# REPORT
# SERVICES POLYTESTS INC.

**695-B rue Gaudette** **St-Jean-sur-Richelieu, QC, J3B 7S7**

REPORT No. P-1683rev1

Evaluation of Railing system

Client:

**TruNorthComposite**

55 Plant Farm Blvd
Brantford, Ontario
N5S 7W2

Attention: Joe Ferreira, TruNorthComposite

GENERAL: This report presents the results of load tests performed on samples provided by client TruNorthComposite models: SLIDE & GO FENCE AND PRIVACY SCREEN. All tests were carried out in POLYTESTS laboratoryThe results apply only to the product tested. 

# TABLE OF CONTENT

# 1 Products

## 1.1 General

This report covers the load tests performed on representative samples of guard railings in accordance with the requirements of the National Building Code (NBC) 2020 Table 9.8.8.2, section 9.8.8.3, 9.8.8.5, 9.8.8.6, 4.1.5.14, 4.3 and 4.4, the Ontario Building Code (OBC) 2024. Evaluation period was done during October 2023, revision of the report in September 2025

## 1.2 Product line and test samples

Specimens of Guardrail system were delivered to Services Polytests for testing in September 2023. The assembly and testing of the system have been done by Alain Lefebvre from POLYTESTS

General:

| | |
|---|---|
| Type: | Aluminium extrusion |
| Model tested: | Aluminum extruded post with composite deck board 1in X 6in, 72 in. long and 42 in. to 72 in. height. |
| Model covered: | Aluminum extruded post with composite deck board 1 in X 6in, 72 in. long and 42 in. to 72 in. height. |

Product description (for more detail refer to appendix for technical drawings):

| | |
|---|---|
| Post: | 3-in x 3-in x 0,105-in thick, maximum height of 72 inches |
| Post Base plate: | 5-in x 5-in x 0,390-in thick Fully welded to the post |
| Upper and lower rail: | 1-in x 1,4-in x 0,075-in thick |
| Post rail: | U shape 1,125in x 1,3-in x 0,15-in thick |
| Composite deck board: | 1-in X 6-in, 60-in. long and at least 42-in. height. |
| Anchor: | Wood Deck (as per drawing in appendix B) Lag Bolt 3/8- 5-in. long<br>Concrete deck (minimum 25Mpa) Concrete screw (hilti Type) 1/4 – 2,25-in. long |

## 2 Test program

Test # 1 The guardrail system shall be designed to resist a horizontal load of 0.75kN/m or a concentrated load of 1.0kN applied at any point along the top rail, whichever governs (NBCC 9.8.8.2). For this system, both the distributed 0.75kN/m and concentrated 1.0kN loads were applied, with the concentrated load applied at the juncture between the rail and post and at any point of the rail.

Test # 2 The guardrail system shall be designed to resist a 1.5kN/m load applied vertically (force directed downward) at the top of the guard (NBCC 9.8.8.2).

Test # 3 Individual elements within the guard, including pickets, shall be designed to resist a concentrated load of 0.5kN at any point in the element (NBCC 9.8.8.2). The force was applied at the midpoint of the picket with plywood of 100mm X 100 mm.

Test # 4 The size of the opening between any two adjacent vertical elements within a *guard* shall not exceed the limits required by Part 3 when each of these elements is subjected to a specified *live load* of 0.1kN applied in opposite directions in the in-plane direction of the *guard* to produce the most critical effect.

Note: Safety factors of 1.5 Live load and 0.9 design factor have been applied to all load during test series

**2.1 Results**

| National Building Code (NBC) 2020 Table 9.8.8.2; 4.1.5.14 | | | | |
|---|---|---|---|---|
| Loading description | Specified load | 1,5 X Factored for live load required | 1,1 X Factored Minimum design loads required | Test Results (pass / fail) |
| 1.1 Uniformly distributed load applied in the horizontal direction. | 0,5 KN/m | 0,75 KN/m | 0,825 KN/m | Pass |
| 1.2 Concentrated load applied at any point of the rail in a horizontal direction | 1,0 KN | 1,5 KN | 1,65 KN | Pass |
| 1.3 Concentrated load applied at end of the rail in horizontal direction | 1,0 KN | 1,5 KN | 1,65 KN | Pass |
| 2. Uniformly distributed load applied in the vertical direction | 1,5 KN/m | 2,25 KN/m | 2,48 KN | Pass |
| 3. applied over a maximum width of 300 mm and height of 300 mm. Located at any point on element. | 0,5 KN | 0,75KN | 0,825 KN | Pass |
| 4. The size of the opening between any two adjacent vertical elements within a *guard* shall not exceed the limits required by Part 3 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* to produce the most critical effect | 0,1 KN | 0,1 KN | 0,111 KN | Pass |

**Note: After each load test a serviceability load have been applied on test samples to ensure the integrity of each guardrail tested.**

| National Building Code (NBC) 2020 Dimension Table 9.8.8.3; 9.8.8.5 & 9.8.8.6 | |
|---|---|
| Loading description | Pass / Fail |
| Height of guard 9.8.8.3.1 Not less than 1070 mm | pass |
| Opening in Guards 9.8.8.5 Prevent passage of a spherical object having a diameter of 100 mm | pass |
| Design of guards to not facilitate Climbing 9.8.8.6 No member, attachment or opening located between 140 mm and 900 mm above the level protected by guard facilitates climbing. | pass |

## 2.2 Test Description

Loading time: between 15 sec to 30 sec

Load holding time: 1 min minimum

Sample evaluation: Following each test, sample was inspected for signs of failure, component displacement or cracking of structural components that could impair the safety of the product. The product shall remain safe for its intended use after each test. A serviceability testing load is done on each sample following maximum load to ensure the integrity of the assembly.

***Test 1.1:*** Uniformly distributed load applied in the horizontal direction (on 6ft lengths for composite panel).

***Test 1.2:*** Concentrated load applied at any of the rail in a horizontal direction.

***Test 1.3:*** Concentrated load applied at the end of the rail in a horizontal direction.

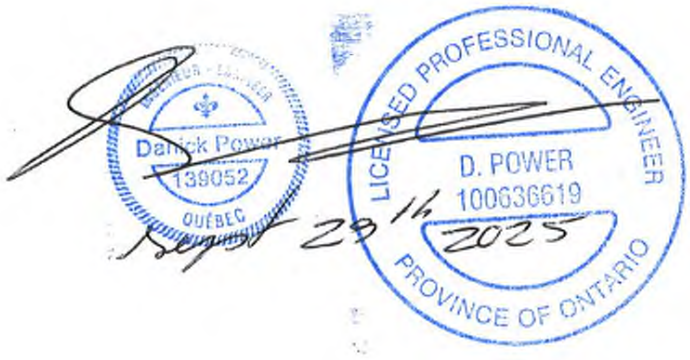
***Test 2:*** Uniformly distributed load applied in the vertical direction.

***Test 3:*** load applied over a maximum width of 300 mm and height of 300 mm on pickets.

***Test 4:*** load of 0.1KN applied between pickets and maximum opening of 100 mm.

## 2.3 Conclusion

Based on the results of the testing, Guardrail system model SLIDE & GO FENCE AND PRIVACY SCREEN, meets the factored design load performance requirements as outline in the 2020 National building code of Canada (NBCC); 2024 Ontario Building code (OBC) for use within dwelling and as exterior guards.



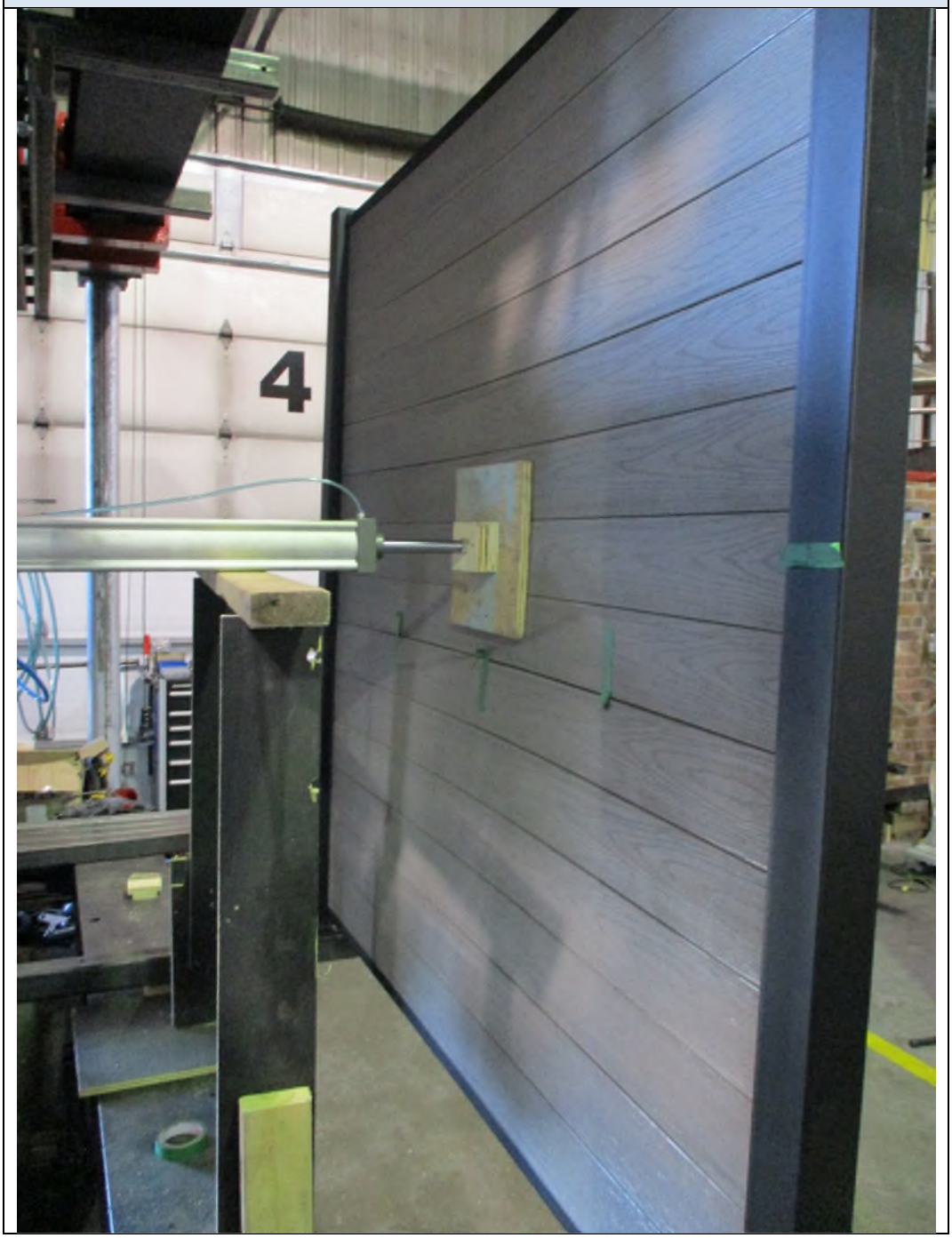

Reported by:
Danick Power, Eng.

# Appendix A

Testing details and pictures
(7 pages)

| ***Test 1.1:*** Uniformly distributed load applied in the horizontal direction (on 6ft lengths at 42 inches from floor) |
|---|

***Test 1.2:*** Concentrated load applied at any of the rail in a horizontal direction.



***Test 1.3:*** Concentrated load applied at the end of the rail in a horizontal direction

***Test 2:*** Uniformly distributed load applied in the vertical direction.

***Test 3:*** load applied over a maximum width of 300 mm and height of 300 mm on pickets.

| ***Test 4:*** load of 0.1KN applied between pickets and maximum span of 100 mm. |
| --- |
| Pass No pictures |

<table>
<tr><th colspan="2">Anchor description</th></tr>
<tr><td>Wood decking (Assembly as per appendixes B)</td><td>Concrete (minimum 25 Mpa)</td></tr>
<tr><td>4 X Lag Bolt 3/8 – 5in. long</td><td>4 X concrete screw 1/4 X 2.25 in long</td></tr>
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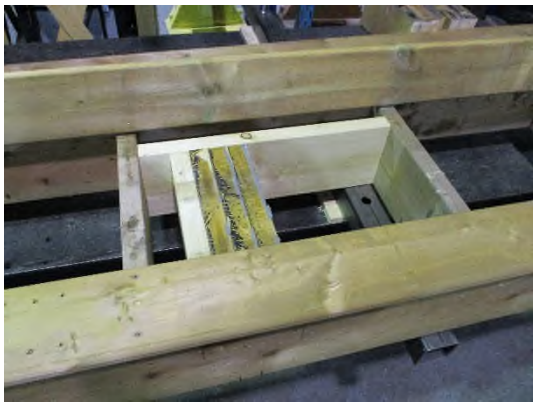
<tr><td>  </td><td rowspan="2">  </td></tr>
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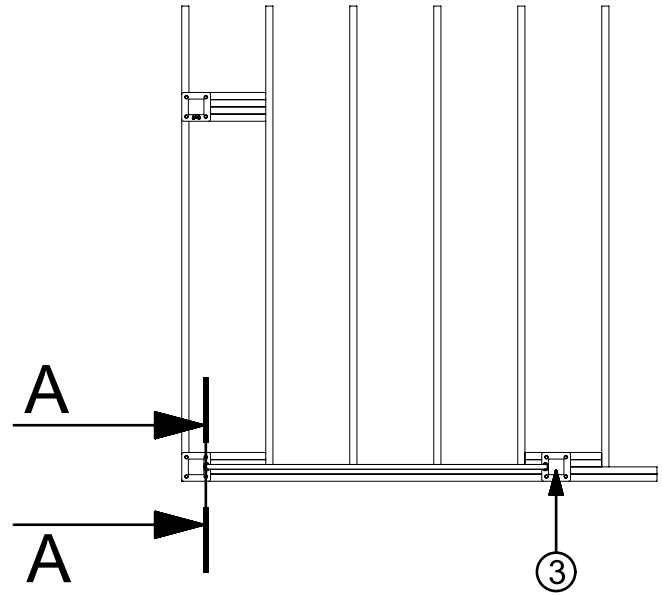
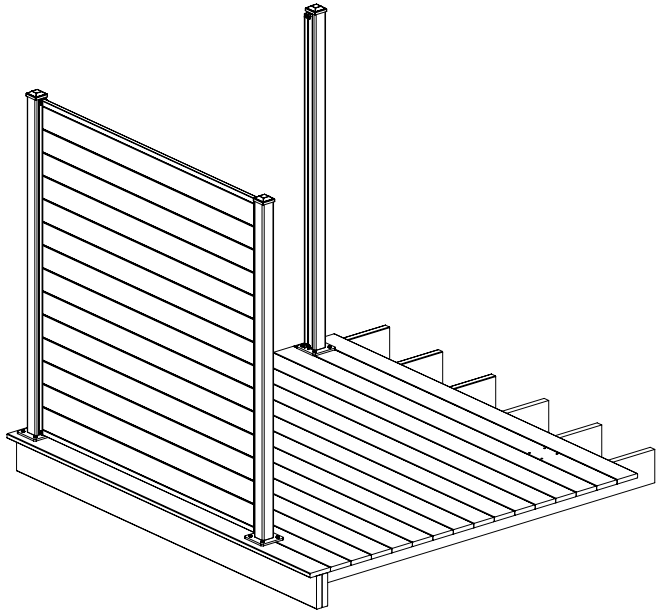
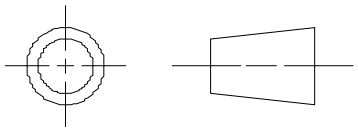
# Appendix B

Distributed Drawings
(4 Pages)





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TRUNORTH DECKING

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TITLE

# Slide & Go System Fence and Privacy Screen

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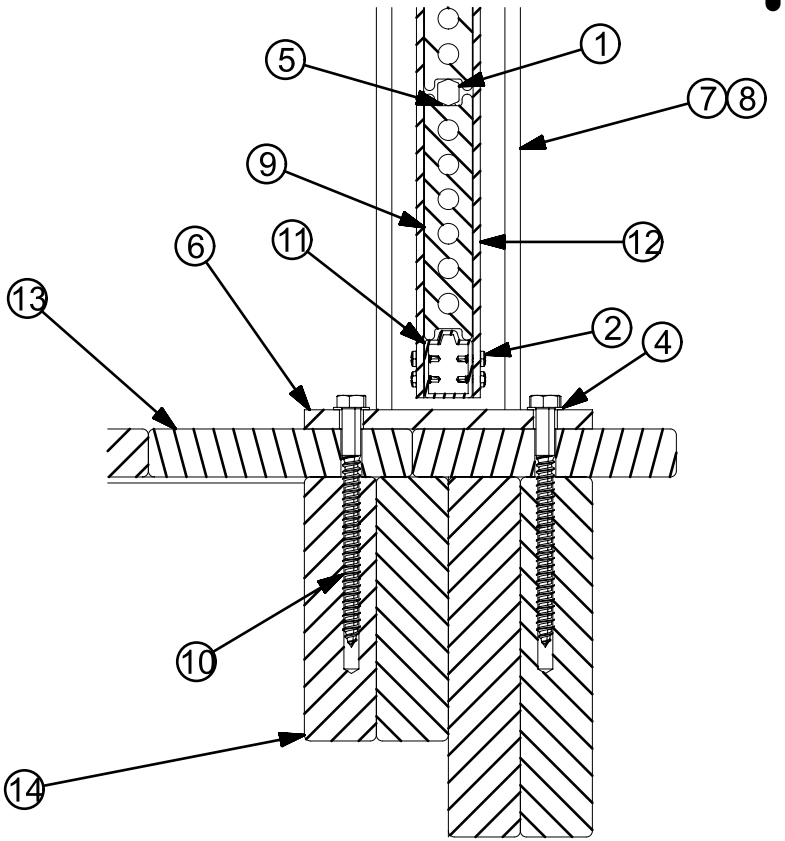
SHEET 1 OF 4

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| 13 | DECK-231113 | 1 |
| 12 | CHANNEL-231114 | 3 |
| 11 | RAIL-231113 | 2 |
| 10 | SCREWHEX-WOOD-.375-5.0-231113 | 12 |
| 9 | BOARD-SIMPLE-231114 | 14 |
| 8 | POST-ASSY-231113 | 3 |
| 7 | POST-231113 | 3 |
| 6 | PLATE-231113 | 3 |
| 5 | SCREWPHILLIPSMETAL-#10-0.75-231108 | 12 |
| 4 | WASHER-.375-231109 | 12 |
| 3 | CAP-231109 | 3 |
| 2 | SCREWPHILLIPSMETALROUND-#8-0.50-231108 | 24 |
| 1 | SPACER-231110 | 26 |

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Slide & Go System Fence and Privacy Screen

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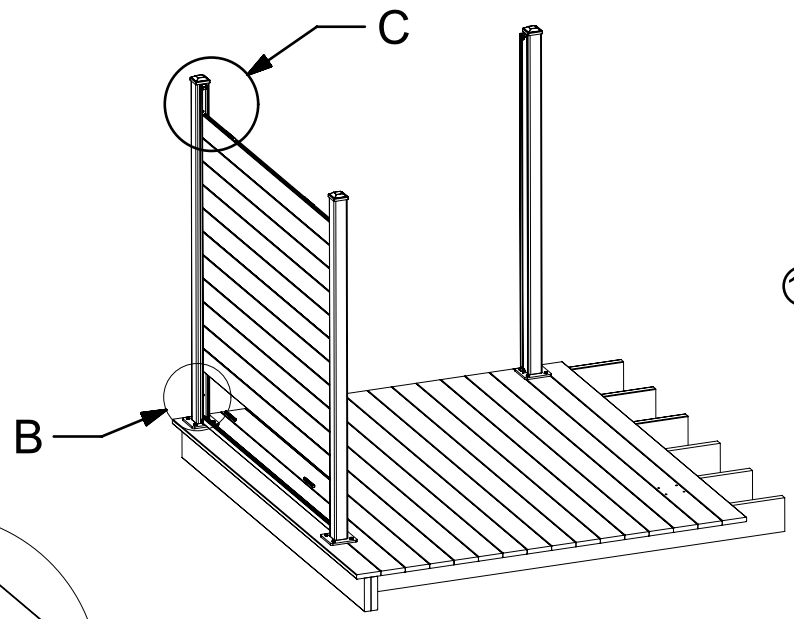


BOTTOM 2 BOARDS AND
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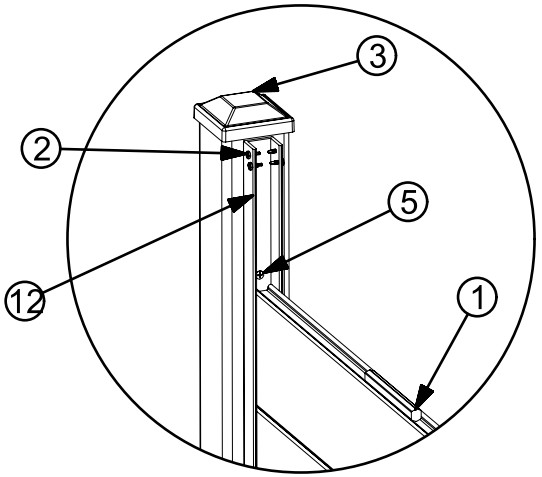


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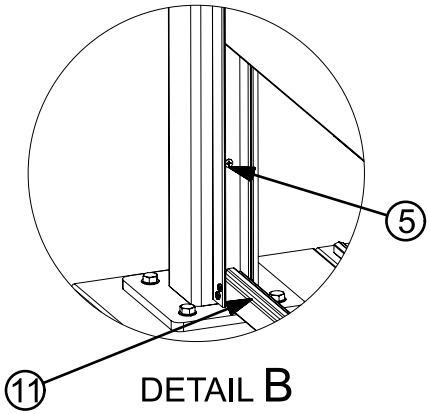


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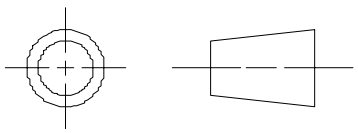

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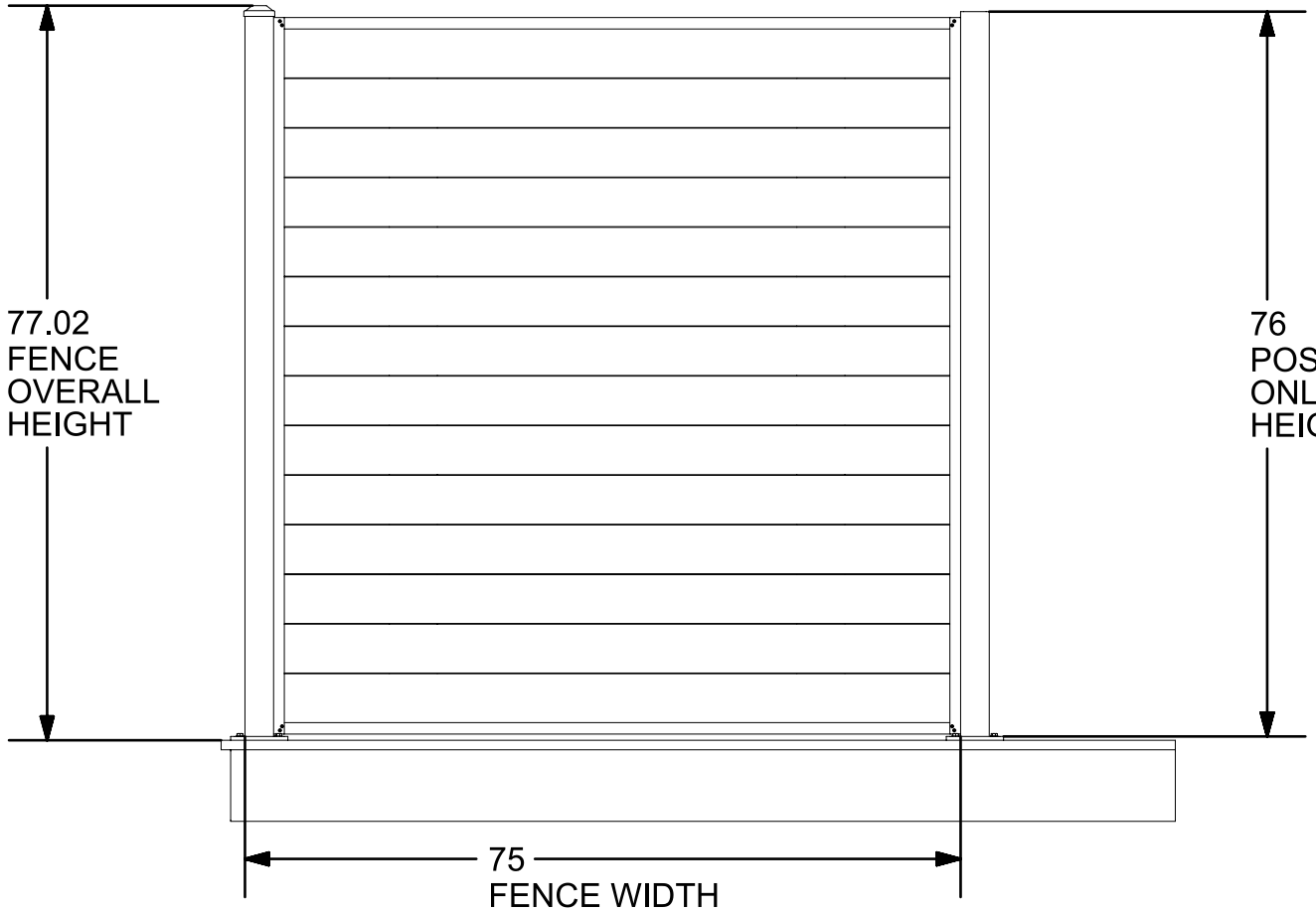


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Slide & Go System Fence and Privacy Screen

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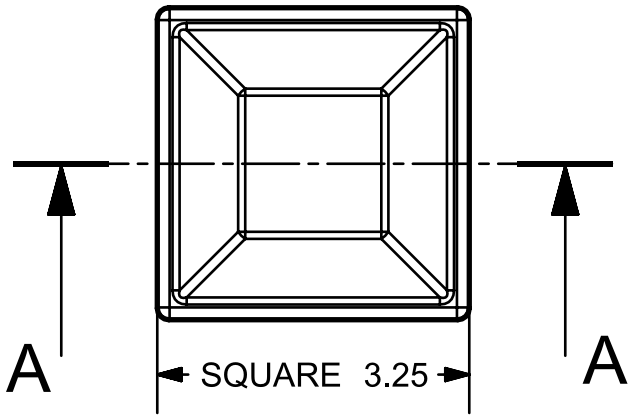
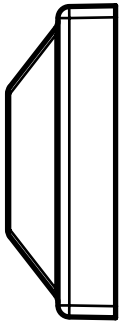
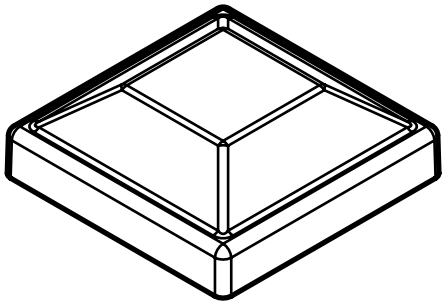
SHEET 4 OF 4

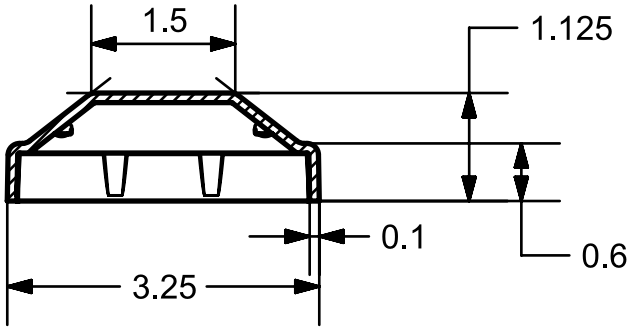
# Appendix C

Confidential Drawings
(7 pages)





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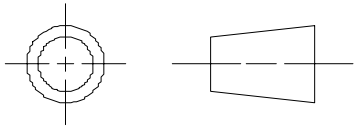

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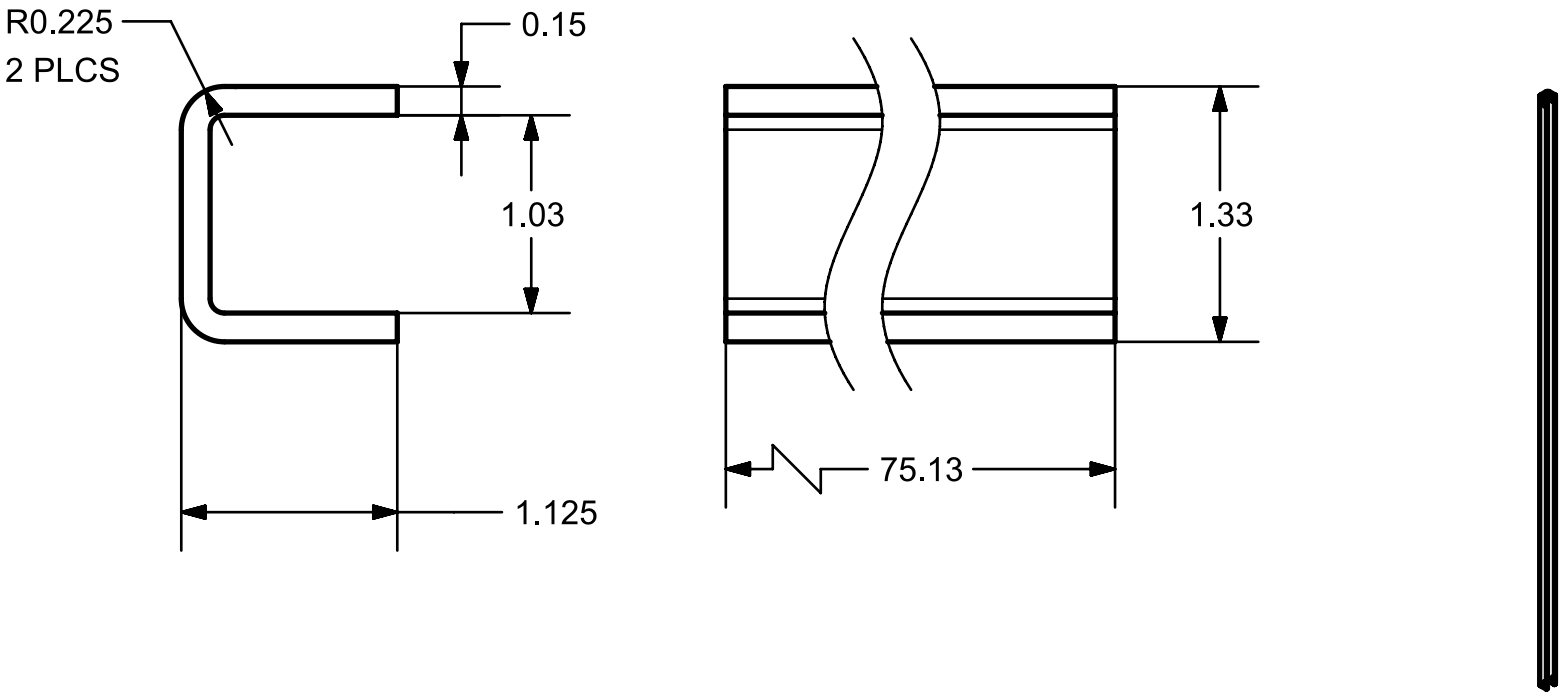


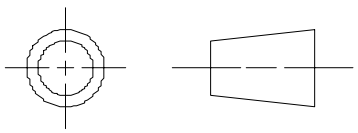

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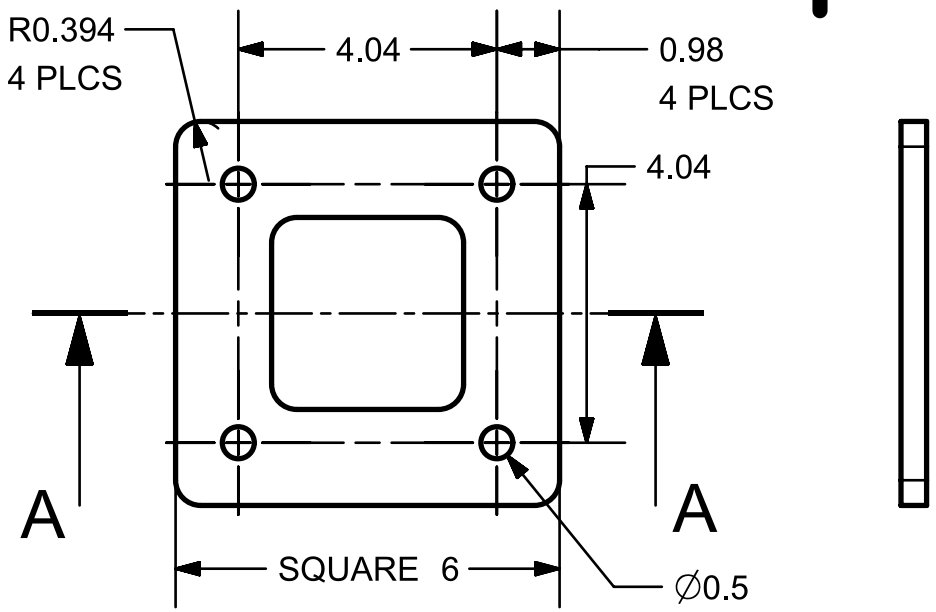




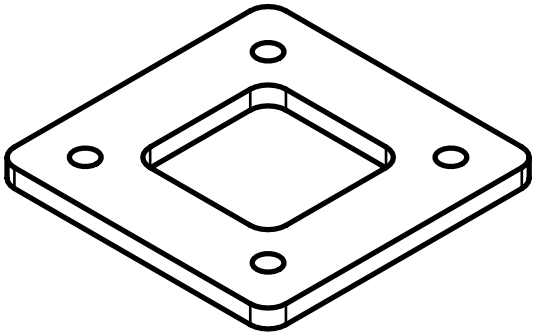

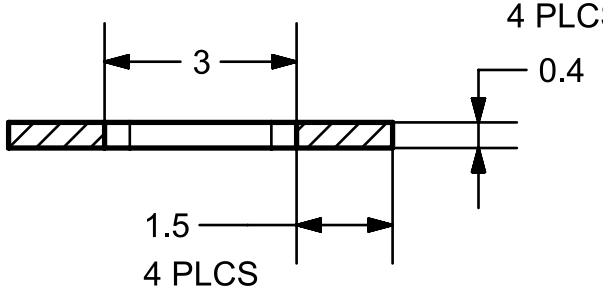


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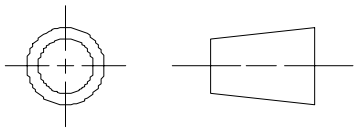

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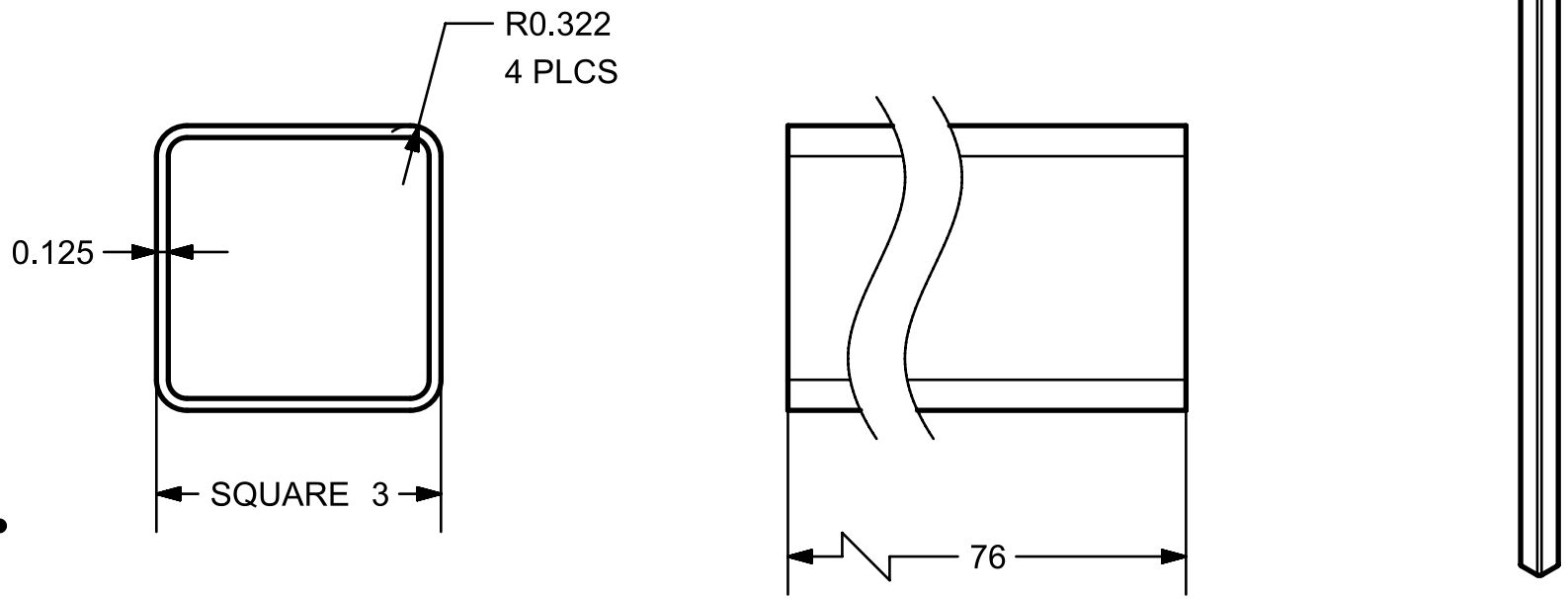


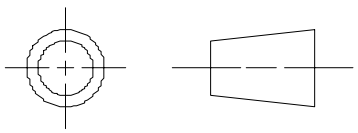

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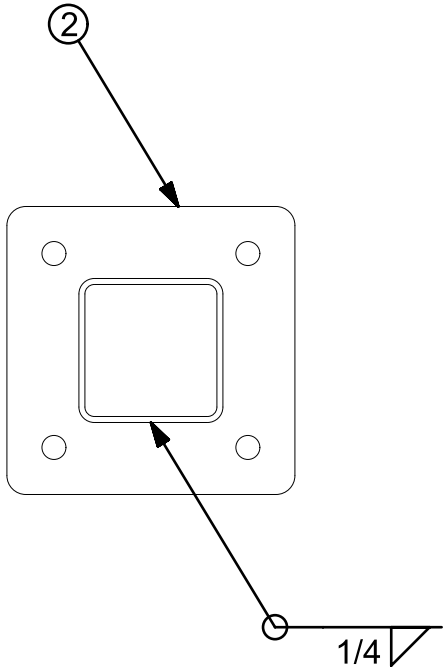


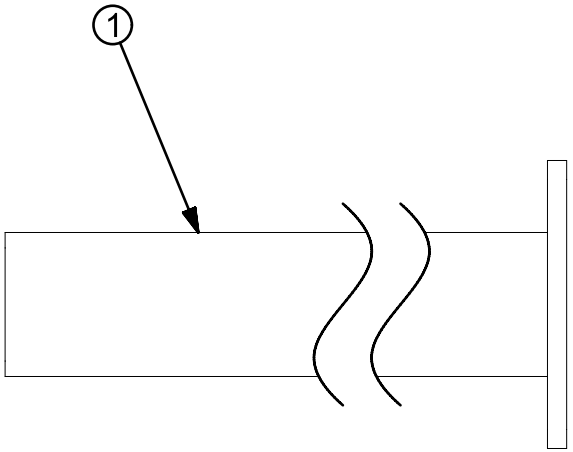


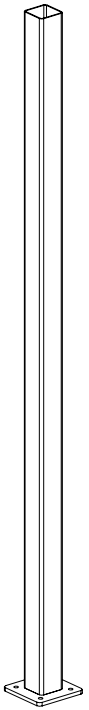

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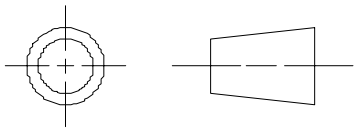
| 1 | POST-231113 | 1 |



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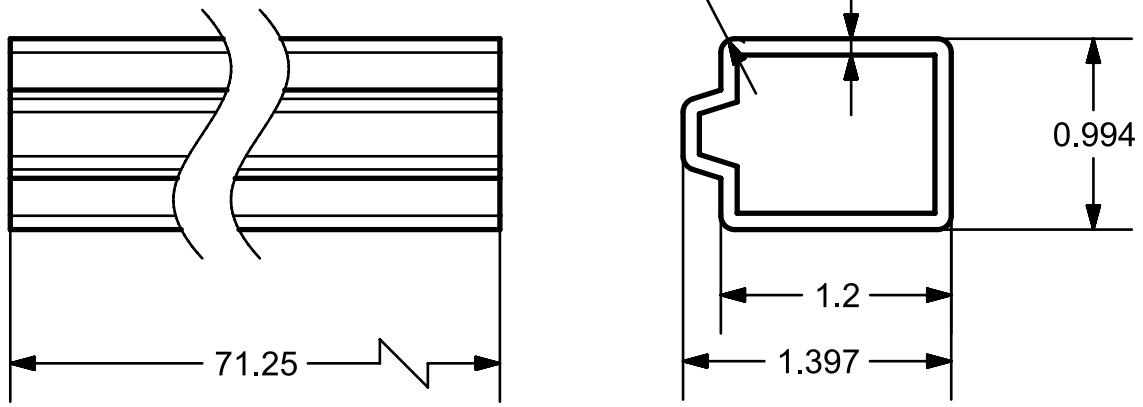
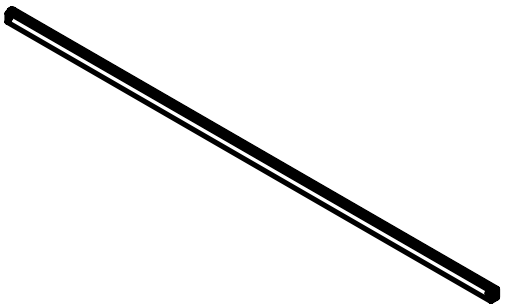
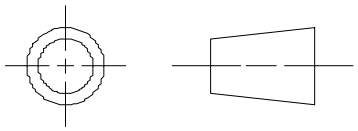
SHEET 1 OF 1





ALL DIMENSIONS IN INCHES

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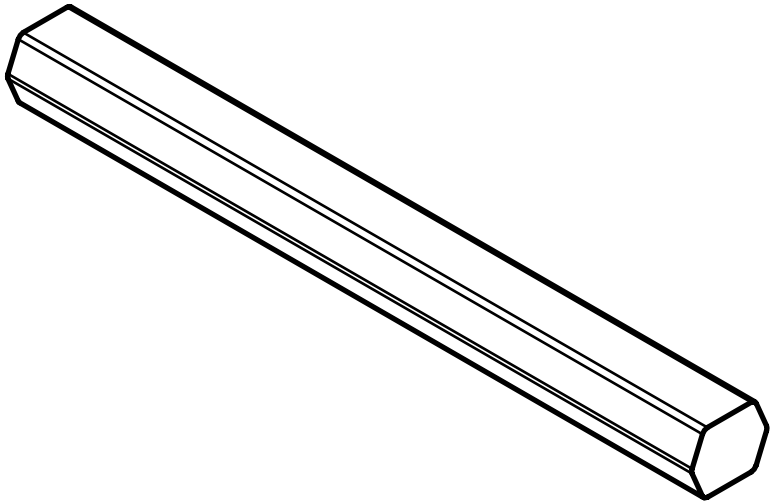
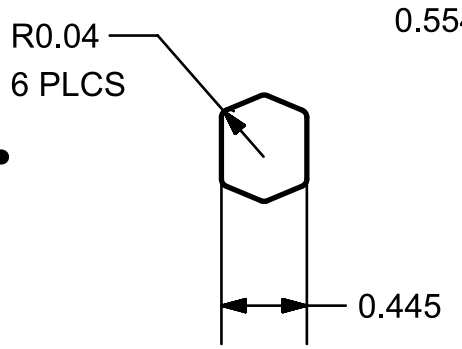
TITLE

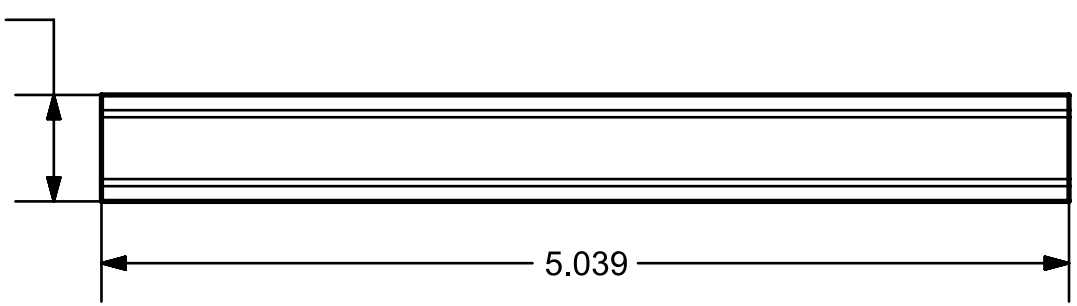
# RAIL

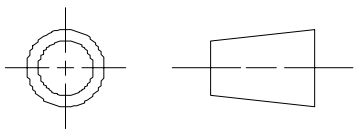
| SIZE | DRG NO. | SHEET REV |
|---|---|---|
| A | rail-231113-dwg-231113 | A |

SCALE 1:1 | SHEET 1 OF 1





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# SPACER

| SIZE | DRG NO. | SHEET REV |
|---|---|---|
| A | spacer-231110-dwg-231110 | A |

SCALE 1:1 | SHEET 1 OF 1