Equivalency Evaluation Report

Product Manufacturer	Product Name, Model and/or Description
Mitsubishi Chemical America, Alpolic Division 401 Volvo Parkway Chesapeake, VA 23320	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 8th Edition (2023) 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 America, Alpolic Division 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. Sauceda 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. Sauceda 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.

- Materials:
  - Alpolic and Alpolic/FR aluminum composite metal panel 4mm thick (0.157") as manufactured by Mitsubishi Chemical America, Alpolic Division, 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. 8, dated 6/13/23 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.

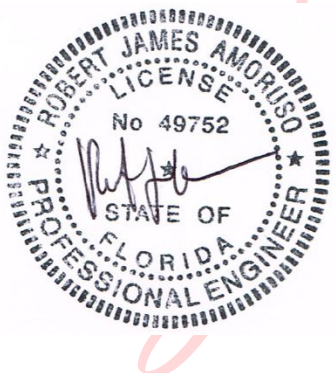
Tests Conducted	Test Report No.	TAS/ASTM Used in Testing	TAS/ASTM in 2023 FBC and/or FRC
Performance Testing for AWS and Impact/Cyclic Loading	Architectural Testing Inc., Report No. 67392.01-109-18, 01-35789.02 and 01-43055.01	TAS 201-94 TAS 202-94 TAS 203-94	TAS 201-94 TAS 202-94 TAS 203-94
Ignition 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 E84-18b
Flame Spread Index and Smoke Developed Index	Southwest Research Institute, Report No. 01-7520-359a	ASTM E84-95	ASTM E84-18b
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

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.



Digitally signed by Robert J Amoruso
Date: 2023.07.05 11:08:36 -04'00'

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

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^{0}F Flash Ignition Temp = 811^{0}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^{0}F Flash Ignition Temp = 716^{0}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 Developed Index = 0	Smoke Density < 450 or Flame Spread < 75	4mm Alpolic
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 Developed Index = 10	Smoke Density < 450 or Flame Spread < 75	4mm Alpolic/FR
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

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

Appendix 2: Aluminum Alloy 3105-H14 Specification Data

ALCOA

Alumax Mill Products, Inc.
(an Alcoa Inc. business)
1480 Manheim Pike
Lancaster, Pa. 17601

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

ORDER NO	LT7125	PO NO	RM212142			CONVERSION COATED - 2 SIDES
ITEM NO	1	PART NO	AL2041			NON ANODIZE QUALITY
ALLOY	3105	TEMPER	H14	FORM	COIL	OUT: STANDARD MILL FINISH
GAUGE	.01900	WIDTH	40.7500	LENGTH	0.0000	IN: STANDARD MILL FINISH
						NOT EMBOSSED

PERMATREAT 1021B OVER PERMATREAT 1021B

LOT: 549165 COIL: A01 DROP: 251641

INGOT	SI	FE	CU	MN	MG	CR	NI	ZN	TI
2516411	0.50	0.40	0.17	0.45	0.57	0.03	0.005	0.12	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 contaminant in aluminum alloys and neither it nor any of its compounds are used in the manufacture of our product. Certification of test results shall not be reproduced except in full. This material was melted in the United States or a qualifying country (REF DFARS 225.872.1A): 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