

KNOTWOOD, A DIVISION OF OMNIMAX INTERNATIONAL, INC. MIAMI-DADE TEST REPORT

SCOPE OF WORK

TAS 202 AND TAS 203 TESTING ON KEC150, ALUMINUM POWDER-COATED CLADDING

REPORT NUMBER J6557.01-109-18 R1

TEST DATES 06/27/19 - 06/28/19

 ISSUE DATE
 REVISED DATE

 10/16/19
 04/26/22

RECORD RETENTION END DATE 06/28/29

MIAMI-DADE COUNTY NOTIFICATION NO. ATI 19036

LABORATORY CERTIFICATION NO. 18-0524.13

PAGES 16

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TEST REPORT FOR KNOTWOOD, A DIVISION OF OMNIMAX INTERNATIONAL, INC.

Report No.: J6557.01-109-18 R1 Revision 1: 04/26/22 Date: 10/16/19

REPORT ISSUED TO

KNOTWOOD, A DIVISION OF OMNIMAX INTERNATIONAL, INC. 4455 Rivergreen Parkway Duluth, Georgia 30096

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Knotwood, a division of OmniMax International, Inc. to perform TAS 202 and TAS 203 testing in accordance with Miami-Dade County requirements on their KEC150, aluminum powder-coated cladding. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

SECTION 2

SUMMARY OF TEST RESULTS

The specimens tested met the performance requirements set forth in the protocols.

SPEC.	TEST PROTOCOL	DESIGN PRESSURE
1, 2, 3	TAS 202	+120.30 / -120.30 psf
4, 5, 6	TAS 203	+120.30 / -120.30 psf

For INTERTEK B&C:

COMPLETED BY:	Ken R. Stough	REVIEWED BY:	Vinu J. Abraham, P.E.
	Project Engineer –		Vice President – Products
TITLE:	Product Testing	TITLE:	Building & Construction
SIGNATURE:		SIGNATURE:	
DATE:	04/26/22	DATE:	04/26/22
RJB:wnl/nls			

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SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

TAS 202-94, Criteria for Testing Impact and Non Impact Resistant Building Envelope Components Using Uniform Static Air Pressure

TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

SECTION 4

MATERIAL SOURCE/INSTALLATION

Test specimens were provided by the client. Representative samples of the test specimens will be retained by Intertek B&C for a minimum of ten years from the test completion date.

The specimens were installed onto a Spruce-Pine-Fir 2x6 stud test wall with studs spaced 16" on center and sheathed with 5/8" 5-ply plywood. Installation of the tested product was performed by Intertek B&C.

A 1-3/8" tall starter strip was utilized at the top of the cladding system. Each consecutive panel was interlocked and secured with the installation clips spaced at 32" on center. Each specimen utilized four courses. The top of the system utilized a 2-9/16" tall snap-in cover plate to conceal the installation clips.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Studs	#10 x 2-1/2" hex head screw with an insulated washer	Through the installation clip and into the studs, spaced at 32" on center. One screw per clip.
Bottom and sides	#10 x 2-1/2" hex head screw with an insulated washer	The fasteners were located 1-1/2" from ends and 16" on center, through the flashing base into the test wall.

SECTION 5

EQUIPMENT

Cycling Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device

Deflection Measuring Device: Linear transducers



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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Timothy J. McGill	Intertek B&C
Daniel C. Culbert, P.E.	Intertek B&C
Robert J. Beatty	Intertek B&C

SECTION 7

TEST SPECIMEN DESCRIPTION

Product Type: Aluminum Powder-Coated Cladding **Series/Model**: KEC150

Product Sizes:

OVERALL AREA:	WIDTH		HEIGHT	
1.7 m² (18.8 ft²)	millimeters	inches	millimeters	inches
Overall size	2438	96	718	28-1/4
Panel size	2438	96	149	5-7/8



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SECTION 8

TEST RESULTS

Protocol TAS 202-94, Static Air Pressure

Test Date: 06/27/19

The temperature during testing was 29°C (84°F). The results are tabulated as follows:

LOAD	INDICATOR DEFLECTION (in.) PERMANE		DEFLECTION (in.)		SET (in.)
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED
160.15	1	0.15	N/A	0.07	N/A
+60.15 50% of Test Pressure	2	0.19	N/A	0.08	N/A
50% of rest Pressure	3	0.15	N/A	0.05	N/A
120.20	1	0.20	N/A	0.06	N/A
+120.30	2	0.25	N/A	0.08	N/A
Design Pressure	3	0.22	N/A	0.06	N/A
CO 15	1	0.20	N/A	0.08	N/A
-60.15 50% of Test Pressure	2	0.24	N/A	0.09	N/A
50% OF Test Pressure	3	0.20	N/A	0.08	N/A
-120.30	1	0.52	N/A	0.10	N/A
	2	0.59	N/A	0.11	N/A
Design Pressure	3	0.54	N/A	0.10	N/A

Test Specimen #1: Preload and Design Load per TAS 202

Test Specimen #1: Structural Overload Load per TAS 202

LOAD	INDICATOR	DEFLECTION (in.)		PERMANENT SET (in.)	
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED
190 45	1	0.32	N/A	0.08	N/A
+180.45 Test Pressure	2	0.40	N/A	0.11	N/A
	3	0.33	N/A	0.08	N/A
100 45	1	1.36	N/A	0.36	N/A
-180.45 Test Pressure	2	1.52	N/A	0.38	N/A
rest Pressure	3	1.38	N/A	0.36	N/A



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Test Specimen #2: Preload and Design Load per TAS 202

LOAD	INDICATOR	DEFLECTION (in.)		PERMANENT	SET (in.)
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED
	1	0.23	N/A	0.05	N/A
+60.15 50% of Test Pressure	2	0.31	N/A	0.07	N/A
50% OF Test Pressure	3	0.26	N/A	0.05	N/A
120.20	1	0.40	N/A	0.05	N/A
+120.30	2	0.47	N/A	0.07	N/A
Design Pressure	3	0.42	N/A	0.05	N/A
60.15	1	0.35	N/A	0.07	N/A
-60.15 50% of Test Pressure	2	0.46	N/A	0.09	N/A
50% OF Test Pressure	3	0.41	N/A	0.09	N/A
-120.30	1	0.89	N/A	0.11	N/A
	2	1.08	N/A	0.14	N/A
Design Pressure	3	0.96	N/A	0.13	N/A

Test Specimen #2: Structural Overload Load per TAS 202

LOAD	INDICATOR	DEFLECTION (in.)		R DEFLECTION (in.)		PERMANENT	SET (in.)
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED		
100 45	1	0.60	N/A	0.08	N/A		
+180.45	2	0.68	N/A	0.11	N/A		
Test Pressure	3	0.63	N/A	0.08	N/A		
100 45	1	1.62	N/A	0.29	N/A		
-180.45	2	1.92	N/A	0.32	N/A		
Test Pressure	3	1.69	N/A	0.29	N/A		

Test Specimen #3: Preload and Design Load per TAS 202

LOAD	INDICATOR	DEFLECTION (in.)		CATOR DEFLECTION (in.) PERMAN		PERMANENT	SET (in.)
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED		
	1	0.22	N/A	0.03	N/A		
+60.15 50% of Test Pressure	2	0.29	N/A	0.04	N/A		
50% of rest Pressure	3	0.22	N/A	0.03	N/A		
120.20	1	0.35	N/A	0.03	N/A		
+120.30 Design Pressure	2	0.38	N/A	0.05	N/A		
Design Pressure	3	0.35	N/A	0.03	N/A		
60.15	1	0.33	N/A	0.06	N/A		
-60.15 50% of Test Pressure	2	0.44	N/A	0.07	N/A		
50% OF Test Pressure	3	0.39	N/A	0.06	N/A		
-120.30	1	0.94	N/A	0.10	N/A		
	2	1.11	N/A	0.11	N/A		
Design Pressure	3	1.00	N/A	0.10	N/A		



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Test Specimen #3: Structural Overload Load per TAS 202

LOAD	INDICATOR	DEFLECTION (in.)		PERMANENT SET (in.)	
(psf)	LOCATION	MEASURED	ALLOWED	MEASURED	ALLOWED
190 45	1	0.53	N/A	0.05	N/A
+180.45	2	0.57	N/A	0.07	N/A
Test Pressure	3	0.54	N/A	0.05	N/A
190 45	1	1.43	N/A	0.19	N/A
-180.45	2	1.72	N/A	0.21	N/A
Test Pressure	3	1.52	N/A	0.19	N/A

Note 1: Positive and negative uniform static load test loads were held for 30 seconds.

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

Note 3: See Sketch #1 for indicator locations.



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Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Dates: 06/27/19 through 06/28/19

The temperature during testing was 29°C (84°F). The results are tabulated as follows:

Test Specimen #4: Cyclic Test Spectrum and Average Cycle Time per TAS 203					
DESIGN PRESSURE	STAGE				
+120.30 psf	1	2	3		
POSITIVE PRESSURE RANGE (psf)	0 - 60.15	0 - 72.18	0 – 156.39		
AVERAGE CYCLE TIME (sec.)	2.78	2.85	N/A		
NUMBER OF CYCLES	600	70	1		
-120.30 psf	4	5	6		
NEGATIVE PRESSURE RANGE (psf)	0 - 60.15	0-72.18	0 – 156.39		
AVERAGE CYCLE TIME (sec.)	2.86	3.00	N/A		
NUMBER OF CYCLES	600	70	1		

Test Specimen #4: Cyclic Test Spectrum and Average Cycle Time per TAS 203

Test Specimen #4: Positive Cyclic Load per TAS 203

INDICATOR	MAXIMUM	PERMANENT	MANENT PERCENT RECOVERY	
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.39	0.03	92	> 90
2	0.51	0.05	90	> 90
3	0.38	0.04	89⁵	< 90

Test Specimen #4: Negative Cyclic Load per TAS 203

INDICATOR	MAXIMUM	PERMANENT	PERCENT RECOV	/ERY
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.66	0.03	95	> 90
2	0.77	0.05	94	> 90
3	0.66	0.04	94	> 90

Note 4: See Sketch #1 for indicator locations. Test Specimens #4, #5, and #6 were cycled in a common chamber.

Note 5: Percent recovery of Test Specimen #4 was exceeded during positive loading. The percent recovery was within 0.5% which is within a margin of error in testing and is deemed acceptable.



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Test Specimen #5: Cyclic Test Spectrum and Average Cycle Time per TAS 203

DESIGN PRESSURE	STAGE			
+120.30 psf	1	2	3	
POSITIVE PRESSURE RANGE (psf)	0 - 60.15	0 - 72.18	0 – 156.39	
AVERAGE CYCLE TIME (sec.)	2.78	2.85	N/A	
NUMBER OF CYCLES	600	70	1	
-120.30 psf	4	5	6	
NEGATIVE PRESSURE RANGE (psf)	0 - 60.15	0-72.18	0 – 156.39	
AVERAGE CYCLE TIME (sec.)	2.86	3.00	N/A	
NUMBER OF CYCLES	600	70	1	

Test Specimen #5: Positive Cyclic Load per TAS 203

INDICATOR	MAXIMUM	PERMANENT	PERCENT RECO	/ERY
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.73	0.06	92	> 90
2	0.73	0.07	90	> 90
3	0.68	0.04	94	> 90

Test Specimen #5: Negative Cyclic Load per TAS 203

INDICATOR	MAXIMUM	PERMANENT	PERCENT RECOVERY	
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.93	0.01	99	> 90
2	1.05	0.04	96	> 90
3	0.89	0.02	98	> 90

Note 6: See Sketch #1 for indicator locations. Test Specimens #4, #5, and #6 were cycled in a common chamber.



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Test Specimen #6: Cyclic Test Spectrum and Average Cycle Time per TAS 203

DESIGN PRESSURE	STAGE			
+120.30 psf	1	2	3	
POSITIVE PRESSURE RANGE (psf)	0 - 60.15	0 - 72.18	0 – 156.39	
AVERAGE CYCLE TIME (sec.)	2.78	2.85	N/A	
NUMBER OF CYCLES	600	70	1	
-120.30 psf	4	5	6	
NEGATIVE PRESSURE RANGE (psf)	0 – 60.15	0-72.18	0 – 156.39	
AVERAGE CYCLE TIME (sec.)	2.86	3.00	N/A	
NUMBER OF CYCLES	600	70	1	

Test Specimen #6: Positive Cyclic Load per TAS 203

INDICATOR	ΜΑΧΙΜUΜ	AXIMUM PERMANENT PI		/ERY
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.54	0.04	93	> 90
2	0.64	0.06	91	> 90
3	0.57	0.05	91	> 90

Test Specimen #6: Negative Cyclic Load per TAS 203

INDICATOR	MAXIMUM	PERMANENT	PERCENT RECOVERY	
LOCATION	DEFLECTION (in.)	SET (in.)	MEASURED %	ALLOWED %
1	0.76	0.01	99	> 90
2	0.91	0.03	97	> 90
3	0.81	0.02	98	> 90

Note 7: See Sketch #1 for indicator locations. Test Specimens #4, #5, and #6 were cycled in a common chamber.



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ASTM E8/E8M-16a

Test Method: The test specimens were evaluated in accordance with ASTM E8/E8M-16a, *Standard Test Methods for Tension Testing of Metallic Materials*. The test specimens were machined and sized in compliance with section 6.0 of the standard. The specimens were tested using an Instron Model 3369 Universal Test Machine (ICN:005740) with a cross head speed of 0.2 in/min.

Test Results: The test procedure and test results are documented in Intertek B&C job number J6557.02-106-18 and summarized in the following table.

Specimen	Yield Strength (ksi)	Peak Load (lb)	Tensile Strength (ksi)	Elongation (%)
1	31.1	990	34.1	8.1
2	31.7	991	34.4	8.6
3	31.5	1,008	34.7	10.1
4	31.8	1,001	34.7	9.7
5	30.8	975	33.7	6.8
6	29.6	939	32.4	8.5
Average	31.1	984	34.0	8.6

The average calculated modulus of elasticity is 10.1×10^6 psi for the six samples tested.

SECTION 9

CONCLUSIONS

No signs of failure were observed in any area of the test specimen during the TAS 202 testing; as such, the test specimen satisfies the requirements of TAS 202. Upon completion of testing, specimens tested for TAS 202-94 met the requirements of Section 1620 of the Florida Building Code, Building.

AND

No signs of failure were observed in any area of the test specimens during the cyclic load test; as such, the test specimens satisfy the cyclic load requirements of TAS 203. Upon completion of testing, specimens tested for TAS 203-94 met the requirements of Section 1625 of the Florida Building Code, Building.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends ten years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.



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SECTION 10

SKETCH(ES)



Sketch No. 1 TAS 202 and TAS 203 Indicator Locations



130 Derry Court York, Pennsylvania 17406

Telephone: 717-764-7700 Facsimile: 717-764-4129 www.intertek.com/building

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SECTION 11

PHOTOGRAPH



Photo No. 1 KEC150, Aluminum Powder-Coated Cladding



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SECTION 12

DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimens reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

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STATUS:

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SECTION 13

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	10/16/19	N/A	Original Report Issue
1	04/26/22	15	Revised Drawing