



CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

**ASTM PERFORMANCE TESTING
ASTM E 330**

GLASSCRAFT DOOR COMPANY

WINLOAD TDL CONTINENTAL WOOD IN-SWING DOORS

REPORT #CCLI-18-027

**Report Date
April 24, 2018**

Prepared for:

GLASSCRAFT.
DOOR COMPANY

2002 Brittmoore Rd.
Houston, TX 77043

S-UNITED, INC.
A Quality Control Company



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**ASTM E330 PERFORMANCE TESTING
WINLOAD TDL CONTINENTAL WOOD DOORS (IN-SWING)
REPORT #CCLI-18-027**

April 24, 2018

APPENDIX

APPENDIX A: SERIES WINLOAD TDL CONTINENTAL WOOD DOORS (IN-SWING) DRAWINGS

Refer to drawings in **Appendix A**, this report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

| Drawing | Part /Drawing/Die# | Received Date | Stamped as Illustrated |
|---------|--|---------------|--|
| 1 | Single In-Swing Plan View | 4/05/18 |  CONSTRUCTION CONSULTING LABORATORY INTERNATIONAL 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556 Report# <u>18-027</u> , Date <u>3-21-2018</u> Reviewed BY <u>EA</u> |
| 2 | Single In-Swing Plan / Section / Anchor | 4/05/18 | |
| 3 | Single In-Swing Anchor | 4/05/18 | |
| 4 | Single Leaf dowel lay-out | 4/05/18 | |
| 5 | Single In-Swing Horizontal Cross Section | 4/05/18 | |
| 6 | Double In-Swing Plan View | 4/05/18 | |
| 7 | Double In-Swing Plan / Section / Anchor | 4/05/18 | |
| 8 | Double In-Swing Anchor | 4/05/18 | |
| 9 | Double Arch Top In-swing Plan View | 4/05/18 | |
| 10 | Double Arch Top Plan / Section / Anchor | 4/05/18 | |
| 11 | Double Arch Top Anchor | 4/05/18 | |
| 12 | Threshold Section | 4/05/18 | |
| 13 | Hinge Stile Section | 4/05/18 | |
| 14 | Jamb Anchor Detail | 4/05/18 | |
| 15 | Lock-Stile-to-Astragal Section | 4/05/18 | |
| 16 | Surface Bolt and Section | 4/05/18 | |
| 17 | Top Rail-to-Head Section | 4/05/18 | |
| 18 & 19 | Hinge Attachment Section | 4/05/18 | |
| 20 | Double In-Swing Horizontal Cross Section | 4/05/18 | |
| 21 | Bill of Materials | 4/05/18 | |
| 22 | Profiles | 4/05/18 | |
| 23 & 24 | Glass and Wood Panel Infill | 4/05/18 | |



1. PROJECT DATA

Project: ASTM Performance Testing

Tests Completed: March 8, 2018

Tested For: GlassCraft Door Company

| Witnessed By | All or Partial Viewing | |
|--|------------------------|---------------|
| Construction Consulting Laboratory, <i>International</i> | Edsson Alarcon | Wesley Wilson |

2. SUMMARY

| Specimen | Type | Title | Summary of Results |
|----------|--------|----------------------------|-------------------------|
| 1 | Single | ASTM E 330 Design Pressure | +/- 2880 Pa (60.15 psf) |
| 2 | Double | ASTM E 330 Design Pressure | +/- 2440 Pa (50.13 psf) |
| 3 | Double | ASTM E 330 Design Pressure | +/- 2440 Pa (50.13 psf) |
| 4 | Double | ASTM E 330 Design Pressure | +/- 2440 Pa (50.13 psf) |

3. TEST SPECIMEN

| | | |
|--------------------|---|--|
| Specimen 1: | Single Wood Entry Door | |
| Product Type: | Single Leaf (In-Swing) | |
| Series Model: | Hardwood Glazed Wide Muntin TDL Panel Wood Door (In-Swing) | |
| Test Methods: | ASTM E 330 | |
| Frame Size: | 960 x 2515 (37 ³ / ₄ " x 99") | Configuration: X |
| Leaf Size: | 914 x 2438 (36" x 96") | |
| Glass DLO: | Two (2) Lites 597 x 425 (23 ¹ / ₂ " x 16 ³ / ₄ ") | |
| Specimen 2: | Active Leaf 1 | In-Active Leaf 2 |
| Product Type: | Double Wood Entry Door (In-Swing) | |
| Series Model: | Hardwood Glazed Wide Muntin TDL Panel Wood Door (In-Swing) | |
| Test Methods: | ASTM E 330 | |
| Frame Size: | 1892 x 2515 (74 ¹ / ₂ " x 99") | Configuration: X.X |
| Leaf Size: | 914 x 2438 (36" x 96") | 934 x 2438 (36 ³ / ₄ " x 96") |
| Glass DLO: | Four (4) Lites 597 x 425 (23 ¹ / ₂ " x 16 ³ / ₄ ") | |
| Specimen 3: | Active Leaf 1 | In-Active Leaf 2 |
| Product Type: | Double Wood Entry Door / Arch Top Leaf (In-Swing) | |
| Series Model: | Hardwood Glazed Wide Muntin TDL Panel Wood Door (In-Swing) | |
| Test Methods: | ASTM E 330 | |
| Frame Size: | 1892 x 2508 (74 ¹ / ₂ " x 98 ³ / ₄ ") | Configuration: X.X |
| Leaf Size: | 914 x 2438 (36" x 96") | 934 x 2438 (36 ³ / ₄ " x 96") |
| Glass DLO: | Three (3) Lites 597 x 426 (23 ¹ / ₂ " x 16 ³ / ₄ "), Per Leaf One (1) arched Lite 597 x 426 – 286 (23 ¹ / ₂ " x 16 ³ / ₄ " – 11 ¹ / ₄ ") | |
| Specimen 4: | Active Leaf 1 | In Active Leaf 2 |
| Product Type: | Arch Framed Double Door (In-Swing) | |
| Series Model: | Hardwood Glazed Wide Muntin TDL Panel Wood Door (In-Swing) | |
| Test Methods: | ASTM E 330 | |
| Frame Size: | Arched 1892 x 2299 – 2515 (74 ¹ / ₂ " x 90 ¹ / ₂ " – 99") | Configuration: X.X |
| Leaf Size: | 914 x 2235 – 2438 (36" x 88" – 96") | 933 x 2235 – 2438 (36 ³ / ₄ " x 88" – 96") |
| Glass DLO: | Three (3) Lites 597 x 426 (23 ¹ / ₂ " x 16 ³ / ₄ "), Per Leaf: One (1) arched 597 x 426 – 286(23 ¹ / ₂ " x 16 ³ / ₄ " – 11 ¹ / ₄ ") | |



Weather Strip: Kerf mounted Q-Lon foam filled single leaf gasket located at the interior face of frame head, jambs, and astragal. 5-Leg rubber sweep at the bottom of door panel bottom rails attached with sealant and 1" x 0.050" diameter staples spaced 1" from each end and on 6" centers.

Glass Insert: 12.7mm (1/2") overall thickness Sealed Insulating glass (SIG). Two (2) pieces, 3.1mm (1/8") tempered glass with (1/4") airspace.

Wood Panel Insert: 22.25mm (7/8") overall thickness hardwood plywood beveled at the edges to 12.7mm (1/2") overall thickness.

Glazing: Exterior glazed with silicone sealant at the interior, exterior, and heel of insert, full perimeter. Wood glazing stop at the exterior face of the insert sealed to insert and door leaf with sealant. Wood glazing stop attached to leaf stiles and rails with an 18-gauge brad nail on 6" centers.

Hardware: Three (3) Steel 4" long 4-knuckle butt hinges connect the door leaf to the frame. Hinges are spaced from leaf bottom rail on Specimens 1-3 - 8", 46 7/8", and 85 3/4" and on Specimen 4 - 8 1/4", 42 1/2", and 77". The hinge is attached to the door leaf with two (2) #8 x 1" screws and two (2) #9 x 3" screw and to the frame and into test buck with two (2) #8 x 1" screws and two (2) #9 x 3" screws. Active leaf lock stile secured to frame or astragal with a two-point lock consisting of the handle and lock set throw bolt located on center 36" from door panel bottom rail and a key actuated deadbolt located on center 42" from panel bottom rail. Handle set and deadlock keepers attached to frame jamb with two (2) #10 x 2 1/4" screws per keeper. A Rockwood Mfg., steel surface bolt attached to the top and bottom of the active and in-active leaf lock stiles with four (4) #8 nutserts per bolt with keepers attached with #8 x 1 1/2" screws located in-line within the test buck at the frame head and sill.

Installation: Test specimen installed into a nominal 2" x 10" test buck. In addition to the fasteners used through the hinges and keepers, #8 x 1 1/2" screws were used within 2" above and below hinges, mid-span between hinges and lock sets and spaced 8" from each end and on approximate 18" centers at lock stile. #8 x 2 1/4" screws through frame head spaced approximately 6" from each end. Aluminum frame sill with a composite wood insert and an adjustable threshold attached to test buck with #8 x 1 1/2" screws spaced approximately 6" from each end.

Other Features: 1 3/4" thick hardwood door leaf stile-to-rail construction utilize a glued cove and bead joint connected with 5/8" x 4 9/16" fluted wood dowels. Top rail to stile connected with two (2) dowels, arch glazed door leaf uses four (4) dowels at hinge stile-to-top rail connection. Bottom rail to stile connected with three (3) dowels, and muntin to stiles connected with one (1) dowel. Frame stiles attached to rails with three (3) #9 x 3" screws per connection.



4. PERFORMANCE RESULTS

SPECIMEN 1 / Single Wood Door

| <u>Title of Test</u> | <u>Test Method</u> | <u>Measured</u> | <u>Allowed</u> |
|---|--------------------|-----------------|-----------------|
| Uniform Loads | ASTM E 330 | | |
| -Positive @ 2880 Pa (60.15 psf) | Max Center | 3.43 mm (.14") | Reported |
| -Negative @ 2880 Pa (60.15 psf) | Max Center | 2.29 mm (.09") | Reported |
| Structural Loads | ASTM E 330 | | |
| @ 4320 Pa (90.23 psf) Positive | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13mm (0.01") | 2.77 mm (0.11") |
| @ 4320 Pa (90.23 psf) Negative | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13 mm (0.01") | 2.77 mm (0.11") |

SPECIMEN 2 / Double Door Panels

| | | | |
|---|------------|-----------------|-----------------|
| Uniform Loads | ASTM E 330 | | |
| -Positive @ 2400 Pa (50.13 psf) | Max Center | 14.1 mm (.56") | Reported |
| -Negative @ 2400 Pa (50.13 psf) | Max Center | 9.78 mm (.39") | Reported |
| Structural Loads | ASTM E 330 | | |
| @ 3600 Pa (75.19 psf) Positive | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13mm (0.01") | 2.77 mm (0.11") |
| @ 3600 Pa (75.19 psf) Negative | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13 mm (0.01") | 2.77 mm (0.11") |

SPECIMEN 3 / Double Door Arch Top Panels

| | | | |
|---|------------|-----------------|-----------------|
| Uniform Loads | ASTM E 330 | | |
| -Positive @ 2400 Pa (50.13 psf) | Max Center | 10.8 mm (.43") | Reported |
| -Negative @ 2400 Pa (50.13 psf) | Max Center | 12.8 mm (.51") | Reported |
| Structural Loads | ASTM E 330 | | |
| @ 3600 Pa (75.19 psf) Positive | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13mm (0.01") | 2.77 mm (0.11") |
| @ 3600 Pa (75.19 psf) Negative | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.51 mm (0.02") | 2.77 mm (0.11") |

SPECIMEN 4 / Arch Framed Double Entry Door

| | | | |
|---|------------|-----------------|-----------------|
| Uniform Loads | ASTM E 330 | | |
| -Positive @ 2400 Pa (50.13 psf) | Max Center | 11.8 mm (.47") | Reported |
| -Negative @ 2400 Pa (50.13 psf) | Max Center | 10.5 mm (.42") | Reported |
| Structural Loads | ASTM E 330 | | |
| @ 3600 Pa (75.19 psf) Positive | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13mm (0.01") | 2.77 mm (0.11") |
| @ 3600 Pa (75.19 psf) Negative | | No Damage | No Damage |
| -Permanent Set Longest Unsupported Span | | 0.13 mm (0.01") | 2.77 mm (0.11") |



The laboratory temperature was recorded at 72°F at start of test. Test specimens were conditioned prior to testing and the temperature of the door glass was 75°F.

Visual inspections performed on the test specimens revealed no penetrations through the laminate and no separation of vision-to-frame glazing after impacts.

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and have been compared to the test sample submitted. These records will be retained at **CCLI** for a period of four (4) years.

5. DISCLAIMER

The above results were achieved by using the designated test methods and indicate compliance with the above specification. This report does not constitute certification of this product.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*

EDSSON ALARCON
Quality and Testing Technician
Signed Electronically

WESLEY WILSON
Laboratory Manager
Signed Electronically