Construction Consulting Laboratory, International

Test Report

CCLI-14-060

Client

MI Windows and Doors, LLC.
1001 West Crosby Road
Carrollton, TX 75006

Product Type: Aluminum Fixed Window
Series / Model: 185/188
Test Completion: April 3, 2014
Specification: AAMA/WDMA/CSA 101/I.S.2/A440-08, NAFS – North American Fenestration Standards / Specification for Windows, Doors and Skylights

Specimen	Title	Summary of Results
(1) 185 Fin	Product Designator	CW-PG60-FW 1854 x 1829 (73 x 72)
	Design Pressure	+/- 2880 Pa (60 psf)
	Air Infiltration	.05 L/s•m^2(.01cfm/ft^2)
	Water Penetration Resistance	432 Pa (9 psf)
(2) 185 Flange	Product Designator	CW-PG60-FW 1854 x 1829 (73 x 72)
	Design Pressure	+/- 2880 Pa (60 psf)
	Air Infiltration (Specimen 1)	.05 L/s•m^2(.01cfm/ft^2)
	Water Penetration Resistance (Specimen 1)	432 Pa (9 psf)

Attachments: This report is complete only when all attachments listed are included.
Appendix A: Alteration Addendum
Appendix B: Complete drawings packet on file with the program administrator and Construction Consulting Laboratory.

1. PROJECT DATA

1.1. REPORT ISSUED

MI Windows and Doors, LLC.
1001 West Crosby Road
Carrollton, TX 75006

1.2. TEST LABORATORY

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006

2. PROJECT SUMMARY

2.1. **PRODUCT TYPE: ALUMINUM FIXED WINDOW**

2.2. **SERIES / MODEL: GA 185/188**
This product also labeled as: 185SP & 188SP

2.3. **COMPLIANCE STATEMENT:** Results obtained are tested values and were secured by using the designated test methods. The test specimen was tested in accordance with the AAMA/WDMA/CSA 101/I.S.2/A440-08, NAFS – North American Fenestration Standards / Specification for Windows, Doors and Skylights. The specimen met the performance requirements set forth in the specification.

2.4. **Test Date(s):** April 3, 2014

2.5. **Report Expiration:** All documents and samples for this report will be retained until April 3, 2018

2.6. **Test Location: MI Windows and Doors Testing Facility** in Carrollton, Texas. Calibration of test equipment was performed by Construction Consulting Laboratory in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

2.7. **Test Sample Source:** The specimens were manufactured by MI Windows and Doors, LLC. Representative samples and drawings will be retained by **CCLI** for a minimum period of four (4) years from the test completion date.

2.8. **Drawing Reference:** The specimen drawings have been reviewed by **CCLI** and are representative of the specimen installed and tested. If observed, deviations shall be listed on the appended drawings.

2.9. **Observers:**

Witnessed By	**(Representative)**
Taylor Rix	MI Windows and Doors, LLC.
Brandon Newman	Construction Consulting Laboratory, *International*

3. TEST SPECIMEN

Product Type:	Aluminum Fixed Window, **Product Drawings, Appendix A.**	
Series Model:	Series 185/188	
Specification:	AAMA/WDMA/CSA 101/I.S.2/A440-08 CW PG 60-H 1854 x 1829 (73 x 72)	
Specimen	**Mounting Fin**	**Flange Frame**
Frame Size:	1842 x 1816 (6'-$^{1}/_{2}$" x 5'-11$^{1}/_{2}$")	1842 x 1816 (6'-$^{1}/_{2}$" x 5'-11$^{1}/_{2}$")
Fixed DLO:	1772 x 1746 (5'-9$^{3}/_{4}$" x 5'-8$^{3}/_{4}$")	1772 x 1746 (5'-9$^{3}/_{4}$" x 5'-8$^{3}/_{4}$")
Configuration:	0	0

Weather Stripping: Pile weather stripping at glazing bead.

Weep Arrangement: 25.4mm x 4.76mm (1" x $^{3}/_{16}$") semi circle weep in glazing bead located 60.3mm (2$^{3}/_{8}$") from each end.

Glass: 15.87mm ($^{5}/_{8}$") overall thickness sealed insulating glass: Two (2) pieces, 4.76mm ($^{3}/_{16}$") annealed glass with 6.35mm ($^{1}/_{4}$") aluminum reinforced butyl spacer.

Glazing: Exterior glazed with silicone back-bedding compound at interior and aluminum glazing bead with pile weather stripping at exterior attached with #6 x 31.75mm (1$^{1}/_{4}$") tek screws spaced 50.8mm (2") from each end and on 304.8mm (12") centers.

Narrow Joint Sealant: All corners and corner attachment screws.

Mounting Fin Installation Features: Installed in a #2 50.8mm x 304.8mm (2" x 12") wrapped nominal 50.8mm x 101.6mm (2" x 4") wood test buck with silicone and #6 x 41.28mm (1$^{5}/_{8}$") screws through mounting fin spaced 76.2mm (3") from corners and on 406.4mm (16") centers. Frame captured by 50.8mm x 101.6mm (2" x 4") full perimeter.

Flange Frame Installation Features: Installed in a #2 50.8mm x 304.8mm (2" x 12") wrapped nominal 50.8mm x 101.6mm (2" x 4") wood test buck with silicone and #6 x 41.28mm (1$^{5}/_{8}$") screws through every pre-punched hole in frame. Max fastener spacing approximately 457mm (18"). Frame captured by 50.8mm x 101.6mm (2" x 4") full perimeter.

Other features: Frame corners are coped, butted, and attached with two (2) #6 x 19.05 mm (¾") screws per corner.

4. PERFORMANCE RESULTS

Mounting Fin

Paragraph No.	Title of Test	Test Method	Measured	Allowed
5.3.2	Air Infiltration @ 75 Pa (1.60 psf)	ASTM E 283-04	.05 L/s•m^2 (.01 cfm/ft^2)	1.5 L/s•m^2 (0.30 cfm/ft^2)
Air Infiltration values Reported at the request of the manufacturer				
5.3.3	Water Resistance @ 432 Pa (9 psf)	ASTM E 547-00	No Leakage	No Leakage
5.3.4.2	Deflection Between anchors	ASTM E 330-02		
	-Positive 2880 Pa (60 psf)	Net Deflection	.254mm (.01")	2.29mm (.09)
	-Negative 2880 Pa (60 psf)	Net Deflection	.508mm (.02")	2.29mm (.09)
	-Permanent Set		Negligible	1.6mm (0.064")
5.3.4.3	Uniform Load Structural	ASTM E 330-02		
	@ 4320 Pa (90 psf) Positive		No Damage	No Damage
	@ 4320 Pa (90 psf) Negative		No Damage	No Damage
	-Permanent Set		Negligible	1.6mm (0.064")
5.3.5	Forced Entry Resistance Grade 10	ASTM F 588-07	No Entry	No Entry

Flange Frame

5.3.4.2	Deflection Between Anchors	ASTM E 330-02		
	-Positive 2880 Pa (60 psf)	Net Deflection	.508mm (.02")	2.29mm (.09)
	-Negative 2880 Pa (60 psf)	Net Deflection	.762mm (.03")	2.29mm (.09)
	-Permanent Set		Negligible	1.82mm (0.072")
5.3.4.3	Uniform Load Structural	ASTM E 330-02		
	@ 4320 Pa (90 psf) Positive		No Damage	No Damage
	@ 4320 Pa (90 psf) Negative		No Damage	No Damage
	-Permanent Set		Negligible	1.82mm (0.072")

Note: 2-mil plastic sheeting was not used to seal against air leakage for uniform loading.

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

5. CONCLUSION

The above results were obtained by using the designated test methods and indicate compliance with the above specification. This report does not constitute certification of this product, which may only be granted by the program administrator.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*

BRANDON NEWMAN
TESTING MANAGER

WESLEY WILSON
LABORATORY MANAGER

An original copy of this document is on file with the Program Administrator, MI Windows and Doors, LLC, and Construction Consulting Laboratory, International.

APPENDIX A

ALTERATION ADDENDUM

NOTE: THE LIST BELOW REPORTS THE ACTIONS PERFORMED BY THE CLIENT TO ACHIEVE THE REPORTED RESULTS.

APPENDIX B

PRODUCT DRAWINGS

A COPY OF THE BELOW STAMPED DRAWINGS ARE ON FILE WITH CCLI, MI WINDOWS AND DOORS, L.L.C AND THE PROGRAM ADMINISTRATOR.

Die/Series	Detail	Date
185	BOM	6/5/13
185	Layout	12/23/04
185 Flange	Layout	12/23/04
CM-18522	Fin Frame	12/22/04
CM-18524	Flange Frame	12/17/04
CM-18526	Glazing Bead	12/23/04

- END OF REPORT -