



HOME of MAGNUM[®] BOARD

"The New Generation Building Material"

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Prepared by: DPA
 Checked by: EAG

MAGNUM[®] BOARD SANDED BACK PRODUCTS
Certified Test Summary & Product Specifications
AC308 Criteria- ASTM and UL Procedures - with Additional Testing for Specific Products

Sanded Back Structural and Performance Product Testing Conducted by:

RADCO – Long Beach, CA

Test Report Numbers: RAD-4224, RAD-4224-S1 and RAD-4451 Rev. 1

PRI Construction Materials Technologies, LLC – Tampa, FL

Test Report Numbers:

Sanded Back Product Fire Testing Conducted/Witnessed by:

Southwest Research Institute – San Antonio, TX

Test Report Numbers: 01.15210.01.101c, 01.11813.02.046,

01.11810.165a, 01.11810.01.165b and 01.11850.01.431

Underwriters Laboratories – Northbrook, IL

File No. R26120 USA Design No. U061

Underwriters Laboratories, Toronto, Canada

Design No. W490

Additional Testing Conducted by:

PRI – Tampa, FL

Test Report Numbers: 001-02-01, 004-02-01, 002-02-01 and 003-02-01

EMSL Analytical – Cinnaminson, NJ

Test Report Numbers: 361100056, 361100055

TEST / STANDARD	RESULTS			
Flexural Strength – C1185	AS RECEIVED			
	<u>THICKNESS</u>	<u>DIRECTION</u>	<u>AVE FLEXURAL STRENGTH (PSI)</u>	<u>MODULUS OF ELASTICITY (PSI)</u>
	6mm	Machine	2296 PSI	1,158,532
		Cross	2054 PSI	1,145,587
	12mm	Machine	1038 PSI	625,536
		Cross	1508 PSI	719,574
	SATURATED			
	6mm	Machine	2,023 PSI	608,575
		Cross	1,707 PSI	572,930
	12mm	Machine	1,110 PSI	364,706
		Cross	649 PSI	380,366
	AC-386 specifies a minimum average flexural strength of 580 psi. Magnum Board [®] exceeds this requirement.			
	<u>THICKNESS</u>	<u>MPa</u>		
	6mm	13.245		
	10mm	13.516		
12mm	10.51			
15mm	8.88			

	<p style="text-align: center;"><u>THICKNESS</u> 18mm</p> <p style="text-align: center;"><u>MPa</u> 7.426</p> <p>Sample lot consisted of three-(3) of each thickness. Testing was conducted and the reporting results are the average of the three-(3) tests.</p>												
Dimensions and Tolerances per C1325-04	<p>Length: Meets requirements of section 7.4 of ASTM C1186 Width: Meets requirements of section 7.4 of ASTM C1186 Thickness: Meets requirements of section 7.5 of ASTM C1186 Squareness: Meets requirements of section 7.6 of ASTM C1186 Edge Straightness: Meets requirements of section 7.7 of ASTM C1186 Surface Finish: See attached pictures depicting our Premium (sanded) back product and our Class A (rolled process) back product.</p>												
Moisture Movement – C1186	<p><u>Thickness – Direction – Aver Dim Chg</u></p> <table border="0"> <tr> <td>6MM</td> <td>Machine</td> <td>0.01%</td> </tr> <tr> <td></td> <td>Cross</td> <td>0.03%</td> </tr> <tr> <td>12MM</td> <td>Machine</td> <td>0.04%</td> </tr> <tr> <td></td> <td>Cross</td> <td>0.03%</td> </tr> </table>	6MM	Machine	0.01%		Cross	0.03%	12MM	Machine	0.04%		Cross	0.03%
6MM	Machine	0.01%											
	Cross	0.03%											
12MM	Machine	0.04%											
	Cross	0.03%											
Water Absorption – C1186	12MM = 23%												
Vapor Transmission (Permeability)	ASTM E96 / E96M Standard test methods for water vapor transmission of materials. See Exhibit A attached hereto for details.												
Standard Test Method for Resistance to Growth of Mold and Mildew – ASTM D-3273	Magnum Board® is ranked 10 of 10 and exceeds the requirements of test method ASTM D-3273. Magnum Board® Products are not a nutrient for mold and mildew.												
Compression Indentation – C1325	No residual deformation was noted following loading and the rest period. Exceeds requirements of C1325.												
Nail Head Pull-Through – C1325	12MM = 174.8 lbf. Magnum Board® exceeds the requirements of C1325.												
Falling Ball Impact – C1325	All Magnum Board® specimens exceed the 12” requirements per C1325												
Shear Bond Strength – C1325	<p><u>Mortar</u> <u>Avg. Shear Strength (PSI)</u></p> <table border="0"> <tr> <td>Portland</td> <td>168.82</td> </tr> <tr> <td>Latex</td> <td>234.32</td> </tr> </table> <p>Magnum Board® exceeds the requirements of C-1325 NOTE: Refer to endorsement by Mapei</p>	Portland	168.82	Latex	234.32								
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Humidified Deflection – C1396-06A	Magnum Board® exceeds requirements of ASTM C1396 and AC386.												
Surface Burning Characteristics – E84-05	<p>6MM = Classification A 12MM = Classification A Magnum Board® exceeds the test criteria presented in ASTM E84 and is classified non-flammable.</p>												
Non-Combustible Construction – ASTM E136	Magnum Board® exceeds the test criteria presented in ASTM E136 and is classified as non-combustible.												
Underwriters Laboratory Fire Rating UL263, S101, S102 and ASTM E119	<p>Exceeds requirements for single 12MM (15/32”) layer one (1) hour wall fire rating. File No. R26120 USA Design No. U061, US – UL link is:</p> <p>http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html</p> <p>Canada Design No. W490, S102 link for zero smoke develop/zero flame spread - UL link is:</p> <p>http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/index.html</p>												

	S102 link for zero smoke develop/zero flame spread - NOTE: Two hour single layer wall rating has been conducted but is not certified. These tests were conducted on single layer walls. Magnum Board® did not require retesting at one-half the time to pass hose stream as do gypsum products. These are true one and two hour wall tests.			
Xenon Arc Accelerated Weathering – ASTM G155	All five specimens were examined under 5x magnification following 2,000 hours of exposure. No signs of surface cracking, checking, crazing, erosion, or chalking were observed. Magnum Board® exceeds the requirements of ASTM G155.			
Freeze / Thaw – ASTM C1185	Magnum Board® exceeds the requirements of ASTM C1185 and AC386.			
Toxicity Testing – U-Pitt Protocol	Magnum Board® exceeds the combustion toxicity protocol developed at the University of Pittsburgh, and the requirements for interior finish material as defined by Title 27, Chapter 1, Subchapter 5, Article 5, of the Building Code of the City of New York. Magnum Board® is classified as non-toxic and is carcinogen and silica free.			
VOC Testing to ASTM D5116	Magnum Board® contains NO Toxic VOC's and exceeds the overall requirements of the "US Green Buildings Council LEED Standard for VOC's".			
Structural Performance	Magnum Board® exceeds the structural requirements of ASTM E330 and AC386.			
Density	Depending on application, Magnum Board® densities may range from 0.85 to 1.15 g/cm ³ .			
Surface Texture Sanded Back Fully Tested Product:	See Exhibit B attached hereto. Magnum Board® sanded back product is smooth on the front side and has a uniform machined texture on the back side.			
Rolled Back, in house tested product only:	Magnum Board® rolled back product is smooth on the front side and has a rolled surface on the back side.			
Color	White to off white.			
Basic Compounds	Refer to MSDS posted on website: www.magnumbp.com			
Transverse Load iaw AC376 – E72	Positive Load		Negative Load	
	Ultimate Failure		Ultimate Failure	
<u>Test Sample</u>	<u>Psf</u>	<u>Kpa</u>	<u>psf</u>	<u>Kpa</u>
1	133.12	6.37	111.80	5.35
2	142.48	6.82	140.82	6.74
3	161.30	7.72	139.36	6.67
Average	145.63	6.97	130.66	6.26
Standard Deviation	14.35	0.69	16.35	0.78
Results of transverse loads exceed the requirements of AC376				
Wet Racking Shear IAW AC376 – E72 Section 15.05				
<u>Test Number</u>	<u>Ultimate Load (lbf)</u>		<u>Lbf / lineal ft.</u>	
1	3600		450	
2	3600		450	
3	2900		363	
Average	3367		421	
Standard Deviation	404		51	
ASTM D696 – 08 Standard Test Method for Determine the Coefficient of Linear Thermal Expansion	Property Thermal Coefficient of Lineal Expansion, α , [in/in-°F] 38-90°F Result: 3.97 x 10 ⁻⁶		Result	

Determine the Hygrometric Coefficient of Expansion	Hygrometric Coefficient of Expansion (HCE), unrestrained, for Magnum® Board, 18-mm nominal thickness; [in./in./%RH] 10% - 90% RH Result: 2.08 x 10 ⁻⁵																								
Asbestos	Magnum Board® has no asbestos.																								
Carcinogens	There are no carcinogens in Magnum Board® whatsoever. Refer to our U-Pitt toxicity test above.																								
Formaldehyde	Magnum Board® Products do not contain formaldehyde.																								
Off Gassing - the emission of especially noxious gases	Magnum Board® Products do not produce off-gassing																								
<p>STC Values:</p> <p>NOTE: The following results are in house test lab results and are not certified by an approved ICC testing laboratory</p> <p><input type="checkbox"/> STC Value standard wall system, 12MM both sides, wood or metal stud construction and batts:</p>	~STC48																								
<p>R Values:</p> <p>NOTE: The following results are either in-house test lab results or published results from SIPA and are not certified by an approved ICC testing laboratory.</p> <p>Structural Insulated Panel (SIP) R Values using 10MM Magnum Board®:</p>	<p><input type="checkbox"/> Magnum Board® thermal insulation R value per inch = 1.2 Compared to:</p> <p>Cement Board: .8 Plywood: 1.2 Gypsum Wallboard: .9 Gypsum Sheathing: 1.1 O.S.B. 1.</p> <p>SIP R-Values (Calculated R-Values)</p> <table border="1"> <thead> <tr> <th>SIP Panel Thickness</th> <th>4 1/2"</th> <th>6 1/2"</th> <th>8 1/4"</th> <th>10 1/4"</th> <th>12 1/4"</th> </tr> </thead> <tbody> <tr> <td>EPS</td> <td>14.4</td> <td>21.6</td> <td>27.9</td> <td>35.1</td> <td>45.9</td> </tr> <tr> <td>XPS</td> <td>19.5</td> <td>29.5</td> <td>38.3</td> <td>48.3</td> <td>58.3</td> </tr> <tr> <td>Polyurethane</td> <td>21.7</td> <td>32.9</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>Consult the panel manufacturer to verify R-values. R-values can vary between SIP manufacturers.</p>	SIP Panel Thickness	4 1/2"	6 1/2"	8 1/4"	10 1/4"	12 1/4"	EPS	14.4	21.6	27.9	35.1	45.9	XPS	19.5	29.5	38.3	48.3	58.3	Polyurethane	21.7	32.9	N/A	N/A	N/A
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IMPORTANT NOTES – PLEASE READ BEFORE SPECIFYING

Sanded Back Product

1. Is tested to AC386 criteria by IAS Recognized Test Laboratories
2. UL rated fire wall is tested and certified to all above testing requirements.

Rolled back finish:

1. Is in house tested to specific AC386 requirements

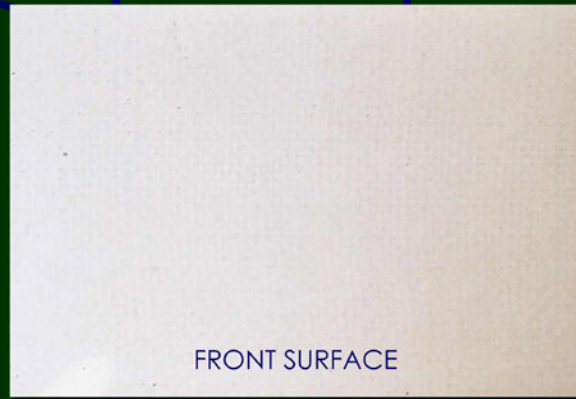
Magnum Building Products Product Line includes:

1. Interior Applications
 - a. Wall Board
 - b. Ceiling Board
 - c. Backer Board
 - d. Underlayment
 - e. Trim Materials
2. Exterior Applications
 - a. Sheathing
 - b. Soffit – Ventilated and Non Ventilated
 - c. Fascia
 - d. Trim Materials
 - e. Siding

NOTE: Magnum Board sheathing alone is not tested for roofing or flooring substrate and our warranty does not cover its use in these applications.

EXHIBIT "B"

MAGNUM BUILDING PRODUCTS
THE NEW GENERATION BUILDING MATERIAL



FRONT SURFACE



ROLLED BACK SURFACE



SANDED BACK SURFACE



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