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

<table>
<thead>
<tr>
<th>Test</th>
<th>Summary of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Pressure</td>
<td>±1680 Pa (±35.09 psf)</td>
</tr>
<tr>
<td>Water Penetration Resistance Test Pressure</td>
<td>0 Pa (0 psf)</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael D. Stremmel, P.E.</td>
<td>Molimo, LLC</td>
</tr>
<tr>
<td>Joseph W. Enriquez</td>
<td>Molimo, LLC</td>
</tr>
</tbody>
</table>
TEST METHODS:


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 m² (23.88 ft²)
Leaf Size: 889 mm x 2096 mm (35" x 82-1/2")

FRAME CONSTRUCTION:
Material: Extruded aluminum
Corner Details: Square-cut and butted and mechanically fastened.
Head/Jamb Corners: Secured with two #12 x 1" pan head screws per corner
Sill/Jamb Corners: 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: The jambs and head were constructed of two pieces of aluminum framing, snap-fit to each other
The head and jambs utilized a snap-in aluminum panel stop.

LEAF CONSTRUCTION:
Material: Extruded 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.

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

WEATHERSTRIPPING:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; diameter hollow bulb gasket</td>
<td>1 Row</td>
<td>Head, jambs, and threshold</td>
</tr>
<tr>
<td>0.290&quot; high polypile</td>
<td>2 Rows</td>
<td>Leaf bottom rail</td>
</tr>
</tbody>
</table>

DRAINAGE: No drainage was utilized.

HARDWARE:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full length, piano style hinge</td>
<td>1</td>
<td>Hinge stile</td>
</tr>
<tr>
<td>Lock assembly</td>
<td>1</td>
<td>Lock stile, 40&quot; from the bottom rail</td>
</tr>
<tr>
<td>Interior and exterior pull handle</td>
<td>1</td>
<td>40&quot; From the bottom rail</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Location</th>
<th>Anchor Description</th>
<th>Anchor Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and Jambs</td>
<td>1&quot; x 2&quot;, 0.050&quot; thick, 3&quot; long aluminum clips, secured to the door frame with one #8 x 1/2&quot; screw and secured to the wood buck with one #8 x 1-1/2&quot; wood screw</td>
<td>3&quot; From each end and spaced 16&quot; on center</td>
</tr>
</tbody>
</table>
**TEST RESULTS:** The temperature during testing was 19°C (66.5°F).

**WATER PENETRATION TESTING:** (per ASTM E 331)

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
<th>Allowable</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Pa (0 psf)</td>
<td>Pass</td>
<td>No Leakage</td>
</tr>
</tbody>
</table>

**UNIFORM LOAD TESTING:** (per ASTM E 330)

**Design Pressure Test**

<table>
<thead>
<tr>
<th>Deflection measured at the panel lock stile</th>
<th>Results</th>
<th>Allowable</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2160 Pa (+45.11 psf)</td>
<td>1.5 mm (0.06&quot;)</td>
<td>Report Only</td>
</tr>
<tr>
<td>-2160 Pa (-45.11 psf)</td>
<td>11.4 mm (0.45&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

**Structural Test**

<table>
<thead>
<tr>
<th>Permanent Set measured at the panel lock stile</th>
<th>Results</th>
<th>Allowable</th>
</tr>
</thead>
<tbody>
<tr>
<td>+3240 Pa (+67.67 psf)</td>
<td>0.5 mm (0.02&quot;)</td>
<td>10.4 mm (0.41&quot;)</td>
</tr>
<tr>
<td>-3240 Pa (-67.67 psf)</td>
<td>0.3 mm (0.01&quot;)</td>
<td>10.4 mm (0.41&quot;)</td>
</tr>
</tbody>
</table>

*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

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)
## Revision Log

<table>
<thead>
<tr>
<th>Rev. #</th>
<th>Date</th>
<th>Page(s)</th>
<th>Revision(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>07/31/2020</td>
<td>2, 6, Appendix C</td>
<td>Added drawings to report</td>
</tr>
</tbody>
</table>
Appendix A

Alteration Addendum

No alterations were performed.
Appendix B

Air Seal Location

- Seal Between Test Buck and Test Wall
- Seal Between Fenestration Product and Test Buck
- Fenestration Product
- Test Buck
- Test Wall
Appendix C

Drawings
TD350 SERIES
MEDIUM STILE DOOR
1" INSULATING GLASS
(1/4" CLR.TM. 1/4" CLR. TM.)
MUST BE FULLY DEBRIDGED EXPOSED

S-17509 MATES WITH S-15300 052001

ACTUAL SIZE ASSEMBLY
FILL CROSSHATCHED AREA
WITH KEYLOCK MATERIAL.
DEBRIDGE SHADED AREA

DETAIL "B"
SCALE 4:1
(TYP 2)

0.075
0.163
75°
R.045
R.010
0.080
0.095P
R.045
R.050
R.045
60°
R.026
R.062
0.118

0.085
0.228
0.085
R.025
R.020
R.040

0.710
0.540

0.155P
X 90°

R.025

DETAIL "A"
SCALE 4:1

KEYMARK CORPORATION
FONDA, NY TEL (518) 853-3421
LAKELAND, FL TEL (863) 858-5500
WWW.KEYMARKCORP.COM

Report #: 2087.04-106-11
Date: 7/31/2020
By: M. Stremmel
14.8MM 'C' THERMAL STRUT

INTERIOR
S-65082/DT-0006B

EXPOSED

EXTERIOR
H-17551/DT-0005B

Molimo™
Architectural Product Testing

Report #: 2087.04-106-11
Date: 7/31/2020
By: M. Stremmel
526
Rabbeted Threshold
- Thermal Break

Molimo
Architectural Product Testing

Report #: 2087.04-106-11
Date: 7/31/2020
By: M. Stremmel