

APEX BUILDING TECHNOLOGY INC. TEST REPORT

SCOPE OF WORK

ICC-ES AC 386, ACCEPTANCE CRITERIA FOR FIBER-REINFORCED MAGNESIUM-OXIDE-BASED SHEETS

REPORT NUMBER

201218010SHF-003

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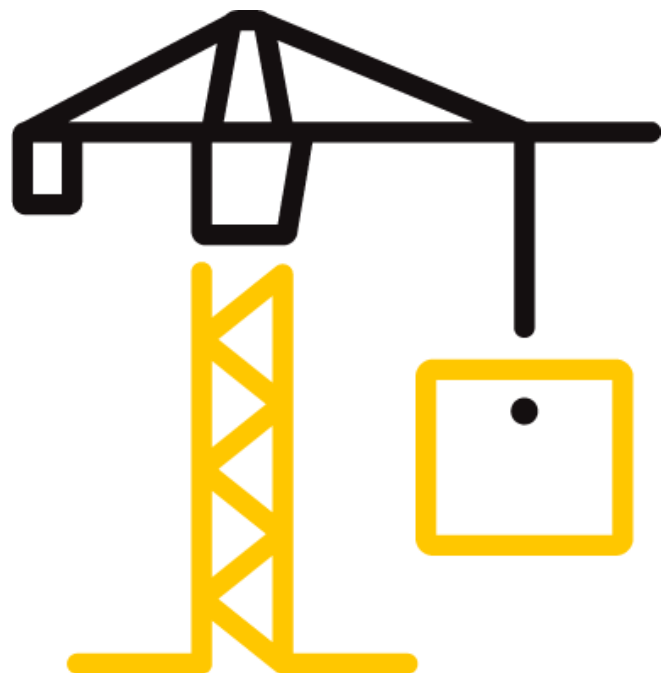
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SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by Apex Building Technology INC to perform testing in accordance with ICC-ES AC 386, *Acceptance Criteria for Fiber-Reinforced Magnesium-Oxide-Based Sheets, approved October 2007 (editorially revised February 2016)*, on their All Clad Board. There are five thickness of the boards. Results obtained are tested values and were secured by using the designated test method(s). Testing conducted at Intertek Testing Services Shenzhen Ltd., Shanghai Fengxian Branch test facility in Shanghai, China.

SECTION 2 TEST METHOD

The purpose of the testing was code compliance evaluation in accordance with the following criteria:

- ICC-ES AC 386, *Acceptance Criteria for Fiber-reinforced Magnesium-Oxide-Based Sheets approved October 2007 (editorially revised February 2016)*
- ASTM C473-12, *Test Method for Physical Testing of Gypsum Panel Products*
- ASTM C666-97, *Test Method for Resistance of Concrete to Rapid Freezing and Thawing*
- ASTM C1185-08 (2012), *Standard Test Methods for Sampling and Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards*
- ASTM D1037-06a, *Test Methods for Evaluating Properties of Wood-base Fiber and Particle Panel Materials*
- ASTM D2394-99, *Methods for Simulated Service Testing of Wood and Wood-base Finish Flooring*
- ASTM E84-13a, *Standard Test Method for Surface Burning Characteristics of Building Materials*
- ANSI A118.1-99, *Standard Specifications for Dry-set Portland Cement Mortar*
- ANSI A118.4-99, *Standard Specifications for Latex-Portland Cement Mortar*

This evaluation began on March 9, 2022 and was completed on November 25, 2023.

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SECTION 3

MATERIAL SOURCE/INSTALLATION

The specimens were randomly selected by Intertek representative Jerome Wang, at the Kunshan Rockmax Building Material Co.,Ltd, located at Qianzhuang Street, Shimen Town, Linshu County, Linyi City, Shandong Province, China. on January 5~6, 2022. Samples were received at the Evaluation Center on March 9, 2022.

The subject test specimens were traceable samples selected from the manufacturer's facility. Intertek selected the specimen and has verified the composition, manufacturing techniques and quality assurance procedures

The product name is All Clad. It is fiber-reinforced Magnesium-Oxide-Based Sheets. Panel size is 1220 mm by 2440mm (width by length). Panel thickness is 6 mm, 9 mm, 11 mm, 15 mm and 19 mm. Density is assumed to be uniform throughout the full range of thickness. These models are of the same formulation and composition. They differ in thickness only.

SECTION 4

TEST PROCEDURE

Unless otherwise indicated, all testing reported herein was conducted in a laboratory set to maintain temperature in the range of $(23 \pm 2)^\circ\text{C}$ and relative humidity in the range of $(50 \pm 5)\%$. All test specimen materials were stored in the laboratory environment for no less than 40 hours prior to testing.

4.1 ICC-ES AC 308 Section 2.1.1 Product Description-Material Specifications (Density)

The test method was in accordance with Section 6 of ASTM C1185. Five (5) samples were prepared for the testing. The volume (V) of the specimen is obtained per Test Methods ASTM C20 in cubic centimeters by subtracting the suspended weight (W) from the saturated weight (S). Samples were conditioned in an oven at $194 \pm 4^\circ\text{F}$ ($90 \pm 2^\circ\text{C}$) and weighed continuously until two readings, taken two hours apart, differed by less than 0.1%. Density was calculated as equilibrium mass divided by volume.

4.2 ICC-ES AC 308 Section 3.1.1 Flexural Strength

The test method was in accordance with Section 5 of ASTM C1185. A total of 20 samples were prepared for the testing, six inches (152mm) wide by twelve inches (305mm) long. Two cross-

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direction and two machine-direction samples were obtained from each sheet. The samples were conditioned at $73 \pm 4^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity of $50 \pm 5\%$ for seven days. One cross direction and one machine direction sample from each sheet were immersed in water at $73 \pm 7^{\circ}\text{F}$ ($23 \pm 4^{\circ}\text{C}$) for a minimum of 48 hours. Wet samples were tested immediately upon removal from the water. Width dimensions were measured and recorded as the average of three measurements while thickness was measured and recorded as the average of three measurements. Samples were tested in midpoint flexure using a universal test machine at a rate of 3 mm/minute over a support span of 254 mm. Testing continued until failure. The average flexural strength of the specimen pair shall be the arithmetic mean value obtained in the two directions.

4.3 ICC-ES AC 386 Section 3.1.2 Freeze/Thaw Cycling

The test method was in accordance with ASTM C666, Procedure B. Five (5) test specimens were prepared for the testing. The nominal freezing-and-thawing cycle of this test method shall consist of alternately lowering the temperature of the specimens from 40 to 0°F (4 to -18°C) and raising it from 0 to 40°F (-18 to 4°C) in not less than 2 nor more than 5 h. The specimens were subjected to 25 cycles. At the completion of 25 cycles, a visual examination was performed to check for signs of cracking, delamination, or other physical changes.

4.4 ICC-ES AC 386 Section 3.1.3 Dimensions and Tolerances

The test method was in accordance with Section 7 of ASTM C1185. Five (5) test specimens were selected, each nominally 2440 mm long by 1220 mm wide. Length and width dimensions were measured and recorded as the average of three measurements while thickness was measured and recorded as the average of four measurements. The squareness was measured and recorded as the length of the two diagonals of the panel. The edge straightness was measured by stretching a string from one corner of the panel to the adjacent corner.

4.5 ICC-ES AC 386 Section 3.1.4 Moisture Movement

The test method was in accordance with Section 8 of ASTM C1185. A total of 10 samples were prepared for the testing. Five machine-direction sample oriented parallel with the long dimension and five cross-direction sample oriented at a right angle to the long dimension. The samples were three inches (76mm) wide by twelve (305mm) inches long. Samples were conditioned at $73 \pm 4^{\circ}\text{F}$ ($23 \pm 2^{\circ}\text{C}$) and a relative humidity of $30 \pm 2\%$ and weighed daily until successive values differed by less than 0.1%. Three length measurements were marked and recorded. Samples were then conditioned at $73 \pm 6^{\circ}\text{F}$ ($23 \pm 3^{\circ}\text{C}$) and a relative humidity of $90 \pm 5\%$ and weighed daily until successive values differed by less than 0.1%. Three length measurements were taken and recorded from the marked locations.

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4.6 ICC-ES AC 386 Section 3.1.5 Water Absorption

The test method was in accordance with Section 9 of ASTM C1185. Five (5) specimens were prepared four inches square by the sample thickness. Samples were conditioned in an oven at $194 \pm 4^{\circ}\text{F}$ ($90 \pm 2^{\circ}\text{C}$) and weighed daily until practical equilibrium was achieved. The samples were then submerged for 48 ± 8 h in clean water at $73 \pm 7^{\circ}\text{F}$ ($23 \pm 4^{\circ}\text{C}$). Samples were removed from the water and wiped with a damp cloth prior to weighing.

4.7 ICC-ES AC 386 Section 3.1.6 Compression Indentation:

The test method was in accordance with concentrated loading of ASTM D2394. Five (5) specimens were prepared for the testing. The residual deformation should be less than 0.05 inch (1.3 mm) after the load of 1000 lb (4.45kN) has been applied.

4.8 ICC-ES AC 386 Section 3.1.7 Nail-head Pull Through

The test method was in accordance with Section 15 of ASTM D1037. Five (5) specimens were prepared three inches (76mm) wide by twelve (305mm) inches long by the sample thickness. Utilizing the nail with a 0.375-inch-diameter (10mm) head and a shank diameter of 0.121 inch (3mm). Samples were tested using a universal test machine at a rate of 0.06 in./min (1.5 mm/min) ± 50 %. Samples were conditioned in water at $68 \pm 2^{\circ}\text{F}$ ($20 \pm 1^{\circ}\text{C}$) for 24h before the test and were tested within 30 minutes upon removal from the water.

4.9 ICC-ES AC 386 Section 3.1.8 Falling Ball Impact

The test method was in accordance with Section 21 of ASTM D1037. Five (5) specimens, each measuring 9 in. x 10 in. (228 by 254mm), were prepared for testing. Samples were placed between two 1-1/2 in. thick plywood frames and clamped securely in place using carriage bolts. The frame and specimen were securely fixed during the test. A 2 in. (51 mm) diameter steel ball was dropped in the center of the specimen in increments of 1 in. (25 mm). The drop height was measured from the bottom of the ball to the top surface of the specimen. This was continued until a drop height of 12 in. (305 mm) was reached. After each drop, the top and bottom surfaces were inspected for any sign of damage.

4.10 ICC-ES AC 386 Section 3.1.9.1 Shear bond strength (Dry-set Portland Cement)

The test method was in accordance with ANSI A118.1. Five (5) specimens were prepared for the testing. The dry-set Portland cement shear bond strength at seven-day curing should be no less than 345kPa.

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4.11 ICC-ES AC 386 Section 3.1.9.2 Shear bond strength (Latex-Portland Cement Mortar)

The test method was in accordance with of ANSI A118.4. Five (5) specimens were prepared for the testing. The latex Portland cement mortar shear bond strength at seven-day curing should be no less than 345kPa.

4.12 ICC-ES AC 386 Section 3.1.10 Humidified Deflection

The test method was in accordance with Section 14 of ASTM C473. Six (6) specimens, each measuring 12 in. x 24 in. (305 by 610mm), were prepared for testing. Cut the samples that the short side 12in. dimension is parallel to the edges. Samples were conditioned in the humidity cabinet in an atmosphere of $90 \pm 3^{\circ}\text{F}$ ($32 \pm 1.7^{\circ}\text{C}$) and $90 \pm 3\%$ relative humidity for 48 h. measure the humidified deflection of each specimen.

4.13 ICC-ES AC 386 Section 3.1.11 Flame-Spread Characteristics

The test method was in accordance with ASTM E84. Two (2) specimens were prepared for the testing. The flame-spread index should be no greater than 10 and the smoke-developed index should be no greater than 5.

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SECTION 5 TEST RESULTS

The product test results, with the physical property requirements of any use in accordance with ICC-ES-AC 386 are summarized in Table below. The detailed data refers to Section 7.

Table 1 Physical Properties (AC 386 Section 3.1)-6 mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Density	ASTM C1185	Mean: 75 lbf/ft ³	As reported	N/A
Flexural Strength	ASTM C1185	Mean: Dry: 2350 psi Wet: 2057 psi	≥ 580 psi	Pass
Freeze/Thaw Cycling	ASTM C666	The test samples showed no disintegration following 25 cycles	The test samples shall show no disintegration following 25 cycles	Pass
Dimensions and Tolerances	ASTM C1185	Length: 96.02 in Max. variation: 0.04 in	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width: 48.00 in Max. variation: 0.02 in	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 6.1 mm Variation within sheet ≤ 1.3%	6 ± 1.0 mm Variation within sheet ≤ 15%	Pass
		Squareness ≤ 0.003 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
Moisture Movement	ASTM C1185	Mean Linear change 0.07% (Machine Direction) 0.08% (Cross Direction)	As Reported	N/A
Water Absorption	ASTM C1185	Mean: 25.1 % by mass	As Reported	N/A
Compression Indentation	ASTM D2394	Max.: 0.035 in.	<0.05 in.	Pass
Nail-Head Pull Through	ASTM D1037	Min: 109 lbf	≥ 90 lbf	Pass
Falling Ball Impact	ASTM D1037	No damage at a 12-inch drop	No damage at a 12-inch drop	Pass
Shear Bond Strength Dry-Set Portland Cement	ANSI A 118.1	Min: 96 psi	≥ 50 psi	Pass
Shear Bond Strength Later-Portland Cement Mortar	ANSI A 118.4	Min: 86 psi	≥ 50 psi	Pass
Humidified Deflection	ASTM C473	Max.: 0.011 in.	When used as a base for tile ≤ 0.0639 in.	Pass
Flame- Spread Characteristics	ASTM E84	Flame Spread Index: 0 Smoke Developed Index: 0	Flame Spread Index ≤ 10 Smoke Developed Index ≤ 5	Pass

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Table 2 Physical Properties - 19 mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Density	ASTM C1185	Mean: 79 lbf/ft ³	As reported	N/A
Flexural Strength	ASTM C1185	Mean: Dry: 1954 psi Wet: 1677 psi	≥ 580 psi	Pass
Dimensions and Tolerances	ASTM C1185	Length: 96.02 in. Max. variation: 0.04 in.	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width: 48.02 in. Max. variation: 0.02 in.	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 19.1 mm Variation within sheet ≤ 0.7%	19 ± 1.5 mm Variation within sheet ≤ 15%	Pass
		Squareness ≤ 0.005 in./ft.	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft.	Tolerance: ≤ 1/32 in./ft	Pass
Compression Indentation	ASTM D2394	Max.: 0.033 in.	< 0.05 in.	Pass
Falling Ball Impact	ASTM D1037	No damage at a 12-inch drop	No damage at a 12-inch drop	Pass
Flame- Spread Characteristics	ASTM E84	Flame Spread Index: 0 Smoke Developed Index: 0	Flame Spread Index ≤ 10 Smoke Developed Index ≤ 5	Pass

Table 3 Physical Properties of 9mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Dimensions and Tolerances	ASTM C1185	Length: 96.06 in Max. variation: 0.02 in	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width: 48.00 in Max. variation: 0.02 in	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 8.9 mm Variation within sheet ≤ 0.8%	9 ± 1.0 mm Variation within sheet ≤ 15%	Pass
		Squareness ≤ 0.004 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft	Tolerance: ≤ 1/32 in./ft	Pass

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Table 4 Physical Properties of 11 mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Dimensions and Tolerances	ASTM C1185	Length: 96.05 in Max. variation: 0.04 in	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width: 47.99 in Max. variation: 0.04 in	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 10.9 mm Variation within sheet ≤1.0%	11 ± 1.3 mm Variation within sheet ≤15%	Pass
		Squareness ≤ 0.004 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft	Tolerance: ≤ 1/32 in./ft	Pass

Table 5 Physical Properties of 15 mm thickness sheet

Property	Test standard	Result	Requirement	Verdict
Dimensions and Tolerances	ASTM C1185	Length: 96.06 in Max. variation: 0.02 in	96 ± 0.48 in. Max. variation ±1/4 in.	Pass
		Width: 47.99 in Max. variation: 0.02 in	48 ± 0.24 in. Max. variation ±1/4 in.	Pass
		Thickness: 14.8 mm Variation within sheet ≤0.7%	15 ± 1.3 mm Variation within sheet ≤15%	Pass
		Squareness ≤ 0.005 in./ft	Tolerance: ≤ 1/32 in./ft	Pass
		Straightness ≤ 0.001 in./ft	Tolerance: ≤ 1/32 in./ft	Pass

Note:

- Unit exchange:
1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa, 1 psf = 0.0479 kPa

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SECTION 6 CONCLUSION

The All Clad board identified in this report have been tested physical properties in accordance with ICC-ES AC 308 section 3.1. The products test results are presented in Section 5 of this report.

The conclusions of this test report may be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

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SECTION 7 TEST DATA

ASTM C1185 Section 6 Density

Specimen Max 4'x8'x6 mm	Density	
	kg/m ³	lbs/ft ³
1	1177	73.5
2	1188	74.1
3	1221	76.2
4	1193	74.4
5	1224	76.4
Average	1201	75
Std. Dev.	21	1.3

Specimen Max 4'x8'x 19 mm	Density	
	kg/m ³	lbs/ft ³
1	1269	79.2
2	1263	78.9
3	1265	79.0
4	1272	79.4
5	1270	79.3
Average	1268	79
Std. Dev.	4	0.2

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AC 386 Section 3.1.1 Flexural Strength

Span: 254 mm

Equilibrium (Dry) Specimens

Specimen 4'x8'x6mm	Flexural Strength (psi)		
	Parallel to length	Perpendicular to length	Average
1	2024	2991	2508
2	1946	3143	2544
3	1971	2569	2270
4	1976	2505	2241
5	1800	2578	2189
Average	1944	2757	2350
Std. Dev.	85	289	163

Wet Specimens

Specimen 4'x8'x6mm	Flexural Strength (psi)		
	Parallel to length	Perpendicular to length	Average
1	1714	2970	2342
2	1540	2526	2033
3	1627	1797	1712
4	1821	2317	2069
5	1634	2627	2131
Average	1667	2447	2057
Std. Dev.	106	433	227

Equilibrium (Dry) Specimens

Specimen 4'x8'x19mm	Flexural Strength (psi)		
	Parallel to length	Perpendicular to length	Average
1	1813	2096	1954
2	1793	2255	2024
3	1759	2039	1899
4	1800	2166	1983
5	1796	2020	1908
Average	1792	2115	1954
Std. Dev.	20	97	52

Wet Specimens

Specimen 4'x8'x19mm	Flexural Strength (psi)		
	Parallel to length	Perpendicular to length	Average
1	1488	1812	1650
2	1460	1827	1643
3	1509	2139	1824
4	1529	1800	1665
5	1476	1729	1603
Average	1492	1862	1677
Std. Dev.	27	160	85

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AC 386 Section 3.1.2 Freeze/Thaw Cycling

Specimen 4'x8'x6mm	After 25 cycles Result
1	No disintegration
2	No disintegration
3	No disintegration
4	No disintegration
5	No disintegration

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AC 386 Section 3.1.3 Dimensions and Tolerances:

Specimen 4'x8'x6mm	Length average (in.)	Max. Variation (in.)	Width average (in.)	Max. Variation (in.)
1	96.02	0.02	48.00	0.02
2	96.02	0.02	48.01	0.02
3	96.00	0.00	48.01	0.02
4	96.02	0.04	48.01	0.02
5	96.03	0.02	48.01	0.02
Average	96.02	0.02	48.00	0.02
Max.	96.03	0.04	48.01	0.02

Specimen 4'x8'x6mm	Thickness (mm)			Variation within sheet (%)
	Average	Maximum	Minimum	
1	6.09	6.12	6.07	0.8
2	6.01	6.05	5.97	1.3
3	6.05	6.08	6.00	1.3
4	6.08	6.11	6.03	1.3
5	6.02	6.06	5.98	1.3
Average	6.05			1.2
Max.	6.12			1.3

Specimen 4'x8'x6mm	Diagonal 1	Diagonal 2	Squareness	
	mm	mm	mm/m	in./ft
1	2728.0	2727.0	0.4	0.005
2	2727.0	2728.0	0.4	0.005
3	2727.0	2727.5	0.2	0.002
4	2727.5	2727.0	0.2	0.002
5	2728.5	2728.0	0.2	0.002
		Max.	0.4	0.003

Specimen 4'x8'x6mm	Edge (L)	Edge (W)	Straightness (length)		Straightness (width)	
	(mm)	(mm)	mm/m	in./ft	mm/m	in./ft
1	0.13	0.08	0.05	0.001	0.07	0.001
2	0.13	0.08	0.05	0.001	0.07	0.001
3	0.10	0.08	0.04	0.000	0.07	0.001
4	0.10	0.09	0.04	0.000	0.07	0.001
5	0.13	0.09	0.05	0.001	0.07	0.001
		Max.	0.05	0.001	0.07	0.001

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Specimen 4'x8'x19mm	Length average (in.)	Max. Variation (in.)	Width average (in.)	Max. Variation (in.)
1	96.02	0.02	48.02	0.02
2	96.02	0.04	48.02	0.02
3	96.02	0.02	48.02	0.02
4	96.04	0.02	48.02	0.02
5	96.01	0.02	48.01	0.00
Average	96.02	0.02	48.02	0.02
Max.	96.04	0.04	48.02	0.02

Specimen 4'x8'x19mm	Thickness (mm)			Variation within sheet (%)
	Average	Maximum	Minimum	
1	19.11	19.14	19.08	0.3
2	19.14	19.17	19.10	0.4
3	19.14	19.22	19.09	0.7
4	19.10	19.14	19.06	0.4
5	19.13	19.17	19.09	0.4
Average	19.12			0.4
Max.	19.22			0.7

Specimen 4'x8'x19mm	Diagonal 1	Diagonal 2	Squareness	
	mm	mm	mm/m	in./ft
1	2727.0	2729.0	0.8	0.010
2	2727.5	2729.0	0.6	0.007
3	2728.0	2727.0	0.4	0.005
4	2729.0	2729.0	0.0	0.000
5	2727.5	2728.5	0.4	0.005
		Max.	0.8	0.005

Specimen 4'x8'x19mm	Edge (L)	Edge (W)	Straightness (length)		Straightness (width)	
	(mm)	(mm)	mm/m	in./ft	mm/m	in./ft
1	0.13	0.08	0.05	0.001	0.07	0.001
2	0.15	0.07	0.06	0.001	0.06	0.001
3	0.15	0.09	0.06	0.001	0.07	0.001
4	0.15	0.08	0.06	0.001	0.07	0.001
5	0.10	0.07	0.04	0.000	0.06	0.001
		Max.	0.06	0.001	0.07	0.001

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Specimen 4'x8'x9mm	Length average (in.)	Max. Variation (in.)	Width average (in.)	Max. Variation (in.)
1	96.07	0.02	48.01	0.02
2	96.05	0.02	47.99	0.00
3	96.07	0.02	48.00	0.02
4	96.05	0.02	48.01	0.00
5	96.08	0.02	48.00	0.02
Average	96.06	0.02	48.00	0.01
Max.	96.08	0.02	48.01	0.02

Specimen 4'x8'x9mm	Thickness (mm)			Variation within sheet (%)
	Average	Maximum	Minimum	
1	8.87	8.90	8.83	0.8
2	8.89	8.92	8.86	0.7
3	8.82	8.86	8.79	0.8
4	8.88	8.89	8.87	0.2
5	8.88	8.91	8.84	0.8
Average	8.87			0.7
Max.	8.92			0.8

Specimen 4'x8'x9mm	Diagonal 1	Diagonal 2	Squareness	
	mm	mm	mm/m	in./ft
1	2726.5	2727.0	0.2	0.002
2	2728.0	2727.5	0.2	0.002
3	2726.5	2728.0	0.6	0.007
4	2727.0	2727.5	0.2	0.002
5	2727.0	2728.0	0.4	0.005
		Max.	0.6	0.004

Specimen 4'x8'x9mm	Edge (L)	Edge (W)	Straightness (length)		Straightness (width)	
	(mm)	(mm)	mm/m	in./ft	mm/m	in./ft
1	0.15	0.10	0.06	0.001	0.08	0.001
2	0.15	0.10	0.06	0.001	0.08	0.001
3	0.18	0.09	0.07	0.001	0.07	0.001
4	0.15	0.09	0.06	0.001	0.07	0.001
5	0.18	0.10	0.07	0.001	0.08	0.001
		Max.	0.07	0.001	0.08	0.001

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Specimen 4'x8'x11mm	Length average (in.)	Max. Variation (in.)	Width average (in.)	Max. Variation (in.)
1	96.04	0.02	47.98	0.02
2	96.04	0.04	47.99	0.04
3	96.05	0.04	47.99	0.02
4	96.05	0.02	48.01	0.02
5	96.05	0.02	47.99	0.02
Average	96.05	0.03	47.99	0.02
Max.	96.05	0.04	48.01	0.04

Specimen 4'x8'x11mm	Thickness (mm)			Variation within sheet (%)
	Average	Maximum	Minimum	
1	10.95	11.01	10.90	1.0
2	10.93	10.97	10.89	0.7
3	10.91	10.93	10.89	0.4
4	10.99	11.03	10.92	1.0
5	10.93	10.98	10.88	0.9
Average	10.94			0.8
Max.	11.03			1.0

Specimen 4'x8'x11mm	Diagonal 1	Diagonal 2	Squareness	
	mm	mm	mm/m	in./ft
1	2729.0	2728.0	0.4	0.005
2	2728.0	2728.5	0.2	0.002
3	2727.5	2728.5	0.4	0.005
4	2729.0	2728.5	0.2	0.002
5	2727.5	2729.0	0.6	0.007
		Max.	0.6	0.004

Specimen 4'x8'x11mm	Edge (L)	Edge (W)	Straightness (length)		Straightness (width)	
	(mm)	(mm)	mm/m	in./ft	mm/m	in./ft
1	0.15	0.13	0.06	0.001	0.11	0.001
2	0.13	0.13	0.05	0.001	0.11	0.001
3	0.13	0.10	0.05	0.001	0.08	0.001
4	0.18	0.10	0.07	0.001	0.08	0.001
5	0.15	0.10	0.06	0.001	0.08	0.001
		Max.	0.07	0.001	0.11	0.001

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Specimen 4'x8'x15mm	Length average (in.)	Max. Variation (in.)	Width average (in.)	Max. Variation (in.)
1	96.05	0.02	47.99	0.02
2	96.07	0.02	48.01	0.02
3	96.05	0.02	47.98	0.02
4	96.07	0.02	47.98	0.02
5	96.06	0.02	48.01	0.02
Average	96.06	0.02	47.99	0.02
Max.	96.07	0.02	48.01	0.02

Specimen 4'x8'x15mm	Thickness (mm)			Variation within sheet (%)
	Average	Maximum	Minimum	
1	14.78	14.82	14.73	0.6
2	14.80	14.86	14.75	0.7
3	14.81	14.83	14.77	0.4
4	14.78	14.81	14.74	0.5
5	14.80	14.83	14.77	0.4
Average	14.79			0.5
Max.	14.86			0.7

Specimen 4'x8'x15mm	Diagonal 1	Diagonal 2	Squareness	
	mm	mm	mm/m	in./ft
1	2726.0	2728.0	0.8	0.010
2	2726.5	2727.5	0.4	0.005
3	2728.0	2728.0	0.0	0.000
4	2727.0	2726.5	0.2	0.002
5	2728.0	2726.5	0.6	0.007
		Max.	0.8	0.005

Specimen 4'x8'x15mm	Edge (L)	Edge (W)	Straightness (length)		Straightness (width)	
	(mm)	(mm)	mm/m	in./ft	mm/m	in./ft
1	0.18	0.13	0.07	0.001	0.11	0.001
2	0.20	0.15	0.08	0.001	0.12	0.001
3	0.18	0.13	0.07	0.001	0.11	0.001
4	0.20	0.13	0.08	0.001	0.11	0.001
5	0.20	0.15	0.08	0.001	0.12	0.001
		Max.	0.08	0.001	0.12	0.001

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AC 386 Section 3.1.4 Moisture Movement

Specimen 4'x8'x6mm	Average Length (mm)		Linear Change (%)
	73 ± 4 °F & 30 ± 2% R.H.	73 ± 6 °F & 90 ± 5% R.H.	
MD 1	305.18	305.37	0.06
MD 2	305.09	305.28	0.06
MD 3	305.10	305.35	0.08
MD 4	305.11	305.41	0.10
MD 5	305.10	305.30	0.07
		Average	0.07
		Std. Dev.	0.02
CMD 1	304.81	305.04	0.08
CMD 2	305.41	305.70	0.09
CMD 3	305.29	305.54	0.08
CMD 4	304.92	305.11	0.06
CMD 5	304.93	305.13	0.07
		Average	0.08
		Std. Dev.	0.01

AC 386 Section 3.1.5 Water Absorption

Specimen 4'x8'x6mm	Dry mass (g)	Saturated mass (g)	Water absorption (%)
1	76.81	96.06	25.1
2	77.83	97.38	25.1
3	77.77	97.17	24.9
4	73.91	92.38	25.0
5	73.70	92.32	25.3
		Average	25.1
		Std. Dev.	0.1

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AC 386 Section 3.1.6 Compression Indentation

Specimen 4'x8'x6mm	Deformation at middle point (in.)	Deformation corner (in.)
1	0.029	0.017
2	0.035	0.017
3	0.034	0.014
4	0.031	0.016
5	0.035	0.013
Max.	0.035	0.017
Average	0.033	0.015

Specimen 4'x8'x19mm	Deformation at middle point (in.)	Deformation corner (in.)
1	0.032	0.010
2	0.033	0.007
3	0.030	0.009
4	0.031	0.009
5	0.031	0.010
Max.	0.033	0.010
Average	0.031	0.009

AC 386 Section 3.1.7 Nail-head Pull Through

Specimen 4'x8'x6mm	Maximum Force (lbf)
1	113
2	109
3	116
4	119
5	122
Min.	109
Average	116

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AC 386 Section 3.1.8 Falling Ball Impact

Specimen 4'x8'x6mm	Drop height (inch)	Observation
1	12	No damage
2	12	No damage
3	12	No damage
4	12	No damage
5	12	No damage

Specimen 4'x8'x19mm	Drop height (inch)	Observation
1	12	No damage
2	12	No damage
3	12	No damage
4	12	No damage
5	12	No damage

AC 386 Section 3.1.9 Shear Bond Strength

Specimen 4'x8'x6mm	Dry-set Portland Cement (psi)	Latex-Portland Cement (psi)
1	96	91
2	118	90
3	119	88
4	116	95
5	120	86
Average	114	90
Min.	96	86

AC 386 Section 3.1.10 Humidified Deflection

Specimen 4'x8'x6mm	Humidified Deflection (in.)
1	0.011
2	0.009
3	0.005
4	0.009
5	0.008
6	0.007
Average	0.008
Max.	0.011

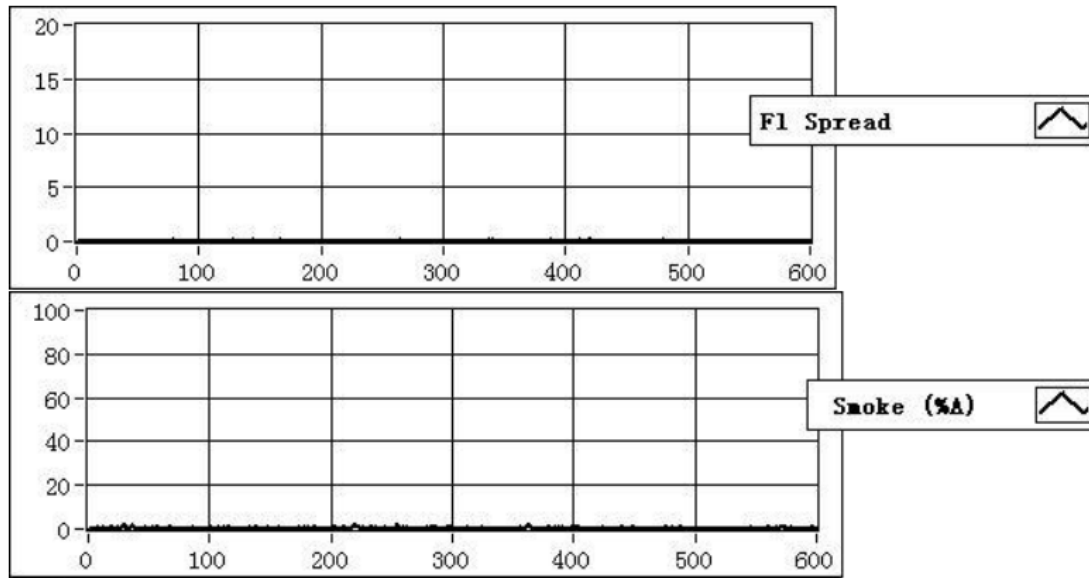
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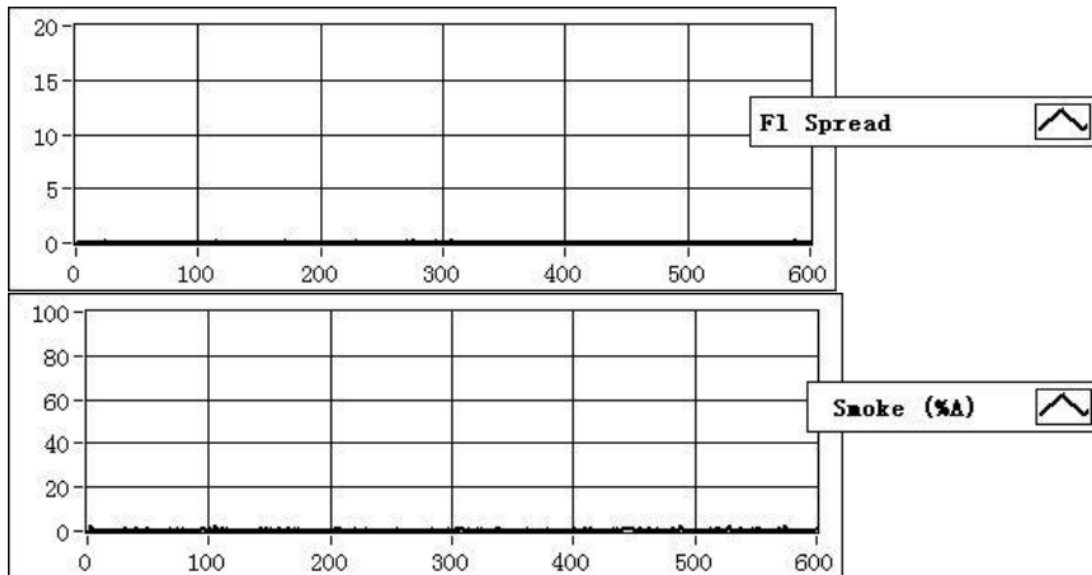
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AC 386 Section 3.1.11 Flame-Spread Characteristics

Specimen: Max 4'x8'x6mm



Specimen: Max 4'x8'x19mm

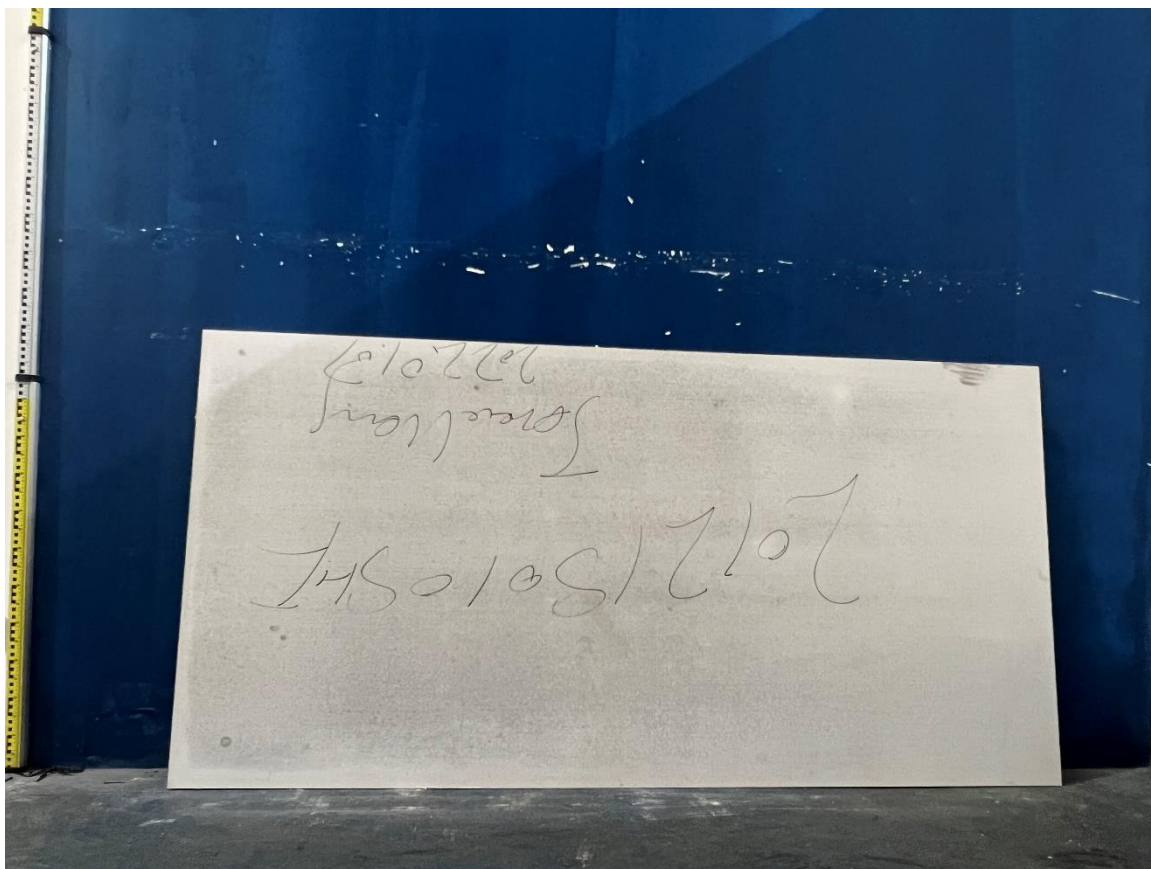


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SECTION 8 PHOTOGRAPHS

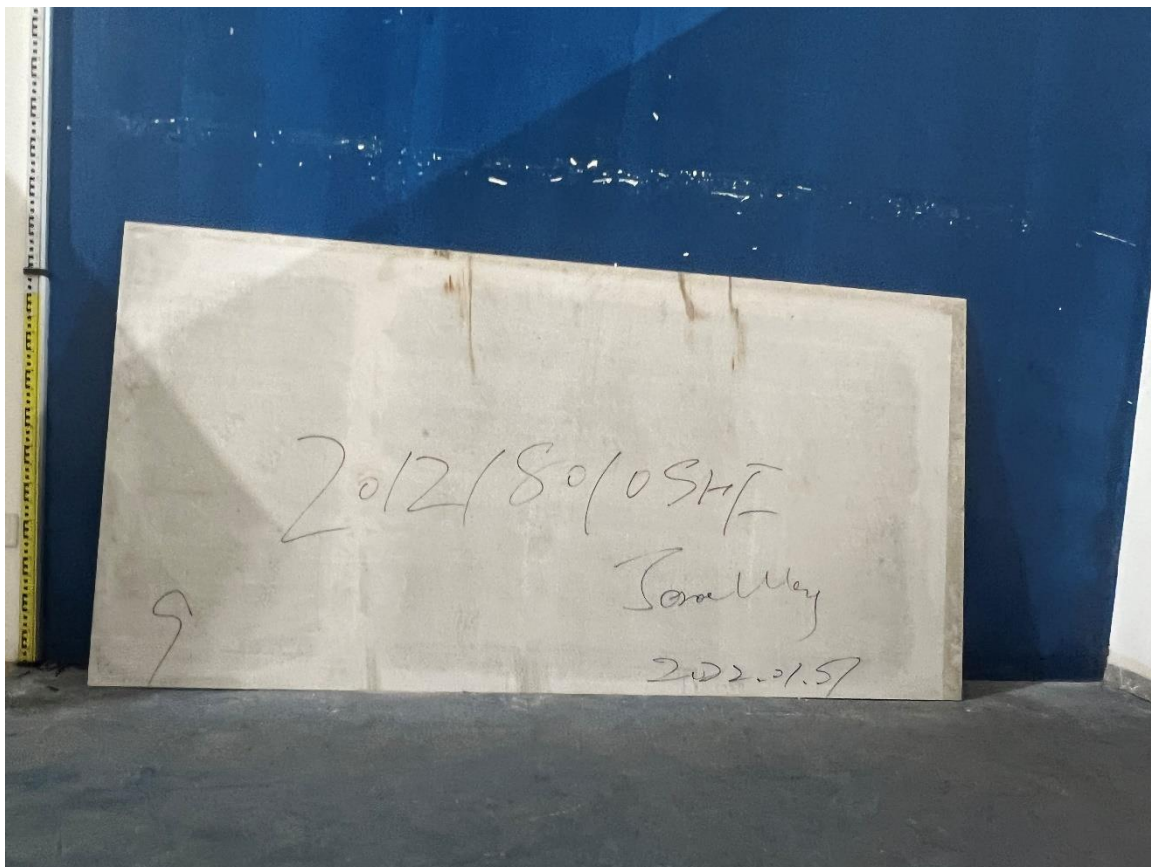


Samples received (6mm thickness)

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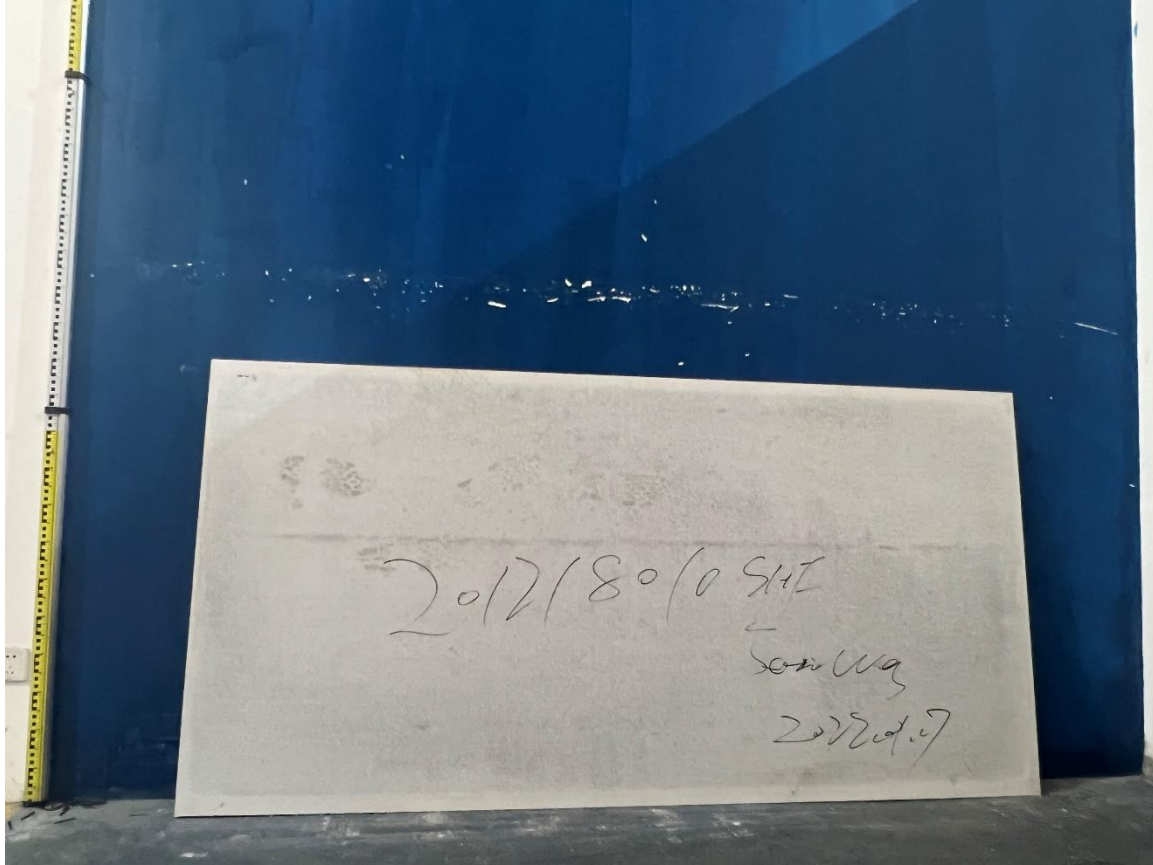


Samples received (9mm thickness)

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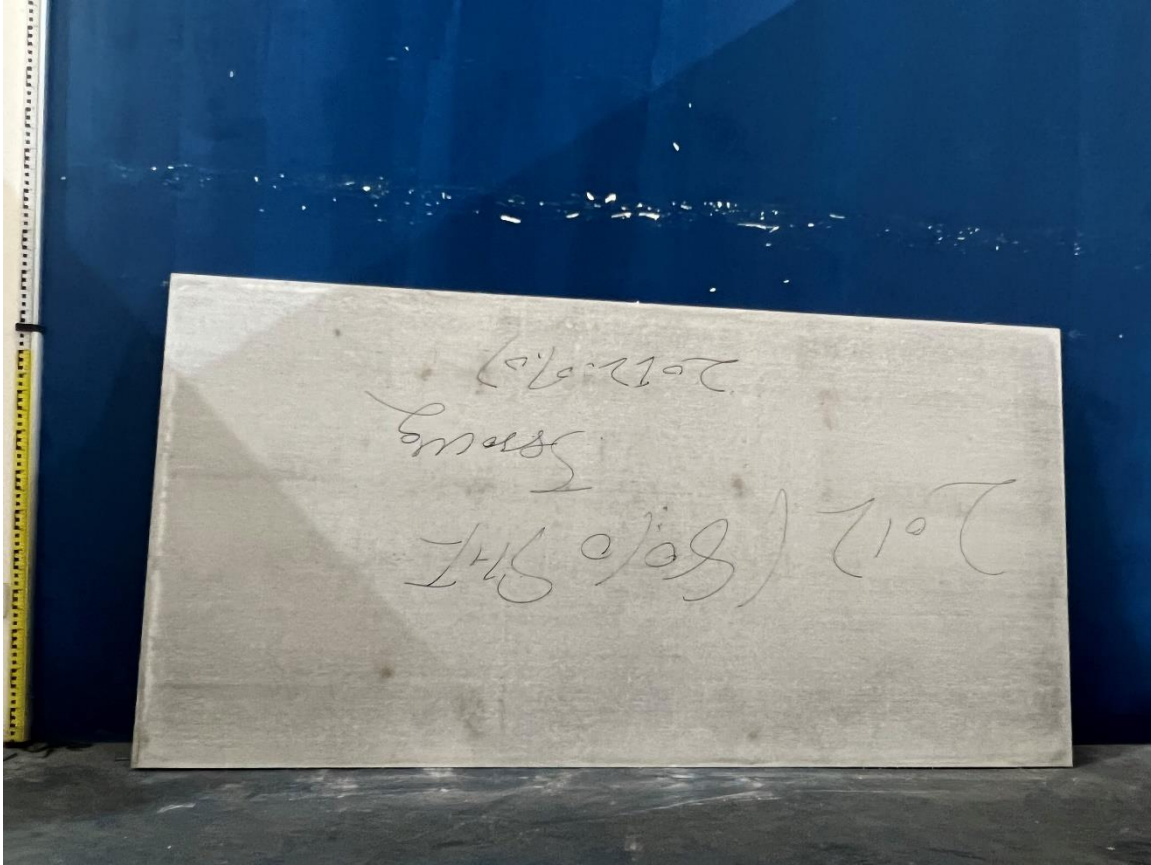


Samples received (11mm thickness)

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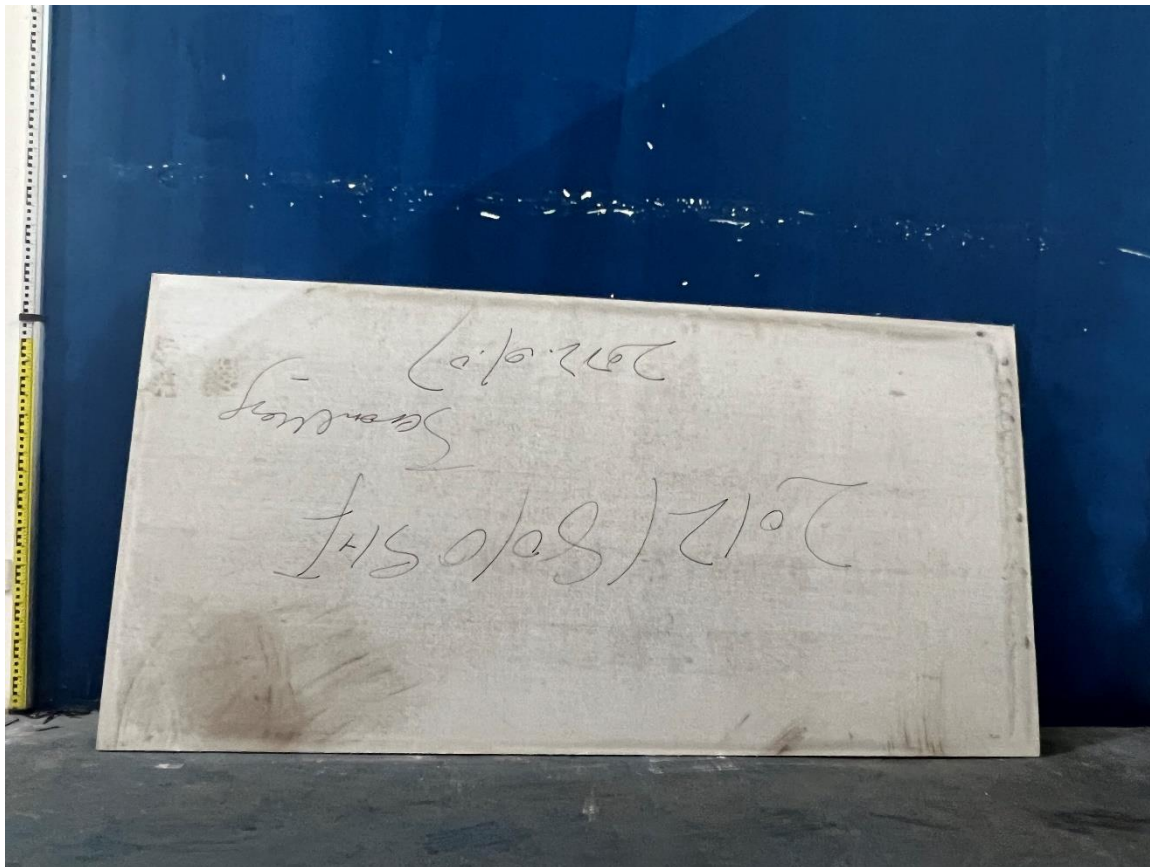


Samples received (15mm thickness)

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Samples received (19mm thickness)

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SECTION 9 REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	2024-04-17		Original Report Issue