

SOLAR INDUSTRIES COMPUTER SIMULATION REPORT

SCOPE OF WORK

ACRALIGHT ALUMINUM CURB MOUNT FRAME - NFRC 100/200/500

REPORT NUMBER

M3493.01-301-45 R0

TEST DATE

08/02/21

ISSUE DATE

08/02/21

RECORD RETENTION END DATE

08/02/26

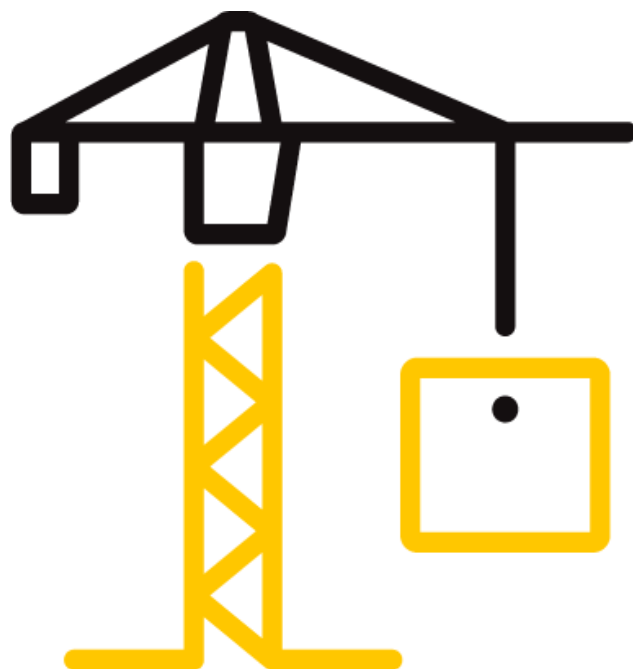
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TEST REPORT FOR SOLAR INDUSTRIES

Report No: M3493.01-301-45 R0

Date: 08/02/21

REPORT ISSUED TO

SOLAR INDUSTRIES

P.O. Box 27337

Tuscon, Arizona 85726

SECTION 1

SUMMARY

SERIES/MODEL: Acralight Aluminum Curb Mount Frame

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance simulations in accordance with the National Fenestration Rating Council (NFRC).

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends five years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

FOR INTERTEK B&C:

| | |
|----------------------|--|
| COMPLETED BY: | David Everitt |
| TITLE: | Simulation Technician, NFRC Certified Simulator |
| SIGNATURE: | |
| DATE: | 08/02/21 |

| | |
|---------------------|-----------------------------------|
| REVIEWED BY: | Kenny C. White |
| TITLE: | Business Process Manager, SIRC |
| SIGNATURE: | |
| DATE: | 08/02/21 |

DLE:dle

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SECTION 2

TEST METHODS

The products were evaluated in accordance with the following:

ANSI/NFRC 100-2020, Procedure for Determining Fenestration Product U-Factors

ANSI/NFRC 200-2020, Procedure for Determining Fenestration Product Solar Heat Gain Coefficient

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certificate of Authorization (CA) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance with NFRC 601, NFRC Unit and Measurement Policy.

Intertek B&C is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The values included in this report are not considered in compliance with ANSI/NFRC 100 and ANSI/NFRC 200 unless the associated validation test requirements have been satisfied, as applicable.

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TEST PROCEDURE

The total product, including specific frame, spacer, and glass details, was modeled using NFRC approved software.

| | |
|-----------------------------------|---------------|
| FRAME AND EDGE MODELING | THERM 7.4.4 |
| CENTER-OF-GLASS MODELING | WINDOW 7.4.14 |
| TOTAL PRODUCT CALCULATIONS | WINDOW 7.4.14 |
| SPECTRAL DATA LIBRARY | IGDB 80.0 |

Modeling Assumptions / Technical Interpretations

Any modeling assumptions and technical interpretations required to model this product are listed below.

- 1) To prevent air infiltration, tape was applied to all interior sash crack locations.
- 2) U-factor: Center-of-glass conductivity was determined using ASTM C1363-2019.
- 3) SHGC: Center-of-glass conductivity was determined using NFRC 201-2017.

SECTION 4

SIMULATION SPECIMEN DESCRIPTION

| | |
|-----------------------|--------------------------------------|
| SERIES/MODEL | Acralight Aluminum Curb Mount Frame |
| PRODUCT TYPE | Skylight , Fixed |
| FRAME MATERIAL | AL - Aluminum (Non-thermally broken) |
| SASH MATERIAL | NA - Not Applicable |
| STANDARD SIZE | 1200mm x 1200mm |

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SECTION 4 (Continued)

SIMULATION SPECIMEN DESCRIPTION

| SPACER OPTIONS | | | |
|----------------|--------------|----------------|------|
| TYPE | PRIMARY SEAL | SECONDARY SEAL | CODE |
| None | - | - | - |

| GRID OPTIONS | | |
|--------------|-----------|--------------|
| GRID SIZE | GRID TYPE | GRID PATTERN |
| None | - | - |

| REINFORCEMENT OPTIONS | |
|-----------------------|----------|
| LOCATION | MATERIAL |
| None | - |

| GAS FILLING TECHNIQUE | |
|-----------------------|--------|
| FILL TYPE | METHOD |
| None | - |

| EDGE-OF-GLASS CONSTRUCTION | |
|----------------------------|--|
| INTERIOR CONDITION | Gasket between the dome and glazing stop. |
| EXTERIOR CONDITION | Glazing tape between the glass and glazing bead, |

| WEATHERSTRIPPING | | |
|------------------|----------|----------|
| TYPE | QUANTITY | LOCATION |
| None | - | - |

| FRAME/SASH MATERIALS FINISH | |
|-----------------------------|--------------------|
| INTERIOR | Aluminum - Painted |
| EXTERIOR | Aluminum - Painted |

| VALIDATION MATRIX* | |
|--------------------|---------------|
| PRODUCT LINE | REPORT NUMBER |
| None | - |

**These products are part of a validation matrix. Only one is required for validation testing.*

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SECTION 5

SPECIALTY PRODUCTS TABLE

The specialty products method allows the manufacturer to determine the overall product SHGC for any glazing option. The center of glass SHGC must be determined using WINDOW 7.4.14. The method calculates overall product SHGC indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

| | No Dividers | Dividers < 1 | Dividers > 1 |
|--------------|-------------|--------------|--------------|
| SHGC0 | 0.000605 | 0.003517 | 0.006284 |
| SHGC1 | 0.967025 | 0.878568 | 0.794502 |
| VT0 | 0.000000 | 0.000000 | 0.000000 |
| VT1 | 0.966420 | 0.875051 | 0.788218 |

$$SHGC = SHGC0 + SHGCc (SHGC1 - SHGC0)$$

$$VT = VT0 + VTc (VT1 - VT0)$$

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SECTION 6

SIMULATION RESULTS

| TOTAL PRODUCT CALCULATIONS (Acralight Aluminum Curb Mount Frame) | | | | | | | | | | | | |
|--|--|------------------|--|------------------|-----------------------|------------------|--|----------|------------------------------------|------|--------|-----------|
| Option Number | Pane Thickness 1 (in) | Gap Width 1 (in) | Pane Thickness 2 (in) | Gap Width 2 (in) | Pane Thickness 3 (in) | Gap Width 3 (in) | Pane Thickness 4 (in) | Gap Fill | Low-e (Surface #) | Tint | Spacer | Grid Type |
| | U-Factor (Btu/Hr-Ft ² -F) | | Solar Heat Gain Coefficient (SHGC) Grids (None / <1 / >=1) | | | | Visible Transmittance (VT) Grids (None / <1 / >=1) | | Condensation Resistance (CR) | | | |
| 1 | Heatstop Acrylic Over Clear Prismatic Dome | | | | | | | | | | | |
| | 0.375 | | | | | | | | | CL | N | N |
| | U-Factor 0.80 | | SHGC(N) 0.43 | | | | VT(N) - | | CR - | | | |
| 2 | White Polycarb SkyArc Over Clear Acrylic Dome | | | | | | | | | | | |
| | 0.375 | | | | | | | | | CL | N | N |
| | U-Factor 0.81 | | SHGC(N) 0.30 | | | | VT(N) - | | CR - | | | |
| 3 | White Acrylic Smooth over Clear Acrylic Dome | | | | | | | | | | | |
| | 0.375 | | | | | | | | | CL | N | N |
| | U-Factor 0.79 | | SHGC(N) 0.44 | | | | VT(N) - | | CR - | | | |
| | Bronze Acrylic Smooth over Clear Acrylic Dome | | | | | | | | | | | |
| | 0.375 | | | | | | | | | CL | N | N |
| | U-Factor 0.79 | | SHGC(N) 0.40 | | | | VT(N) - | | CR - | | | |
| 4 | White Polycarb SkyArc over Clear Acrylic Triple Dome | | | | | | | | | | | |
| | 0.375 | | | | | | | | | CL | N | N |
| | U-Factor 0.71 | | SHGC(N) 0.28 | | | | VT(N) - | | CR - | | | |



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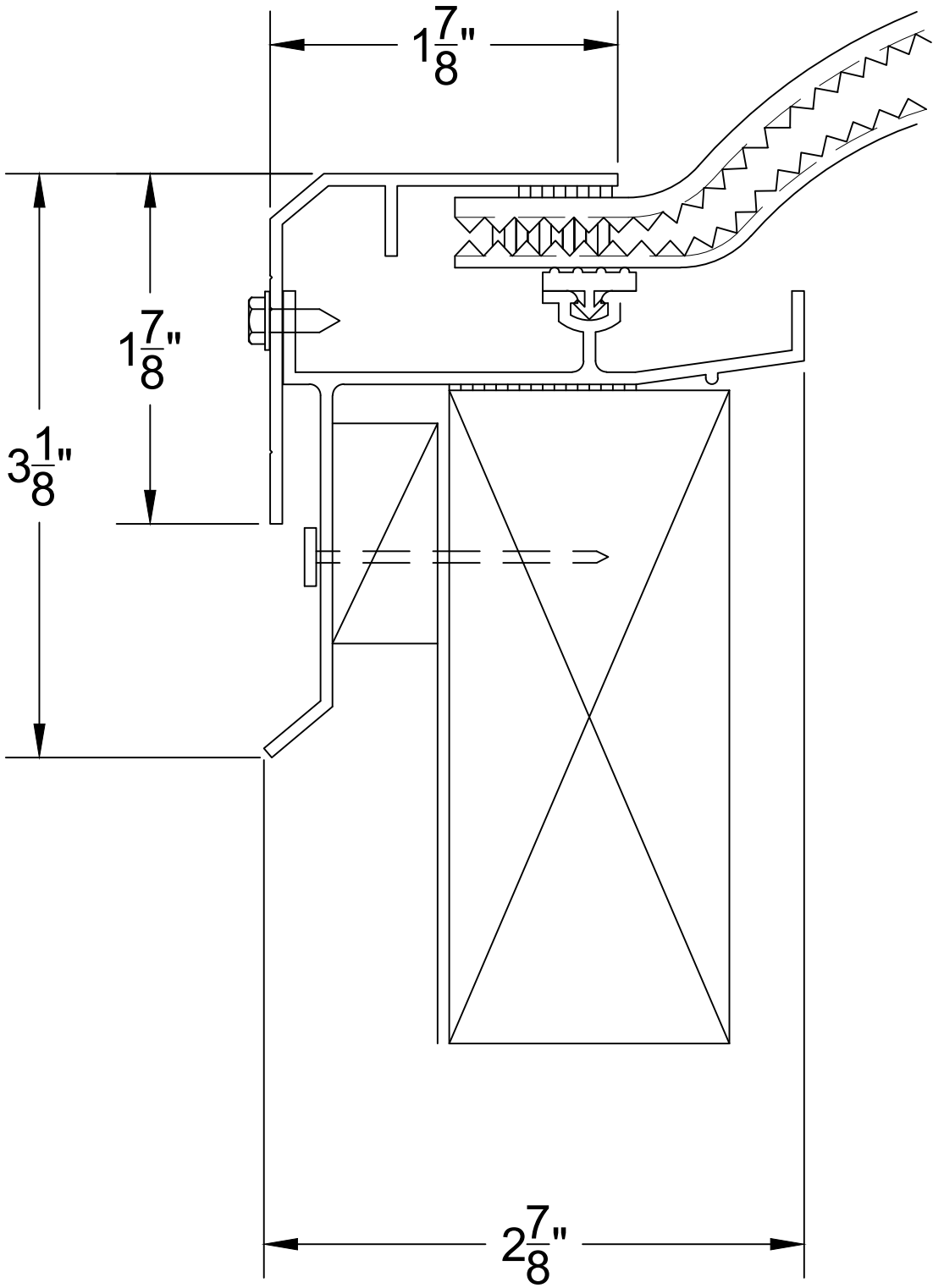
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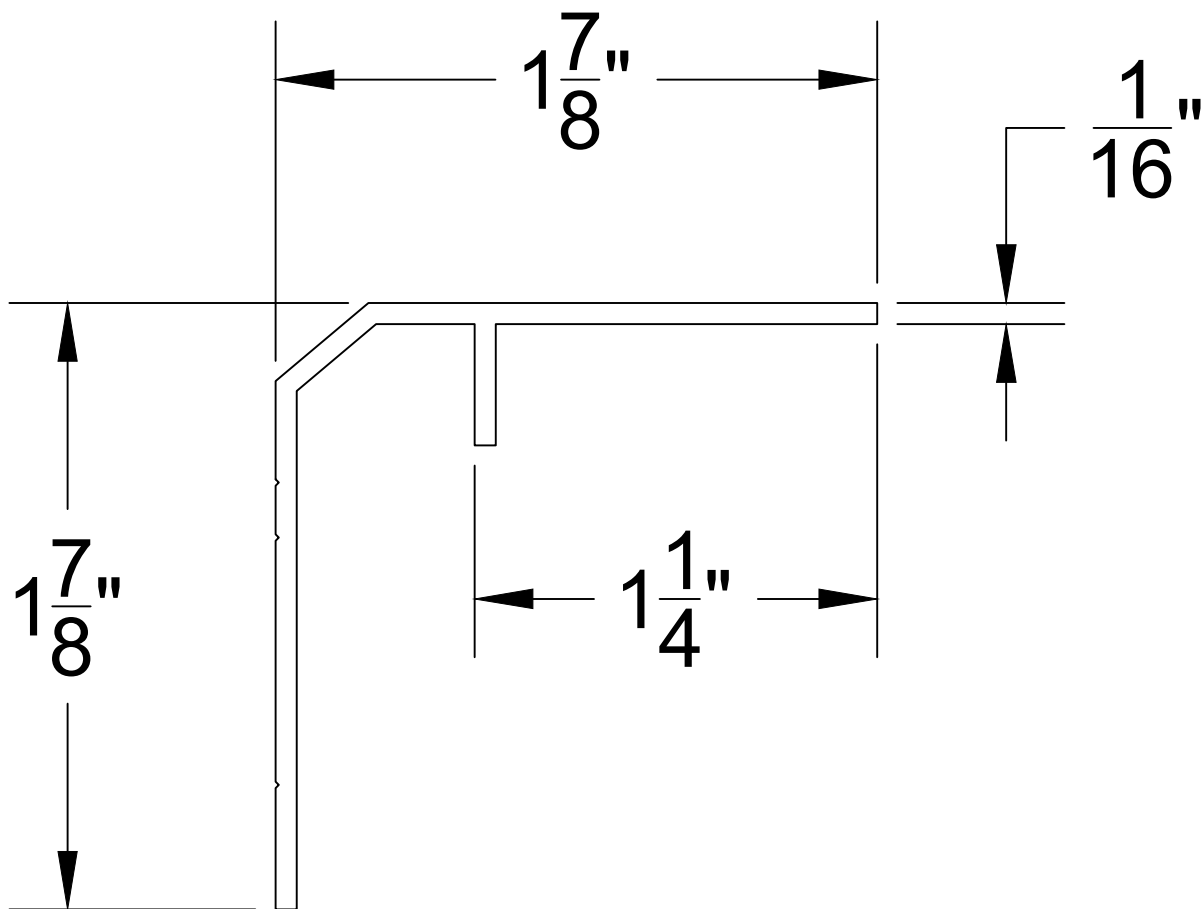
SECTION 7

DRAWINGS / BILL OF MATERIALS

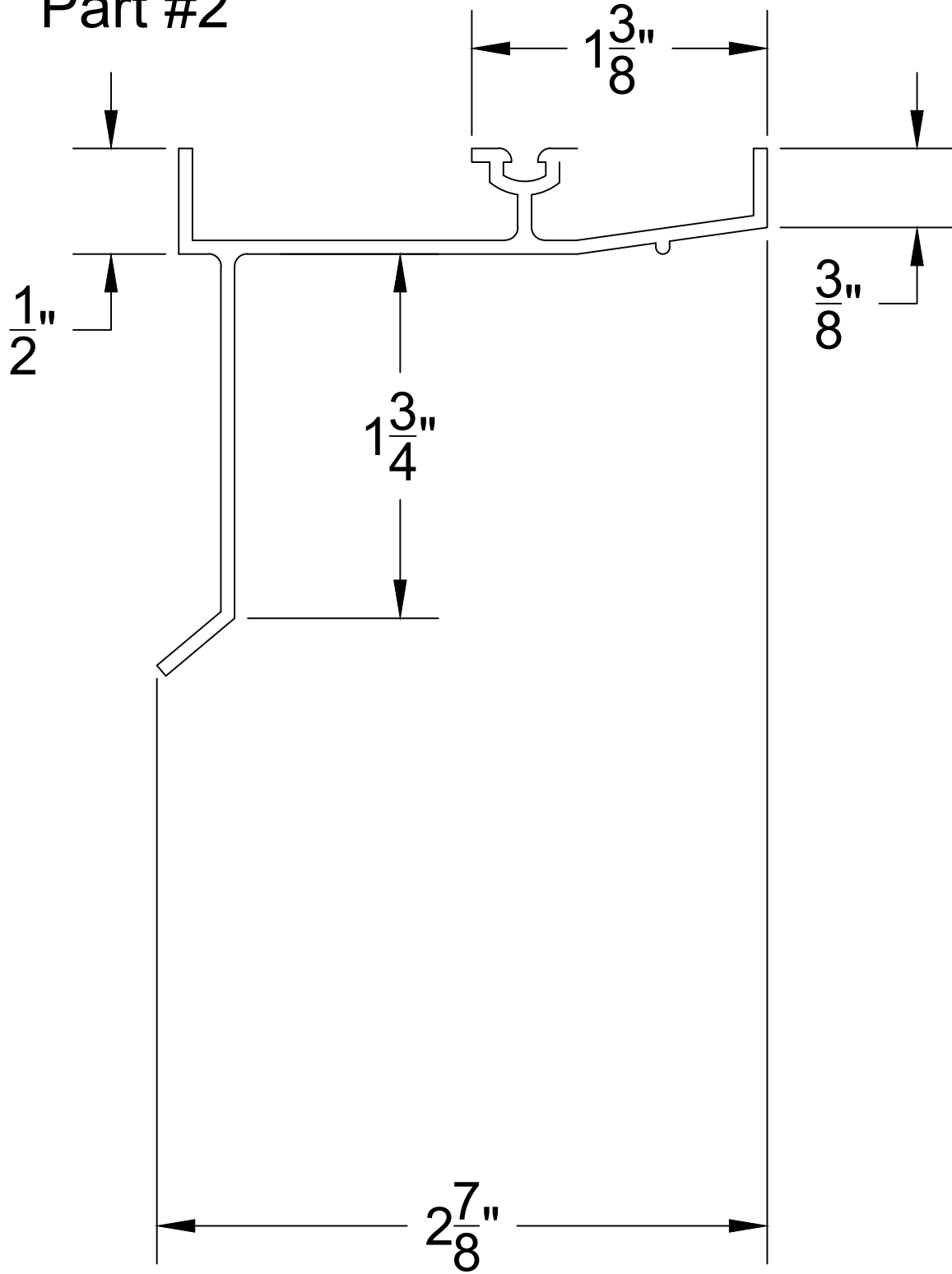
The drawings which follow have been reviewed by Intertek B&C and are representative of the simulation results reported herein. Any deviations are documented herein or on the drawings.



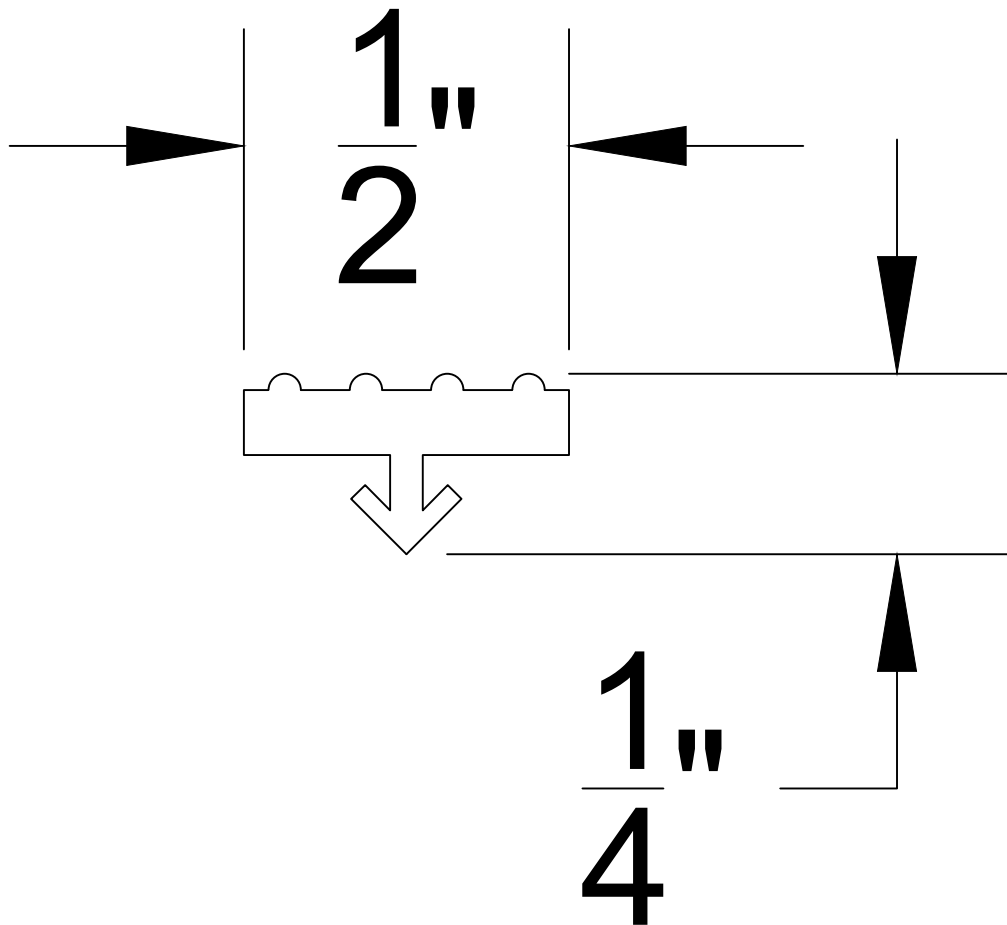
Part #1



Part #2



Part #3





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SECTION 8

REVISION LOG

| REVISION # | DATE | PAGES | REVISION |
|------------|----------|-------|------------------------|
| .01 R0 | 08/02/21 | N/A | Original report issue. |
