

Equivalency Evaluation Report

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Product Manufacturer

Mitsubishi Chemical Composites America, Inc.
401 Volvo Parkway
Chesapeake, VA 23320

Product Name, Model and/or Description

Series "Alpolic and Alpolic/FR" Composite Wall Panel
Systems with 5/8" Plywood Substrate
Large and Small Missile Impact Resistant

Code: Current Edition of the Florida Building Code including the 7th Edition (2020) Florida Building Code

Compliance Method: 61G20-3.015(4)(d) – Equivalency of Standards

Product Name, Model and/or Designation: Products covered by this evaluation include the following.

- Mitsubishi Chemical Composites America, Inc. Series "Alpolic and Alpolic/FR" Composite Wall Panel Systems with 5/8" Plywood Substrate – Large and Small Missile Impact Resistant

Product Testing, Materials and Certification:

- Performance Testing per TAS 201, TAS 202 and TAS 203:
 - Test report on Large Missile Impact Test, Cyclic Wind Pressure Test, and Uniform Static Air Pressure Test on Alpolic and Alpolic/FR Composite Wall Panel Systems, prepared by Architectural Testing Inc., Report No. A8556.01-109-18, dated September 15, 2011, signed and sealed by Michael D. Stremmel, P.E., on May 30, 2012.
 - Test report on Small Missile Impact Test, Cyclic Wind Pressure Test, and Uniform Static Air Pressure Test on Alpolic and Alpolic/FR Composite Wall Panel Systems, prepared by Architectural Testing Inc., Report No. 01-35789.02, dated 05/31/00, signed and sealed by Allen Reeves, P.E.
 - Test report on Small Missile Impact Test, Cyclic Wind Pressure Test, and Uniform Static Air Pressure Test on Alpolic and Alpolic/FR Composite Wall Panel Systems, prepared by Architectural Testing Inc., Report No. 01-43055.01, dated January 07, 2003, signed and sealed by Joseph A. Reed, P.E.
- Material Testing:
 - Southwest Research Institute, Report No. 01-8361-038, ASTM D1929-91a for Ignition Properties, 4mm Alpolic/FR, dated 10/28/96, signed by Betty J Covey and Alex B. Wenzel.
 - Southwest Research Institute, Report No. 01-8361-320d, ASTM E84-97 for Flame Spread Index and Smoke Developed Index, 4mm Alpolic, dated 09/18/97, signed by Anthony L. Saucedo and Alex B. Wenzel.
 - Southwest Research Institute, Report No. 01-7520-359a, ASTM E84-95 for Flame Spread Index and Smoke Developed Index, 4mm Alpolic/FR, dated 09/26/96, signed by Anthony L. Saucedo and Alex B. Wenzel.
 - ATI, Report No. 01-43055.02, ASTM E8-00 for Tensile Strength, 4mm Alpolic, dated March 04, 2003, signed and sealed by Joseph A. Reed, P.E.
 - ATI, Report No. 01-35789.03, ASTM E8-96 for Tensile Strength, 4mm Alpolic and 4mm Alpolic/FR, dated July 07, 2000, signed and sealed by Allen N Reeves, P.E.
 - United States Testing Co. Inc., Report No. 100727-3, ASTM D1929-91a for Ignition Properties, 4mm Alpolic
 - Intertek Test Report No. E6899.01-106-31, dated 4/22/15, ASTM D635-14 Rate of Burn, 4mm Alpolic/FR.
 - US Testing Co. Test Report No. 100727-1, dated 4/12/91, ASTM D635 (year not recorded) Rate of Burn, 4mm Alpolic.
 - Spec. Data issued by Alcoa Mill Products, dated November 08, 2000, with chemical composition and mechanical properties of Aluminum Alloy 3105-H14

Testing performed to specification revision levels above predate the current edition of the Florida Building Code requirements.



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- Materials:
 - Alpolic and Alpolic/FR aluminum composite metal panel 4mm thick (0.157") as manufactured by Mitsubishi Chemical Composites America, Inc., Chesapeake, VA. Core comprised of thermoplastic material. Face sheet comprised of 0.020" aluminum 3105-H14 alloy.
 - Aluminum extrusions (6063-T6).

Product Installation Instructions:

- MCCA/PTC PDG Drawing No. MPCA0001, Rev. 7, dated 4/14/17 Series "Alpolic and Alpolic/FR" Composite Wall Panel Systems with 5/8" Plywood Substrate – Large and Small Missile Impact, signed and sealed by Robert. J. Amoruso, P.E. Florida No. 49752.

Engineering Analysis & Evaluation: The following evaluations, engineering and/or rational analysis/calculations have been performed.

- Product Evaluation to the current edition of the Florida Building Code as documented in PTC PDG Report No. 2743-PER, prepared by Robert J. Amoruso, P.E. in accordance with Product Approval Rule 61G20-3.005(1)(d) – Product Evaluation Report by a Licensed Professional Engineer

Equivalency Evaluation:

- The Appendix 1 table shows the material testing results and ASTM revision level used in testing.
- The table below shows the TAS and ASTM revision level used in testing vs. the current edition of the Florida Building Code.

Tests Conducted	Test Report No.	ASTM Used in Testing	ASTM in Current FBC
Performance Testing for AWS and Impact/Cyclic Loading	Architectural Testing Inc., Report No. 67392.01-109-18, 01-35789.02 and 01-43055.01	TAS 201-94 TAS 202-94 TAS 203-94	TAS 201-94 TAS 202-94 TAS 203-94
Ignition Properties	Southwest Research Institute, Report No. 01-8361-038 and United States Testing Co. Inc., Report No. 100727-3	ASTM D1929-91a	ASTM D1929-16
Flame Spread Index and Smoke Developed Index	Southwest Research Institute, Report No. 01-8361-320d	ASTM E84-97	ASTM E84-16
Flame Spread Index and Smoke Developed Index	Southwest Research Institute, Report No. 01-7520-359a	ASTM E84-95	ASTM E84-16
Tensile Strength	ATI, Report No. 01-43055.02	ASTM E8-00	n/a
Tensile Strength	ATI, Report No. 01-35789.03	ASTM E8-96	n/a
Rate of Burn	Intertek Test Report No. E6899.01-106-31	ASTM D635-14	ASTM D635-14
Rate of Burn	US Testing Co. Test Report No. 100727-1	ASTM D635 (year not recorded)	ASTM D635-14
Materials Report	Spec. Data issued by Alcoa Mill Products, dated January 16, 2013 with chemical composition and mechanical properties of Aluminum Alloy 3105-H14	Mill Certification	Mill Certification



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The ASTM specifications forming the basis for material testing of the 4mm Alpolic and 4mm Alpolic/FR panels have been reviewed against the ASTM specification revision levels currently required by the code and found that no changes exist in testing that would negate the existing test results. Therefore, compliance with the current edition of the Florida Building Code is verified.

Review of the TAS 202 and 203 testing to that required in the current edition of the Florida Building Code is verified and found to be in compliance.

Certificate of Independence per Product Approval Rule 61G20-3.009

PTC Product Design Group, LLC and Robert J. Amoruso, P.E. does not have, nor will acquire, any financial interest in the company manufacturing or distributing product(s) covered by this Product Evaluation Report. PTC Product Design Group, LLC and Robert J. Amoruso, P.E. do not have, nor will acquire any financial interest in any other entity involved in the approval process or testing of the product(s) covered by this Product Evaluation Report.

Evaluated By:
Robert J. Amoruso, P.E.
FL P.E. License Number 49752



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Appendix 1: Testing Results

Materials Testing							
Tests Conducted	Test Report No.	Test Report Date	ASTM Used in Testing	ASTM in Current FBC	Result	Code Compliance	Material
Performance Testing for AWS and Impact/Cyclic Loading	Architectural Testing Inc., Report No. A8556.01-109-18, 01-35789.02 and 01-43055.01	5/30/12, 5/31/00 and 1/7/03 respectively	TAS 202-94 TAS 203-94	TAS 202-94 TAS 203-94	+70/-90 psf	HVHZ Large and Small Missile Impact	4mm Alpolic 4mm Alpolic/FR
Ignition Properties 4mm Alpolic/FR	Southwest Research Institute, Report No. 01-8361-038	10/28/1996	ASTM D1929-91a	ASTM D1929-12	Self-Ignition Temp = 837°F Flash Ignition Temp = 811°F	Self-Ignition Temp > 650 degrees Flash Ignition Temp not code requirement.	4mm Alpolic/FR
Ignition Properties 4mm Alpolic	United States Testing Co. Inc., Report No. 100727-3	4/30/91	ASTM D1929-91a	ASTM D1929-12	Self-Ignition Temp = 752°F Flash Ignition Temp = 716°F	Self-Ignition Temp > 650 degrees Flash Ignition Temp not code requirement.	4mm Alpolic
Flame Spread Index and Smoke Developed Index 4mm Alpolic	Southwest Research Institute, Report No. 01-8361-320d	9/18/1997	ASTM E84-97	ASTM E84-13a	Flame Spread Index = 0	Smoke Density < 450 or Flame Spread < 75	4mm Alpolic
					Smoke Developed Index = 0		
Flame Spread Index and Smoke Developed Index 4mm Alpolic/FR	Southwest Research Institute, Report No. 01-7520-359a	9/26/1996	ASTM E84-95	ASTM E84-13a	Flame Spread Index = 0	Smoke Density < 450 or Flame Spread < 75	4mm Alpolic/FR
					Smoke Developed Index = 10		
Tensile Strength 4mm Alpolic	ATI, Report No. 01-43055.02	3/4/2003	ASTM E8-00	n/a	Fty = 5693 psi average of two tests	Not Applicable	4mm Alpolic
Tensile Strength 4mm Alpolic & 4mm Alpolic/FR	ATI, Report No. 01-35789.03	7/7/2000	ASTM E8-96	n/a	Ftu = 7452 psi	Not Applicable	4mm Alpolic



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Appendix 1: Testing Results

Materials Testing							
Tests Conducted	Test Report No.	Test Report Date	ASTM Used in Testing	ASTM in Current FBC	Result	Code Compliance	Material
Rate of Burn 4mm Alpolic/FR	Intertek Test Report No. E6899.01-106-31	4/22/15	ASTM D635-14	ASTM D635-14	CC1	CC1	4mm Alpolic/FR
Rate of Burn 4mm Alpolic	US Testing Co. Test Report No. 100727-1	4/12/91	ASTM D635 (year not recorded)	ASTM D635-14	CC1	CC1	4mm Alpolic
Materials Report	Spec. Data issued by Alcoa Mill Products, dated January 16, 2013 with chemical composition and mechanical properties of Aluminum Alloy 3105-H14	1/16/2013	Mill Certification	Mill Certification	See Report in Appendix 2	Not Applicable	Aluminum Alloy 3105-H14



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Appendix 2: Aluminum Alloy 3105-H14 Specification Data

Certification of Test Results



SOLD TO MITSUBISHI CHEMICAL FP AMERICA ALPOLIC PLANT 401 VOLVO PARKWAY CHESAPEAKE, VA 23320	SHIP TO MITSUBISHI CHEMICAL FUNCTIONAL PROD 401 VOLVO PKWY BLDG #2 CHESAPEAKE, VA 23320	CERT NO 0001529739 DATE 1/16/2013 SKID NO 330351 SKID WGT 6,590 PAGE 1 OF 1	CONVERSION COATED - 2 SIDES NON ANODIZE QUALITY OUT: STANDARD MILL FINISH IN: STANDARD MILL FINISH NOT EMBOSSED
ORDER NO LT7125 ITEM NO 1 ALLOY 3105 GAUGE .01900	PO NO RM212142 PART NO AL2041 TEMPER H14 WIDTH 40.7500	FORM COIL LENGTH 0.0000	
PERMATREAT 1021B OVER PERMATREAT 1021B			
LOT: 549165 COIL: A01 DROP: 251641			
INGOT 2516411	SI 0.50 FE 0.40 CU 0.17	MN 0.45 MG 0.57 CR 0.03	NI 0.005 ZN 0.12 TI 0.03
HEAD ULTIMATE STRENGTH 24.2 KSI TAIL ULTIMATE STRENGTH 24.2 KSI HEAD YIELD STRENGTH (OFFSET = .2%) 23.6 KSI TAIL YIELD STRENGTH (OFFSET = .2%) 23.5 KSI HEAD ELG IN 2 IN., AT FRACTURE 2.5 % TAIL ELG IN 2 IN., AT FRACTURE 2.5 %			
CHEMICAL COMPOSITION ACCORDING TO ASTM E-1251-11 CHEMISTRY EXPRESSED AS % W/W FOR EACH REPORTED ELEMENT MECHANICAL PROPERTIES ACCORDING TO ASTM B-557-10			
** END OF CERTIFICATION **			
We hereby certify that, unless otherwise indicated, the material covered by this report has been manufactured, inspected, and tested in accordance with, and has been found to meet, the applicable requirements described herein, including any specifications forming a part of the description and that samples representative of the material met the composition. Also, note that mercury is not a normal constituent in aluminum alloys and neither it nor any of its compounds are used in the production of aluminum alloys. This report was prepared in accordance with the procedures set forth in ASTM E-1251-11 and ASTM B-557-10. The material was manufactured in the United States or a qualifying country. (REF DFARS 25.301-21.1). It was manufactured in the United States.		These commodities, technology and software exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to U.S. law prohibited. This certification complies with EN 10204:2004.	
		Authorized By: JEFF KREADY, LAB SUPERVISOR	

