JIANGSU JINPENG FIREPROOF BOARD CO., LTD.

TEST REPORT

SCOPE OF WORK
ICC-ES AC 376, *ACCEPTANCE CRITERIA FOR FIBER-REINFORCED CEMENTITIOUS SHEETS USED AS WALL AND CEILING SHEATING AND FLOOR UNDERLAYMENT*

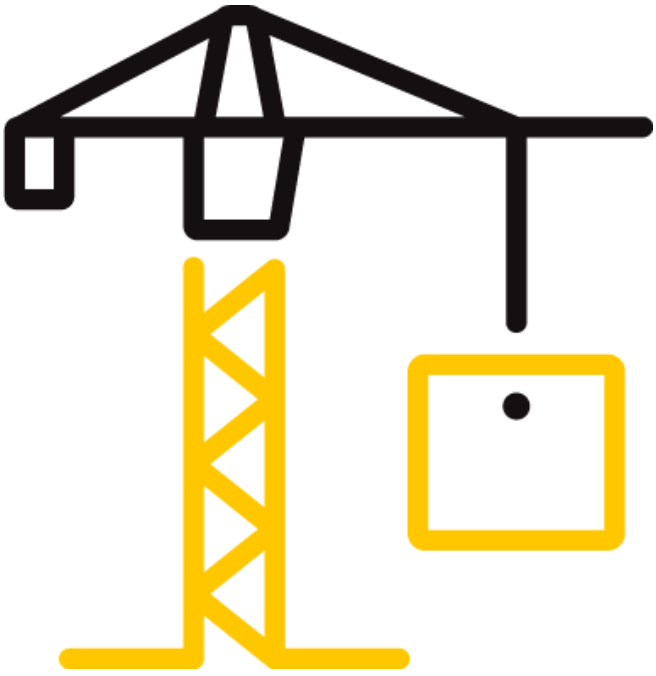
REPORT NUMBER
240913003SHF-002

TEST DATE(S)
2024-09-13– 2025-03-26

ISSUE DATE
2025-03-26

PAGES
37

DOCUMENT CONTROL NUMBER
LFT-APAC-SHF-OP-10p (May 1, 2020)



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REPORT ISSUED TO

JIANGSU JINPENG FIREPROOF BOARD CO., LTD.
NO. 9 DAIWANG ROAD, TAIXING CITY, JIANGSU PROVINCE, CHINA

For INTERTEK B&C:

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DATE:	2025-03-26	**DATE:**	2025-03-26

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SECTION 1
SCOPE

Intertek Building & Construction (B&C) was contracted by Jiangsu Jinpeng FireProof Board Co., Ltd. to perform testing in accordance with ICC-ES AC 376, *Acceptance Criteria for Reinforced Cementitious Sheets Used as Wall and Ceiling Sheathing and Floor Underlayment, approved August 2012 (editorially revised January 2021),* on their MagMatrix MgO Fire Rated Structural Panel products. There is one model of 12mm thickness. 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 376, *Acceptance Criteria for Reinforced Cementitious Sheets Used as Wall and Ceiling Sheathing and Floor Underlayment, approved August 2012 (editorially revised January 2021)*
- ICC-ES AC 269.2, *Acceptance Criteria for Proprietary Sheathing Jobsite-attached to Wood Light-frame Wall Construction Used as Shear Walls, approved October 2013, (editorially revised October 2021)*
- ASTM E72-22, *Standard Test Method for Conducting Strength Tests of Sheets for Building Construction*
- ASTM D1037-20, *Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials*

This evaluation began on September 13, 2024, and was completed on March 26, 2025.

SECTION 3
MATERIAL SOURCE/INSTALLATION

The specimens were randomly selected at the manufacturing facility in accordance with Section 3.1 of the ICC-ES Acceptance Criteria for Test Reports (AC85) by an Intertek representative Luke Lv, at the Jiangsu Jinpeng Fireproof Panels Co., Ltd., located at No. 9 Daiwang Road, Taixing City, Jiangsu Province on September 12~13, 2024. Samples were received at the Evaluation Center on September 29, 2024.

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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 samples were identified as MagMatrix MgO Fire Rated Structural Panel products. Panel size was 1220 mm by 3050 mm of 12 mm thickness. Density is assumed to be uniform throughout the full range of thickness.

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±2) °C and relative humidity in the range of (50±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 376 Section 3.6 Racking Shear Resistance

The test method was in accordance with ASTM E72 Section 14 and Section 15.

4.1.1 Installation

Test assemblies were fabricated as listed in Table 1 below and prepared in accordance with Figure 1 and Figure 2.

Table 1 Test Assembly for Racking Shear Resistance

Item	Specification	Set Up
Test assembly	Width * Length: 8’ by 10’ (2440 mm* 3050 mm)	Span: 24 in.
Sheathing	Magnesium-sulfate sheets Width* Length*Thickness: 4’ * 10’ *1/2” (1220 mm*3050 mm*12 mm)	2 full sizes sheets
Frame [1]	3.5 in. depth by 1.625 in. flange by 0.0451 thickness structural C-Shape Studs	Studs spaced 24 inches on center were secured to top and bottom track members (with same studs) by No. 10 x 5/8-inch-long self-drilling screws.
Fastener	Grip Rite Model #6 x 1-1/4” (3.18cm) self-drilling drywall screw	Face attached to the sheet at spacing, Edge: 1/2”; Perimeter: 2”; Field: 6”; Corner: 1/2”

Note:

1. The stud steel performance was referred to ICC-ES Evaluation report number ESR-4540, model 350S162-43.

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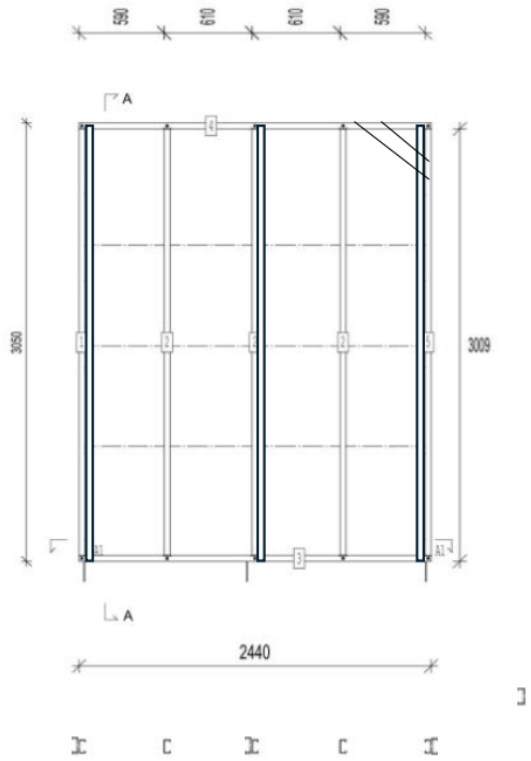

Figure 1. Light Guage Frame

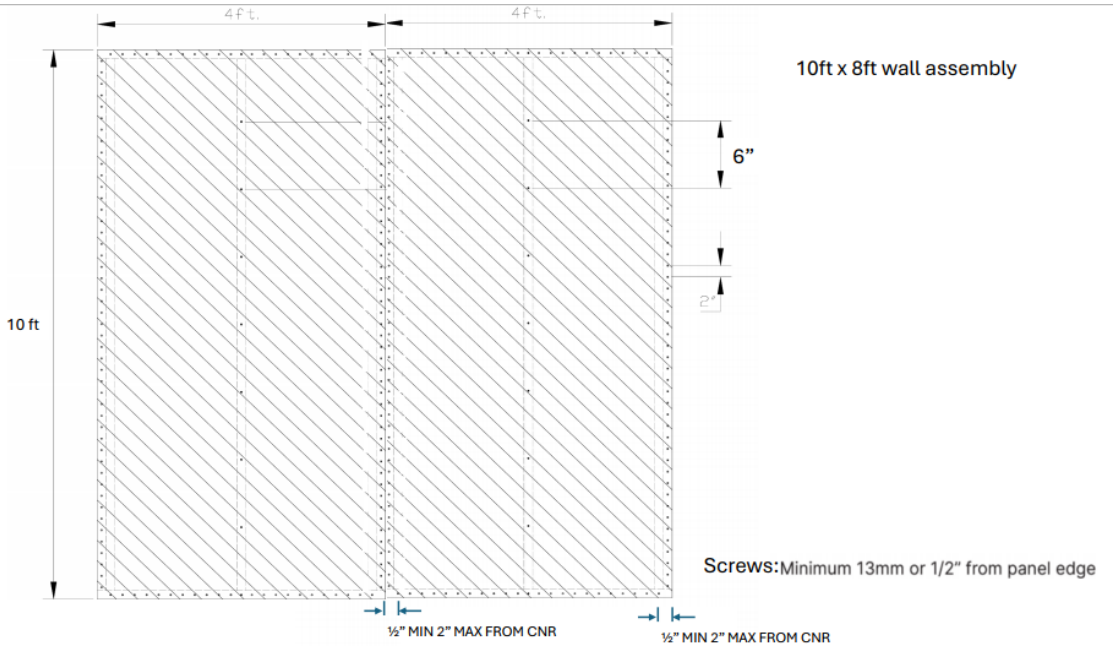

Figure 2 Wall assembly

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4.1.2 Test Procedure

Three walls of dry and wet conditions were loaded to failure. A minimum of three deflection readings were recorded at predefined loads (30%, 60% and 80% of expected maximum load) to establish deformation and set characteristics for the walls. The loading rate was that the first stage was achieved more than 2 minutes, and the maximum load was achieved more than 10 minutes excluding relaxation time. The relaxation time was 30 s.

Deflection gauges were located to monitor base slip, uplift, top horizontal displacement, and vertical displacement. Racking loads were applied parallel to and at the top center of the panel. The racking loads were accomplished using a hydraulic ram assembly and monitored using a load cell. The setup is shown in Figure 3. The maximum load, the interpolated load corresponding to horizontal deformations, and any observations at failure were reported.

Wet Specimen Conditioning—Mount the fabricated test specimens in a vertical position in such a manner as to prevent continuous immersion of the bottom edge of the specimen. Expose both sides of the test specimen to a water spray applied at the top along the entire length to ensure that the top of the specimen was wet. The spray area was overlay sufficiently so that a continuous sheet of water flows down both surfaces of the specimen. Maintain the temperature of the water at 75°F±5°F (24°C±3°C). Wet the specimens for a period of 6 h and then allow to dry for a period of 18 h. Dry in laboratory air, no attempt to increase the air movement over the specimens. Subject the test specimens to two complete wetting and drying cycles and then a third wetting cycle. The wetting specimens were done within 2 hours after the third wetting cycle. After the racking tests, small samples were cut from the sheathing panel to test the moisture content using oven drying method (at 103°C±2°C).

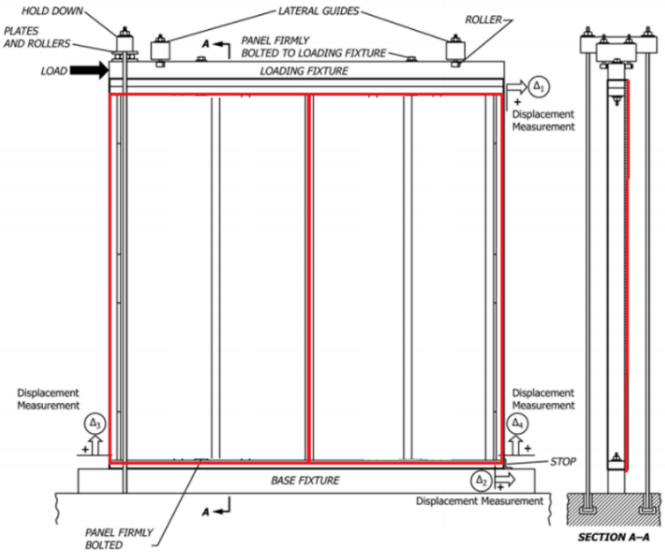

Figure 3 Racking Load Assembly

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4.2 ICC-ES AC 376 Section 3.7 Exterior Wall Sheathing Resistance to Transverse Loads

The test method was in accordance with AC 376 Section 4.1 and ASTM E72 Section 12.

4.2.1 Installation

Test assemblies were fabricated as listed in Table 2 below.

Table 2 Test Assembly for Transverse Load

Item	Type	Set Up
Test assembly	Width* Length: 4’ by 10’ (1220 mm* 3050 mm)	24 in. span
Sheathing	Magnesium-sulfate sheets Width* Length*Thickness: 4’ * 10’ *1/2” (1220 mm* 3050 mm*12 mm)	1 full size
Frame [1]	3.5 in. depth by 1.625 in. flange by 0.0451 thickness structural C-Shape Studs	Light gauge frame connection was referred to Figure 4. The sheet was fastened to the frame without the use of adhesives.
Fastener	Grip Rite Model #6 x 1-1/4” (3.18cm) self-drilling drywall screw	Face attached to the sheet at spacing, Edge: 1/2”; Perimeter: 2”; Field: 6”; Corner: 1/2”

4.2.2 Test Procedure

Three positive and three negative load tests were conducted with sheets fastened to the framing system as described in Table 2.

The test assemblies were tested for transverse load in accordance with ASTM E72 Section 12 using the chamber method with the specimen vertical. Deflection at stud, net deflection between support were reported. Refer to Figure 3 below.

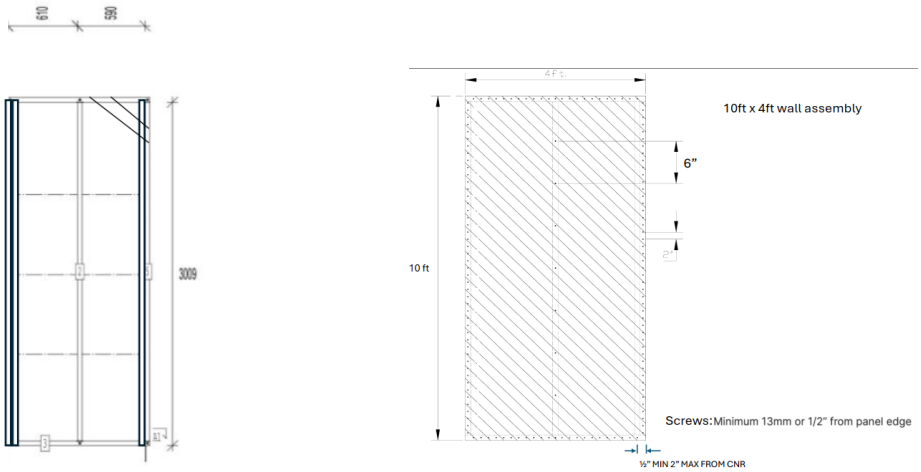

Figure 4 Transverse Load Test Assembly

M1, M2, M3: Deflection at studs
M4, M5: Deflection at midspan
Net deflection=M4-(M1+M2)/2 and M5-(M2+M3)/2

The panels were loaded incrementally with deflection data being recorded at each load level. The load held for a period of 5 minutes and was then reduced to zero for a 5-minute period after each load increment, at which time residual deflections were taken. The load was gradually increased to failure. The ultimate load and failure mode were recorded. The allowable load was the ultimate load divided by the safety of 3.0.

4.3 ICC-ES AC 376 Section 3.8.2 Fastener Holding

The test method was in accordance with Section 13 of ASTM D1037. The lateral load strength of the tested configuration should be greater than or equal to values provided in Table 2 of AC 376.

The test specimens were prepared three inches (76mm) wide by twelve (305mm) inches long by the sample thickness. The fastener was Grip Rite self-drilling drywall screw, Model #6 x 1-1/4". The test fastener was centered on the width and located 1/2" from one end. Five specimens for each environmental exposure condition were used.

Dry "Conditioned"-Specimens were conditioned to a constant weight and moisture content in a conditioning chamber maintained at a relative humidity of 65±5% and a temperature of 68 ± 6°F (20 ± 3°C). The tests were made immediately after the fasteners had been driven.

Water Soaked-Specimens were submerged in water at 68 ± 2°F (20 ± 1°C) for 24-h before the test and were tested within 30 minutes upon removal from the water. The fasteners were driven prior to the condition.

Clamp the end of the specimen opposite to the end with the test fastener in a position parallel to the movement of the testing machine. The specimen was loaded continuously throughout the test by separation of the heads of the testing machine at rate of 0.25 in./min (6 mm/min) ± 50 %. The load required to move the fastener to the edge of the specimen was the measure of the lateral resistance. The maximum load and the nature of failure were recorded.

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SECTION 5
TEST RESULTS

The product test results, with the property requirements of any use in accordance with ICC-ES-AC 376 Section 3.6 are summarized in Tables below. The detailed data refers to Section 7.

Table 3 Racking Shear Test Results [1]

Test Criteria [2]	8' * 10' (Width * Length) Dry wall construction			8' * 10' (Width * Length) Wet wall construction		
	Wall 1	Wall 2	Wall 3	Wall 1	Wall 2	Wall 3
Maximum load (lbf)	10342	10603	10491	8996	9487	9011
Interpolated load @ 0.2 in. net deflection (lbf)	1781	1828	1569	1326	1188	1401
Failure observation	Keel deformation, no visible broke on the panel			Edge of the panel broke		
Available Racking Shear load [3] (lbf)	10342			8996		
Ultimate load [4] (plf)	345			300		
Drift Limit [5] (plf)	173			131		
Allowable Design Racking Shear Load [6] (plf)	173			131		

Test Criteria [2]	8' * 10' (W*L) Dry wall construction	8' * 10' (W*L) Wet wall construction	Comparation (Wet/Dry)	Requirement [2]
Average ultimate load (lbf)	10478	9164	87%	≥77%
Average deformation @23% max. dry load (in.)	0.272	0.339	125%	≤140%
Average deformation @46% max. dry load	0.522	0.637	122%	≤133%

Note:

1. Test assemblies were referred to Table 1 in Section 4.1.1. Load-Deflection data was referred to Section 7.

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2. The test criteria were in accordance with AC 269.2.
3. The available racking shear load was taken as the lowest ultimate racking shear of the three test assemblies.
4. The ultimate load is the available racking shear load value divided by the length of the tested shear wall divided by a safety factor of 3.0.
5. The drift limit was the average applied load that caused a net deflection of 0.2 in. divided by the length of the tested shear wall.
6. The allowable design racking shear load was the lesser of the loads determined based on the ultimate load and the drift limit.
7. Unit exchange: 1 inch = 25.4 mm, 1 lbf = 4.48 N, 1 psf = 47.8 Pa

Table 4 Transverse Loads Test Result [8]

Test direction	Test Assemblies [2]	Ultimate Load (psf)
Positive	Specimen 1	>200
	Specimen 2	>200
	Specimen 3	>200
	Average [9]	>200
	Load at net deflection is L/360 [10]	47
	Allowable load [11]	>65
	Failure mode	no broke, achieve equipment limitation
Negative	Specimen 1	130
	Specimen 2	125
	Specimen 3	126
	Average [9]	127
	Load at net deflection is L/360 [10]	20
	Allowable load [11]	40
	Failure mode	The middle stud damaged and panel cracked.

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8. Test assemblies were referred to Table 2 in Section 4.2.1. Load-Deflection data was referred to Section 7.
9. No single test result varies by more than 15 percent from the average of three tests.
10. It was the linear interpolation value of average load-deflection based on 0~60 psf.
11. The allowable load was the average ultimate load divided a safety factor of 3.0 and round the value to 5 psf.

Table 5 Fastner Lateral Load Test Results [12]

Condition	Specimen	Lateral Peak Load (lbf)	Failure mode
Dry “Conditioned”	1	318	Screw tear away
	2	329	Screw tear away
	3	226	Screw tear away
	4	234	Screw tear away
	5	304	Screw tear away
Water Soaked	1	179	Screw tear away
	2	172	Screw tear away
	3	191	Screw tear away
	4	195	Screw tear away
	5	169	Screw tear away
Criteria [13]	Minimum peak load: 90 lbf		
Verdict	Pass		

Note:

12. The fastener was Grip Rite self-drilling drywall screw, Model #6 x 1-1/4”. The test panel was 12 mm thick.
13. The criteria were in accordance with AC 376 Table 2, panel thickness of 1/2 inch or greater.

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SECTION 6
CONCLUSION

The MagMatrix MgO Fire Rated Structural Panel identified in this report have been tested physical properties in accordance with ICC-ES AC 376. 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

Racking Resistance Tests

Test:	Racking Resistance
Job No:	240913003SHF
Standards	AC 376 Section 3.6
Procedure:	AC 269.2

Test Assembly					
Length	10 ft.	Width	8 ft.	Span	24 in.
Sheathing :	1220 mm*3050 mm *12 mm MgO sheet				
Frame	3.5 in. depth by 1.625 in. flange by 0.0451 thickness structural C-Shape Studs				
Fastners	Grip Rite, Model #6 x 1-1/4" (3.18cm) self-drilling drywall screw				
	Face attached to the sheet at spacing, Edge: 1/2"; Perimeter: 2"; Field: 6"; Corner: 1/2"				

Load	Deformation (in.)			
lbf/ft	Dry 1	Dry 2	Dry 3	Average
0.0	0.00	0.00	0.00	0.00
267.9	0.34	0.29	0.34	0.32
401.8	0.41	0.44	0.49	0.45
535.7	0.59	0.57	0.61	0.59
669.6	0.72	0.70	0.71	0.71
803.6	0.87	0.82	0.82	0.84
max. load (lbf)	10342	10603	10491	10478
Interpolated load @0.2 in. net deflection (lbf)	1781	1828	1569	1726
Failure mode	Keel deformation, no visible broke on the panel			
Available racking shear load (lbf)				10342
Ultimate load ,safety factor of 3.0 (lbf/ft.)				345
Drift Limit (lbf/ft.)				173

Slope (lbf/ft)	Intercept (in.)
964.6	-21.3

23% average max. dry load	241	lbf/ft
Response deformation	0.272	in.
46% average max. dry load	482	lbf/ft
Response deformation	0.522	in.

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Test:	Racking Resistance
Job No:	240913003SHF
Standards	AC 376 Section 3.6
Procedure:	AC 269.2

Load	Deformation (in.)			
lbf/ft	Wet 1	Wet 2	Wet 3	Average
0.0	0.00	0.00	0.00	0.00
267.9	0.41	0.43	0.41	0.41
401.8	0.56	0.63	0.51	0.57
535.7	0.70	0.81	0.63	0.71
669.6	0.84	0.98	0.77	0.87
803.6	0.98	1.12	0.89	1.00
max. load (lbf)	8996	9487	9011	9164
Interpolated load @0.2 in. net deflection (lbf)	1326	1188	1401	1305
Failure mode	Edge of the panel broke			
Available racking shear load (lbf)				8996
Ultimate load ,safety factor of 3.0 (lbf/ft.)				300
Drift Limit (lbf/ft.)				131

Slope (lbf/ft)	Intercept (in.)
806.5	-32.1

23% average max. dry load	241	lbf/ft
Response deformation	0.339	in.
46% average max. dry load	482	lbf/ft
Response deformation	0.637	in.

Item	Dry	Wet	compare (W/D)
Average ultimate load (lbf)	10478	9164	87%
Deformation @23% average max. dry load (in.)	0.272	0.339	125%
Deformation @46% average max. dry load	0.522	0.637	122%

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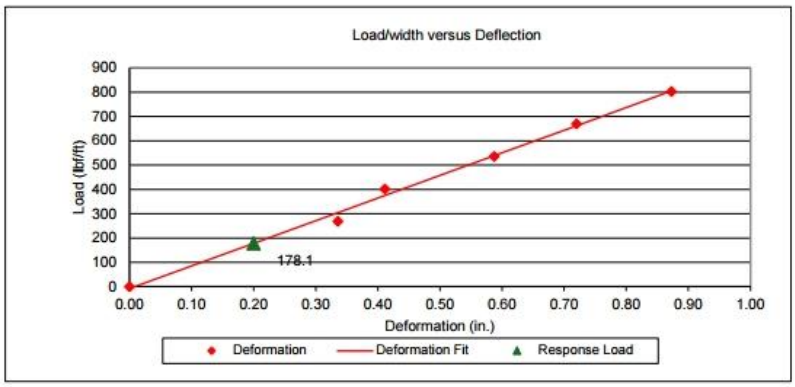
Test: Racking Resistance
Job No: 240913003SHF
Sample: Dry Specimen 1
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 14

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.34	0.08
18000	4018	401.8	0.41	0.12
24000	5357	535.7	0.59	0.18
30000	6696	669.6	0.72	0.24
36000	8036	803.6	0.87	0.29
46330	10342	1034.2	Max. Load	
Failure mode		Keel deformation, no visible broke on the panel		

Linest Analyse		Deformation Fit	Slope	932.4	lbf/ft
932.4	-8.4	0.01	Intercept	-8.38	in.
33.7	19.0	0.30	Intertested deformation	0.2	in.
0.99	23.3	0.44	Response Load	178.1	lbf/ft
765.8	4	0.58			
416352.0	2174.8	0.73			
		0.87			



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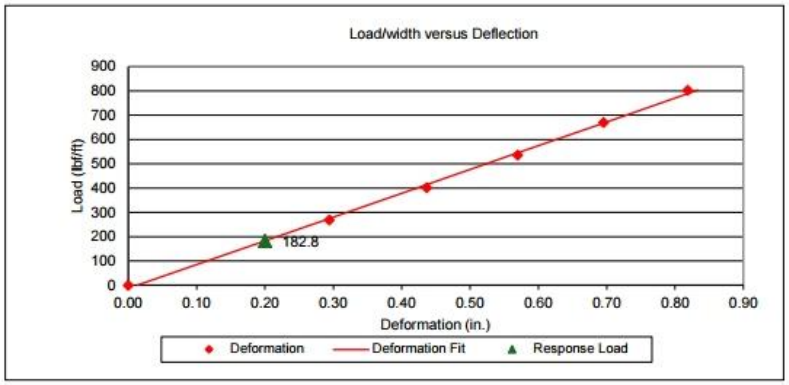
Test: Racking Resistance
Job No: 240913003SHF
Sample: Dry Specimen 2
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 14

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.29	0.07
18000	4018	401.8	0.44	0.12
24000	5357	535.7	0.57	0.17
30000	6696	669.6	0.70	0.24
36000	8036	803.6	0.82	0.29
47500	10603	1060.3	Max. Load	
Failure mode		Keel deformation, no visible broke on the panel		

Linest Analyse		Deformation Fit	Slope	980.0	lbf/ft
980.0	-13.2	0.01	Intercept	-13.20	in.
20.0	10.8	0.29	Intertested deformation	0.2	in.
1.00	13.2	0.42	Response Load	182.8	lbf/ft
2401.0	4	0.56			
417830.7	696.1	0.70			
		0.83			



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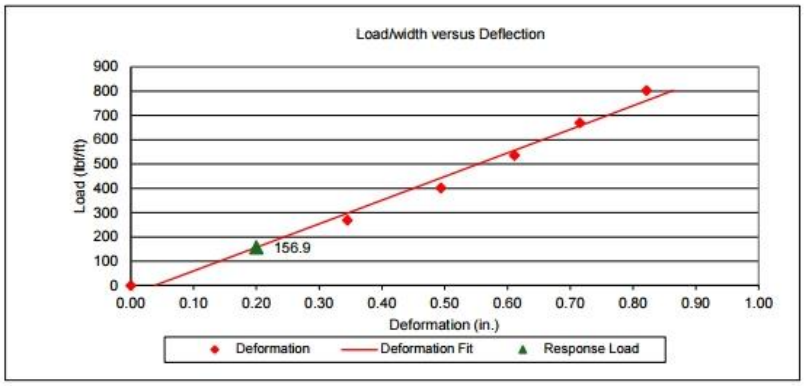
Test: Racking Resistance
Job No: 240913003SHF
Sample: Dry Specimen 3
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 14

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.34	0.06
18000	4018	401.8	0.49	0.11
24000	5357	535.7	0.61	0.16
30000	6696	669.6	0.71	0.21
36000	8036	803.6	0.82	0.26
47000	10491	1049.1	Max. Load	
Failure mode		Keel deformation, no visible broke on the panel		

Linest Analyse		Deformation Fit
972.5	-37.6	0.04
60.5	34.3	0.31
0.98	40.0	0.45
258.1	4	0.59
412140.0	6386.8	0.73
		0.86

Slope	972.5	lbf/ft
Intercept	-37.57	in.
Intertested deformation	0.2	in.
Response Load	156.9	lbf/ft



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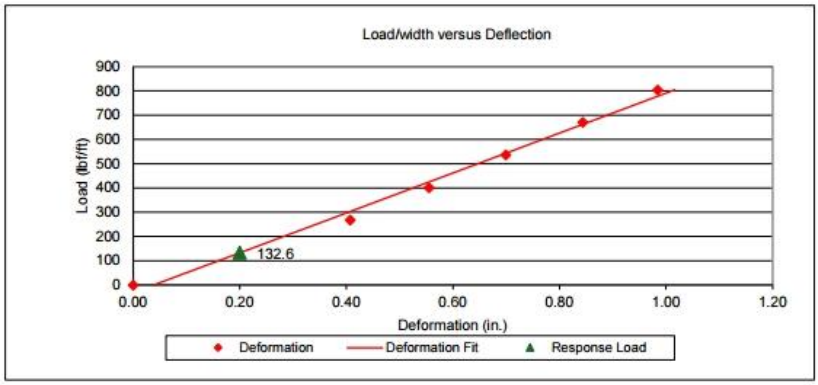
Test: Racking Resistance
Job No: 240913003SHF
Sample: Wet Specimen 1
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 15

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.41	0.05
18000	4018	401.8	0.56	0.12
24000	5357	535.7	0.70	0.20
30000	6696	669.6	0.84	0.29
36000	8036	803.6	0.98	0.34
40300	8996	899.6	Max. Load	
Failure mode		Edge of the panel broke		

Linest Analyse		Deformation Fit	Slope	821.8	lbf/ft
821.8	-31.7	0.04	Intercept	-31.71	in.
38.1	25.3	0.36	Intertested deformation	0.2	in.
0.99	29.9	0.53	Response Load	132.6	lbf/ft
464.5	4	0.69			
414953.3	3573.5	0.85			
		1.02			



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TEST REPORT

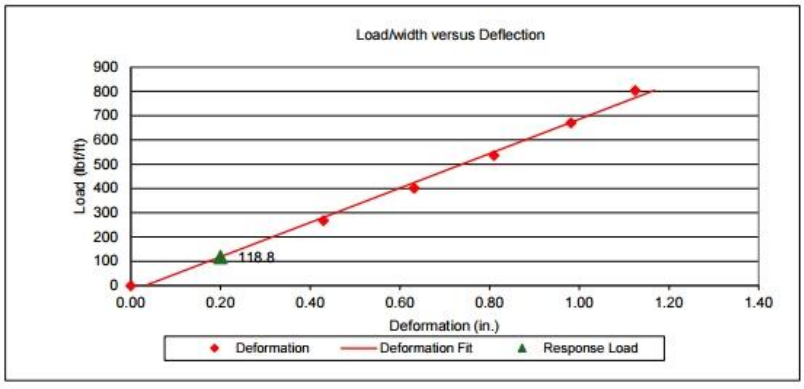
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test: Racking Resistance
Job No: 240913003SHF
Sample: Wet Specimen 2
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 15

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.43	0.09
18000	4018	401.8	0.63	0.13
24000	5357	535.7	0.81	0.23
30000	6696	669.6	0.98	0.35
36000	8036	803.6	1.12	0.48
42500	9487	948.7	Max. Load	
Failure mode		Edge of the panel broke		

Linest Analyse		Deformation Fit	Slope	707.6	lbf/ft
707.6	-22.7	0.03	Intercept	-22.67	in.
26.6	20.3	0.41	Intertested deformation	0.2	in.
0.99	24.3	0.60	Response Load	118.8	lbf/ft
705.4	4	0.79			
416166.8	2360.0	0.98			
		1.17			



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TEST REPORT

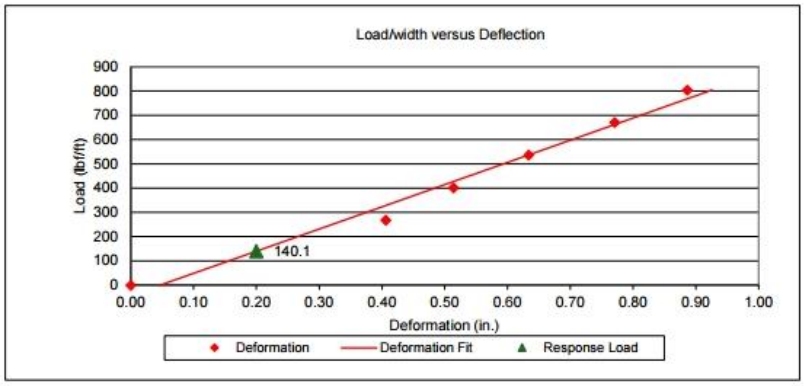
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test: Racking Resistance
Job No: 240913003SHF
Sample: Wet Specimen 3
Standards AC 376 Section 3.6
Procedure: ASTM E72 Section 15

Assebmly size:
Width 8 ft Length 10 ft

Load			Deformation	Residual
N	lbf	lbf/ft	in.	in.
0	0	0.0	0.00	0.00
12000	2679	267.9	0.41	0.12
18000	4018	401.8	0.51	0.14
24000	5357	535.7	0.63	0.21
30000	6696	669.6	0.77	0.30
36000	8036	803.6	0.89	0.37
40370	9011	901.1	Max. Load	
Failure mode		Edge of the panel broke		

Linest Analyse		Deformation Fit	Slope	913.9	lbf/ft
913.9	-42.7	0.05	Intercept	-42.68	in.
61.7	37.5	0.34	Intertested deformation	0.2	in.
0.98	43.3	0.49	Response Load	140.1	lbf/ft
219.2	4	0.63			
411025.3	7501.5	0.78			
		0.93			



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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Transverse load

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Positive 1
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Net Deflection=Max ((M4-(M1+M2)/2), (M5-(M2+M3)/2))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.02	0.20	0.01	0.23	0.31	0.21	0.20
0	0.02	0.01	0.01	0.01	0.01	0.00	0.02
960	0.02	0.80	0.01	0.73	0.93	0.53	0.80
0	0.02	0.01	0.01	0.01	0.01	0.00	0.02
1920	0.04	2.28	0.02	2.8	3.07	1.92	2.28
0	0.07	0.01	0.02	0.03	0	-0.01	0.07
2880	0.19	8.02	0.02	6.91	7.25	3.23	8.02
0	0.07	0.02	0.01	0.04	0.02	0.01	0.07
3840	0.37	13.32	0.01	10.7	11.19	4.53	13.32
0	0.11	0.02	0.01	0.01	0.02	0.01	0.11
4800	0.6	18.9	0.17	14.53	15.5	5.97	18.90
0	0.14	0.03	0.01	0.03	0.24	0.22	0.14
5760	0.85	24.76	0.50	18.22	20.61	7.98	24.76
0	0.14	0.02	0.03	0.38	0.95	0.93	0.14
Maximum Load (Pa)	>9600						
Failue mode	no broke, achieve equipment limitation						

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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Positive 2
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Net Deflection=Max ((M4-(M1+M2)/2), (M5-(M2+M3)/2))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.03	0.01	0.01	0.03	0.04	0.03	0.03
0	0.01	0.02	0.01	0.01	0.02	0.01	0.02
960	0.12	2.05	0.22	1.03	1.52	0.39	2.05
0	0.03	0.03	0.00	0.03	0.02	0.01	0.03
1920	0.15	7.40	0.44	4.27	4.85	0.93	7.40
0	0.03	0.03	0.04	0.01	0.02	-0.02	0.04
2880	0.06	12.98	0.72	8.48	8.75	1.96	12.98
0	0.16	0.01	0.05	0.01	0.01	-0.02	0.16
3840	0.03	18.60	0.99	12.72	12.47	3.41	18.60
0	0.23	0.01	0.08	0.00	0.01	-0.04	0.23
4800	0.07	24.51	1.18	17.78	16.09	5.49	24.51
0	0.22	0.03	0.10	0.02	0.00	-0.07	0.22
5760	0.11	30.76	1.40	22.98	20.31	7.55	30.76
0	0.25	0.75	0.11	0.04	0.02	-0.41	0.75
Maximum Load (Pa)	>9600						
Failue mode	no broke, achieve equipment limitation						

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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Positive 3
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Net Deflection=Max ((M4-(M1+M2)/2), (M5-(M2+M3)/2))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.02	0.08	0.01	0.10	0.10	0.06	0.08
0	0.04	0.02	0.02	0.01	0.02	0.00	0.04
960	0.02	3.07	0.01	1.93	0.80	0.39	3.07
0	0.02	0.00	0.02	0.02	0.02	0.01	0.02
1920	0.17	8.78	0.02	5.12	4.88	0.65	8.78
0	0.05	0.02	0.02	0.02	0.02	0.00	0.05
2880	0.38	14.28	0.03	9.18	8.75	1.85	14.28
0	0.04	0.02	0.01	0.03	0.01	0.00	0.04
3840	0.59	19.83	0.02	13.15	12.71	2.94	19.83
0	0.05	0.01	0.04	0.00	0.00	-0.03	0.05
4800	0.86	26.20	0.06	17.47	17.56	4.43	26.20
0	0.06	0.30	0.02	0.02	0.01	-0.15	0.30
5760	1.23	32.56	0.03	22.27	22.43	6.14	32.56
0	0.09	1.14	0.00	0.04	0.01	-0.56	1.14
Maximum Load (Pa)	>9600						
Failue mode	no broke, achieve equipment limitation						

TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

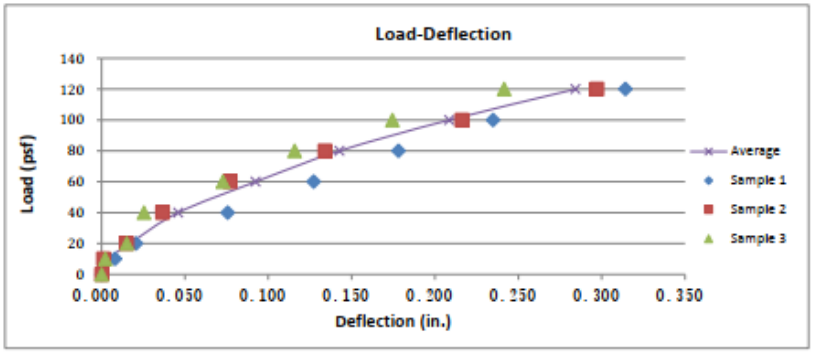
Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method, Possitive

Test Assembly	
Test assembly:	1220mm*3030mm, span 610mm
Sheathing :	1220mm*3050mm*12mm board
Frame	38mm*89mm metal framing
Fastners	Grip Rite self-drilling drywall screw, Model #6 x 1-1/4" 3.18cm
	Face attached to the sheet at spacing, Edge: 1/2"; Perimeter: 2"; Field: 6"; Corner: 1/2"

Positive

Load	Net Deflection (in.)				Max. Deflection at stud (in.)			
psf	sample 1	sample 2	sample 3	Average	sample 1	sample 2	sample 3	Average
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.008	0.001	0.002	0.004	0.008	0.001	0.003	0.004
20	0.021	0.015	0.015	0.017	0.031	0.081	0.121	0.078
40	0.076	0.037	0.025	0.046	0.090	0.291	0.346	0.242
60	0.127	0.077	0.073	0.092	0.316	0.511	0.562	0.463
80	0.178	0.134	0.116	0.143	0.524	0.732	0.781	0.679
100	0.235	0.216	0.174	0.208	0.744	0.965	1.031	0.914
120	0.314	0.297	0.242	0.284	0.975	1.211	1.282	1.156
Max. load (psf)	>200	>200	>200	>200				
Load varies	n/a	n/a	n/a					

Ultimate load (psf)	>200
Failure Mode	no broke, achieve equipment limitation
Load at net deflection is L/360 (psf)	47



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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Negative 1
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Net Deflection=Max ((M4-(M1+M2)/2), (M5-(M2+M3)/2))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.06	3.48	0.01	2.47	2.38	0.70	3.48
0	0.01	0.43	0.01	0.30	0.33	0.11	0.43
960	0.09	7.56	0.01	5.30	5.15	1.48	7.56
0	0.03	0.81	0.00	0.53	0.59	0.19	0.81
1920	0.30	15.41	0.24	10.87	11.59	3.77	15.41
0	0.04	1.78	0.00	1.21	1.40	0.51	1.78
2880	0.37	26.17	0.90	18.64	19.81	6.28	26.17
0	0.23	3.65	0.18	3.45	3.28	1.51	3.65
3360	0.09	32.27	1.07	23.08	24.86	8.19	32.27
0	0.62	4.61	0.29	3.05	4.19	1.74	4.61
3840	0.39	37.84	1.29	27.3	29.66	10.10	37.84
0	1.24	5.45	0.35	3.69	0.50	0.35	5.45
Maximum Load (Pa)		6240					
Failue mode		The middle stud was damaged and panel cracked.					

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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Negative 2
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Deflection=Point 2-max((average (point 1, 3),average (point 4,5))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.02	2.90	0.00	1.58	1.98	0.53	2.90
0	0.05	0.02	0.01	0.02	0.00	-0.02	0.05
960	0.02	7.10	0.01	4.60	4.97	1.42	7.10
0	0.09	0.17	0.01	0.01	0.04	-0.05	0.17
1920	0.04	15.25	0.01	10.63	11.17	3.54	15.25
0	0.23	0.92	0.01	0.01	0.52	0.06	0.92
2880	0.02	23.18	0.14	16.68	17.48	5.82	23.18
0	0.34	1.72	0.01	0.35	1.10	0.24	1.72
3360	0.01	27.94	0.41	20.12	21.63	7.46	27.94
0	0.39	2.37	0.01	0.69	1.67	0.48	2.37
3840	0.01	34.89	0.75	25.81	28.08	10.26	34.89
0	0.41	2.90	0.01	1.93	3.13	1.68	2.90
Maximum Load (Pa)	6000						
Failue mode	The middle stud was damaged and panel cracked.						

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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Sample:	12 mm sheet
Sample ID:	Negative 3
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method

Deflection=Point 2-max((average (point 1, 3),average (point 4,5))
Max. Deflection at stud=max(M1,M2,M3)

Load	Measurement (mm)					Net Deflection	Max. Deflection at stud
(Pa)	M1	M2	M3	M4	M5	(mm)	(mm)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480	0.13	2.43	0.19	2.25	1.41	0.97	2.43
0	0.03	0.02	0.05	0.02	0.01	-0.01	0.05
960	0.30	6.96	0.04	5.52	5.06	1.89	6.96
0	0.07	0.02	0.06	0.08	0.01	0.04	0.07
1920	0.51	15.79	0.77	11.89	11.65	3.74	15.79
0	0.05	0.76	0.19	0.87	0.70	0.47	0.76
2880	0.91	25.12	1.17	18.55	19.17	6.03	25.12
0	0.27	2.09	0.28	1.80	2.14	0.96	2.09
3360	1.15	30.16	1.42	22.27	24.04	8.25	30.16
0	0.40	2.91	0.40	2.39	3.00	1.35	2.91
3840	1.47	36.53	1.71	26.56	29.63	10.51	36.53
0	0.45	3.83	0.51	3.14	3.99	1.82	3.83
Maximum Load (Pa)	6050						
Failue mode	The middle stud was damaged and panel cracked.						

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TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

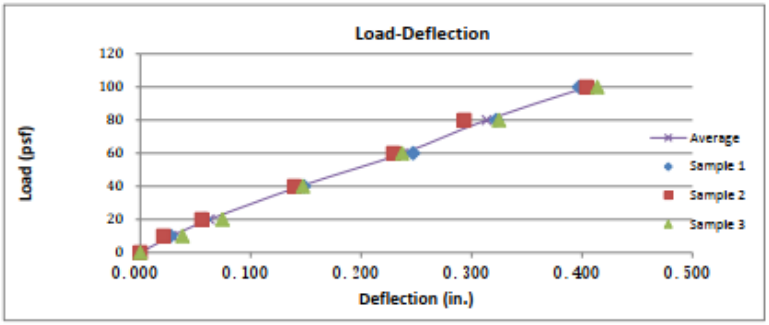
Test:	Transverse Load(Spencimen Vertical)
Job No:	240913003SHF
Standards	ASTM E72-22 Section 12
Procedure:	Chamber method, Negative

Test Assembly	
Test assembly:	1220mm*3030mm, span 610mm
Sheathing :	1220mm*3050mm*12mm board
Frame	38mm*89mm metal framing
Fastners	Grip Rite self-drilling drywall screw, Model #6 x 1-1/4" 3.18cm
	Face attached to the sheet at spacing, Edge: 1/2"; Perimeter: 2"; Field: 6"; Corner: 1/2"

Negative

Load	Net Deflection (in.)				Max. Deflection at stud (in.)			
psf	sample 1	sample 2	sample 3	Average	sample 1	sample 2	sample 3	Average
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	0.028	0.021	0.038	0.029	0.137	0.114	0.096	0.116
20	0.058	0.056	0.074	0.063	0.298	0.280	0.274	0.284
40	0.148	0.139	0.147	0.145	0.607	0.600	0.622	0.610
60	0.247	0.229	0.237	0.238	1.030	0.913	0.989	0.977
80	0.322	0.294	0.325	0.314	1.270	1.100	1.187	1.186
100	0.397	0.404	0.414	0.405	1.490	1.374	1.438	1.434
Max. load (psf)	130	125	126	127				
Load varies	2.4%	-1.6%	-0.8%					

Ultimate load (psf)	40
Failure Mode	The middle stud was damaged and panel cracked.
Load at net deflection is L/360 (psf)	20



TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

SECTION 8
PHOTOGRAPHS

Samples received (12 mm thickness)

TEST REPORT

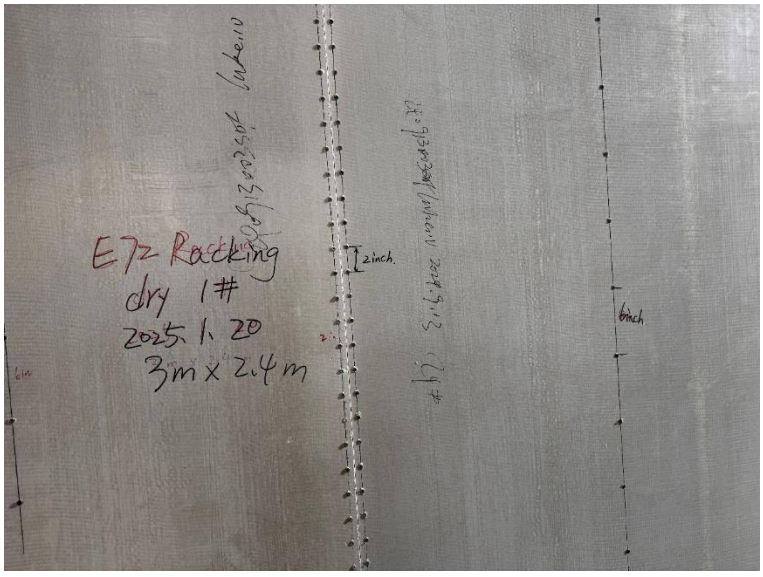
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Screw received

Stud received

TEST REPORT

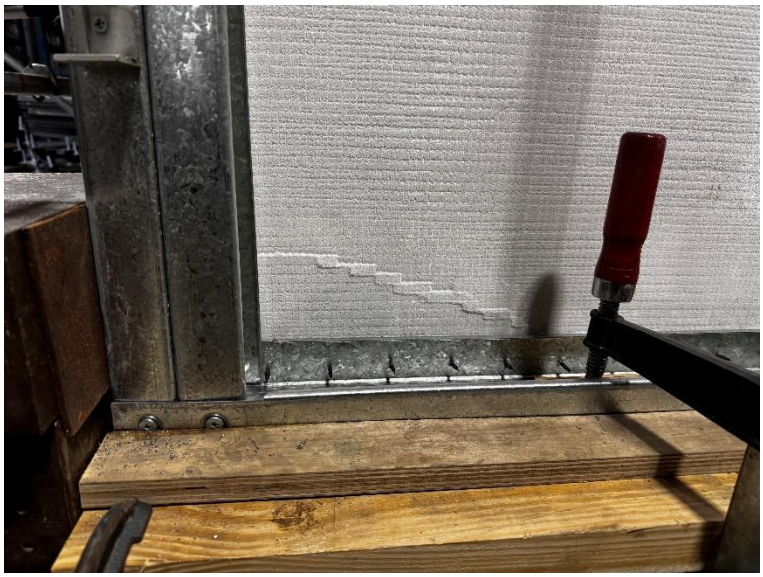
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002



Racking Shear Test Failure – Dry Specimen

TEST REPORT

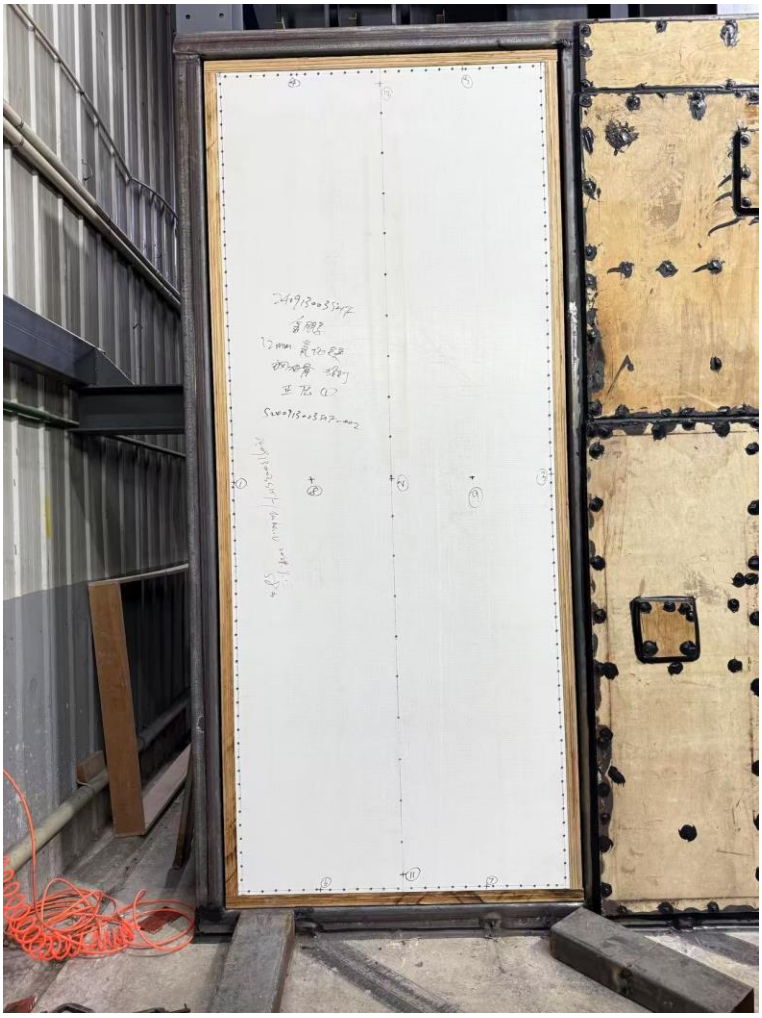
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002



Racking Shear Test Failure – Wet Specimen

TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002



Transfer Load Test - Positive Specimen (no visible damage)

TEST REPORT

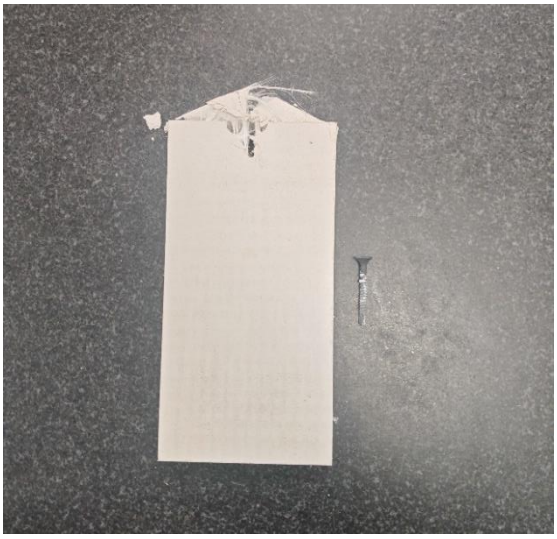
Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Transfer Load Test Failure- Negative Specimen

TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

Fastener Lateral Load Test Failure- Dry specimen



Fastener Lateral Load Test Failure- Wet specimen

TEST REPORT

Issue Date: 2025-03-26 Intertek Report No.: 240913003SHF-002

SECTION 9
REVISION LOG

REVISION #	DATE	PAGES	REVISION
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