

TEST REPORT

ASTM E331 ASTM E330

REPORT NO.: 2087.04-105-11-R1

RENDERED TO: GAMCO CORPORATION Flushing, New York

PRODUCT TYPE: Aluminum Outswing Entry Door

SERIES / MODEL: D350

Test	Summary of Results
Design Pressure	±1680 Pa (±35.09 psf)
Water Penetration Resistance Test Pressure	0 Pa (0 psf)

Test Completion Date: 1/13/2020

Reference must be made to Report No. 2087.04-105-11-R1, revision dated 7/31/2020 for complete test specimen description and detailed test results.



CLIENT INFORMATION:	GAMCO CORPORATION
	131-10 Maple Avenue
	Flushing, New York 11355
TEST LABORATORY:	Molimo, LLC

1410 Eden Road York, Pennsylvania 17402 717-900-6034

PROJECT SUMMARY:

PRODUCT TYPE: Aluminum Outswing Entry Door

SERIES/MODEL: D350

PROJECT SUMMARY:

Molimo, LLC was contracted to perform testing on the above referenced product. The results are tested values and were secured by using the designated test methods.

PROJECT DETAILS:

Test Dates: 10/7/2019 - 1/13/2020

Test Record Retention End Date: 1/13/2024

Test Location: Molimo, LLC test facility in York, Pennsylvania.

Test Specimen Source: The test specimen was provided by the client. Representative samples of the test specimen will be retained by Molimo for a minimum of four years from the test completion date.

Drawing Reference: The test specimen drawings were supplied by the client. The test specimen construction was verified by Molimo and was found to be representative of the product tested. Test specimen drawings are located in Appendix C of this report.

WITNESSES:

The following representatives witnessed all or part of the testing.

Name	Company
Michael D. Stremmel, P.E.	Molimo, LLC
Joseph W. Enriquez	Molimo, LLC



TEST METHODS:

ASTM E330/E330M-14 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

ASTM E331-00(16) – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference

TEST SPECIMEN DESCRIPTION:

PRODUCT SIZES:

Overall Size:	1016 mm x 2184 mm (40" x 86")
Overall Area:	2.22 m ² (23.88 ft ²)
Leaf Size:	889 mm x 2096 mm (35" x 82-1/2")

FRAME CONSTRUCTION:

Material:	Extru	Extruded aluminum	
Corner Details:	Squa	Square-cut and butted and mechanically fastened.	
Head/Jamb Cor	ners:	Secured with two #12 x 1" pan head screws per corner	
Sill/Jamb Corne	ers:	Secured using an extruded aluminum block under the threshold, using two #8 x 1-1/2" screws into the jamb and one #10 x 1/2" flat head screw into the block	
Other Details:	-	ambs and head were constructed of two pieces of aluminum ng, snap-fit to each other	
	The h	ead and jambs utilized a snap-in aluminum panel stop.	
LEAF CONSTRUCTION:			
Material:	Extru	ded aluminum	

Corner Details: Square-cut and butted, secured with one 3/8" threaded rod through the top and bottom rail with washers and nuts in each stile. An aluminum shear block was secured at each intersection with one #8 x 1" flat head screw.

REINFORCEMENT: No reinforcement was utilized.



TEST SPECIMEN DESCRIPTION: (Continued)

GLAZING DETAILS: No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen can be made.

Description	Detail
Glass Type	1" IG
	1/4" Thick tempered glass
Glazing Construction (Exterior to Interior)	1/2" Aluminum box type spacer system
	1/4" Thick tempered glass
Glazing Method	Channel glazed using interior and exterior snap-in glazing beads, with bulb gasket against the glass
Glazing Bite	1/2"
Daylight Opening:	756 mm x 1943 mm (29-3/4" x 76-1/2")

WEATHERSTRIPPING:

Description	Quantity	Location
1/4" diameter hollow bulb gasket	1 Row	Head, jambs, and threshold
0.290" high polypile	2 Rows	Leaf bottom rail

DRAINAGE: No drainage was utilized.

HARDWARE:

Description	Quantity	Location	
Full length, piano style hinge	1	Hinge stile	
Lock assembly	1	Lock stile, 40" from the bottom rail	
Interior and exterior pull handle	1	40" From the bottom rail	

INSTALLATION: The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/8" shim space. The exterior perimeter of the specimen was sealed with sealant.

Location	Anchor Description	Anchor Spacing
Head and Jambs	1" x 2", 0.050" thick, 3" long aluminum clips, secured to the door frame with one #8 x 1/2" screw and secured to the wood buck with one #8 x 1-1/2" wood screw	3" From each end and spaced 16" on center



TEST RESULTS: The temperature during testing was 19°C (66.5°F).

WATER PENETRATION TESTING: (per ASTM E 331)

Test	Results	Allowable
0 Pa	Pass	No Leakage
(0 psf)		8

UNIFORM LOAD TESTING: (per ASTM E 330)

Design Pressure Test	Results	Allowable
Deflection measured at		
the panel lock stile		
+2160 Pa (+45.11 psf)	1.5 mm (0.06")	
-2160 Pa (-45.11 psf)	11.4 mm (0.45")	Report Only

Structural Test	Results	Allowable
Permanent Set measured at		
the panel lock stile		
+3240 Pa (+67.67 psf)	0.5 mm 0.02")	10.4 mm (0.41")
-3240 Pa (-67.67 psf)	0.3 mm (0.01")	10.4 mm (0.41")

Note #1: All loads were held for 10 seconds.

Note #2: Tape and film were used to seal against air leakage. In our opinion, the tape and film did not influence the results of the test.

Note #3: Measurements were made on a cantilever span on the lock stile. Lock to corner measurement of 51" (102" overall span) was utilized for all deflection/permanent set measurements. Permanent set allowable is based on 0.04% of the measured span.

General Note: All testing was performed in accordance with reference test methods.



A copy of this report, detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Molimo, LLC for the entire test record retention period. At the end of this retention period, the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. This test report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written permission of Molimo, LLC.

For MOLIMO, LLC:

Joseph W. Enriquez Project Manager Michael D. Stremmel, P.E. Senior Project Engineer

MDS:dro

Attachments (pages): This report is complete only when all attachments listed are included. Appendix-A: Alteration Addendum (1) Appendix-B: Air Seal Location (1) Appendix-C: Drawings (11)

This report was produced from controlled document template MMO 00014, Rev 3, 9/14/2018.



Revision Log

Rev. #	Date	Page(s)	Revision(s)	
1	07/31/2020	2, 6, Appendix C	Added drawings to report	



Appendix A

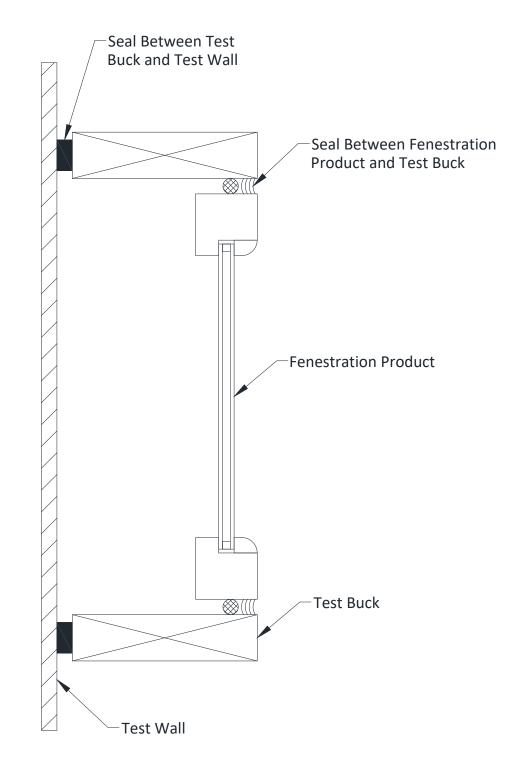
Alteration Addendum

No alterations were performed.



Appendix B

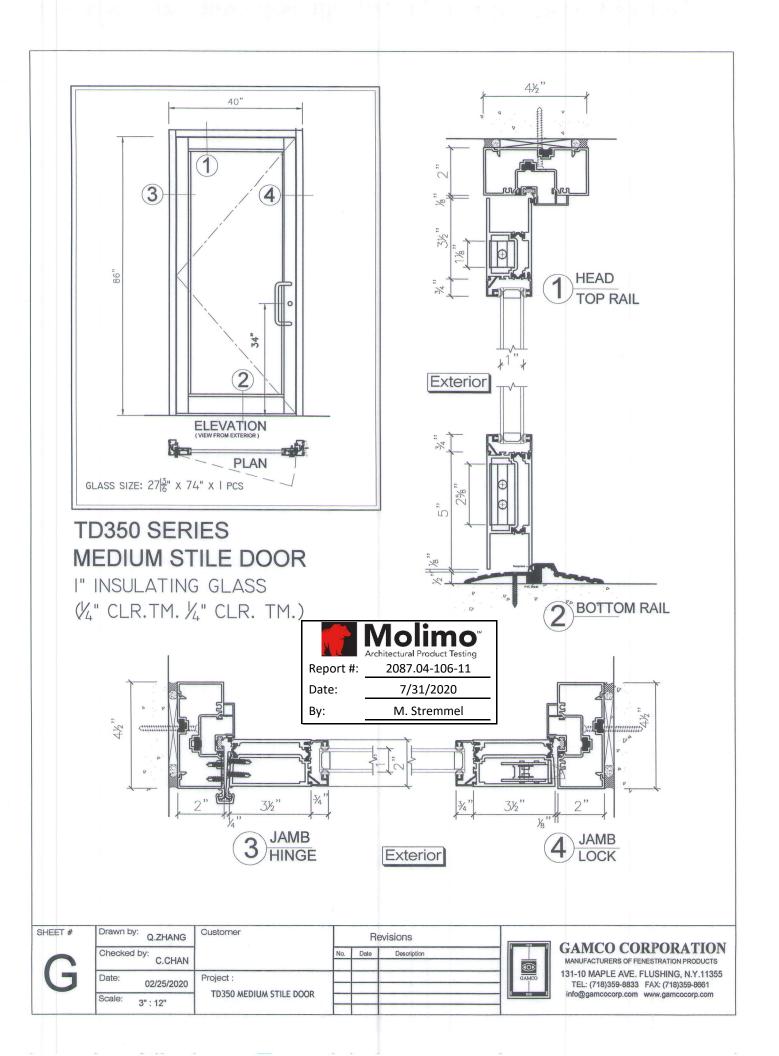
Air Seal Location

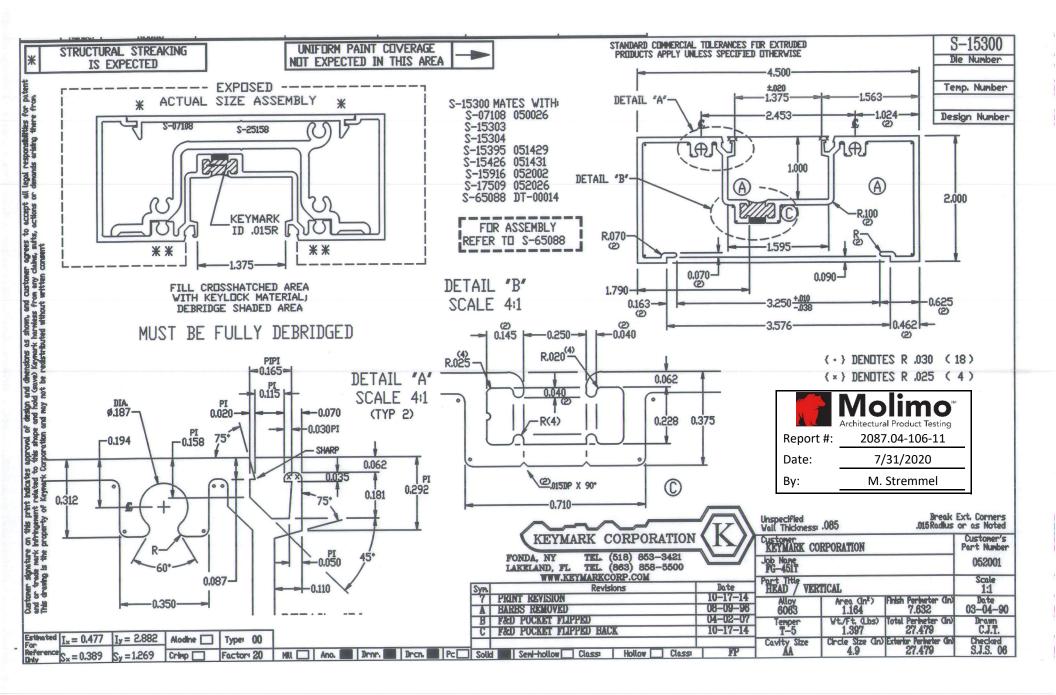


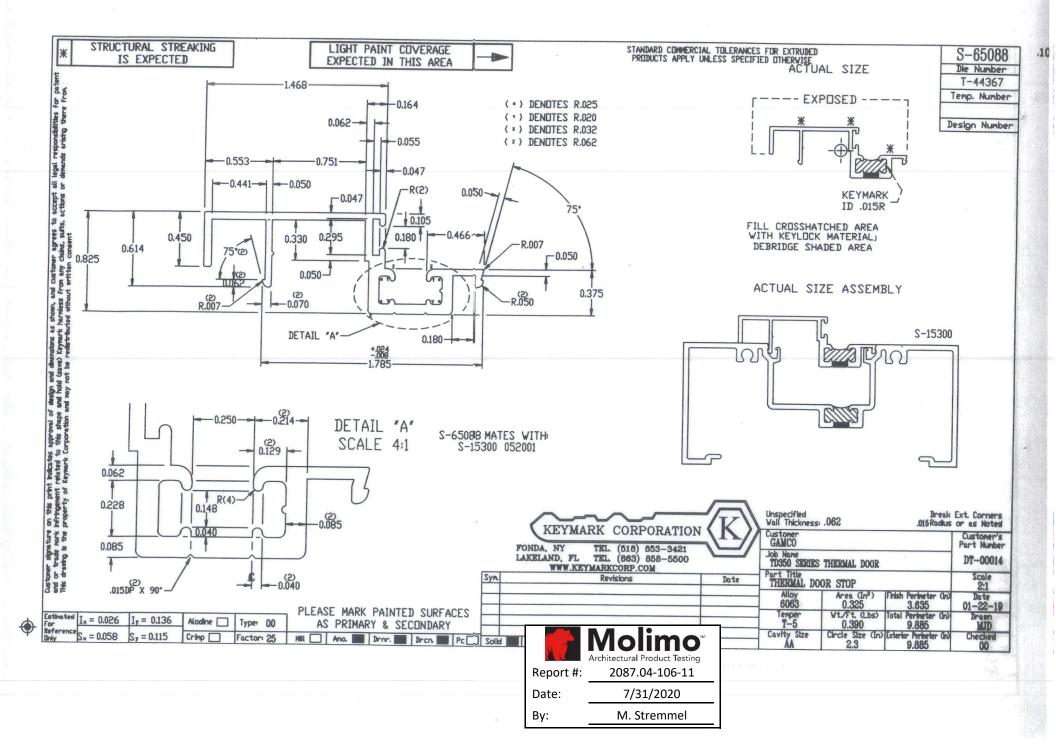


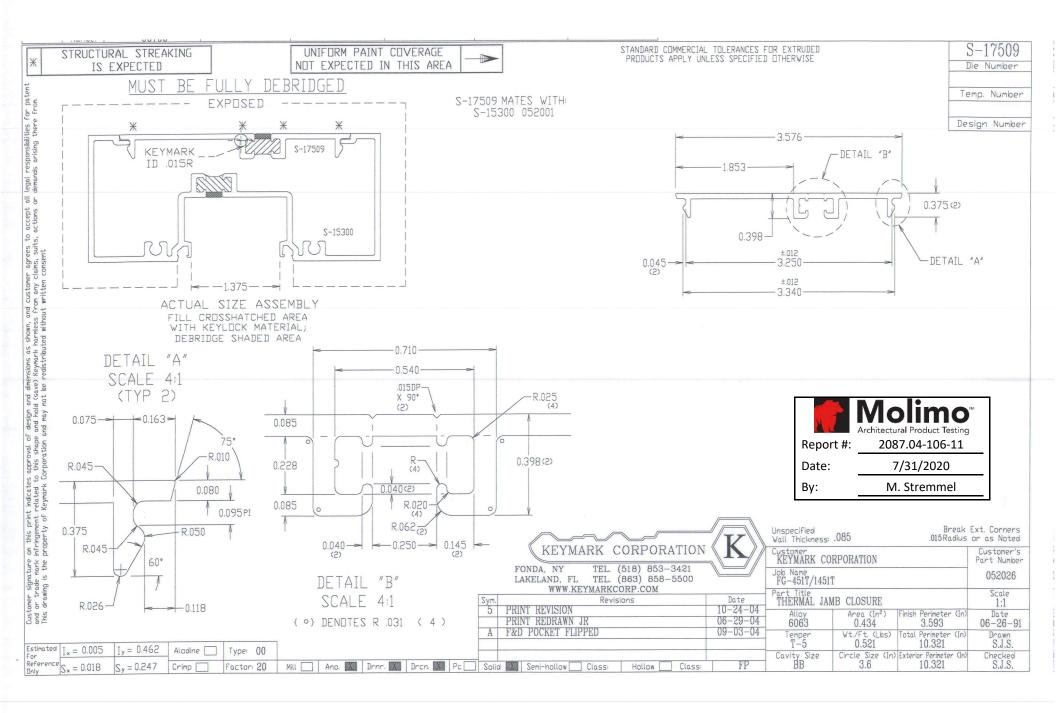
Appendix C

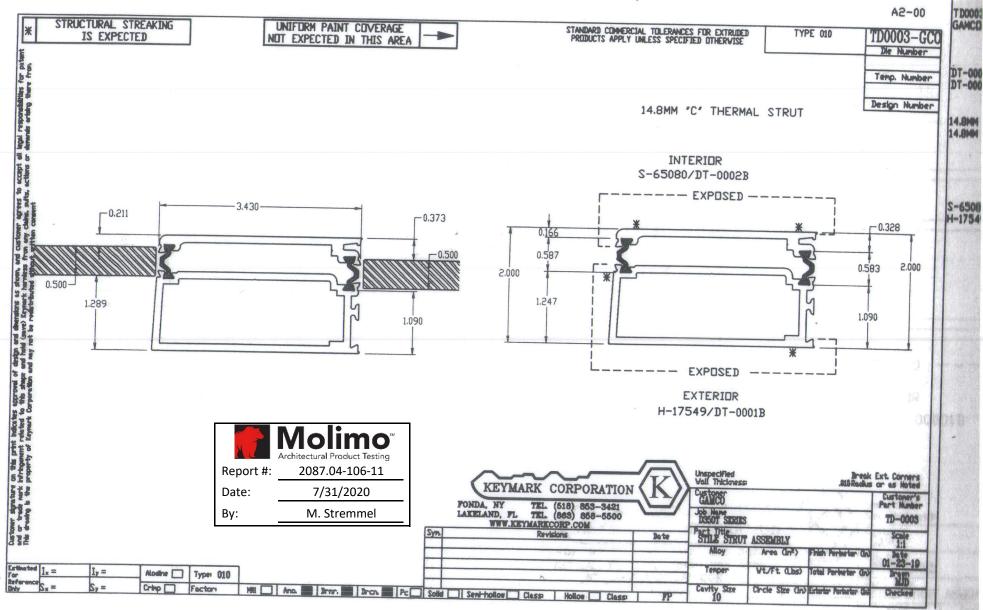
Drawings

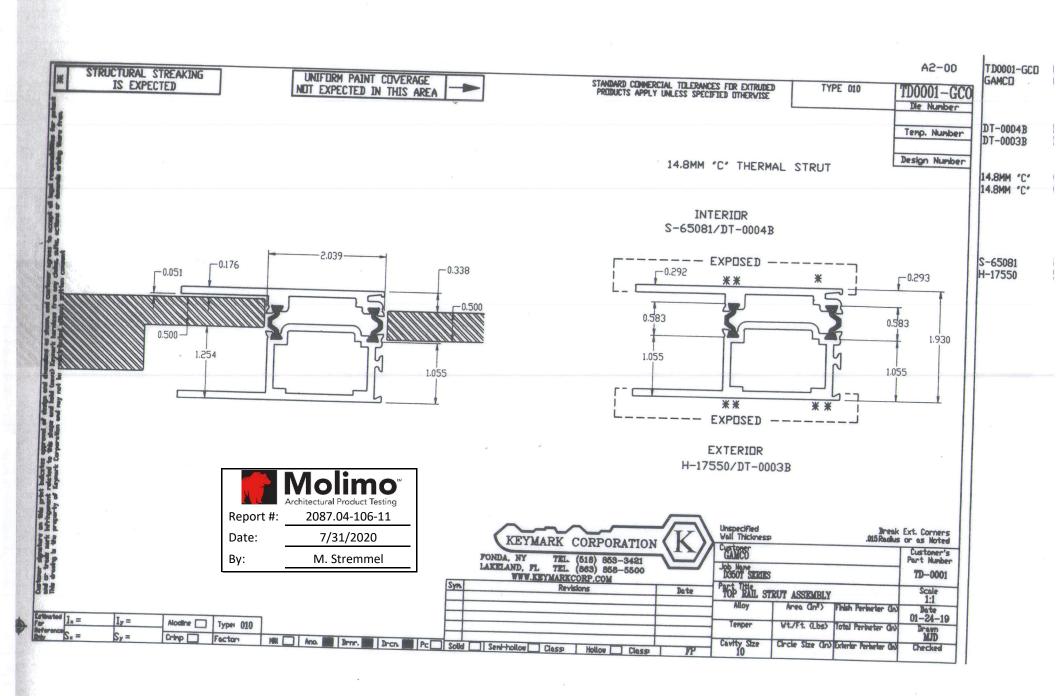


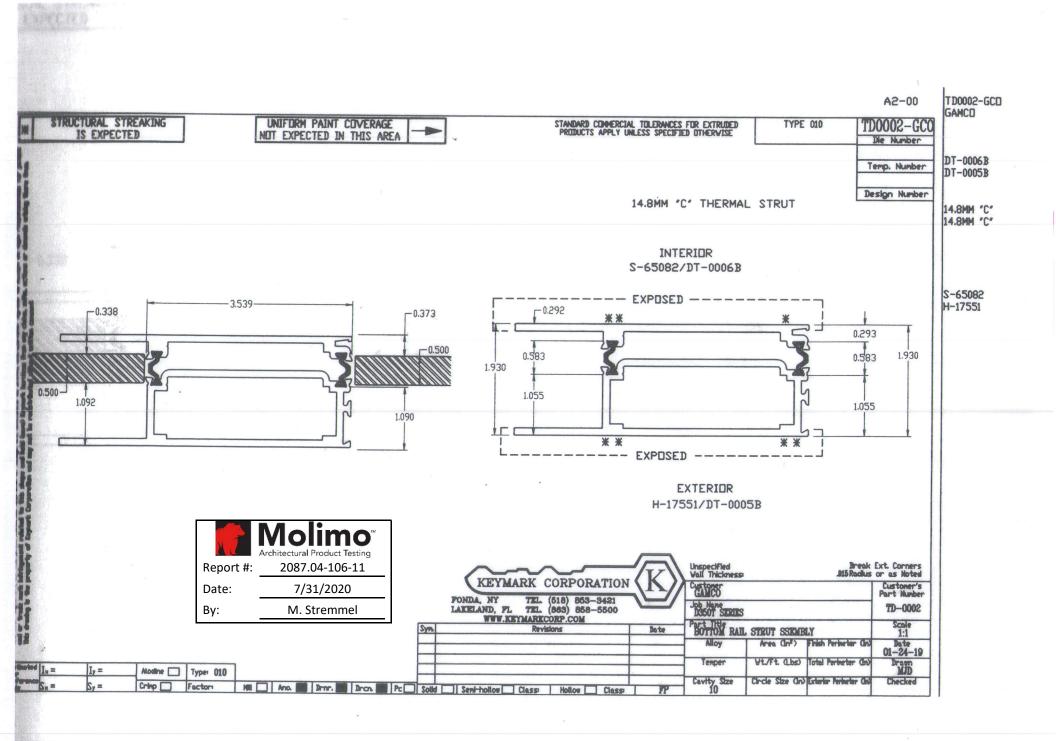


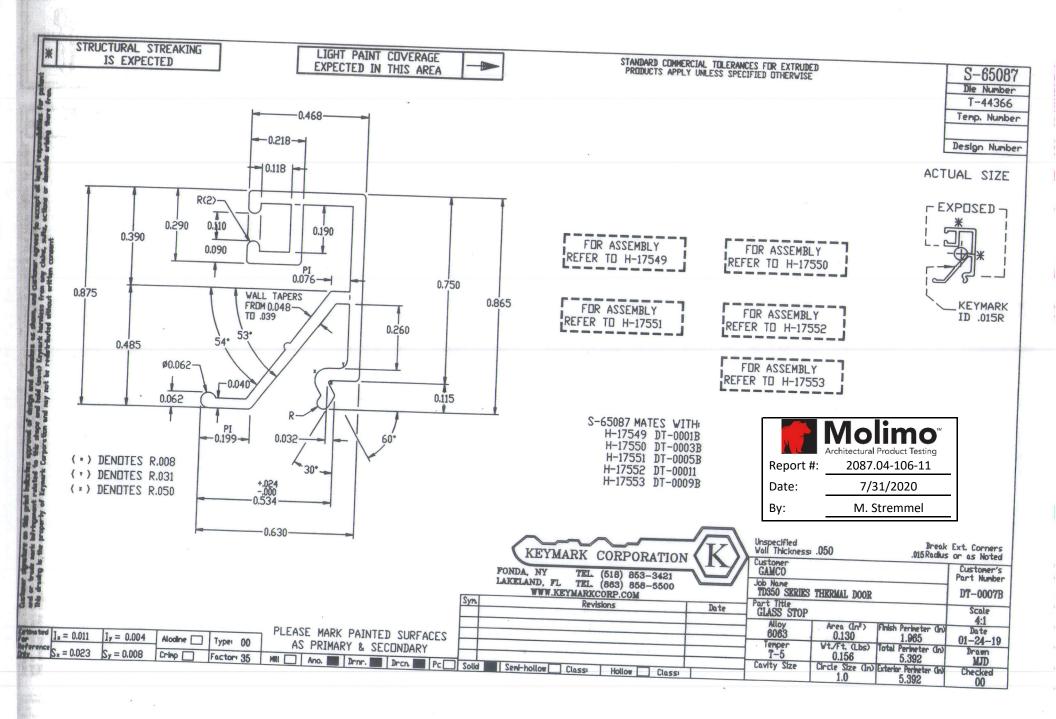


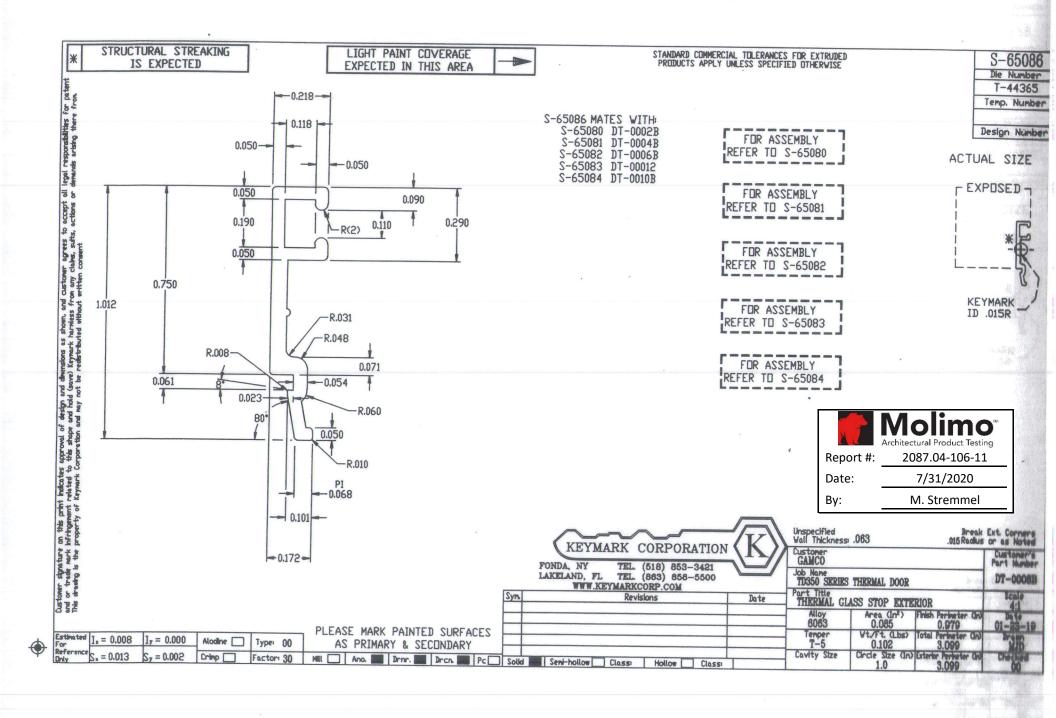


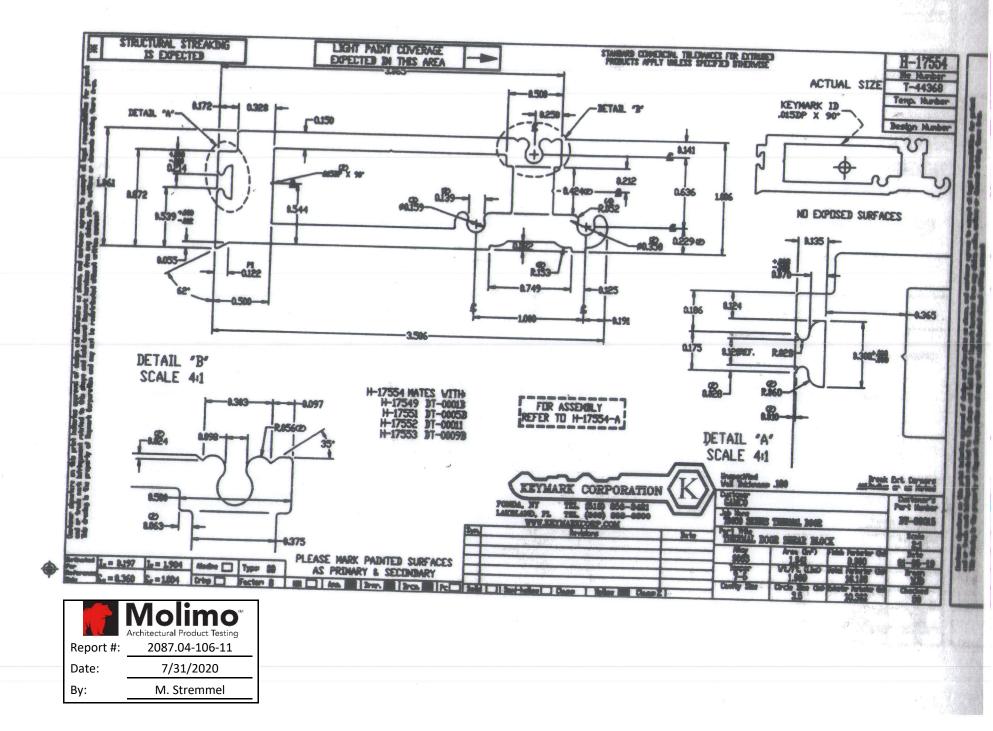


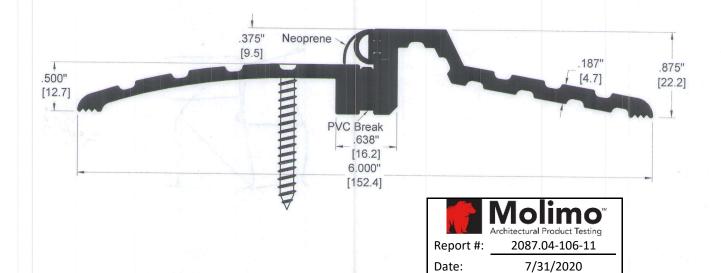












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526 Rabbeted Threshold - Thermal Break

By:

M. Stremmel