Test Specimen Description: (Continued)

Test Specimen #2: F-C50 65 x 84*

Overall Size: 5' 5" wide by 6' 11-3/4" high

Fixed Daylight Opening Size: 5' 1" wide by 6' 8" high

Glazing Type: 7/8" thick sealed insulating glass fabricated from two sheets of 1/8" thick clear annealed glass.

The following descriptions apply to all specimens.

Finish: All PVC was white

Glazing Details: The fixed lite was interior glazed onto double-sided adhesive foam tape and secured with PVC snap-fit glazing beads.

Frame Construction: The frame was constructed of extruded PVC members with mitered and welded corners. The interior frame pocket utilized a PVC snap-fit cover.

Drainage:

Description	Quantity	Location
1/2" wide by 1/8" deep weepslot	2	One in each end of sill, draining the glazing pocket into the exterior sill hollow
1/2" wide by 1/4" deep weepslot	2	One in each end of sill, draining the glazing pocket into the exterior sill hollow
1" wide by 1/8" tall weepslot	2	One in each end of sill face, draining the exterior sill hollow

Reinforcement: No reinforcement was utilized.

Installation: The test specimens were installed into 2" x 8" wood test bucks utilizing the integral nailing fin. The nailing fin was bedded in polyurethane sealant and secured with 1-1/2" long drywall screws in every hole around the perimeter.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
Test Specimen #1: F-C35 72 x 96			
	Air Infiltration per ASTM E 283 (See Note #1) @ 1.57 psf (25 mph)	0.04 cfm/ft^2	0.3 cfm/ft^2 max.
	Water Resistance per ASTM E 547 WTP = 4.5 psf	No leakage	No leakage
2.1.4.2	Uniform Load Structural per ASTM E 330		
	Welded Corner Test	Meets as stated	Meets as stated
	Forced Entry Resistance per ASTM F 588-97		
	Type: D Grade: 40		
	Hand Manipulation Test	No entry	No entry
Optional Performance			
4.3	Water Resistance per ASTM E 547 and 331 WTP = 12.0 psf	No leakage	No leakage
	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the jamb)		
	@ 58.5 psf (exterior)	<0.01"	0.35" max.
	@ 63.0 psf (interior)	<0.01"	0.35" max.
Test Specimen #2: F-C50 65 x 84*			
Optional Performance			
	Uniform Load Structural per ASTM E 330 (Measurements reported were taken on the jamb)		
	@ 75.0 psf (exterior)	<0.01"	0.34" max.
	@ 75.0 psf (interior)	<0.01"	0.34" max.

Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration.

Note: The client opted to start test loads at a level higher than what is required in the referenced test specification, as reported under "Optional Performance" paragraph 4.4.2.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC:

Adam Fodor
Technician

David G. Moyer, Vice President
Director of Testing Services

AF:tjp/nlb
01-39039.03

8540 SH & PW Series - Mile Per Hour (MPH) maximum Size Chart

Series/Type	MPH Zone(s)	Required Mullion		Maximum Sizes Allowed		
				Single Unit	Twin Unit	Triple Unit
8540 SH or PW Fin Frame	up to 140 MPH	N/A	N/A	4-0 x 6-0	N/A	N/A
8540 SH or PW Fin Frame	up to 140 MPH	Vert Mull #M-1926 & V-698 Cap (2)		N/A	4-0 x 6-0 Twin (Field Mulled)	4-0 x 6-0 Triple (Field Mulled)
8540 SH or PW Fin Frame	up to 140 MPH	Horiz Mull #M-1926 & V-698 Cap (2)		4-0 x 6-0 w/Transom*	2-6 x 6-0 Twin w/Transom* (Field Mulled)	N/A

*[1] All Transoms (1, 2, & 3-Lites) must be continuous frame.
*[2] Transom units must be a minimum of 1/0 tall. The maximum transom height is one half the width of the transom.
Both Single Hung & Picture Windows can be used in combination up to the maximum sizes listed above.

Rev. 7-10-02

MI HOME PRODUCTS

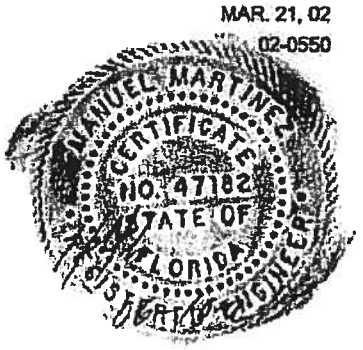
VERTICAL MULLION DESIGN LOAD CAPACITIES
FOR ALUMINUM TUBE MULLION (DIE # M-1926)

WDW. WIDTH > MULLION SPAN V	19.125	24.000	26.500	36.000	37.000	48.000	53.125
36.000	508	446	426	396	396	396	396
37.375	465	406	387	354	354	354	354
48.000	262	223	209	178	176	167	167
50.625	232	197	184	155	154	143	142
60.000	145	121	113	92	91	81	79
63.000	124	104	96	78	77	68	65
72.000	81	67	62	50	49	42	40
72.250	80	67	62	49	48	42	40

CHART APPLIES ONLY TO EXTRUDED ALUMINUM MULLION (DIE NO: M-1926)
READ WINDOW WIDTH AND HEIGHT IN INCHES.
DESIGN PRESSURE VALUES ON THIS CHART ARE IN PSF.
WINDOW WIDTH DIMENSIONS REPRESENT THE WIDTH OF EACH WINDOW IN A SINGLE OPENING, NOT THE OVERALL WID THE OPENING.
DESIGN PRESSURE VALUES SHOWN ON THE ABOVE CHART IS NOT LIMITED TO ONLY TWO WINDOWS IN A SINGLE OPENII CAPACITIES APPLY TO ANY NUMBER OF WINDOWS IN A SINGLE OPENING, PROVIDED WINDOW WIDTH AND MULLION SPA ARE NOT EXCEEDED.
Dmax = L / 175
INSTALLATION OF MULLION: MULLION MUST BE ANCHORED TO SUBSTRATE. CONNECTION MUST BE DESIGNED TO ADEQUATELY TRANSFER LOAD TO THE STRUCTURE. SEE MANUFACTURER'S MULLION INSTALLATION DETAILS.

PREPARED BY:
PRODUCT TECHNOLOGY CORPORATION
1150 LOUISIANA AVE
SUITE 6
WINTER PARK, FLORIDA 32789
PHONE 407 622-6334 / FAX 407 622-6335

MAR. 21, 02
02-0550



STRUCTURAL VERTICAL MULLION #M-1926

3540/8540 Fin

Step 1. Remove nail fins (and J-flange if applicable) of sides of windows to be joined.

Step 2. Place windows 1 1/8" apart, then snap in exterior vinyl mull cover.

Note: Make sure the snap hooks on both ends of interior vinyl mull cover is notched back 1/4" to clear corner welds on window frame. The exterior vinyl cap only requires this notch at the bottom since the top is to be trimmed 1/4" short to butt against the drip cap.

Step 3. Lay windows, exterior face down, on a padded flat work surface. Place aluminum mull between windows as shown.

Step 4. Run a full length bead of caulk (2 places) between mull & jamb, then snap in interior vinyl mull cover.

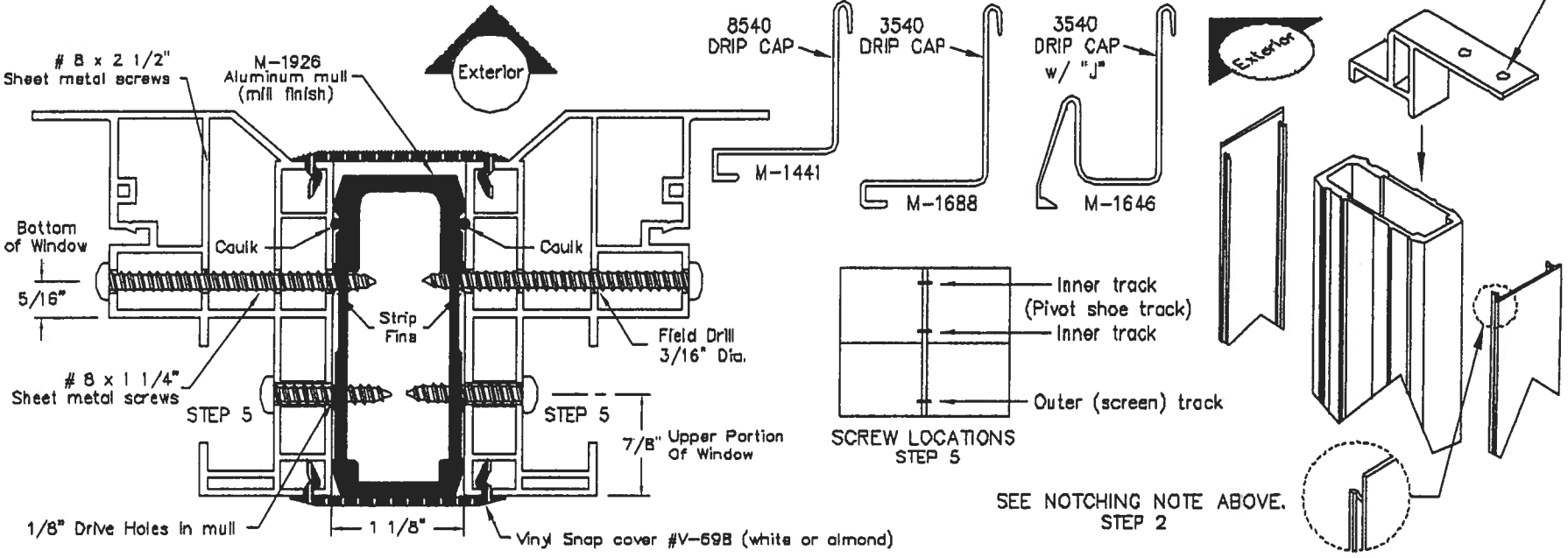
Step 5. Drill holes through vinyl frame only with 3/16" drill bit in locations shown. Drill two holes in each jamb above the meeting rail through interior tracks. Drill one hole in each jamb 3 1/2" up from bottom of window through screen track.

Step 6. Drill through aluminum mullion with 1/8" drill bit.

Step 7. Attach windows to mullion using 2 # 8 x 2 1/4" screws through bottom holes, and 4 # 8 x 1" screws through remaining holes. (Screws not furnished).

Step 8. Before lifting into rough opening, drill two holes in each clip and insert into each end of mull as shown below with tab pointing to inside. Fasten each clip tab to construction with two #10 x 1 1/2" screws for structural integrity.

Step 9. The large hole created by the hollow mullion will allow water leakage into the interior unless a full length aluminum drip cap (ordered separately in 16 ft. lengths) is installed across the head. Specify M-1799 for standard frames, and M-1800 for "J-flange" frames. Be sure to notch out mull grooves on exterior face of head so "hook" on drip cap can run through at the center.



JAMBS, MULL AND DRIP CAPS SHOWN ¾ SCALE

NOTE: SEE REVERSE SIDE FOR DESIGN PRESSURE CAPACITIES.

MI HOME PRODUCTS

HORIZONTAL MULLION DESIGN LOAD CAPACITIES

FOR EXTRUDED ALUMINUM TUBE MULLION (M-1926)
WHEN USED FOR MULLING TRANSOM

MULL SPAN > WDW. HGT. V	24.000	26.500	37.000	48.000	53.125	60.000	74.000
26.000	1528	1135	439	217	166	109	50
36.000	1528	1135	417	198	150	98	45
38.375	1528	1135	417	195	147	96	44
48.000	1528	1135	417	191	142	91	41
50.625	1528	1135	417	191	141	90	41
60.000	1528	1135	417	191	141	89	39
63.000	1528	1135	417	191	141	89	39
72.000	1528	1135	417	191	141	89	38
72.250	1528	1135	417	191	141	89	38

NOTES:

- CHART APPLIES ONLY TO EXTRUDED ALUMINUM MULLION (M-1926) USED HORIZONTALLY.
- CHART ASSUMES TRANSOM HEIGHT TO BE ONE HALF MULLION SPAN.
- WINDOW HEIGHTS SHOWN ON "Y" AXIS OF CHART DESIGNATE HEIGHT OF WINDOWS BELOW MULLION AND DO NOT INCLUDE TRAMSOM HEIGHT.
- READ MULLION SPAN AND WINDOW HEIGHT IN INCHES.
- DESIGN PRESSURE VALUES ON THIS CHART ARE IN PSF.
- DESIGN LOAD CAPACITIES SHOWN ON THIS CHART DO NOT CONSIDER ANY STRENGTH WHICH MAY BE OBTAINED FROM FRAME MEMBERS OF ADJACENT WINDOWS.
- Dmax = L / 175
- INSTALLATION OF MULLION: MULLION MUST BE ANCHORED TO SUBSTRATE. CONNECTION MUST BE DESIGNED TO ADEQUATELY TRANSFER LOAD TO THE STRUCTURE. SEE MANUFACTURER'S MULLION INSTALLATION DETAILS.

PREPARED BY:
PRODUCT TECHNOLOGY CORPORATION
1150 LOUISIANA AVE.
SUITE 6
WINTER PARK, FLORIDA 32789
PHONE 407 622-6334 / FAX 407 622-6335

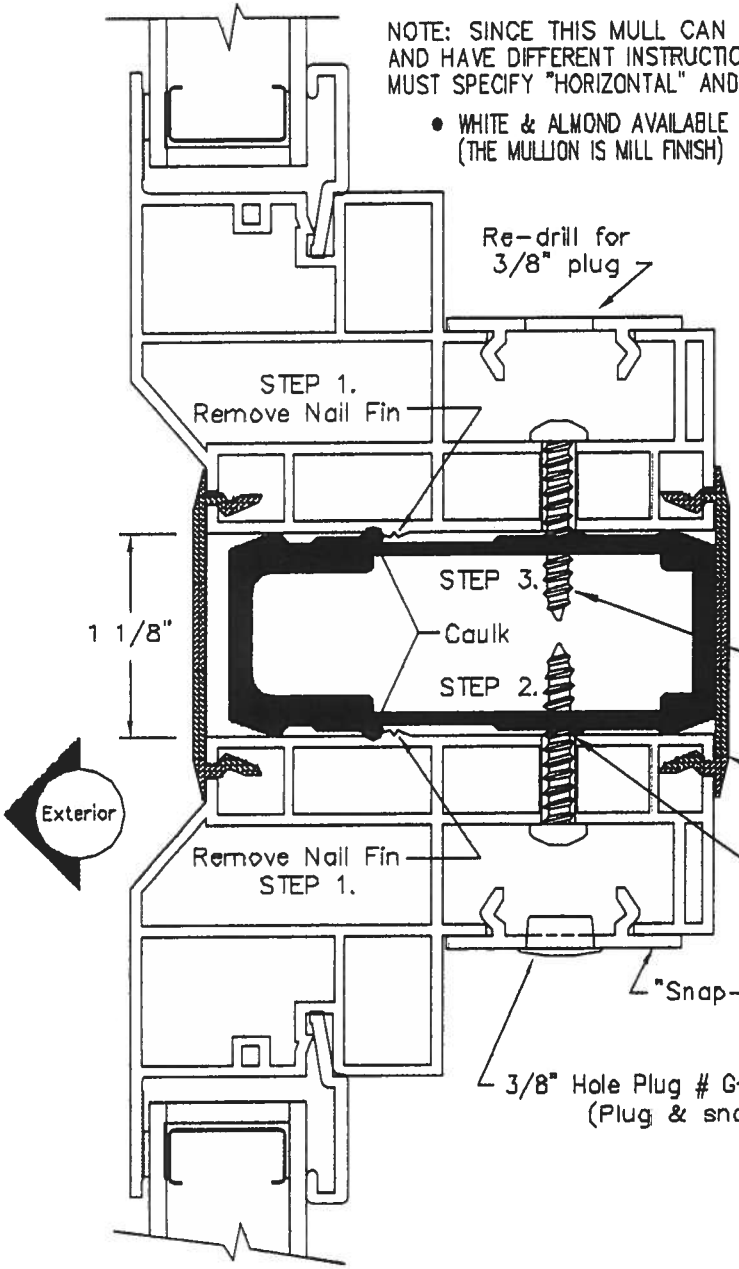
STRUCTURAL HORIZONTAL MULLION # M-1926

Specialty over Single Units (and some sizes of twins)

3540/8540 Fin

NOTE: SINCE THIS MULL CAN BE USED VERTICALLY OR HORIZONTALLY AND HAVE DIFFERENT INSTRUCTION SHEETS AND DP CHARTS FOR EACH, YOU MUST SPECIFY "HORIZONTAL" AND THE LENGTH REQUIRED (SAME AS I.D. SIZE).

- WHITE & ALMOND AVAILABLE (THE MULLION IS MILL FINISH)



Step 1. Score and remove the nail fin from both units.

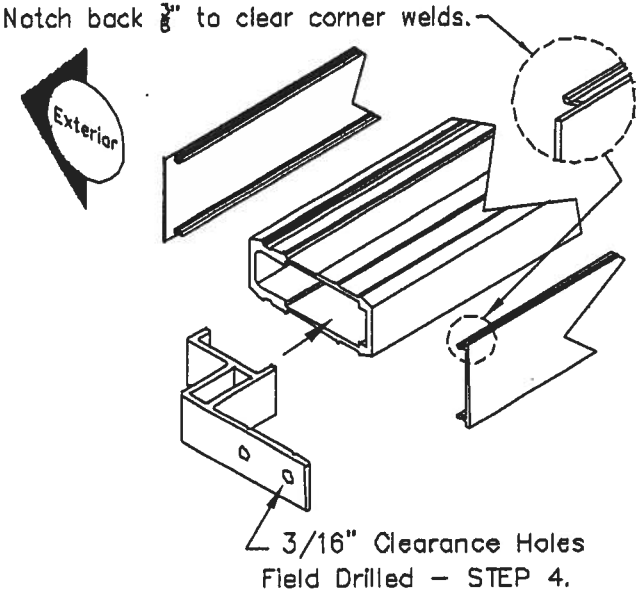
Step 2. Position horizontal mull on top of lower unit as shown. With 1/8" drill, drill up through the frame head and into the mull. Re-drill 1st. hole with 3/8" bit. Before attaching with # 8 X 1" screws, run a full length bead of caulk between the mull and the window. Do not over tighten the screws or distortion could occur.

NOTE: PLACE 1st. SCREWS 3" FROM EACH END AND DO NOT EXCEED 16" SPACING OF REMAINDER.

Step 3. For attaching stacked-on unit to lower unit, repeat Step 2. Install the notched interior & exterior mull covers (vinyl) and install the 3/8" diameter hole plugs (6 included with mull).

Step 4. Before lifting into rough opening, drill two 3/16" holes in each clip and insert into mull with tab facing to the inside. After window unit is installed, anchor the brackets with #10 X 1 1/2" sheet metal screws (for wood) or 3/16" X 1 1/2" Tapcons (for block).

WARNING ! IT IS THE RESPONSIBILITY OF THE INSTALLER TO PLUG WITH SILICONE, OR OTHERWISE "CAP OFF", THE LARGE HOLE IN THE END OF THE MULLION (FROM NAIL FIN OUTWARD) IN ORDER TO PREVENT WATER LEAKS.



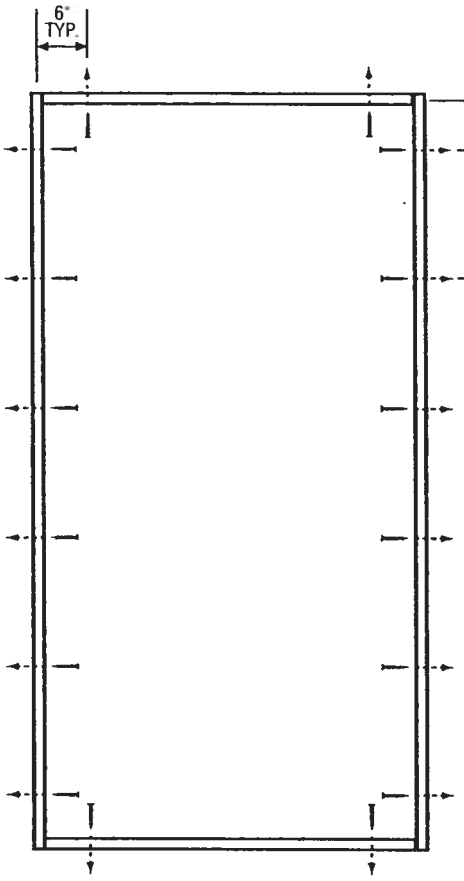
M.I. Home Products

NOTE: SEE REVERSE SIDE FOR DESIGN PRESSURE CAPACITIES.

X
Unit

MID-WL-MA0001-02

SINGLE DOOR



Minimum Fastener Count

- 6 per vertical framing member
- 2 per horizontal framing member

Hinge and strike plates require two 2-1/2" long screws per location.

Rough Opening (RO)

- Width of door unit plus 1/2"
- Height of door unit plus 1/4"

Warnock Hersey Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Latching Hardware:

- Compliance requires that GRADE 3 or better (ANSI/BHMA A156.2) cylindrical and deadlock hardware be installed.
- **UNITS COVERED BY COP DOCUMENT 3146, 3166, 3241*, 3246, 3261* or 3266**
  Compliance requires that 8" GRADE 1 (ANSI/BHMA A156.16) surface bolts be installed on latch side of active door panel – (1) at top and (1) at bottom.

*Based on required Design Pressure – see COP sheet for details.

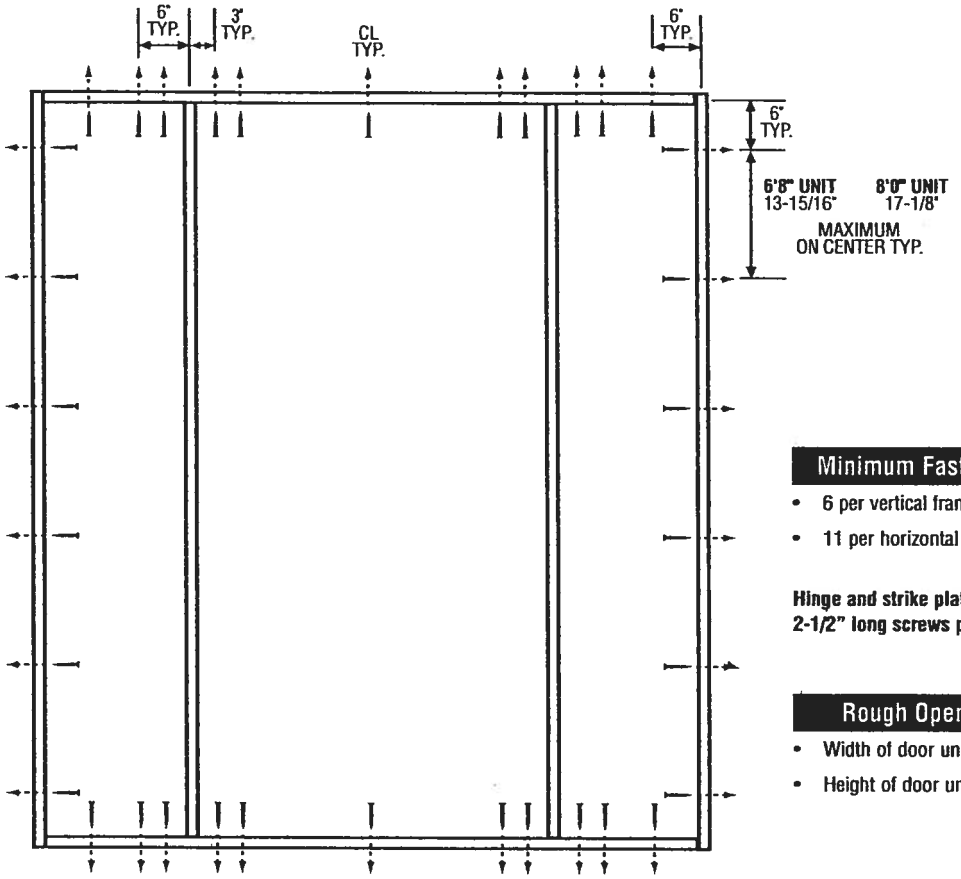
Notes:

1. Anchor calculations have been carried out with the lowest (least) fastener rating from the different fasteners being considered for use. Fasteners analyzed for this unit include #8 and #10 wood screws or 3/16" Tapcons.
2. The wood screw single shear design values come from Table 11.3A of ANSI/AF & PA NDS for southern pine lumber with a side member thickness of 1-1/4" and achievement of minimum embedment. The 3/16" Tapcon single shear design values come from the ITW and ELCO Dade Country approvals respectively, each with minimum 1-1/4" embedment.
3. Wood bucks by others, must be anchored properly to transfer loads to the structure.

OXO
Unit

MID-WL-MA0004-02

SINGLE DOOR WITH 2 SIDELITES



Minimum Fastener Count

- 6 per vertical framing member
- 11 per horizontal framing member

Hinge and strike plates require two 2-1/2" long screws per location.

Rough Opening (RO)

- Width of door unit plus 1/2"
- Height of door unit plus 1/4"

Warnock Hersey

Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Latching Hardware:

- Compliance requires that GRADE 3 or better (ANSI/BHMA A156.2) cylindrical and deadlock hardware be installed.
- **UNITS COVERED BY COP DOCUMENT 3244*, 3249, 3264* or 3269**
  Compliance requires that 8" GRADE 1 (ANSI/BHMA A156.16) surface bolts be installed on latch side of active door panel – (1) at top and (1) at bottom.

*Based on required Design Pressure – see COP sheet for details.

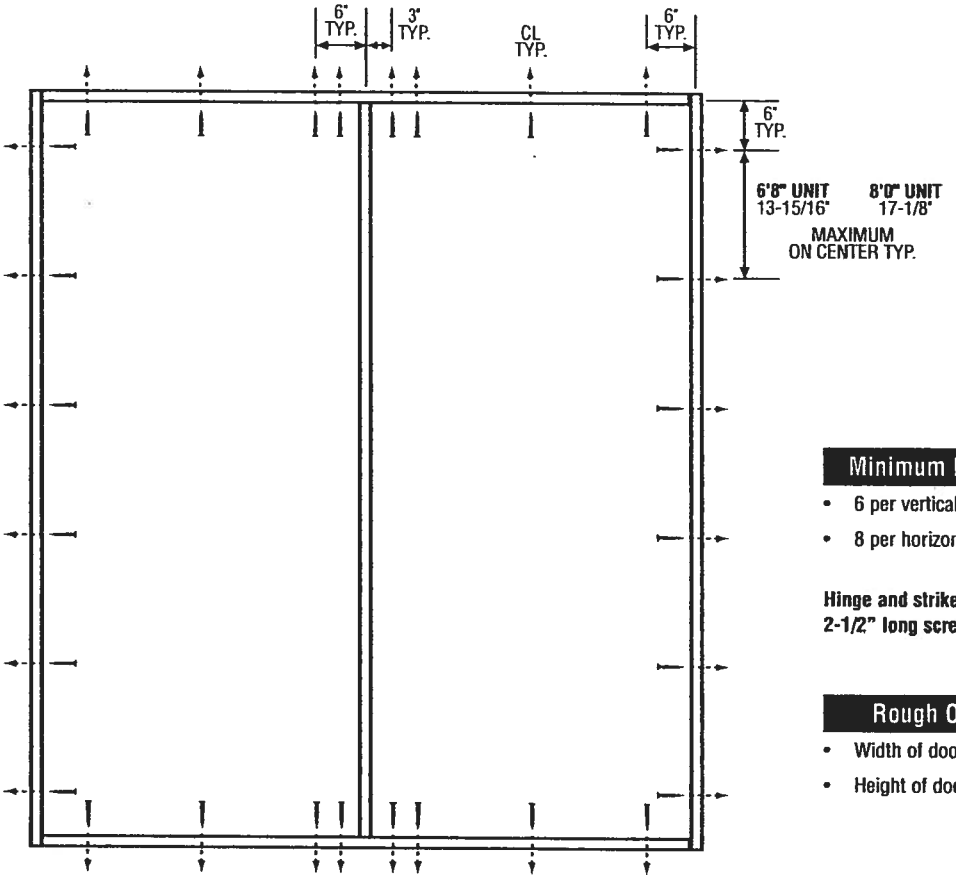
Notes:

1. Anchor calculations have been carried out with the lowest (least) fastener rating from the different fasteners being considered for use. Fasteners analyzed for this unit include #8 and #10 wood screws or 3/16" Tapcons.
2. The wood screw single shear design values come from Table 11.3A of ANSI/AF & PA NDS for southern pine lumber with a side member thickness of 1-1/4" and achievement of minimum embedment. The 3/16" Tapcon single shear design values come from the ITW and ELCO Dade Country approvals respectively, each with minimum 1-1/4" embedment.
3. Wood bucks by others, must be anchored properly to transfer loads to the structure.

XX
Unit

MID-WL-MA0002-02

DOUBLE DOOR



Minimum Fastener Count

- 6 per vertical framing member
- 8 per horizontal framing member

Hinge and strike plates require two 2-1/2" long screws per location.

Rough Opening (RO)

- Width of door unit plus 1/2"
- Height of door unit plus 1/4"

Warnock Hersey Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Latching Hardware:

- Compliance requires that GRADE 3 or better (ANSI/BHMA A156.2) cylindrical and deadlock hardware be installed.
- **UNITS COVERED BY COP DOCUMENT 3147, 3167, 3242*, 3247, 3262* or 3267**
  Compliance requires that 8" GRADE 1 (ANSI/BHMA A156.16) surface bolts be installed on latch side of active door panel – (1) at top and (1) at bottom.

*Based on required Design Pressure – see COP sheet for details.

Notes:

1. Anchor calculations have been carried out with the lowest (least) fastener rating from the different fasteners being considered for use. Fasteners analyzed for this unit include #8 and #10 wood screws or 3/16" Tapcons.
2. The wood screw single shear design values come from Table 11.3A of ANSI/AF & PA NDS for southern pine lumber with a side member thickness of 1-1/4" and achievement of minimum embedment. The 3/16" Tapcon single shear design values come from the ITW and ELCO Dade Country approvals respectively, each with minimum 1-1/4" embedment.
3. Wood bucks by others, must be anchored properly to transfer loads to the structure.

WOOD-EDGE STEEL DOORS

Opaque Units in Hollow-Metal Steel Frame — 6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4131-02	Not Listed	56.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	Not Listed	Not Listed	–	–
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

1. Door arrangements using fewer panels than what is shown in the above chart also comply under the product approvals shown.
2. Assembly details are available from the Masonite International website (www.masonite.com) or from the technical center.
3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
4. Actual design pressure requirement for a specific building design & geographic location is determined by ASCE 7 (Minimum design loads for buildings and other structures). National, state or local building codes specify the edition required.
5. Masonite International structural, cyclic, air, water, forced entry/or impact testing is done in accordance with Miami-Dade BCCO protocol PA201, PA202 & PA203.

WOOD-EDGE STEEL DOORS

Opaque Units in Hollow-Metal Steel Frame — 6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4111-02	Not Listed	56.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	Not Listed	Not Listed	–	–
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

1. Door arrangements using fewer panels than what is shown in the above chart also comply under the product approvals shown.
2. Assembly details are available from the Masonite International website (www.masonite.com) or from the technical center.
3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
4. Actual design pressure requirement for a specific building design & geographic location is determined by ASCE 7 (Minimum design loads for buildings and other structures). National, state or local building codes specify the edition required.
5. Masonite International structural, cyclic, air, water, forced entry/or impact testing is done in accordance with Miami-Dade BCCO protocol PA201, PA202 & PA203.

WOOD-EDGE STEEL DOORS

Opaque Units in 2-piece Adjustable Steel Frame — 6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4136-02	Not Listed	56.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	Not Listed	Not Listed	–	–
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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2. Assembly details are available from the Masonite International website (www.masonite.com) or from the technical center.
3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
4. Actual design pressure requirement for a specific building design & geographic location is determined by ASCE 7 (Minimum design loads for buildings and other structures). National, state or local building codes specify the edition required.
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WOOD-EDGE STEEL DOORS

Opaque Units in 2-piece Adjustable Steel Frame — 6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4116-02	Not Listed	56.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	Not Listed	Not Listed	–	–
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

1. Door arrangements using fewer panels than what is shown in the above chart also comply under the product approvals shown.
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WOOD-EDGE STEEL DOORS

Opaque Units

6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4121-02	99-1008.08	66.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-JH4123-02	Not Listed	57.0	YES
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-JH4124-02	Not Listed	57.0	YES
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	COP-WL-JH4124-02	Not Listed	45.0	YES
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-JH4122-02	Not Listed	45.0	YES
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-JH4125-02	Not Listed	45.0	YES
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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Johnson™ EntrySystems

June 17, 2002

WOOD-EDGE STEEL DOORS

Opaque Units

6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4101-02	99-1008.09	66.0	YES
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-JH4103-02	Not Listed	57.0	YES
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-JH4104-02	Not Listed	57.0	YES
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	COP-WL-JH4104-02	Not Listed	45.0	YES
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-JH4102-02	Not Listed	45.0	YES
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-JH4105-02	Not Listed	45.0	YES
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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Johnson™ EntrySystems

June 17, 2002

PREMDOOR Collection Premium Quality Doors

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Masonite International Corporation

WOOD-EDGE STEEL DOORS

Glazed Units

6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4161-02	Not Listed	40.5	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-JH4163-02	Not Listed	40.5	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-JH4164-02	Not Listed	40.5	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-JH4162-02	Not Listed	40.5	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-JH4165-02	Not Listed	40.5	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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Johnson™ EntrySystems

June 17, 2002

WOOD-EDGE STEEL DOORS

Glazed Units

6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-JH4141-02	Not Listed	40.5	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-JH4143-02	Not Listed	40.5	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-JH4144-02	Not Listed	40.5	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-JH4142-02	Not Listed	40.5	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-JH4145-02	Not Listed	40.5	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

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Johnson™ EntrySystems

June 17, 2002

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PREMDOR Collection Premium Quality Doors

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FIBERGLASS DOORS

Opaque Units

8'0" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0126-02	02-0109.07 (Application Filed)	70.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0128-02	02-0109.07 (Application Filed)	55.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0129-02	02-0109.07 (Application Filed)	55.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0127-02	02-0109.07 (Application Filed)	55.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	1'2" + 2'6" + 2'6" + 1'2"	COP-WL-MA0130-02	02-0109.07 (Application Filed)	55.0	NO
	1'2" + 2'8" + 2'8" + 1'2"				
	1'2" + 2'10" + 2'10" + 1'2"				
	1'2" + 3'0" + 3'0" + 1'2"				

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FIBERGLASS DOORS

Opaque Units

8'0" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0106-02	02-0109.08 (Application Filed)	70.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0108-02	02-0109.08 (Application Filed)	55.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0109-02	02-0109.08 (Application Filed)	55.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0107-02	02-0109.08 (Application Filed)	55.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	1'2" + 2'6" + 2'6" + 1'2"	COP-WL-MA0110-02	02-0109.08 (Application Filed)	55.0	NO
	1'2" + 2'8" + 2'8" + 1'2"				
	1'2" + 2'10" + 2'10" + 1'2"				
	1'2" + 3'0" + 3'0" + 1'2"				

Notes:

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Oakcraft Wood-grain Textured FIBERGLASS ENTRY DOORS

ARTEK Non-Textured Fiberglass Entry Doors

June 17, 2002
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Masonite International Corporation

FIBERGLASS DOORS

Opaque Units

6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0121-02	01-1031.02	76.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0123-02	02-0109.09 (Application Filed)	55.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0124-02	02-0109.09 (Application Filed)	55.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0122-02	02-0109.09 (Application Filed)	55.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	1'2" + 2'6" + 2'6" + 1'2"	COP-WL-MA0125-02	02-0109.09 (Application Filed)	55.0	NO
	1'2" + 2'8" + 2'8" + 1'2"				
	1'2" + 2'10" + 2'10" + 1'2"				
	1'2" + 3'0" + 3'0" + 1'2"				

Notes:

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5. Masonite International structural, cyclic, air, water, forced entry/or impact testing is done in accordance with Miami-Dade BCCO protocol PA201, PA202 & PA203.

Warnock Hersey

Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

Oakcraft Wood-grain Textured FIBERGLASS ENTRY DOORS

ARTEK™ Non-Textured Fiberglass Entry Doors

PREMDOR Collection Premium Quality Doors

Exclusively from Masonite Masonite International Corporation

FIBERGLASS DOORS

Opaque Units

6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0101-02	01-1031.01	76.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0103-02	02-0109.10 (Application Filed)	55.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0104-02	02-0109.10 (Application Filed)	55.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"	Not Listed	Not Listed	–	–
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0102-02	02-0109.10 (Application Filed)	55.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	1'2" + 2'6" + 2'6" + 1'2"	COP-WL-MA0105-02	02-0109.10 (Application Filed)	55.0	NO
	1'2" + 2'8" + 2'8" + 1'2"				
	1'2" + 2'10" + 2'10" + 1'2"				
	1'2" + 3'0" + 3'0" + 1'2"				

Notes:

1. Door arrangements using fewer panels than what is shown in the above chart also comply under the product approvals shown.
2. Assembly details are available from the Masonite International website (www.masonite.com) or from the technical center.
3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
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Warnock Hersey

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ARTEK™ Non-Textured Fiberglass Entry Doors

June 17, 2002
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PREMDOR Collection Premium Quality Doors

Exclusively from Masonite

Masonite International Corporation

FIBERGLASS DOORS

Glazed Units

8'0" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0166-02	02-0423.03 (Application Filed)	47.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0168-02	02-0423.03 (Application Filed)	47.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0169-02	02-0423.03 (Application Filed)	47.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0167-02	02-0423.03 (Application Filed)	47.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-MA0170-02	02-0423.03 (Application Filed)	47.0	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

1. Door arrangements using fewer panels than what is shown in the above chart also comply under the product approvals shown.
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3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
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Warnock Hersey

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June 17, 2002

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Masonite International Corporation

FIBERGLASS DOORS

Glazed Units

8'0" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0146-02	02-0423.01 (Application Filed)	40.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0148-02	02-0423.01 (Application Filed)	40.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0149-02	02-0423.01 (Application Filed)	40.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0147-02	02-0423.01 (Application Filed)	40.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-MA0150-02	02-0423.01 (Application Filed)	40.0	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
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Warnock Hersey

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June 17, 2002

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Masonite International Corporation

FIBERGLASS DOORS

Glazed Units

6'8" Height – Outswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0161-02	02-0418.03 (Application Filed)	55.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0163-02	02-0418.03 (Application Filed)	55.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0164-02	02-0418.03 (Application Filed)	55.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0162-02	02-0418.03 (Application Filed)	55.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-MA0165-02	02-0418.03 (Application Filed)	55.0	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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Warnock Hersey WH

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FIBERGLASS DOORS

Glazed Units

6'8" Height – Inswing

Arrangement	Singles (width)	Masonite International	Miami-Dade BCCO	DP Rating	Impact Rated
X	2'0"	COP-WL-MA0141-02	02-0419.08 (Application Filed)	52.0	NO
	2'6"				
	2'8"				
	2'10"				
	3'0"				
	3'6"	Not Listed	Not Listed	–	–
Arrangement	**Multiples (width)**	**Masonite International**	**Miami-Dade BCCO**	**DP Rating**	**Impact Rated**
XO, OX, OXO	2'8" + 1'0"	COP-WL-MA0143-02	02-0419.08 (Application Filed)	52.0	NO
	2'8" + 1'2"				
	2'10" + 1'0"				
	2'10" + 1'2"				
	3'0" + 1'0"				
	3'0" + 1'2"				
	1'0" + 2'8" + 1'0"	COP-WL-MA0144-02	02-0419.08 (Application Filed)	52.0	NO
	1'0" + 2'10" + 1'0"				
	1'2" + 2'8" + 1'2"				
	1'0" + 2'8" + 1'0"				
	1'0" + 3'0" + 1'0"				
	1'2" + 2'10" + 1'2"				
	1'2" + 3'0" + 1'2"				
	2'6" + 2'6" + 2'6"				
	2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0"				
XX, OXXO	2'6" + 2'6"	COP-WL-MA0142-02	02-0419.08 (Application Filed)	52.0	NO
	2'8" + 2'8"				
	2'10" + 2'10"				
	3'0" + 3'0"				
	2'6" + 2'6" + 2'6" + 2'6"	COP-WL-MA0145-02	02-0419.08 (Application Filed)	52.0	NO
	2'8" + 2'8" + 2'8" + 2'8"				
	2'10" + 2'10" + 2'10" + 2'10"				
	3'0" + 3'0" + 3'0" + 3'0"				

Notes:

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3. Installation instructions are available from the Masonite International website (www.masonite.com) or from the technical center.
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Warnock Hersey

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June 17, 2002

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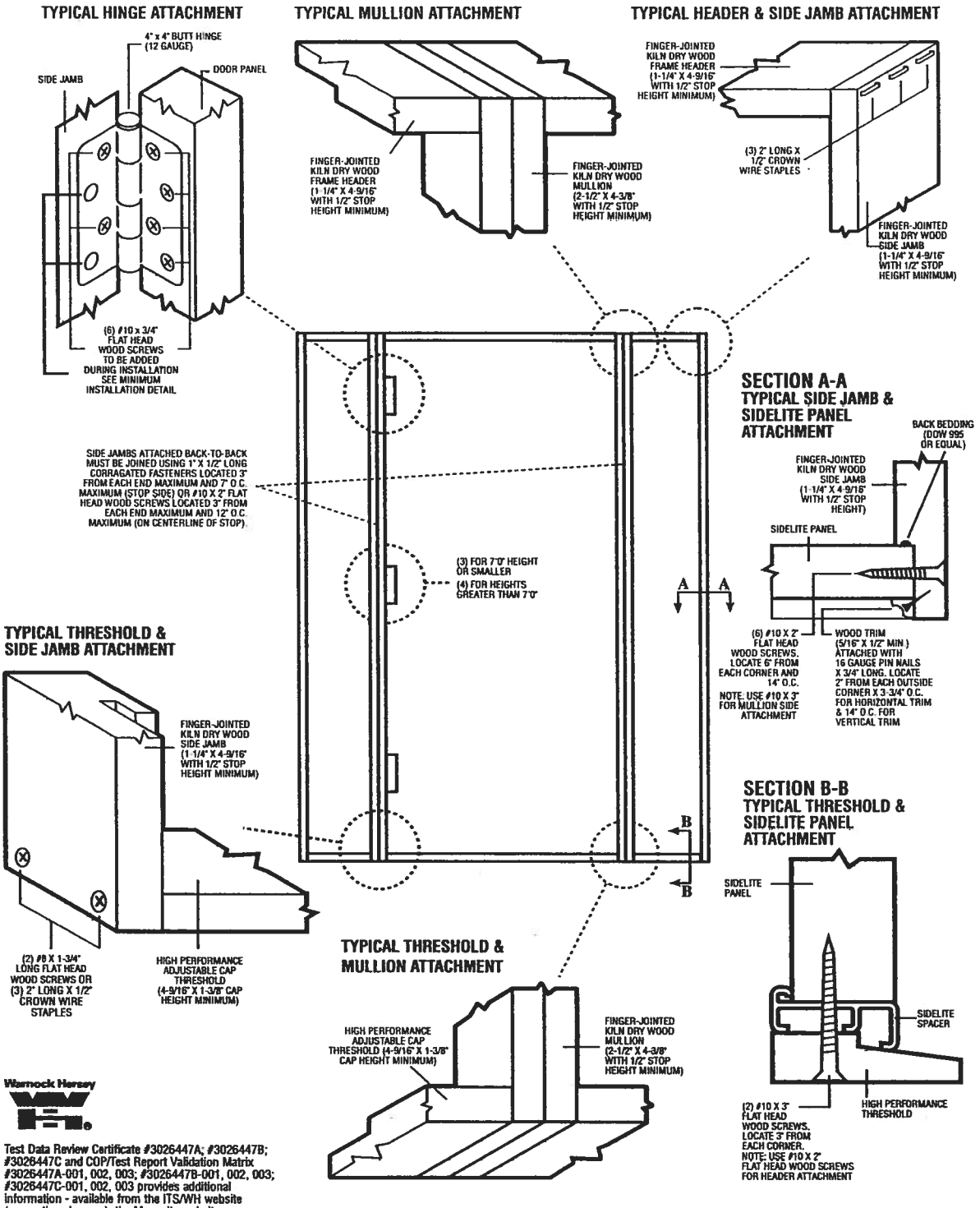
Masonite International Corporation

OXO
Unit

MAD-WL-MA0007-02

INSWING UNIT WITH SINGLE DOOR & TWO SIDELITES (BOXED CONSTRUCTION)



Warnock Hersey

Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etisemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

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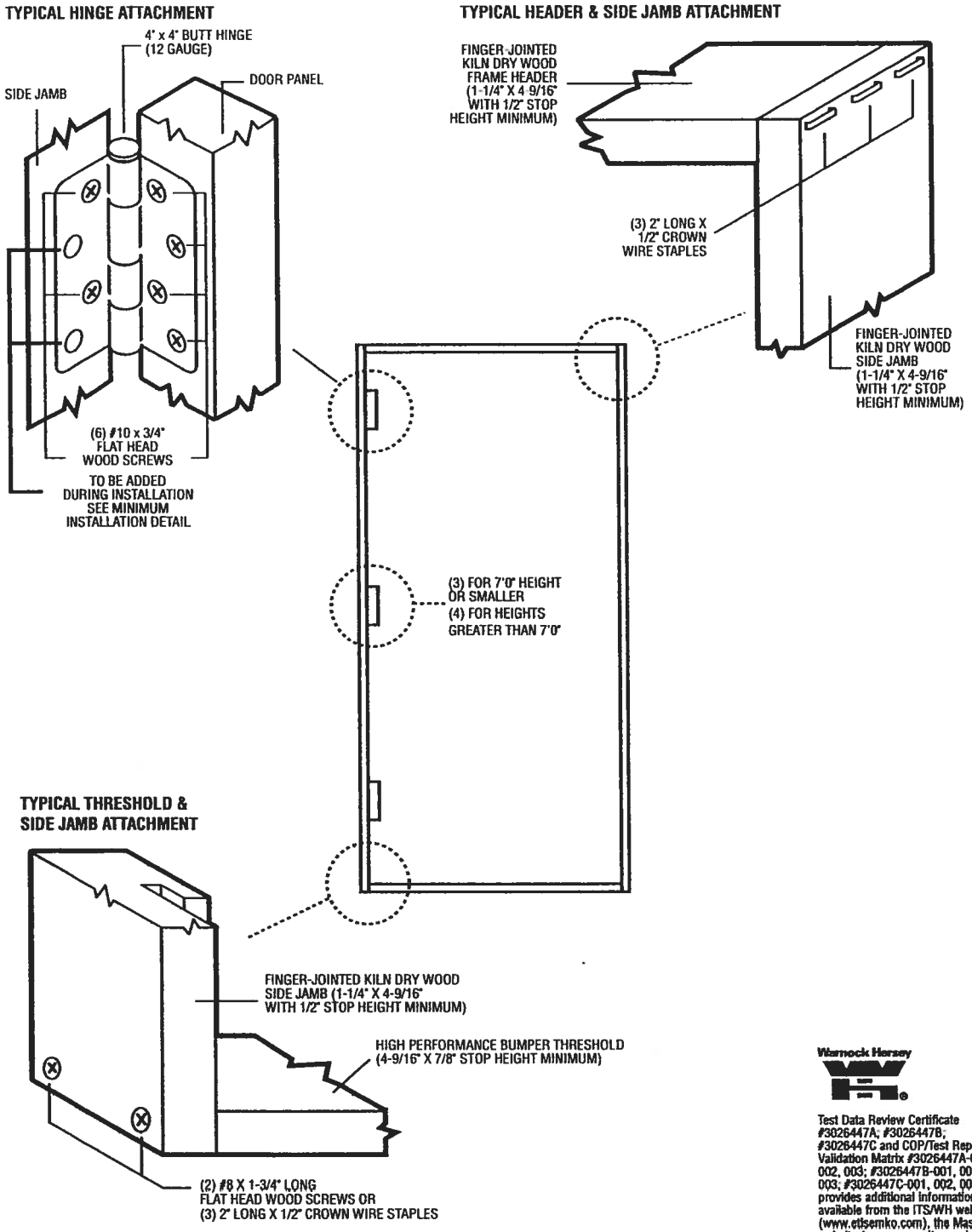
X
Unit

MAD-WL-MA0011-02

OUTSWING UNITS WITH SINGLE DOOR



Warnock Hersey

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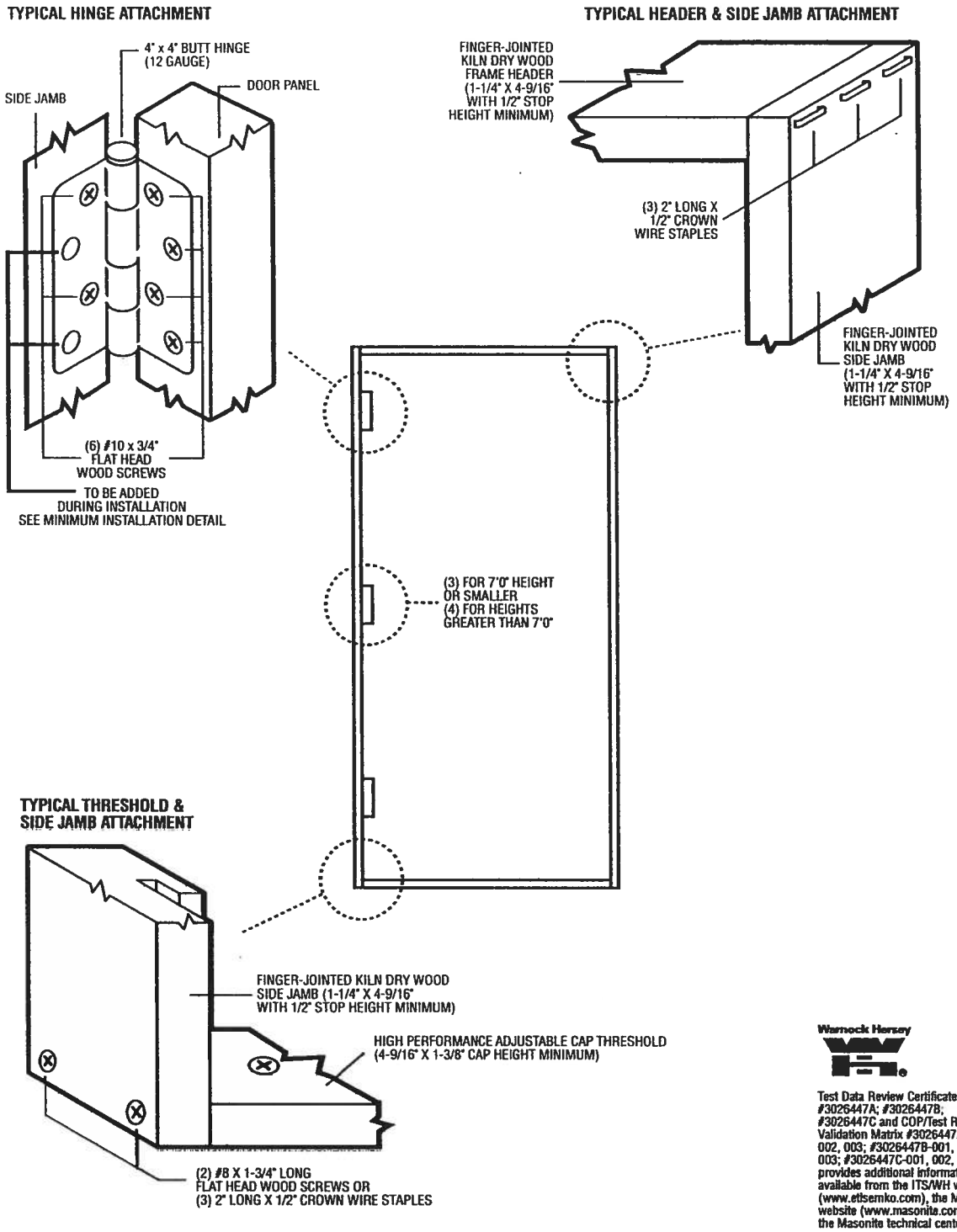
X
Unit

MAD-WL-MA0001-02

INSWING UNIT WITH SINGLE DOOR

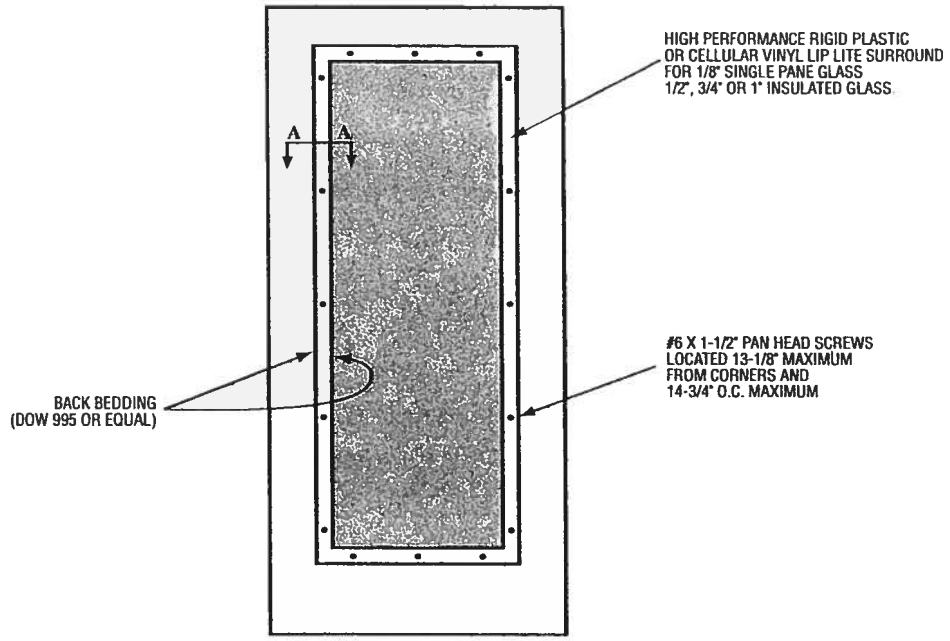


Warnock Hersey

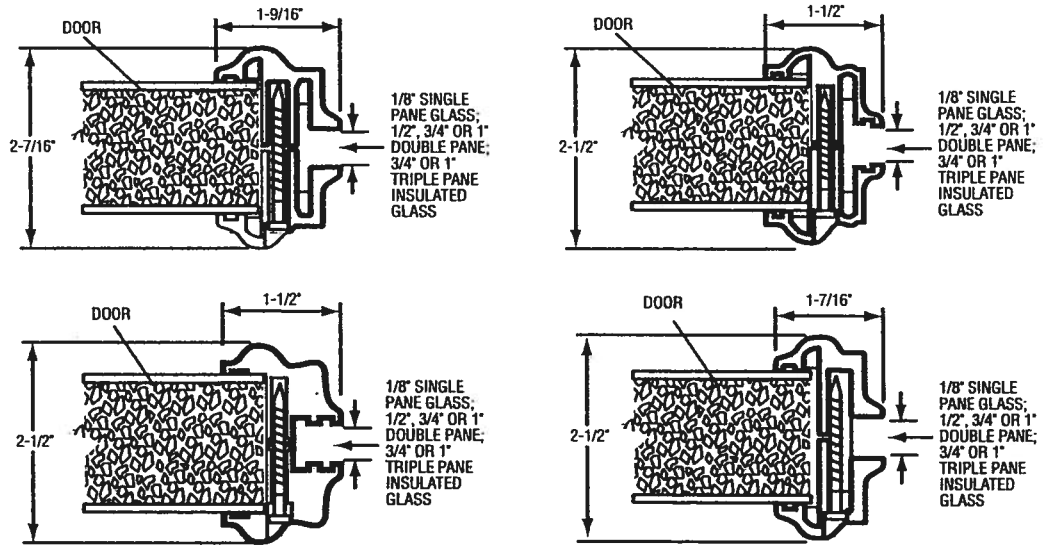
Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

MAD-WL-MA0041-02

GLASS INSERT IN DOOR OR SIDELITE PANEL



SECTION A-A
TYPICAL RIGID PLASTIC LIP LITE SURROUND



*Glass inserts to be sub-listed by Intertek Testing Services/ETL Semko or approved validation service.

Warnock Hersey Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

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PREMDOR Collection Premium Quality Doors
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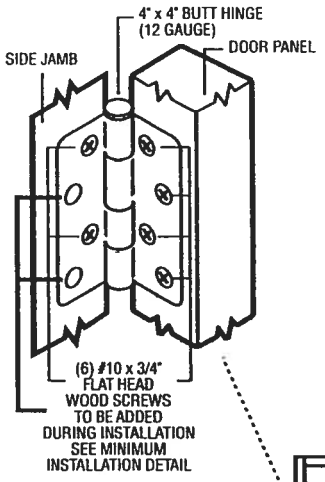
Masonite International Corporation

XX
Unit

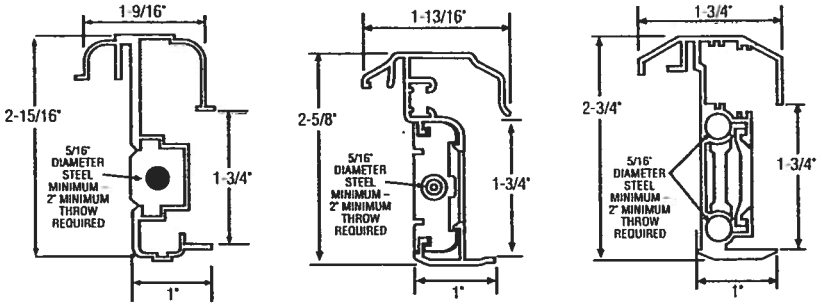
MAD-WL-MA0012-02

OUTSWING UNITS WITH DOUBLE DOOR

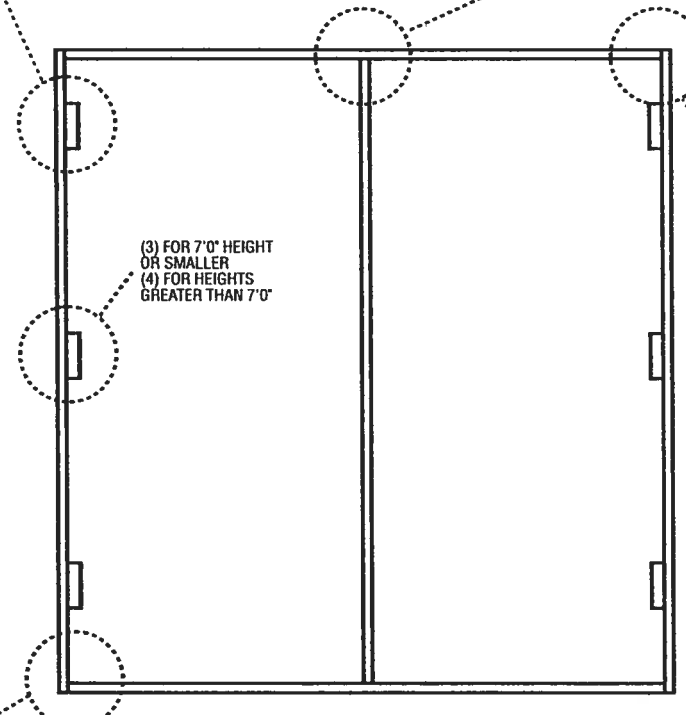
TYPICAL HINGE ATTACHMENT



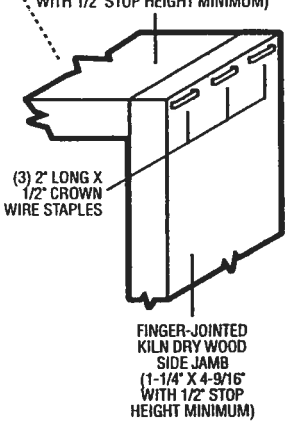
TYPICAL ASTRAGAL PROFILES



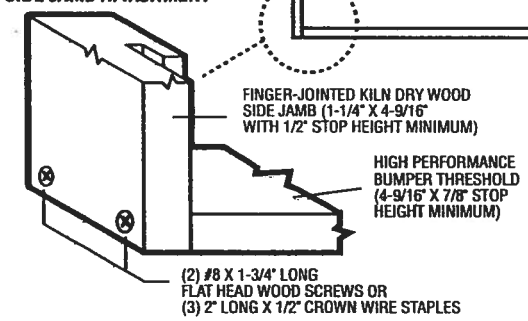
ALUMINUM EXTRUDED ASTRAGAL (0.06" MINIMUM WALL THICKNESS) WITH ADDED REINFORCEMENT INSERTS AT TOP EXTENSION BOLT, BOTTOM EXTENSION BOLT AND CYLINDERICAL/DEADBOLT LATCHING LOCATIONS. ATTACH WITH #8 X 1" PAN HEAD SCREWS – LOCATE 1" FROM EACH END MINIMUM AND 22" O.C. MAXIMUM.



TYPICAL HEADER & SIDE JAMB ATTACHMENT



TYPICAL THRESHOLD & SIDE JAMB ATTACHMENT



Warnock Hersey

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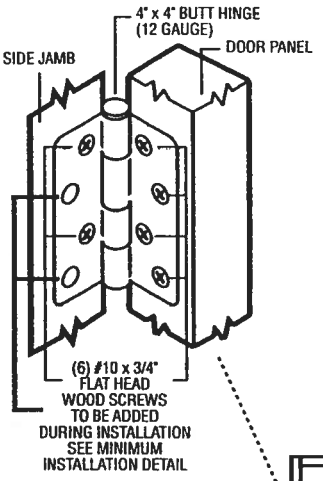
XX
Unit

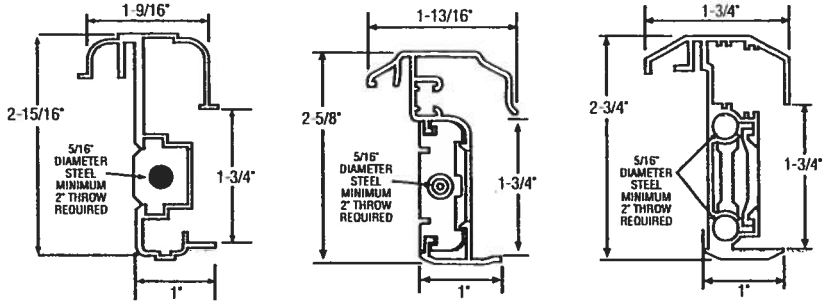
MAD-WL-MA0002-02

INSWING UNIT WITH DOUBLE DOOR

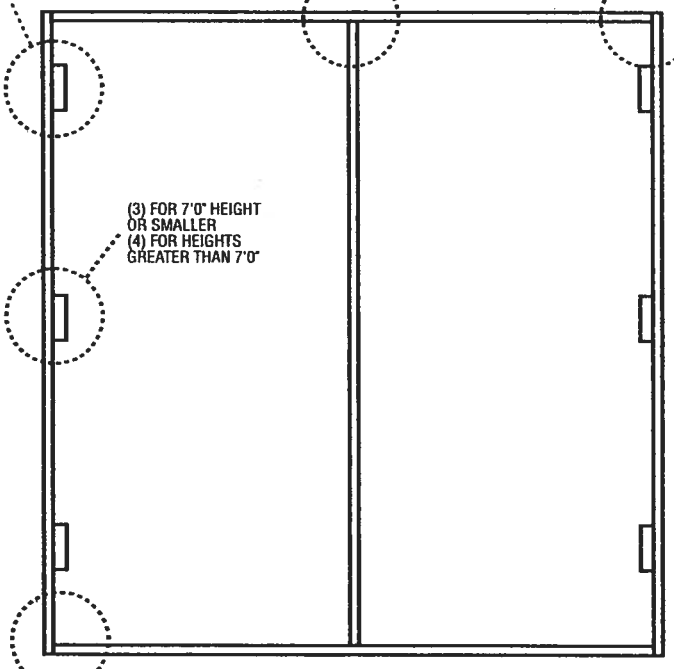
TYPICAL HINGE ATTACHMENT



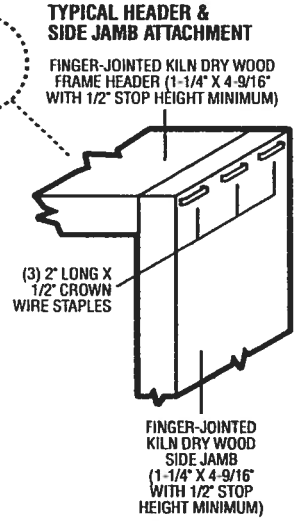
TYPICAL ASTRAGAL PROFILES



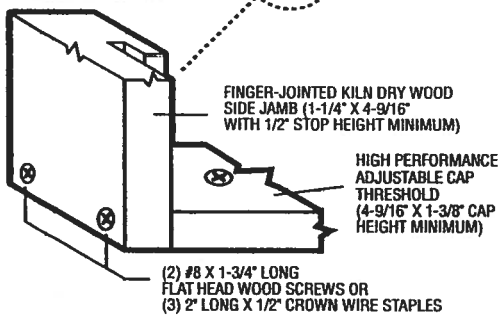
ALUMINUM EXTRUDED ASTRAGAL (0.06" MINIMUM WALL THICKNESS) WITH ADDED REINFORCEMENT INSERTS AT TOP EXTENSION BOLT, BOTTOM EXTENSION BOLT AND CYLINDERICAL/DEADBOLT LATCHING LOCATIONS. ATTACH WITH #8 X 1" PAN HEAD SCREWS – LOCATE 1" FROM EACH END MINIMUM AND 22" O.C. MAXIMUM.



TYPICAL HEADER & SIDE JAMB ATTACHMENT

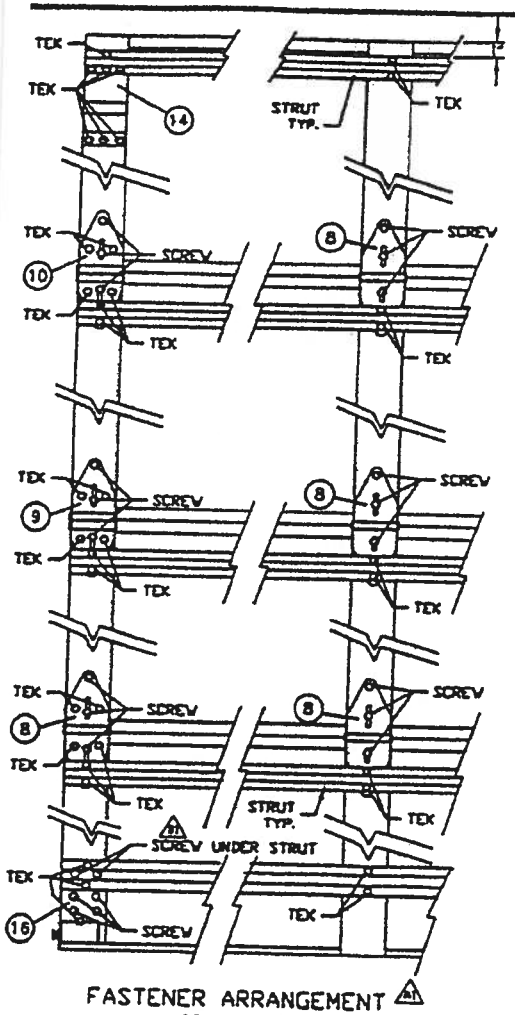


TYPICAL THRESHOLD & SIDE JAMB ATTACHMENT



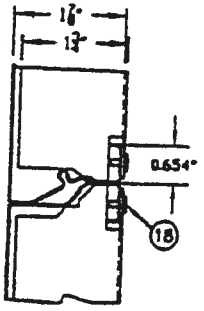
Warnock Hersey

Test Data Review Certificate #3026447A; #3026447B; #3026447C and COP/Test Report Validation Matrix #3026447A-001, 002, 003; #3026447B-001, 002, 003; #3026447C-001, 002, 003 provides additional information - available from the ITS/WH website (www.etlsemko.com), the Masonite website (www.masonite.com) or the Masonite technical center.

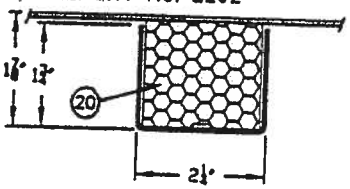


FASTENER ARRANGEMENT

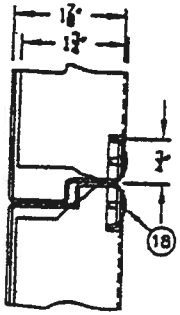
LISTED
SBCCI PST & ESI
REPORT No. 2202



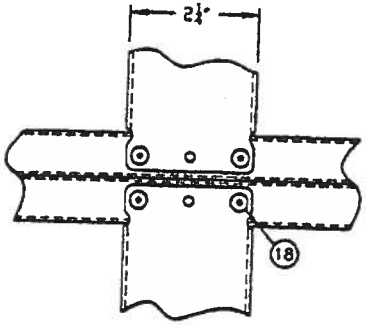
SEC D-D
PAN ATTACHMENT TO STILE (OPTIONAL)



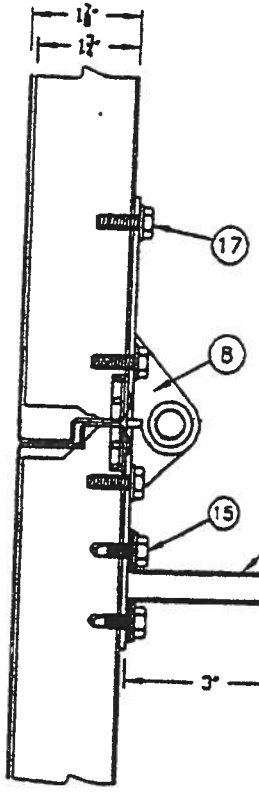
SEC G-G
CENTER STILE
20 GA. GALVANIZED



SEC D-D
PAN ATTACHMENT TO STILE (AS TESTED)

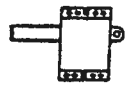


PAN ATTACHMENT TO STILE

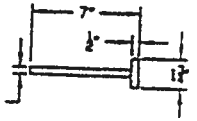


SEC A-A

TRACK
16 GA. (.055 MIN.)

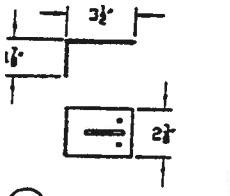


12 SIDE LOCK

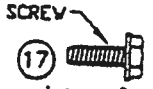


11 ROLLER 10 BALLS

5-3"x20 GA. 80 KSI YIELD STRENGTH HEMMED STRUT APPLIED WITH 2 TEK SCREWS PER HINGE OR STILE LOCATION (14 PER STRUT, MINIMUM)

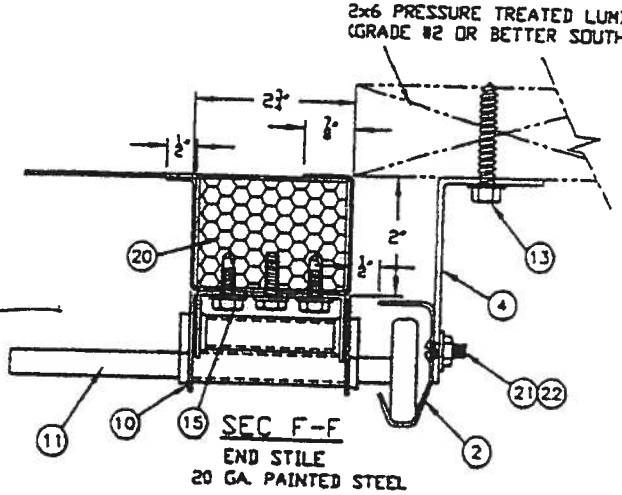


4 #6 JAMB BRACKET

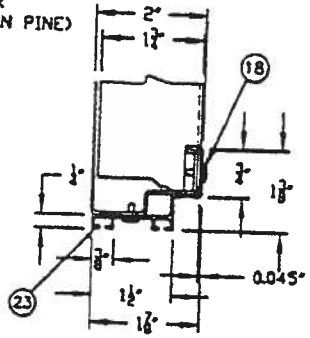


SCREW
17
¼-20 x ¾
HEX WASHERHEAD SCREW

TEK
15
¼-20 x ¾
HWH TEK SCREW WITH #2 REDUCED POINT



SEC F-F
END STILE
20 GA. PAINTED STEEL



SEC E-E

ITEM	PART NO.	DESCRIPTION
23	3485	BOTTOM RAIL 6063 T6 ALUM EXT.
22	1591	1/4"-20 X 5/8" RIBBED NECK SCREW
21	4044	1/4"-20 SERRATED FLANGE NUT
20		LW DENSITY FILLER BLOCK EPS
19		
18	4385	POP RIVET, 5/32" STEEL
17	4229	HEX WASHERHEAD SCREW 1/4"-20 X 3/4"
16	1399LR	BOTTOM ROLLER BRACKET
15	0138	HWH TEK SCREW 1/4-20 X 3/4 W/ REDUCED PT.
14	3875	TOP SUPPORT BRACKET
13	4043	5/16" X 1-5/8" LAG SCREW
12	4710	SIDE LOCK
11	4306	LONG STEM ROLLER 2"
10	4203	ROLLER CARRIER HINGE #3 (14 GA)
9	4202	ROLLER CARRIER HINGE #2 (14 GA)
8	4201	ROLLER CARRIER HINGE #1 (14 GA)
7		COUNTER BALANCE (TORSION BAR & SPRINGS)
6		HORIZONTAL TRACK & ANGLE (16 GA)
5		VERTICAL FLAG ANGLE
4	4585-6	TRACK BRACKET #6 (12 GA)
3		
2		VERTICAL TRACK (16 GA)
1		3" HEMMED STRUT(20 GA) MIN. YIELD STR. 80KSI

REV.	DATE	BY	DESCRIPTION
A	11-27-00	DW	SEE ECN 834
A	12-1-00	DW	SEE ECN 836

GADCO
GENERAL AMERICAN DOOR COMPANY
5050 BASELINE ROAD
MONTGOMERY, IL 60538

SCALE: NONE
DATE 11-7-00
DRAWN BY: D. WIEDMAN
REVISED (B) 12-1-00

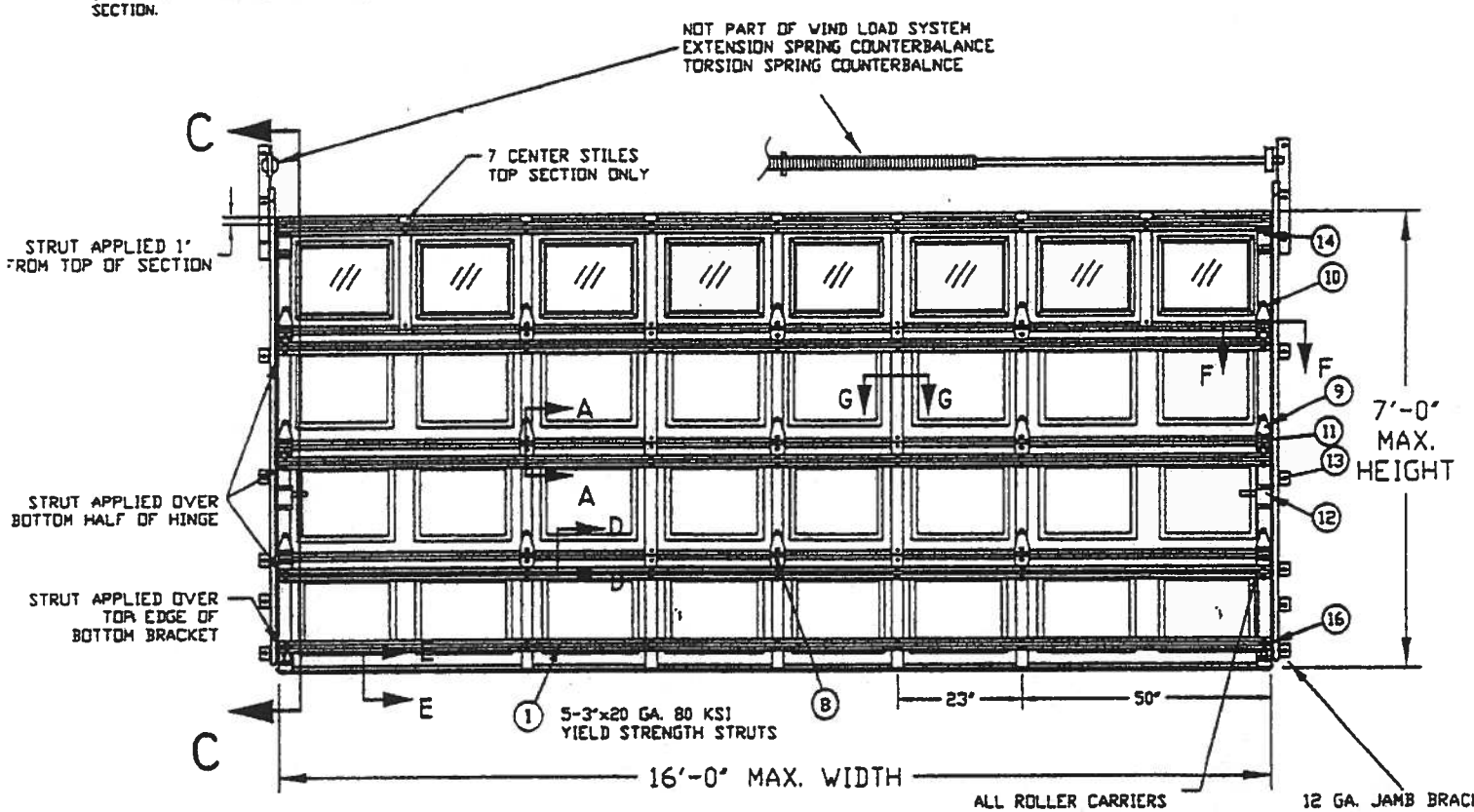
DESCRIPTION
16' X 7' MAX. RAISED PANEL STEEL DOOR-WINDLOAD ±20 PSF

NORTH CAROLINA PROFESSIONAL SEAL PE No. 024280 ENGINEER NADER A. KEYVAN

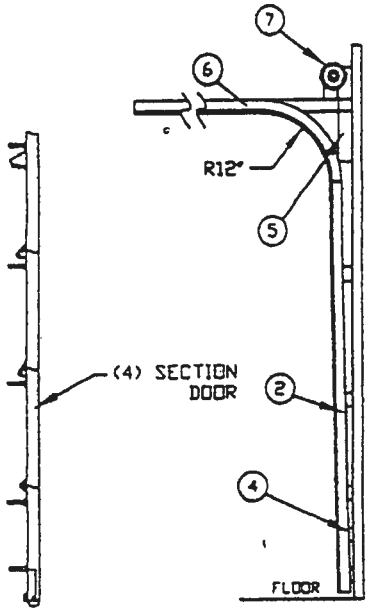
The seal on this drawing only certifies that the product(s) illustrated and described herein represent the configuration(s), dimensions and installation(s) of the door as tested.

NOTES:

1. TESTED TO POSITIVE AND NEGATIVE 20 PSF DESIGN AND POSITIVE AND NEGATIVE 30 PSF TEST PRESSURES PER ASTM E-330
2. MAXIMUM SECTION HEIGHT= 21"
3. SECTION HEIGHTS OF 21.00" AND 19.50" ARE AVAILABLE AND MAY BE USED IN ANY COMBINATION TO ACHIEVE VARIOUS DOOR HEIGHTS.
4. WINDOWS MAY BE INSTALLED IN THE TOP SECTION. (AS TESTED WITH 1/8" DSB GLASS OR EQUIVALENT) OR IN THE SECTION IMMEDIATELY BELOW THE TOP SECTION.
5. MINIMUM LENGTH OF ROLLER STEM IS 5|" (7" AS TESTED)
6. THE STRUT PLACEMENT ON DOOR MUST BE CONSISTENT WITH THE DOOR SHOWN.
7. STRUTS SECURED AT ALL LOCATIONS WITH TEK SCREWS.
8. QUANTITY OF SIDE LOCKS CAN BE 0,1, OR (2 AS TESTED).
9. ⚠ DROP IN TYPE OF INSULATION IS OPTIONAL



INSIDE ELEVATION



SEC C-C

VERTICAL TRACK, (16 GA.)

12 GA. JAMB BRACKETS, MAXIMUM SPACING = 19-1/2" WITH LOVEST BRACKET APPROX. 3" FROM FLOOR, 2ND BRACKET NEAR THE HORIZONTAL ℄ OF THE BOTTOM SECTION, AND 3RD BRACKET NEAR THE TOP OF THE BOTTOM SECTION

The seal on this drawing only certifies that the product(s) illustrated and described herein represent the configuration(s), dimensions and installation(s) of the door as tested.

SEAL
PE No. 024280
ROGER R. REYVAN
ENGINEER
NORTH CAROLINA PROFESSIONAL

LISTED
SBCCI PST & ESI
REPORT No. 2202

TEST REPORTS ON FILE VIDEO 10/19/00 (00293)

DESIGN LOAD +20.0 PSF & -20.0 PSF
TEST LOAD +30.0 PSF & -30.0 PSF

GADCO DOORS
SERIES 7400, EXTERIOR STEEL =.017 MIN (AS TESTED)
SERIES 7825, EXTERIOR STEEL =.019" MIN ⚠
SERIES 7524, EXTERIOR STEEL =.024" MIN ⚠
(TESTED) WITH WINDOWS

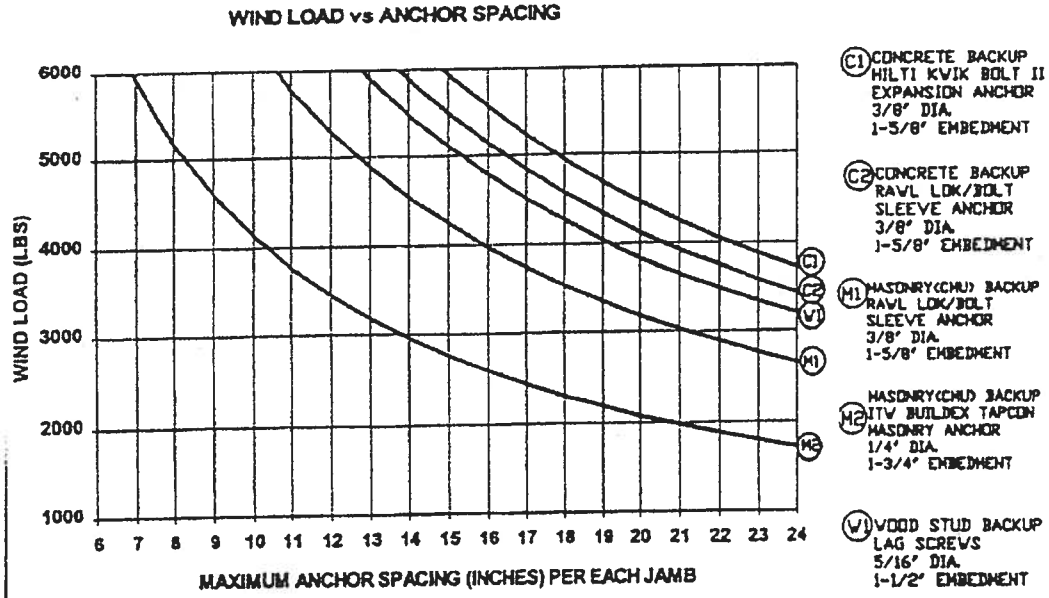
MAXIMUM DOOR WIDTH	MAXIMUM DOOR HEIGHT	TYPICAL CTR. STILE SPACING	STRUTS 80 KSI SIZE	STRUTS 80 KSI QTY.	VERTICAL TRACK
16'	7'	23"	3"	5	2 IN.

GADCO®
GENERAL AMERICAN DOOR COMPANY
5050 BASELINE ROAD
MONTGOMERY, IL 60538

SCALE: 1/25	APPROVED BY:	DRAWN BY: B. WIEDMAN
DATE: 10-20-00		REVISED (A) 11-10-00

DESCRIPTION: 16' X 7' MAX. RAISED PANEL STEEL DOOR -WINDLOAD ±20 PSF

PART NUMBER: PAGE 1 OF 2 — DRAWING NUMBER: W13220-1



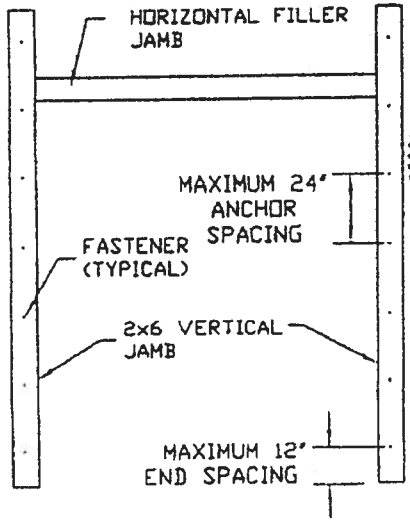
DESIGN LOAD $\frac{(LBS)}{FT^2}$ X GARAGE DOOR AREA(WIDTH-FT X HEIGHT-FT) = WIND LOAD(LBS)

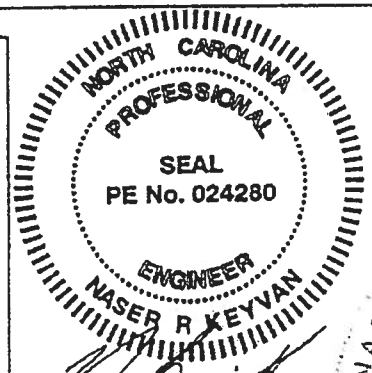
EXAMPLE

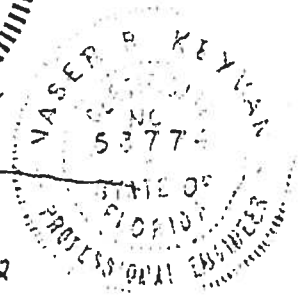
$\frac{30\ LBS}{FT^2}$ X (16 FT WIDE X 8 FT HIGH) = 3840 LBS

- (C1) USE 22" SPACING
- (C2) USE 21" SPACING
- (V1) USE 19" SPACING
- (M1) USE 16" SPACING
- (M2) USE 10" SPACING

SEE NOTE 11 FOR ADDITIONAL REQUIRED 2X6 WOOD JAMB ANCHORS







2x6 JAMB TO SUPPORTING STRUCTURE ATTACHMENT

2x6 PRESSURE TREATED (GRADE #2 OR BETTER SOUTHERN PINE) WOOD JAMB SHALL BE ANCHORED TO BUILDING WOOD FRAME, GROUTED AND REINFORCED CONCRETE MASONRY UNIT (CMU) WALLS OR COLUMNS, OR REINFORCED CONCRETE COLUMNS.

NOTES:

1) ALL DOOR OPENING SURROUNDING STRUCTURE TO BE DESIGNED BY REGISTERED ENGINEER OR ARCHITECT WITH DUE CONSIDERATION GIVEN TO INSTALLATIONS USING CENTER 'HURRICANE' POSTS.

2) ALL DOOR OPENING STRUCTURE AND FASTENERS TO COMPLY WITH ALL APPLICABLE CODES INCLUDING SBCCI 'STANDARD FOR HURRICANE RESISTANT RESIDENTIAL CONSTRUCTION: SSTD 10,' CURRENT EDITION.

3) ALL FASTENERS TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS, INSTRUCTIONS AND RECOMMENDATIONS.

4) WOOD FRAME BUILDINGS: STUDS AT EACH SIDE OF DOOR OPENING SHALL BE PROPERLY DESIGNED, CONNECTED, ANCHORED AND SHALL CONSIST OF A MINIMUM OF THREE (3) LAMINATIONS OF 2X6 PRESSURE TREATED SOUTHERN PINE (#2 GRADE OR BETTER) WALL STUDS CONTINUOUS FROM FOOTING TO DOUBLE TOP PLATE.

5) REINFORCED CMU OR CONCRETE: 2X6 WOOD JAMB SHALL BE ANCHORED TO SOLIDLY GROUTED AND REINFORCED CONCRETE MASONRY UNIT (CMU) WALLS OR COLUMNS, OR REINFORCED CONCRETE COLUMNS. ANCHOR SPACING AND EMBEDMENT IS BASED ON CONCRETE MASONRY UNITS COMPLYING WITH ASTM C90 WITH A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 2150 PSI; GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI; REINFORCED CONCRETE COLUMNS WITH A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI.

6) EMBEDMENTS LISTED ARE THE MINIMUM ALLOWABLE EMBEDMENTS.

7) ANCHORS FOR CONCRETE AND CONCRETE MASONRY UNITS (CMU) SHALL HAVE A MINIMUM 3" EDGE DISTANCE FROM ALL EDGES OF CONCRETE OR CONCRETE MASONRY UNITS. ANCHORS FOR CONCRETE AND CMU SHALL HAVE A MINIMUM SPACING OF 3-3/4"

8) LAG SCREWS SHALL BE CENTERED IN ONE OF THE 1-1/2" DIMENSION FACES OF THE TRIPLE 2X6 WALL STUDS.

9) WASHERS ARE REQUIRED ON ALL FASTENERS.

10) THE WIND LOAD VS. ANCHOR SPACING CHART IS FOR A MAXIMUM DOOR SIZE OF 18' X 8' AT A MAXIMUM 42 PSF DESIGN WIND LOAD.

11) FOR THE UPPER THREE INDIVIDUAL STEEL JAMB BRACKETS, BRACKETS SHALL BE CENTERED BETWEEN THE TWO CLOSEST 2X6 WOOD JAMB ANCHORS. IF THE STEEL JAMB BRACKET IS NOT CENTERED BETWEEN THE TWO CLOSEST 2X6 WOOD JAMB ANCHORS, ADD AN ADDITIONAL 2X6 WOOD JAMB ANCHOR NEAR THAT STEEL BRACKET TO INSURE THAT THE LOAD FROM THE STEEL BRACKET IS EQUALLY TRANSFERRED TO TWO WOOD JAMB ANCHORS.

GADCO

GENERAL AMERICAN DOOR COMPANY
5050 BASELINE ROAD
MONTGOMERY, IL 60538

SCALE NONE	APPROVED BY	DRAWN BY DV
DATE 8-30-99		REVISED
DESCRIPTION JAMB TO STRUCTURE ATTACHMENT FOR WIND LOADED GARAGE DOORS		
	MASTER DRAWING NUMBER A10560	DRAWING NUMBER

78-2160

TAMKO ROOFING PRODUCTS

January 31, 2002

TO: OUR FLORIDA CUSTOMERS:

Effective February 1, 2002, the following TAMKO shingles, as manufactured at TAMKO's Tuscaloosa, Alabama, facility, comply with ASTM D-3161, Type I modified to 110 mph. Testing was conducted using four nails per shingle. These shingles also comply with Florida Building Code TAS 100 for wind driven rain.

- Glass-Seal AR
- Elite Glass-Seal AR
- ASTM Heritage 30 AR (formerly ASTM Heritage 25 AR)
- Heritage 40 AR (formerly Heritage 30 AR)
- Heritage 50 AR (formerly Heritage 40 AR)

All testing was performed by Florida State certified independent labs.

Please direct all questions to TAMKO's Technical Services Department at 1-800-641-4691.

TAMKO Roofing Products, Inc.

Residential System Sizing Calculation

Summary

Shircliff Residence

Lake City, FL 32025-

Project Title:
Aaron Simque Homes - Shircliff Residence

Class 3 Rating
Registration No. 0
Climate: North

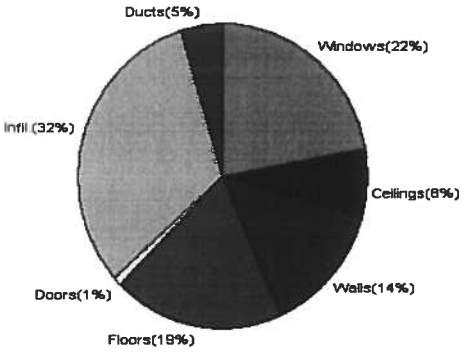
3/1/2005

Location for weather data: Gainesville - User customized: Latitude(29) Temp Range(M)					
Humidity data: Interior RH (50%) Outdoor wet bulb (78F) Humidity difference(51gr.)					
Winter design temperature	31	F	Summer design temperature	99	F
Winter setpoint	70	F	Summer setpoint	75	F
Winter temperature difference	39	F	Summer temperature difference	24	F
Total heating load calculation	**41146**	**Btuh**	**Total cooling load calculation**	**48365**	**Btuh**
Submitted heating capacity	49000	Btuh	Submitted cooling capacity	49000	Btuh
Submitted as % of calculated	119.1	%	Submitted as % of calculated	101.3	%

WINTER CALCULATIONS

Winter Heating Load (for 2268 sqft)

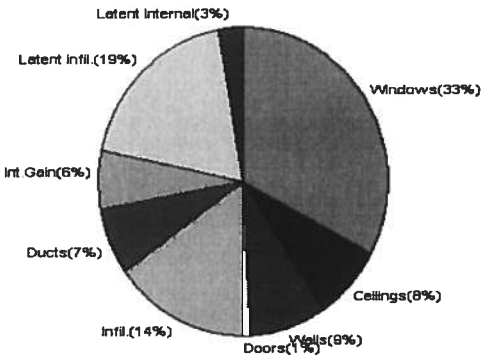
Load component			Load	
Window total	325	sqft	9198	Btuh
Wall total	1939	sqft	5625	Btuh
Door total	40	sqft	376	Btuh
Ceiling total	2400	sqft	3120	Btuh
Floor total	249	ft	7868	Btuh
Infiltration	303	cfm	12999	Btuh
Subtotal			**39186**	**Btuh**
Duct loss			1959	Btuh
TOTAL HEAT LOSS			**41146**	**Btuh**



SUMMER CALCULATIONS

Summer Cooling Load (for 2268 sqft)

Load component			Load	
Window total	325	sqft	15922	Btuh
Wall total	1939	sqft	4125	Btuh
Door total	40	sqft	518	Btuh
Ceiling total	2400	sqft	3792	Btuh
Floor total			0	Btuh
Infiltration	265	cfm	6999	Btuh
Internal gain			3000	Btuh
Subtotal(sensible)			**34355**	**Btuh**
Duct gain			3436	Btuh
Total sensible gain			**37791**	**Btuh**
Latent gain(infiltration)			9195	Btuh
Latent gain(internal)			1380	Btuh
Total latent gain			**10575**	**Btuh**
TOTAL HEAT GAIN			**48365**	**Btuh**



EnergyGauge® System Sizing based on ACCA Manual J.

PREPARED BY: _____

DATE: _____

System Sizing Calculations - Winter

Residential Load - Component Details

Shircliff Residence
Lake City, FL 32025-

Project Title:
Aaron Simque Homes - Shircliff Residence

Class 3 Rating
Registration No. 0
Climate: North

Reference City: Gainesville (User customized) Winter Temperature Difference: 39.0 F

3/1/2005

Window	Panes/SHGC/Frame/U	Orientation	Area X	HTM=	Load
1	2, Clear, Metal, DEF	SW	12.0	28.3	340 Btuh
2	2, Clear, Metal, DEF	W	18.0	28.3	509 Btuh
3	2, Clear, Metal, DEF	NW	12.0	28.3	340 Btuh
4	2, Clear, Metal, DEF	W	40.0	28.3	1132 Btuh
5	2, Clear, Metal, DEF	W	32.0	28.3	906 Btuh
6	2, Clear, Metal, DEF	N	6.0	28.3	170 Btuh
7	2, Clear, Metal, DEF	N	24.0	28.3	679 Btuh
8	2, Clear, Metal, DEF	E	126.0	28.3	3566 Btuh
9	2, Clear, Metal, DEF	E	40.0	28.3	1132 Btuh
10	2, Clear, Metal, DEF	S	15.0	28.3	424 Btuh
	Window Total		325		9198 Btuh
Walls	Type	R-Value	Area X	HTM=	Load
1	Frame - Exterior	13.0	1682	3.1	5214 Btuh
2	Frame - Adjacent	13.0	257	1.6	411 Btuh
	Wall Total		1939		5625 Btuh
Doors	Type		Area X	HTM=	Load
1	Insulated - Adjac		20	9.4	188 Btuh
2	Insulated - Adjac		20	9.4	188 Btuh
	Door Total		40		376Btuh
Ceilings	Type	R-Value	Area X	HTM=	Load
1	Under Attic	30.0	2400	1.3	3120 Btuh
	Ceiling Total		2400		3120Btuh
Floors	Type	R-Value	Size X	HTM=	Load
1	Slab-On-Grade Edge Insul	0	249.0 ft(p)	31.6	7868 Btuh
	Floor Total		249		7868 Btuh
Infiltration	Type	ACH X	Building Volume	CFM=	Load
	Natural	0.80	22680(sqft)	303	12999 Btuh
	Mechanical			0	0 Btuh
	Infiltration Total			303	12999 Btuh

Totals for Heating	**Subtotal**	**39186 Btuh**
	Duct Loss(using duct multiplier of 0.05)	**1959 Btuh**
	Total Btuh Loss	**41146 Btuh**

Key: Window types (SHGC - Shading coefficient of glass as SHGC numerical value or as clear or tint)
(Frame types - metal, wood or insulated metal)
(U - Window U-Factor or 'DEF' for default)
(HTM - ManualJ Heat Transfer Multiplier)

Key: Floor size (perimeter(p) for slab-on-grade or area for all other floor types)

System Sizing Calculations - Summer

Residential Load - Component Details

Shircliff Residence
Lake City, FL 32025-

Project Title:
Aaron Simque Homes - Shircliff Residence

Class 3 Rating
Registration No. 0
Climate: North

Reference City: Gainesville (User customized) Summer Temperature Difference: 24.0 F 3/1/2005

Window	Type Panes/SHGC/U/InSh/ExSh	Ornt	Overhang Len	 Hgt	Window Area(sqft) Gross	 Shaded	 Unshaded	HTM Shaded	 Unshaded	Load	
1	2, Clear, DEF, N, N	SW	10.5	7	12.0	12.0	0.0	25	65	300	Btuh
2	2, Clear, DEF, N, N	W	13.5	7	18.0	18.0	0.0	25	74	450	Btuh
3	2, Clear, DEF, N, N	NW	15.5	7	12.0	0.0	12.0	25	53	636	Btuh
4	2, Clear, DEF, N, N	W	17.5	9.66	40.0	40.0	0.0	25	74	1000	Btuh
5	2, Clear, DEF, N, N	W	1.5	6	32.0	5.1	26.9	25	74	2118	Btuh
6	2, Clear, DEF, N, N	N	1.5	5	6.0	0.0	6.0	25	25	150	Btuh
7	2, Clear, DEF, N, N	N	1.5	7	24.0	0.0	24.0	25	25	600	Btuh
8	2, Clear, DEF, N, N	E	1.5	7	126.0	22.4	103.6	25	74	8226	Btuh
9	2, Clear, DEF, N, N	E	7.5	9.66	40.0	18.2	21.8	25	74	2067	Btuh
10	2, Clear, DEF, N, N	S	1.5	6	15.0	15.0	0.0	25	39	375	Btuh
	Window Total				325					15922	Btuh

Walls	Type	R-Value	Area	HTM	Load	
1	Frame - Exterior	13.0	1682.0	2.2	3734	Btuh
2	Frame - Adjacent	13.0	257.0	1.5	391	Btuh
	Wall Total		1939.0		4125	Btuh

Doors	Type	Area	HTM	Load	
1	Insulated - Adjac	20.0	12.9	259	Btuh
2	Insulated - Adjac	20.0	12.9	259	Btuh
	Door Total	40.0		518	Btuh

Ceilings	Type/Color	R-Value	Area	HTM	Load	
1	Under Attic/Dark	30.0	2400.0	1.6	3792	Btuh
	Ceiling Total		2400.0		3792	Btuh

Floors	Type	R-Value	Size	HTM	Load	
1	Slab-On-Grade Edge Insulation	0.0	249.0 ft(p)	0.0	0	Btuh
	Floor Total		249.0		0	Btuh

Infiltration	Type	ACH	Volume	CFM=	Load	
	Natural	0.70	22680	265.1	6999	Btuh
	Mechanical			0	0	Btuh
	Infiltration Total			265	6999	Btuh

Internal gain		Occupants		Btuh/occupant		Appliance	Load	
		6	X	300	+	1200	3000	Btuh

Manual J Summer Calculations

Residential Load - Component Details (continued)

Shircliff Residence

Lake City, FL 32025-

Project Title:
Aaron Simque Homes - Shircliff Residence

Class 3 Rating
Registration No. 0
Climate: North

3/1/2005

Totals for Cooling	**Subtotal**	**34355**	**Btuh**
	Duct gain(using duct multiplier of 0.10)	**3436**	**Btuh**
	Total sensible gain	**37791**	**Btuh**
	Latent infiltration gain (for 51 gr. humidity difference)	**9195**	**Btuh**
	Latent occupant gain (6 people @ 230 Btuh per person)	**1380**	**Btuh**
	Latent other gain	**0**	**Btuh**
	TOTAL GAIN	**48365**	**Btuh**

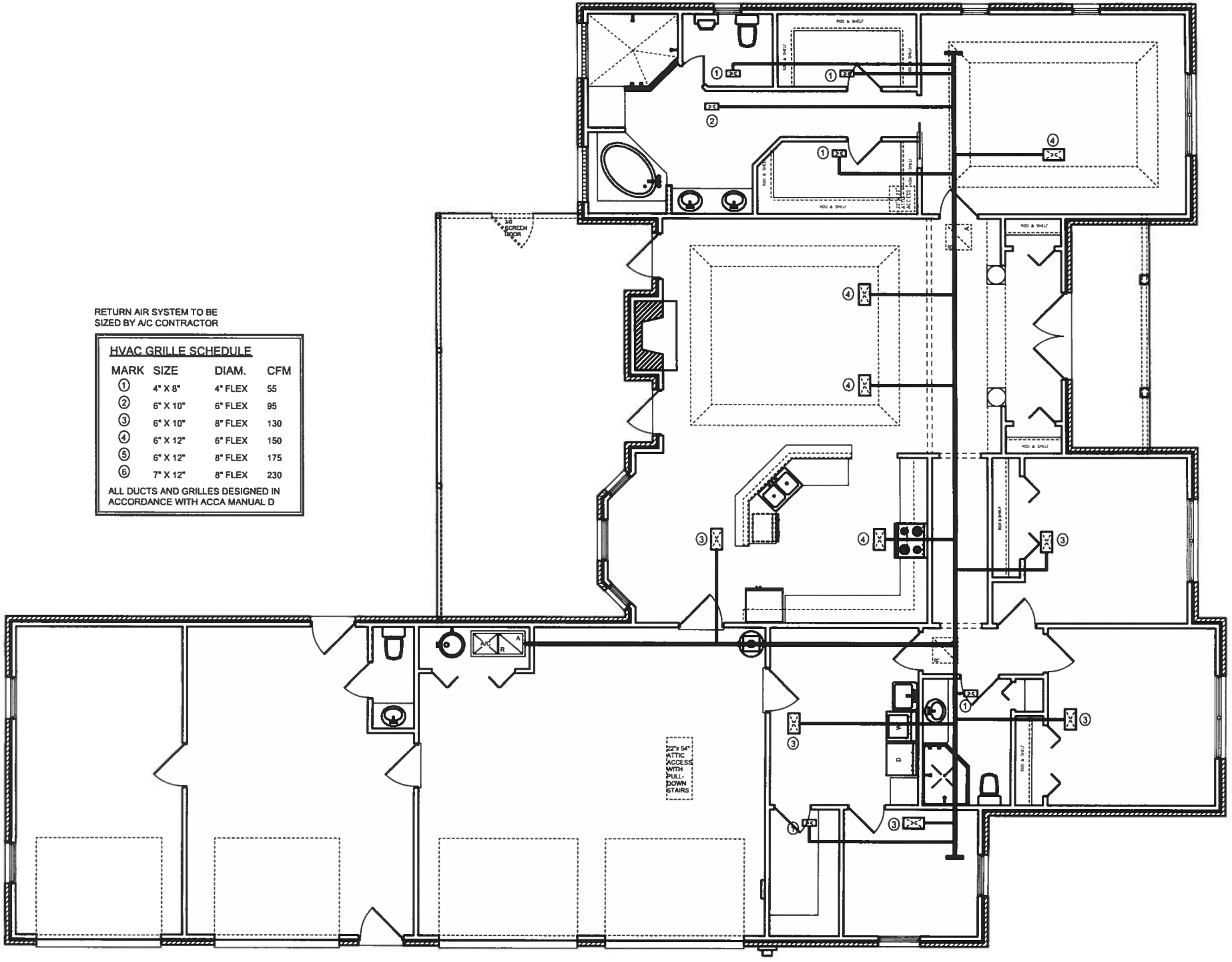
Key: Window types (SHGC - Shading coefficient of glass as SHGC numerical value or as clear or tint)
(U - Window U-Factor or 'DEF' for default)
(InSh - Interior shading device: none(N), Blinds/Daperies(B) or Roller Shades(R))
(ExSh - Exterior shading device: none(N) or numerical value)
(Ornt - compass orientation)

RETURN AIR SYSTEM TO BE
SIZED BY A/C CONTRACTOR

HVAC GRILLE SCHEDULE

MARK	SIZE	DIAM.	CFM
①	4" X 8"	4" FLEX	55
②	6" X 10"	6" FLEX	95
③	6" X 10"	8" FLEX	130
④	6" X 12"	6" FLEX	150
⑤	6" X 12"	8" FLEX	175
⑥	7" X 12"	8" FLEX	230

ALL DUCTS AND GRILLES DESIGNED IN ACCORDANCE WITH ACCA MANUAL D



HVAC PLAN

COLUMBIA COUNTY BUILDING DEPARTMENT

RESIDENTIAL MINIMUM PLAN REQUIREMENTS AND CHECKLIST FOR FLORIDA BUILDING CODE 2001
ONE (1) AND TWO (2) FAMILY DWELLINGS

ALL REQUIREMENTS ARE SUBJECT TO CHANGE
EFFECTIVE MARCH 1, 2002

ALL BUILDING PLANS MUST INDICATE THE FOLLOWING ITEMS AND INDICATE COMPLIANCE WITH CHAPTER 1606 OF THE FLORIDA BUILDING CODE 2001 BY PROVIDING CALCULATIONS AND DETAILS THAT HAVE THE SEAL AND SIGNATURE OF A CERTIFIED ARCHITECT OR ENGINEER REGISTERED IN THE STATE OF FLORIDA, OR ALTERNATE METHODOLOGIES, APPROVED BY THE STATE OF FLORIDA BUILDING COMMISSION FOR ONE-AND-TWO FAMILY DWELLINGS. FOR DESIGN PURPOSES THE FOLLOWING BASIC WIND SPEED AS PER FIGURE 1606 SHALL BE USED.

WIND SPEED LINE SHALL BE DEFINED AS FOLLOWS: THE CENTERLINE OF INTERSTATE 75.

1. ALL BUILDINGS CONSTRUCTED EAST OF SAID LINE SHALL BE ——— 100 MPH
2. ALL BUILDINGS CONSTRUCTED WEST OF SAID LINE SHALL BE ———110 MPH
3. NO AREA IN COLUMBIA COUNTY IS IN A WIND BORNE DEBRIS REGION

APPLICANT – PLEASE CHECK ALL APPLICABLE BOXES BEFORE SUBMITTAL

GENERAL REQUIREMENTS; Two (2) complete sets of plans containing the following:

Applicant	Plans Examiner	
☐	☐	All drawings must be clear, concise and drawn to scale ("Optional " details that are not used shall be marked void or crossed off). Square footage of different areas shall be shown on plans.
☐	☐	Designers name and signature on document (FBC 104.2.1). If licensed architect or engineer, official seal shall be affixed. WILLIAM MYE MARK DISOSWAY
☐	☑	**Site Plan including:** See ATTACH SITE PLAN a) Dimensions of lot b) Dimensions of building set backs c) Location of all other buildings on lot, well and septic tank if applicable, and all utility easements. d) Provide a full legal description of property. PROPERTY APPRAISER
☐	☑	**Wind-load Engineering Summary, calculations and any details required** a) Plans or specifications must state compliance with FBC Section 1606 CERTIFICATION b) The following information must be shown as per section 1606.1.7 FBC BY MARK DISOS See Sheet S-1 a. Basic wind speed (MPH) 110 b. Wind importance factor (I) and building category I II c. Wind exposure – if more than one wind exposure is used, the wind exposure and applicable wind direction shall be indicated B d. The applicable internal pressure coefficient e. Components and Cladding. The design wind pressure in terms of psf (kN/m²), to be used for the design of exterior component and cladding materials not specifally designed by the registered design professional
☐	☑	**Elevations including:**
☐	☑	a) All sides
☐	☑	b) Roof pitch 12/8
☐	☑	c) Overhang dimensions and detail with attic ventilation 24" MAX CONTINUOUS Ridge VENT
☐	☑	d) Location, size and height above roof of chimneys NONE SHOWN ON ELEVATIONS
☐	☑	e) Location and size of skylights NONE SHOWN ON ELEVATION PLAN
☐	☑	f) Building height 25 1/2" PLUS FOUNDATION
☐	☑	e) Number of stories 1

Floor Plan including:

- ☐ ☑ a) Rooms labeled and dimensioned
- ☐ ☑ b) Shear walls Sheet S-3 TYP. 138.5 LONG. 61.5 SEE ATTACHED PACKAGE GLASS BLOCKS
- ☐ ☑ c) Windows and doors (including garage doors) showing size, mfg., approval listing and attachment specs. (FBC 1707) and safety glazing where needed (egress windows in bedrooms to be shown) ALL FOUR BEDROOM SHOW EGRESS
- ☐ ☑ d) Fireplaces (gas appliance) (vented or non-vented) or wood burning with hearth
- ☐ ☑ e) Stairs with dimensions (width, tread and riser) and details of guardrails and handrails
- ☐ ☑ f) Must show and identify accessibility requirements (accessible bathroom) BOTH BATHROOM

Foundation Plan including:

- ☐ ☑ a) Location of all load-bearing wall with required footings indicated as standard Or monolithic and dimensions and reinforcing See Sheet S-2
- ☐ ☑ b) All posts and/or column footing including size and reinforcing See sheet S-2 F-5
- ☐ ☑ c) Any special support required by soil analysis such as piling
- ☐ ☑ d) Location of any vertical steel

Roof System:

- ☐ ☑ a) Truss package including: FirstSource Builders
  1. Truss layout and truss details signed and sealed by Fl. Pro. Eng. THOMAS L MILLER
  2. Roof assembly (FBC 104.2.1 Roofing system, materials, manufacturer, fastening requirements and product evaluation with wind resistance rating) See Sheet S-1 ANCHOR TABLE
- ☐ ☑ b) Conventional Framing Layout including:
  1. Rafter size, species and spacing
  2. Attachment to wall and uplift
  3. Ridge beam sized and valley framing and support details
  4. Roof assembly (FBC 104.2.1 Roofing systems, materials, manufacturer, fastening requirements and product evaluation with wind resistance rating)

Wall Sections including:

- ☐ ☑ a) Masonry wall
  1. All materials making up wall
  2. Block size and mortar type with size and spacing of reinforcement
  3. Lintel, tie-beam sizes and reinforcement
  4. Gable ends with rake beams showing reinforcement or gable truss and wall bracing details
  5. All required connectors with uplift rating and required number and size of fasteners for continuous tie from roof to foundation
  6. Roof assembly shown here or on roof system detail (FBC 104.2.1 Roofing system, materials, manufacturer, fastening requirements and product evaluation with resistance rating)
  7. Fire resistant construction (if required)
  8. Fireproofing requirements
  9. Shoe type of termite treatment (termiticide or alternative method)
  10. Slab on grade
      a. Vapor retarder (6mil. Polyethylene with joints lapped 6 inches and sealed)
      b. Must show control joints, synthetic fiber reinforcement or Welded fire fabric reinforcement and supports
  11. Indicate where pressure treated wood will be placed
  12. Provide insulation R value for the following:
      a. Attic space
      b. Exterior wall cavity
      c. Crawl space (if applicable)

☐ ☑ b) Wood frame wall

1. All materials making up wall
2. Size and species of studs 2X4/6 ON 16" OC
3. Sheathing size, type and nailing schedule 7/16 OSB
4. Headers sized See Sheet S-3 Header legend — 10X7 OHd For Garage Headers
5. Gable end showing balloon framing detail or gable truss and wall hinge bracing detail Sheet S-1 TYPICAL GABLE END X BRACING
6. All required fasteners for continuous tie from roof to foundation (truss anchors, straps, anchor bolts and washers)
7. Roof assembly shown here or on roof system detail (FBC104.2.1 Roofing system, materials, manufacturer, fastening requirements and product evaluation with wind resistance rating) Sheet S-1 Anchor TABLE
8. Fire resistant construction (if applicable)
9. Fireproofing requirements See ONE STORY WALL SECTION Sheet S-1
10. Show type of termite treatment (termiticide or alternative method) Sheet
11. Slab on grade Sheet S-2
    a. Vapor retarder (6Mil. Polyethylene with joints lapped 6 inches and sealed
    b. Must show control joints, synthetic fiber reinforcement or welded wire fabric reinforcement and supports
12. Indicate where pressure treated wood will be placed
13. Provide insulation R value for the following:
    a. Attic space R-30 Sheet A1
    b. Exterior wall cavity R-13
    c. Crawl space (if applicable)

☐ ☑ X c) Metal frame wall and roof (designed, signed and sealed by Florida Prof. Engineer or Architect)

Floor Framing System:

☐ ☑ a) Floor truss package including layout and details, signed and sealed by Florida Registered Professional Engineer

☐ ☐ b) Floor joist size and spacing

☐ ☐ X c) Girder size and spacing

☐ ☐ d) Attachment of joist to girder

☐ ☐ e) Wind load requirements where applicable

☐ ☑ **Plumbing Fixture layout**

Electrical layout including:

☐ ☑ a) Switches, outlets/receptacles, lighting and all required GFCI outlets identified

☐ ☑ b) Ceiling fans 3

☐ ☑ c) Smoke detectors 5

☐ ☑ d) Service panel and sub-panel size and location(s) IN GARAGE

☐ ☑ e) Meter location with type of service entrance (overhead or underground) UNKNOWN

☐ ☑ f) Appliances and HVAC equipment

☐ ☑ g) Arc Fault Circuits (AFCI) in bedrooms See ELECTRICAL NOTES Sheet A.4

HVAC information

☐ ☑ a) Manual J sizing equipment or equivalent computation

☐ ☑ b) Exhaust fans in bathroom

☐ ☑ **Energy Calculations** (dimensions shall match plans) DO MATCH

☐ ☐ **Gas System** Type (LP or Natural) Location and BTU demand of equipment

X **Disclosure Statement for Owner Builders**

Notice Of Commencement NOT AS OF 3-22-05

Private Potable Water

a) Size of pump motor LYNCH WELL DRILLING

b) Size of pressure tank

c) Cycle stop valve if used

MI HOME PRODUCTS

- PRIME ALUMINUM WINDOWS -

INSTALLATION INSTRUCTIONS FOR "NAIL FIN" PRODUCTS

MI Home Products appreciates your recent purchase of a maintenance free prime window, which will not rust, rot, mildew, or warp. This is a quality product that left our factory in good condition – proper handling and installation are just as important as good design and workmanship. Please follow these recommendations to allow this product to complete its function.

1 Handle units one at a time in the closed and locked position and take care not to scratch frame or glass or to bend the nailing fin.

2. Set unit plumb and square into opening and make sure that there is 3/16" ± 1/16" clearance around the frame. Fasten unit into opening in the closed and locked position, making sure that fasteners are screwed in straight in order to avoid twisting or bowing of the frame. Make sure that sill is straight and level. Check operation of unit before any and all fasteners are set.

3. Use # 8 sheet metal or wood screws with a minimum of 1" penetration into the framing (stud). Place first screws (two at each corner) 3" from end of fin. For positive and negative DPs (design pressures) up to **35**, do not exceed **24"** spacing of additional screws. For DPs from **35.1** to **50**, do not exceed **18"**. Install load bearing shim adjacent to each anchor. Use shim where space exceeds 1/16".

4. Flash over head and caulk outside perimeter in accordance with code requirements and good installation practices.

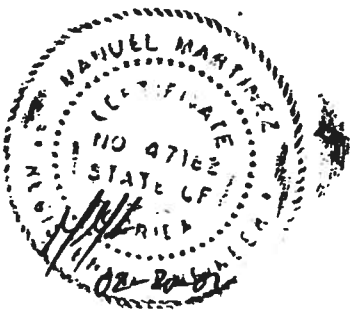
5. Fill voids between frame and construction with loose batten type insulation or <u>non-expanding</u> aerosol foam specifically formulated for windows and doors to eliminate drafts. The use of <u>expanding</u> aerosol type insulating foam, which can bow the frame, waives all stated warranties.

6. Remove plaster, mortar, paint and any other debris that may have collected on the unit and make sure that sash/vent tracks and interlocks are also clear. Do not use abrasives, solvents, ammonia, vinegar, alkaline, or acid solutions for clean-up, especially with insulated glass units as their use could cause chemical breakdown of the glass seal. Take care not to scratch glass; scratches severely weaken glass and it could eventually break from thermal expansion and contraction. Clean units with water and mild detergent as you would you automobile.

CAUTION -

MI Home Products or its representatives are unable to control and cannot assume responsibility for the selection and placement of their products in a building or structure in a manner required by laws, statutes, and/or building codes. The purchaser is solely responsible for knowledge of and adherence to the same. MI Home Products window products are not provided with safety glazing unless specifically ordered with such. Many laws and codes require safety glazing near doors, bathtubs, and shower enclosures. Also be aware of emergency egress code requirements.

Corporate Headquarters:
650 West Market St.
Gratz, PA 17030-0370
(717) 365-3300



AAMA/NWWDA 101/I.S.2-97
TEST REPORT SUMMARY

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 650 Fin
TYPE: Aluminum Single Hung Window

Title of Test	Results
Rating	H-R40 52 x 72
Overall Design Pressure	+45.0 psf -47.2 psf
Operating Force	11 lb max.
Air Infiltration	0.13 cfm/ft^2
Water Resistance	6.00 psf
Structural Test Pressure	+67.5 psf -70.8 psf
Deglazing	Passed
Forced Entry Resistance	Grade 10

Reference should be made to Report No. 01-41134.01 dated 03/26/02 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Mark A. Hess, Technician

MAH:mlb

1 APRIL 2002

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.
650 West Market Street
P.O. Box 370
Gratz, Pennsylvania 17030-0370

Report No: 01-41134.01
Test Date: 03/07/02
Report Date: 03/26/02
Expiration Date: 03/07/06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to perform tests on Series/Model 650 Fin, aluminum single hung window at their facility located in Elizabethville, Pennsylvania. The samples tested successfully met the performance requirements for a H-R40 52 x 72 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 650 Fin

Type: Aluminum Single Hung Window

Overall Size: 4' 4-1/4" wide by 6' 0-3/8" high

Active Sash Size: 4' 1-3/4" wide by 3' 0-5/8" high

Daylight Opening Size: 3' 11-3/8" wide by 2' 9-1/2" high

Screen Size: 4' 0-1/4" wide by 2' 11-1/8" high

Finish: All aluminum was white.

Glazing Details: The active and fixed lites utilized 5/8" thick, sealed insulating glass constructed from two sheets of 1/8" thick, clear annealed glass and a metal reinforced butyl spacer system. The active sash was channel glazed utilizing a flexible vinyl wrap-around gasket. The fixed lite was interior glazed against double-sided adhesive foam tape and secured with PVC snap-in glazing beads.

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.archtest.com

Allen N. Reuss
1 APRIL 2002

Test Specimen Description: (Continued)

Weatherstripping:

Description	Quantity	Location
0.230" high by 0.270" backed polypile with center fin	1 Row	Fixed meeting rail
0.250" high by 0.187" backed polypile with center fin	2 Rows	Active sash stiles
1/2" x 1/2" dust plug	4 Pieces	Active sash, top and bottom of stiles
1/4" foam-filled vinyl bulb seal	1 Row	Active sash, bottom rail

Frame Construction: The frame was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1" screws through the head and sill into each jamb screw boss. End caps were utilized on the ends of the fixed meeting rail and secured with two 1-1/4" screws per cap. Meeting rail was secured to the frame utilizing two 1-1/4" screws.

Sash Construction: The sash was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1-1/2" screws through the rails into each jamb screw boss.

Screen Construction: The screen was constructed from roll-formed aluminum with keyed corners. The fiberglass mesh was secured with a flexible spline.

Hardware:

Description	Quantity	Location
Metal cam lock with keeper	1	Midspan, active meeting rail with keeper adjacent on fixed meeting rail
Plastic tilt latch	2	Active sash, meeting rail ends
Metal tilt pin	2	Active sash, bottom rail ends
Balance assembly	2	One in each jamb
Screen plunger	2	4" from rail ends on top rail

Allen N. Rees
1 APRIL 2002

Test Specimen Description: (Continued)

Drainage: Sloped sill

Reinforcement: No reinforcement was utilized.

Installation: The test specimen was installed into a 2 x 8 #2 Spruce-Pine-Fir wood test buck with #8 x 1-5/8" drywall screws every 8" on center around the nail fin. Polyurethane was used as a sealant under the nail fin and around the exterior perimeter.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.1	Operating Force	11 lbs	30 lbs max.
2.1.2	Air Infiltration (ASTM E 283-91) @ 1.57 psf (25 mph)	0.13 cfm/ft^2	0.3 cfm/ft^2 max.

Note #1: The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration.

2.1.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 2.86 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 33 seconds)		
	@ 25.9 psf (positive)	0.42"*	0.26" max.
	@ 34.7 psf (negative)	0.43"*	0.26" max.

**Exceeds L/175 for deflection, but passes all other test requirements.*

2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 10 seconds)		
	@ 38.9 psf (positive)	0.02"	0.18" max.
	@ 52.1 psf (negative)	0.02"	0.18" max.

Allan M. Russ
1 APRIL 2002

Test Specimen Description: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.2	Deglazing Test (ASTM E 987)		
	In operating direction at 70 lbs		
	Meeting rail	0.12"/25%	0.50"/100%
	Bottom rail	0.12"/25%	0.50"/100%
	In remaining direction at 50 lbs		
	Left stile	0.06"/12%	0.50"/100%
	Right stile	0.06"/12%	0.50"/100%
2.1.8	Forced Entry Resistance (ASTM F 588-97)		
	Type: A		
	Grade: 10		
	Lock Manipulation Test	No entry	No entry
	Tests A1 through A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry
Optional Performance			
4.3	Water Resistance (ASTM E 547-00)		
	(with and without screen)		
	WTP = 6.00 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection (ASTM E 330-97)		
	(Measurements reported were taken on the meeting rail)		
	(Loads were held for 33 seconds)		
	@ 45.0 psf (positive)	0.47"*	0.26" max.
	@ 47.2 psf (negative)	0.46"*	0.26" max.
4.4.2	Uniform Load Structural (ASTM E 330-97)		
	(Measurements reported were taken on the meeting rail)		
	(Loads were held for 10 seconds)		
	@ 67.5 psf (positive)	0.05"	0.18" max.
	@ 70.8 psf (negative)	0.05"	0.18" max.

Exceeds L/175 for deflection, but passes all other test requirements.

Allen N. Reuss
1 APRIL 2002

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC:

Mark A. Hess
Technician

Allen N. Reeves, P.E.
Director - Engineering Services
1 APRIL 2002

MAH:mlb
01-41134.01

AAMA/NWWDA 101/I.S.2-97
TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 450/650/850 Drop In Glazing
TYPE: Aluminum Single Hung Window

Title	Summary of Results
AAMA Rating	H-LC30 53 x 90
Operating Force	24 lb max.
Air Infiltration	0.11 cfm/ft^2
Water Resistance Test Pressure	6.75 psf
Uniform Load Deflection Test Pressure	+32.8 psf -47.2 psf
Uniform Load Structural Test Pressure	+49.2 psf -70.8 psf
Deglazing	Passed
Forced Entry Resistance	Grade 10

Reference should be made to ATI Report No. 01-42487.01 for complete test specimen description and data.

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

Report No: 01-42487.01
Test Date: 08/14/02
And: 08/15/02
Report Date: 10/02/02
Expiration Date: 08/15/06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to perform tests on a Series/Model 450/650/850 Drop In Glazing, aluminum single hung window at their facility in Elizabethville, Pennsylvania. The sample tested successfully met the performance requirements for a H-LC30 53 x 90 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 450/650/850 Drop In Glazing

Type: Aluminum Single Hung Window

Overall Size: 4' 5-1/8" wide by 7' 5-5/8" high

Interior Sash Size: 4' 2-3/4" wide by 3' 8-7/8" high

Fixed Daylight Opening Size: 4' 0" wide by 3' 5-3/8" high

Screen Size: 4' 0-3/4" wide by 3' 8-3/4" high

Finish: The unit was white.

Glazing Details: The specimen utilized 5/8" thick, sealed insulating glass constructed from two sheets of 3/32" thick, clear annealed glass and a metal reinforced butyl spacer system. The lites were interior glazed against double-sided adhesive foam tape and secured with PVC snap-in glazing beads.

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.archtest.com

Test Specimen Description: (Continued)

Weatherstripping:

Description	Quantity	Location
0.190" high by 0.187" polypile with center fin	1 Row	Fixed meeting rail interlock
0.190" high by 0.187" polypile with center fin	2 Rows	Interior sash stiles
1/4" vinyl foam-filled bulb seal	1 Row	Interior sash bottom rail
5/8" wide by 7/8" long polypile plug	4 Pieces	Interior sash, all corners

Frame Construction: The frame was constructed of extruded aluminum. Each corner was coped, butted, sealed, and fastened with two #8 x 1" screws per corner through the head and sill into jamb screw boss. End caps were utilized on the ends of the meeting rail and secured with two 1-1/4" screws per cap. Meeting rail was then secured to the frame utilizing two 1-1/4" screws.

Sash Construction: The sash was constructed of extruded aluminum. Each corner was coped, butted, and fastened with one #8 x 1-1/4" screw per corner.

Screen Construction: The screen was constructed of roll-formed aluminum with keyed corners. The fiberglass mesh was secured with a flexible spline.

Hardware:

Description	Quantity	Location
Metal cam lock	2	Interior sash, 6-1/2" from top rail ends
Spring-loaded coil balance	2	One per jamb
Plastic tilt latch	2	Interior sash top rail ends
Metal tilt latch pin	2	Interior sash bottom rail ends
Screen spring-loaded retainer pin	2	6-3/4" from rails on stiles

Test Specimen Description: (Continued)

Drainage: Sloped sill

Reinforcement: No reinforcement was utilized.

Installation: The specimen was installed into a #2 2 x 8 Spruce-Pine-Fir wood buck. #8 x 1-5/8" drywall screws were placed 3" from corners and 15" on center around nailing fin. Polyurethane was used a s a sealant around the exterior perimeter.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.1	Operating Force	24 lbs	35 lbs max.
2.1.2	Air Infiltration (ASTM E 283-91) @ 1.57 psf (25 mph)	0.11 cfm/ft^2	0.3 cfm/ft^2 max.

Note #1: The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration.

2.1.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 3.75 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 52 seconds)		
	@ 25.0 psf (positive)	0.64"*	0.29" max.
	@ 25.0 psf (negative)	0.54"*	0.29" max.
2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 10 seconds)		
	@ 37.5 psf (positive)	0.04"	0.20" max.
	@ 37.5 psf (negative)	0.03"	0.20" max.

**Exceeds L/175 for deflection, but meets all other test requirements.*

Test Results:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.2	Deglazing Test (ASTM E 987-88) In operating direction at 70 lbs		
	Interior sash meeting rail	0.12"/25%	0.50"/100%
	Interior sash bottom rail	0.12"/25%	0.50"/100%
	In remaining direction at 50 lbs		
	Interior sash right stile	0.06"/12%	0.50"/100%
	Interior sash left stile	0.06"/12%	0.50"/100%
2.1.8	Forced Entry Resistance (ASTM F 588-97)		
	Type: A Grade: 10		
	Lock Manipulation Test	No entry	No entry
	Test A1 through A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry
Optional Performance			
4.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 6.75 psf	No leakage	No leakage
4.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 33 seconds)		
	@ 32.8 psf (positive)	0.85"*	0.29" max.
	@ 47.2 psf (negative)	0.87"*	0.29" max.
4.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the meeting rail) (Loads were held for 10 seconds)		
	@ 49.2 psf (positive)	0.09"	0.20" max.
	@ 70.8 psf (negative)	0.12"	0.20" max.

**Exceeds L/175 for deflection, but meets all other test requirements.*

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator. This report may not be reproduced except in full without the approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Mark A. Hess
Technician

Allen. N. Reeves, P.E.
Director - Engineering Services
11 OCTOBER 2002

MAH:nlb
01-42487.01

AAMA/NWWDA 101/I.S.2-97
TEST REPORT

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 650
TYPE: Aluminum Triple Single Hung Window

Title of Test	Summary of Results
AAMA Rating	H-R35 112 x 72
Uniform Load Deflection Test Pressure	+35.3 psf -47.2 psf
Operating Force	25 lb max.
Air Infiltration	0.16 cfm/ft^2
Water Resistance Test Pressure	5.25 psf
Uniform Load Structural Test Pressure	+53.0 psf -52.5 psf
Deglazing	Passed
Forced Entry Resistance	Grade 10

Reference should be made to ATI Report No. 01-41641.01 for complete test specimen description and data.

Allen N. Reeves
7 JUNE 2002

ALLEN N. REEVES
NO. 18354
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to

MI HOME PRODUCTS, INC.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

Report No: 01-41641.01
Test Date: 05/13/02
And: 05/16/02
Report Date: 06/05/02
Expiration Date: 05/16/06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to witness testing on a Series/Model 650, aluminum triple single hung window at their facility located in Elizabethville, Pennsylvania. The sample tested successfully met the performance requirements for a H-R35 112 x 72 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 650

Type: Aluminum Triple Single Hung Window

Overall Size: 9' 3-1/2" wide by 5' 11-11/16" high

Active Sash Size (3): 3' 0-1/4" wide by 2' 10-3/4" high

Fixed Daylight Opening Size (3): 2' 8-1/4" wide by 2' 9-1/8" high

Screen Size (3): 2' 9-1/8" wide by 2' 11" high

Finish: All aluminum was painted white.

ALLEN N. REEVES
CERTIFICATE
NO. 19254
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Allen N. Reeves
7 JUNE 2002

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.archtest.com

Test Specimen Description: (Continued)

Glazing Details: The active and fixed lites utilized 5/8" thick, sealed insulating glass constructed from two sheets of 1/8" thick, clear annealed glass and a metal reinforced butyl spacer system. The active sash was channel glazed utilizing a flexible vinyl wrap-around gasket. The fixed lite was interior glazed against double-sided adhesive foam tape and secured with PVC snap-in glazing beads.

Weatherstripping:

Description	Quantity	Location
0.230" high by 0.270" backed polypile with center fin	Row	Fixed meeting rail
0.250" high by 0.187" backed polypile with center fin	2 Rows	Active sash stiles
1/2" by 1/2" dust plug	4 Pieces	Active sash, top and bottom of stiles
1/4" foam filled vinyl bulb seal	1 Row	Active sash, bottom rail

Frame Construction: The frame was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1" screws through the head and sill into each jamb screw boss. End caps were utilized on the ends of the fixed meeting rail and secured with two 1-1/4" screws per cap. The meeting rail was secured to the frame utilizing two 1-1/4" screws. The mullions were secured utilizing four #8 x 1-1/4" screws through the head and sill into the mullion screw boss.

Sash Construction: The sash was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1-1/2" screws through the rails into each stiles' screw boss.

Screen Construction: The screen was constructed from roll-formed aluminum with keyed corners. The fiberglass mesh was secured with a flexible spline.

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7 JUNE 2002

Test Specimen Description: (Continued)

Hardware:

Description	Quantity	Location
Metal cam lock with keeper	1	Midspan of each active meeting rail with adjacent keepers
Plastic tilt latch	2	Each active sash meeting rail ends
Metal tilt pin	2	Each active sash bottom rail ends
Balance assembly	2	Each active sash contained one in each jamb
Screen plunger	2	Each screen contained two 4" from rail ends on top rail

Drainage: Sloped sill

Reinforcement: No reinforcement was utilized.

Installation: The test specimen was installed into a 2 x 8 #2 Spruce-Pine-Fir wood buck with #8 x 1-5/8" drywall screws every 8" on center around the nail fin. Polyurethane was used as a sealant under the nail fin and around the exterior perimeter.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
2.2.1.6.1	Operating Force	25 lbs	30 lbs max.
	Air Infiltration (ASTM E 283-91) @ 1.57 psf (25 mph)	0.16 cfm/ft^2	0.3 cfm/ft^2 max.

***Note #1**: The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration.*

Water Resistance (ASTM E 547-00) (with and without screen) WTP = 2.86 psf	No leakage	No leakage

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7 JUNE 2002

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Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.4.1	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the mullion) (Loads were held for 52 seconds)		
	@ 15.0 psf (positive)	0.15"	0.41" max.
	@ 15.0 psf (negative)	0.29"	0.41" max.
2.1.4.2	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the mullion) (Loads were held for 10 seconds)		
	@ 22.5 psf (positive)	0.01"	0.29" max.
	@ 22.5 psf (negative)	0.01"	0.29" max.
2.2. .6.2	Deglazing Test (ASTM E 987-88) In operating direction at 70 lbs		
	Right sash, meeting rail	0.12"/25%	0.50"/100%
	Right sash, bottom rail	0.12"/25%	0.50"/100%
	Middle sash, meeting rail	0.12"/25%	0.50"/100%
	Middle sash, bottom rail	0.12"/25%	0.50"/100%
	Left sash, meeting rail	0.12"/25%	0.50"/100%
	Left sash, bottom rail	0.12"/25%	0.50"/100%
	In remaining direction at 50 lbs		
	Right sash, right stile	0.06"/12%	0.50"/100%
	Right sash, left stile	0.06"/12%	0.50"/100%
	Middle sash, right stile	0.06"/12%	0.50"/100%
	Middle sash, left stile	0.06"/12%	0.50"/100%
	Left sash, right stile	0.06"/12%	0.50"/100%
	Left sash, left stile	0.06"/12%	0.50"/100%
2 .8	Forced Entry Resistance (ASTM F 588-97)		
	Type: A Grade: 10		
	Lock Manipulation Test	No entry	No entry
	Test A1 through A5	No entry	No entry
	Test A7	No entry	No entry
	Lock Manipulation Test	No entry	No entry

Allen N. Reeves
7 JUNE 2002

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Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
	Optional Performance		
4.3	Water Resistance (ASTM E 547-00) (with and without screen) WTP = 5.25 psf	No leakage	No leakage
	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the mullion) (Loads were held for 52 seconds)		
	@ 35.3 psf (positive)	0.46"*	0.41" max
	@ 47.2 psf (negative)	0.67"*	0.41" max

**Exceeds L/175 for deflection, but meets all other test requirements.*

Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the mullion) (Loads were held for 10 seconds)		
@ 53.0 psf (positive)	0.03"	0.29" max
@ 52.5 psf (negative)	0.02"	0.29" max

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC

Mark A. Hess
Technician

MAH:nlb
01-41641.01

Allen N. Reeves, P.E.
Director - Engineering Services
7 JUNE 2002

ALLEN N. REEVES
CERTIFICATE
NO. 19354
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

AAMA/NWWDA 101/I.S.2-97
TEST REPORT SUMMARY

Rendered to:

MI HOME PRODUCTS, INC.

SERIES/MODEL: 650
TYPE: Aluminum Picture Window

Title of Test	Results
Rating	F-R45 60 x 80
Overall Design Pressure	+45.0 psf -47.2 psf
Air Infiltration	0.04 cfm/ft^2
Water Resistance	8.25 psf
Structural Test Pressure	+67.5 psf -70.8 psf
Forced Entry Resistance	Grade 10

Reference should be made to Report No. 01-41135.01 dated 03/26/02 for complete test specimen description and data.

For ARCHITECTURAL TESTING, INC.

Mark A. Hess, Technician

MAH:nlb

ALLEN N. REEVES
CERTIFICATE
NO. [illegible]
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Allen N. Reeves
1 APRIL 2002

Architectural Testing

AAMA/NWWDA 101/I.S.2-97 TEST REPORT

Rendered to

MI HOME PRODUCTS, INC.
650 West Market Street
P.O. Box 370
Gratz, Pennsylvania 17030-0370

Report No: 01-41135.01
Test Date: 03/07/02
Report Date: 03/26/02
Expiration Date: 03/07/06

Project Summary: Architectural Testing, Inc. (ATI) was contracted by MI Home Products, Inc. to perform tests on Series/Model 650, aluminum picture window at their facility located in Elizabethville, Pennsylvania. The samples tested successfully met the performance requirements for a F-R45 60 x 80 rating.

Test Specification: The test specimen was evaluated in accordance with AAMA/NWWDA 101/I.S.2-97, *Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.*

Test Specimen Description:

Series/Model: 650

Type: Aluminum Picture Window

Overall Size: 5' 0" wide by 6' 8" high

Daylight Opening Size: 4' 9-1/4" wide by 6' 5-1/4" high

Finish All aluminum was white.

Glazing Details: The test specimen utilized 7/8" thick, sealed insulating glass constructed from two sheets of 3/16" thick, clear annealed glass and a metal reinforced butyl spacer system. The glass was interior glazed against double-sided adhesive foam tape and secured with aluminum snap-in glazing beads.

130 Derry Court
York, PA 17402-9405
phone: 717.764.7700
fax: 717.764.4129
www.archtest.com

Allen N. Reeves
1 APRIL 2002

ALLEN N. REEVES
CERTIFICATE NO. 11556
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Test Specimen Description: (Continued)

Frame Construction: The frame was constructed of extruded aluminum with coped, butted, and sealed corners fastened with two #8 x 1" screws through the head and sill into each jamb screw boss.

Reinforcement: No reinforcement was utilized.

Installation: The test specimen was installed into a 2 x 8 #2 Spruce-Pine-Fir wood test buck. #8 x 2-1/2" installation screws were utilized 18" on center around the interior perimeter. Polyurethane was utilized to seal the exterior.

Test Results:

The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
	Air Infiltration (ASTM E 283-91)		
	@ 1.57 psf (25 mph)	0.04 cfm/ft^2	0.3 cfm/ft^2 max.
	Note #1: *The tested specimen meets the performance levels specified in AAMA/NWWDA 101/I.S. 2-97 for air infiltration.*		
	Water Resistance (ASTM E 547-00)		
	WTP = 2.86 psf	No leakage	No leakage
2.1.4.1	Uniform Load Deflection (ASTM E 330-97)		
	(Measurements reported were taken on the jamb)		
	(Loads were held for 33 seconds)		
	@ 25.9 psf (positive)	0.01"	0.41" max.
	@ 34.7 psf (negative)	0.01"	0.41" max.
2.1.4.2	Uniform Load Structural (ASTM E 330-97)		
	(Measurements reported were taken on the jamb)		
	(Loads were held for 10 seconds)		
	@ 38.9 psf (positive)	0.0"	0.29" max.
	@ 52.1 psf (negative)	0.01"	0.29" max.

ALLEN N. REEVES
No. 13554
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Allen N. Reeves
1 APRIL 2002

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
	Forced Entry Resistance (ASTM F 588-97)		
	Type: D Grade: 10		
	Hand and Tool Manipulation Test	No entry	No entry
Optional Performance			
4.3	Water Resistance (ASTM E 547-00) WTP = 8.25 psf	No leakage	No leakage
	Uniform Load Deflection (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 33 seconds)		
	@ 45.0 psf (positive)	0.02"	0.41" max.
	@ 47.2 psf (negative)	0.02"	0.41" max.
	Uniform Load Structural (ASTM E 330-97) (Measurements reported were taken on the jamb) (Loads were held for 10 seconds)		
	@ 67.5 psf (positive)	0.01"	0.29" max.
	@ 70.8 psf (negative)	0.02"	0.29" max.

Detailed drawings, representative samples of the test specimen, and a copy of this report will be retained by ATI for a period of four years. The above results were secured by using the designated test methods and they indicate compliance with the performance requirements of the above referenced specification. This report does not constitute certification of this product, which may only be granted by the certification program administrator.

For ARCHITECTURAL TESTING, INC:

Mark A. Hess
Technician

MAH:nlb
01-41135.01

Allen N. Reeves, P.E.
Director - Engineering Services
1 APRIL 2002

ALLEN N. REEVES
CERTIFICATE
NO. 19354
STATE OF
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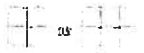
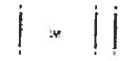
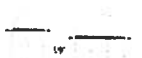
650 SH & PW Series - Mile Per Hour (MPH) maximum Size Chart

Series/Type	MPH Zone(s)	Required Mullion		Maximum Sizes Allowed		
				Single Unit	Twin Unit	Triple Unit
650 SH or PW Flange Frame Sng Glz or Ins	up to 120 MPH	Horizontal Mull #5765		N/A	53-1/8" x 72" w/Transom*[1]	32" x 72" w/Transom*[1]
650 SH or PW Flange Frame Sng Glz or Ins	up to 140 MPH	Horizontal Mull #5765		N/A	45" x 72" w/Transom*[1]	30" x 72" w/Transom*[1]
650 SH or PW Fin Frame Sng Glz or Ins	up to 110 MPH	Self-Stacking Sill #CM-45026		53-1/8" x 72" w/Transom*[1]	N/A	N/A
650 SH or PW Fin Frame Sng Glz or Ins	up to 120 MPH	Self-Stacking Sill #CM-45026		48" x 72" w/Transom*[1]	N/A	N/A
650 SH or PW Fin Frame Sng Glz or Ins	up to 140 MPH	Self-Stacking Sill #CM-45026		37" x 72" w/Transom*[1]	N/A	N/A
650 SH or PW Continuous Hdr & Sill Sng Glz or Ins	up to 140 MPH	(No Mullion)		N/A	36" x 72"	36" x 72"

*[1] All Transoms (1, 2, & 3-Lites) must be continuous frame.
*[2] Transom units must be a minimum of 1/0 tall. The maximum transom height is one half the width of the transom.
Both Single Hung & Picture Windows can be used in combination up to the maximum sizes listed above.

650 SH & PW Series - Mile Per Hour (MPH) maximum Size Chart

Series/Type	MPH Zone(s)	Required Mullion		Maximum Sizes Allowed		
				Single Unit	Twin Unit	Triple Unit
650 SH or PW Fin or Flange Frame Sng Glz or Ins	up to 140 MPH	N/A	N/A	53-1/8" x 72"	N/A	N/A
650 SH or PW Fin Frame Sng Glz or Ins	up to 130 MPH	Vertical Mull #CM-65130		N/A	53-1/8" x 72"	53-1/8" x 72"
650 SH or PW Fin Frame Sng Glz or Ins	up to 140 MPH	Vertical Mull #CM-65130		N/A	53-1/8" x 63" or 42" x 72"	53-1/8" x 63" or 42" x 72"
650 SH or PW Flange Frame Sng Glz or Ins	up to 130 MPH	Vertical Mull #CM-65129		N/A	53-1/8" x 72"	53-1/8" x 72"
650 SH or PW Flange Frame Sng Glz or Ins	up to 140 MPH	Vertical Mull #CM-65129		N/A	53-1/8" x 63" or 42" x 72"	53-1/8" x 63" or 42" x 72"
650 SH or PW Fin Frame Sng Glz or Ins	up to 120 MPH	Horizontal Mull #CM-65131		N/A	53-1/8" x 72" w/Transom*	32" x 72" w/Transom*
650 SH or PW Fin Frame Sng Glz or Ins	up to 140 MPH	Horizontal Mull #CM-65131		N/A	45" x 72" w/Transom*	30" x 72" w/Transom*
650 SH or PW Flange Frame Sng Glz or Ins	up to 120 MPH	Horizontal Mull #CM-65129		N/A	37" x 72" w/Transom*	N/A
650 SH or PW Flange Frame Sng Glz or Ins	up to 140 MPH	Horizontal Mull #CM-65129		N/A	30" x 72" w/Transom*	N/A
650 SH or PW Fin Frame Sng Glz or Ins	up to 120 MPH	Horizontal Mull #5767		N/A	53-1/8" x 72" w/Transom*	32" x 72" w/Transom*
650 SH or PW Fin Frame Sng Glz or Ins	up to 140 MPH	Horizontal Mull #5767		N/A	45" x 72" w/Transom*	30" x 72" w/Transom*

*1 All Transoms (1, 2, & 3-Lites) must be continuous frame.
*2 Transom units must be a minimum of 1/0 tall. The maximum transom height is one half the width of the transom.
Both Single Hung & Picture Windows can be used in combination up to the maximum sizes listed above.

Rev. 7-22-02