATED	10/21/2024
MATERIAL	6063-T5 - CenDek
DIE NO.	
ALL DIMENSION IN INCHES/mm	

DESCRIPTION

Bottom Rail Welded 5/8" 3-7/8"
Straight

Part No. D001003

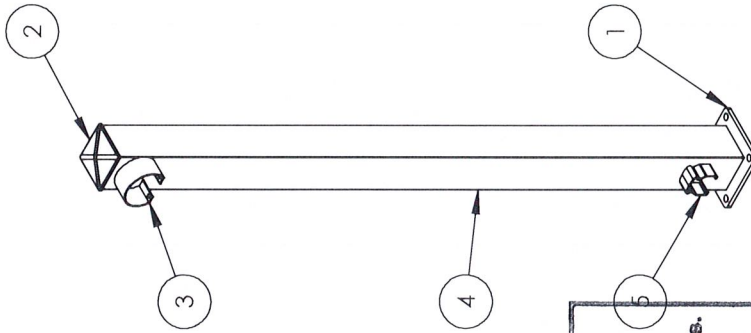
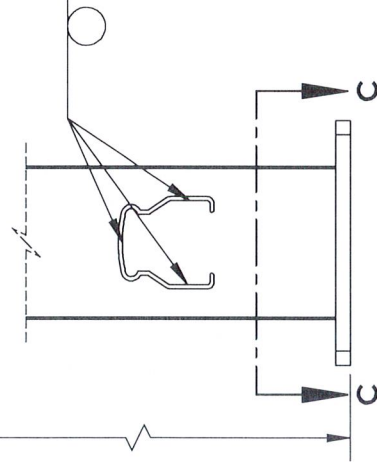
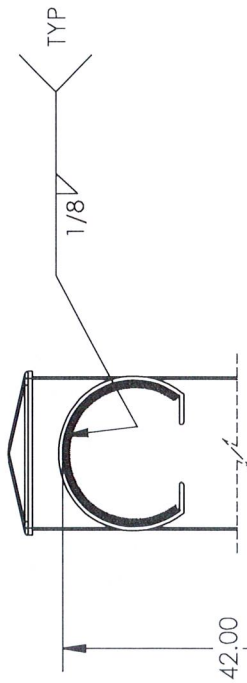
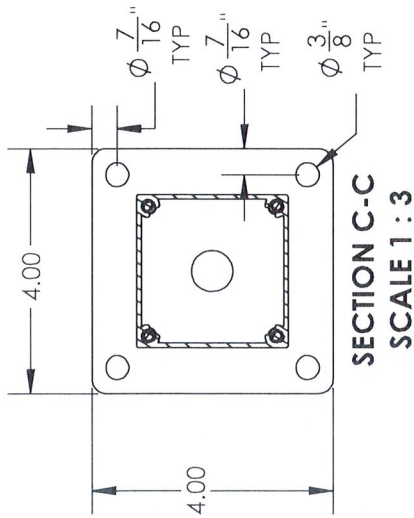
Weight 0.34 Lbs

Eng No. 0317PR

SHEET 2 OF 2

Rev -

ITEM NO.	Eng No.	Part No.	DESCRIPTION	QTY.
1	0054PB	D000063	Baseplate 4"x 4" 2-1/2" Post	1
2	0078P	D000167	Post Cap Pyramid 2-1/2" (Inner)	1
3	0012P	D000506	Sleeve Round 1-1/4"	1
4	0071PD	D001471	2-1/2" Post Material 42-1/4"	1
5	0051PA	D000505	Sleeve Bottom Rail Welded 1"	1



intertek

Test sample complies with these details.
Deviations are noted.

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DRAWN BY	Admin
CREATED	10/18/2017
MATERIAL	6063-T5
DIE NO.	
ALL DIMENSION IN INCHES/MM	

DESCRIPTION
2-1/2" End Post Round 42"

Part No.	D000507	Eng No.	0863AB1
Weight	4.03 Lbs	SHEET 2 OF 2	Rev 1

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

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Date: 11/04/24

SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/04/24	N/A	Original Report Issue