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SYMONITE PANELS
FIRE TEST REPORT

SCOPE OF WORK
NFPA 285 TESTING ON EXTERIOR NONLOADBEARING WALL ASSEMBLY CONTAINING SYMONITE EXTERIOR CLADDING

REPORT NUMBER
I8506.03-121-24-R0

TEST DATE(S)
10/17/18

ISSUE DATE
01/02/19

REVISION DATE
02/07/19

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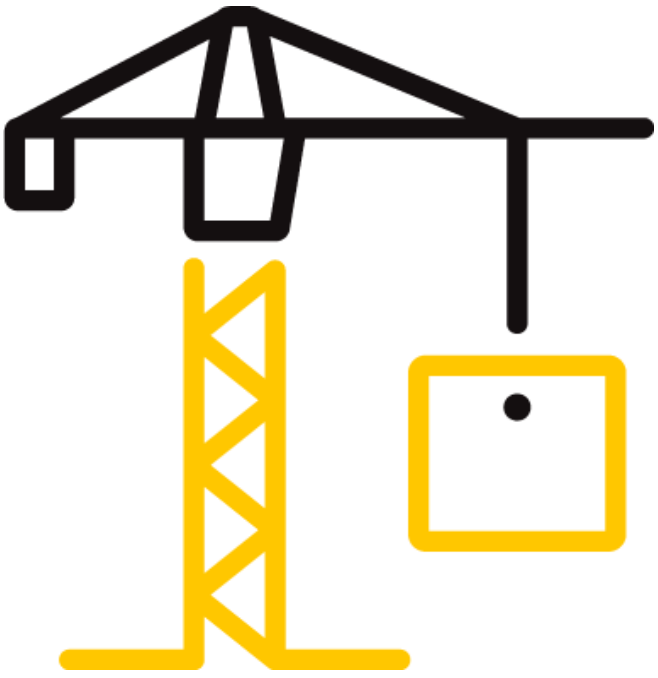

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Date: 01/02/19 Revision Date: 02/07/19

REPORT ISSUED TO

Symonite Panels
72 Ellice Road, Glenfield
Aukland 0629

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Symonite Panels, Glenfield, New Zealand to evaluate the flame propagation characteristics of an exterior, non-load-bearing wall assembly containing Symonite WAB-Vented Fixing System cladding system utilizing Arconic Reynobond® FR panels. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania. Results obtained are tested values and were secured by using the designated test method(s). A summary of test results and test assembly is reported herein.

This report does not constitute a complete test report, certification of this product, nor an opinion or endorsement by this laboratory. For full details of the project, reference Intertek-ATI test report number I8506.03-121-24-R0.

SECTION 2

SUMMARY OF TEST RESULTS

Wall System: Exterior Non-load-bearing Wall Assembly
Combustible Components: Glass Fiber Insulation, SuperStick Flashing Tape, Combustible Wood Framing, Symonite WAB-Vented Fixing System, Arconic Reynobond® FR Cladding Panels

NFPA 285 Test Results
The assembly described and tested in this report **did** meet the Conditions of Acceptance of NFPA 285. Construction of the full assembly is summarized in Section 7 of this test report.

For INTERTEK B&C:

COMPLETED BY:	Scott Gingrich	**REVIEWED BY:**	Ethan Grove
TITLE:	Technician Team Lead–Fire Testing	**TITLE:**	Manager – Fire Testing
SIGNATURE:	Digitally Signed by: Scott Gingrich	**SIGNATURE:**	Digitally Signed by: Ethan Grove
DATE:	02/07/19	**DATE:**	02/07/19

SDG:ddr

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SECTION 3
TEST METHOD

The assembly was evaluated in accordance with the following:

> **NFPA 285-12**, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*

SECTION 4
MATERIAL SOURCE/INSTALLATION

The components of the test assembly were provided by the client except for the core wall components that were acquired and assembled by Intertek B&C personnel.

SECTION 5
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
John Cobb	Symonite Panels
James Calvert	Symonite Panels
Gillian Stopford	Vulcan Fire Engineering
Scott Gingrich	Intertek B&C
Nate Brillhart	Intertek B&C

SECTION 6
TEST PROCEDURE

The wall assembly was instrumented with thermocouples (TCs) in accordance with figures 6.1(a) and 6.1(b) of NFPA 285 test method. 18-gauge Type “K” TCs were used in the burn room and 20-gauge Type “K” was used on exterior façade and cavity air space. The window burner was positioned in the center of the opening and 3 in. off the exterior face of the wall assembly. Testing was performed on 10/17/2018 in accordance with NFPA 285 test method. Ambient conditions were 66°F and 32% relative humidity. An anemometer was used to verify airflow across test assembly was less than 4 ft./sec as specified in the test method. Video recording, digital photographs, visual observations, and data collection were performed prior, during, and after testing was completed. Temperature data was recorded every 15 seconds. The test was performed at 2:37 PM with the burners on for 30 minutes. All observations are recorded in the table located in Section 8.

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SECTION 6 (Continued)
TEST PROCEDURE

The apparatus is considered to be under calibrated conditions when the time average temperatures and the time average heat flux readings obtained for a calibration wall match the requirements of Table 8.1.6 of NFPA 285. Calibration was performed on February 12, 2018 with natural gas as the fuel source and the window burner placed 3 inches from the exterior surface of the assembly. Table 6.1 of this section shows the average burner flow and heat flux. Table 6.2 shows the time average temperatures obtained during the calibration test.

Table 6.1 Average Burner Output Information

TIME INTERVAL (MIN:SEC)	ROOM BURNER (SCFM)	WINDOW BURNER (SCFM)	2 FT FLUX (W/cm^2)	3 FT FLUX (W/cm^2)	4 FT FLUX (W/cm^2)
0:00-5:00	35.5	0.0	1.1	1.1	1.0
5:00-10:00	35.5	4.3	2.1	1.9	1.8
10:00-15:00	43.8	5.6	2.4	2.3	2.4
15:00-20:00	43.6	8.1	2.9	2.8	2.8
20:00-25:00	43.6	11.0	3.3	3.2	3.1
25:00-30:00	47.4	15.6	3.6	3.7	3.6

Table 6.2 Average Time Temperature Values for Calibration

	THERMOCOUPLE LOCATIONS							
TIME INTERVAL (MIN:SEC)	BURN ROOM (°F)	INT. WALL (°F)	1FT (°F)	2FT (°F)	3FT (°F)	4FT (°F)	5FT (°F)	6FT (°F)
0:00-5:00	1075	972	657	774	683	600	533	479
5:00-10:00	1234	1184	884	1078	1012	916	763	740
10:00-15:00	1409	1354	994	1154	1110	1024	887	880
15:00-20:00	1481	1427	1041	1208	1160	1083	961	955
20:00-25:00	1505	1457	1075	1231	1195	1111	999	1007
25:00-30:00	1586	1541	1124	1274	1245	1170	1067	1107

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SECTION 7
TEST ASSEMBLY DESCRIPTION

Interior Cladding
5/8 in. thick National Gypsum Gold Bond® Fire-Shield® gypsum board meeting the requirements of ASTM C1396 was installed over the complete interior surface of the assembly.

Framing
Nominal 2 in. x 6 in. (42mm x 145mm) dimensional lumber was used to construct the wall. The vertical studs were spaced 600 mm apart and spaced 600mm from the assembly side studs. Horizontal studs were placed full width across the assembly 728mm, 1535mm, 2346mm, 3476mm, and 4696mm above the ably sill. Double studs were located at the 1535mm, 2346mm, and 4756mm heights. Additional stud sections were placed vertically spaced every 24 in. (406.4mm) on center across the assembly. 4 lbs./ft.^{3} density Johns Manville MinWool® Safing pieces were friction fit into each stud cavity placed at each floor line. The safing length dimensions were no less than the apparatus floor slab thickness measuring 8 inches.

Framing Insulation
90 mm thick Pink Batts Classic unfaced glass fiber insulation was placed in all cavity spaces between the wood framing. The insulation was the full thickness of the cavity spaces.

Exterior Sheathing
6mm thick James Hardie RAB Board installed over the full exterior of the assembly. The sheets were fastened to the framing with 40 x 2.80mm cement nails every 12 in. All board joints were covered with 75mm wide SuperStick flashing tape.

Window Opening
5mm aluminum L-flashing was installed around the full window opening perimeter on both the interior and exterior corners of the opening.

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SECTION 7 (Continued)
TEST ASSEMBLY DESCRIPTION

Exterior Cladding

4mm Arconic Reynobond® FR cladding panels were fabricated by Symonite Panels to be utilized in their WAB-Vented Fixing System. The installation began with the installation of FF102/50 – Ventilated Fire Barrier measuring 60 x 75 x 1000mm. The fire barrier was installed at the window header extending 1.5 meters from the assembly's center line on both sides of the window opening. A second row was installed 1 meters above the window opening extending from assembly edge left to right. A third and final row was added 3 meters above the window header. This fire barrier was secured to the assembly using 10-8 x 50mm Stainless steel passivated square pan head fasteners in each stud location. Aluminum angle measuring 40x20x1.6mm was then added to the assembly's sill to begin the panel installation. Each panel was secured to this aluminum angle using square pan head TY-17 TCS 18-8 S.S passivated #10-8 x 50 fasteners at each stud location. Two grey "H" packers 5mm x 100 was added behind each fastener before being secured. The panel rows continued in the same fashion until 72 centimeters above the window header. This row utilizes an aluminum extrusion that is identified as HB20 by Symonite. The panel system continued to be installed until 369cm above the window header. Another aluminum extrusion was added between the panels. The last row of panels was secured to the assembly. TR21 backing rod measuring 15mm was placed into the panel gaps excluding the two gaps with the aluminum extrusions. Premade silicone gaskets by Symonite was placed in the front of the backing rod in each panel joint.

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SECTION 8
TEST OBSERVATIONS

TIME (Min:Sec)	OBSERVATIONS
00:00	Ignition of room burner.
01:57	Interior gypsum ignites.
02:22	Panels swell above window header.
05:00	Ignition of window opening burner.
08:01	Flames emitting from the surface of the window header.
08:49	Smoke emits from edges of assembly.
10:50	Window header warps.
17:12	Window header melts.
27:22	Flames emitting from the surface of the exterior face of the assembly reach a height of 2 ft. above the top of the window opening.
28:30	Flames emitting from the surface of the exterior face of the assembly reach a height of 3 ft. above the top of the window opening.
30:00	Burners Extinguished. Post-test 10-minute observation period begins.
30:01	Flames continue emitting from the exterior face of the assembly.
40:00	Post-test 10-minute observation period ends; test concluded.

SECTION 9
TEST RESULTS

TEST REQUIREMENTS	TEST RESULTS	PASS/FAIL
Flames did not reach 10 ft. above the window opening header.	Flames did not reach 10 ft. above the window opening header.	**PASS**
Flames did not reach a lateral distance of 5 ft. from the vertical centerline.	Flames did not reach a lateral distance of 5 ft. from the vertical centerline.	**PASS**
Flames did not propagate beyond the limits of the first story test room.	Flames did not propagate beyond the limits of the first story test room.	**PASS**
No visible flaming in the second story test room	No visible flaming in the second story test room.	**PASS**
TC's 11 and 14-17 (1000°F limit)	TC's 11 and 14-17 did not exceed their 1000°F limit.	**PASS**
TC's 18-19, 28, and 31-40 (1000°F limit)	TC's 18-19, 28, and 31-40 did not exceed their 1000°F limit.	**PASS**
TC's 49-54 (500°F above ambient)	TC's 49-54 did not exceed 500°F above their ambient temperatures.	**PASS**

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SECTION 10
DRAWINGS

The test specimen drawings which follow have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

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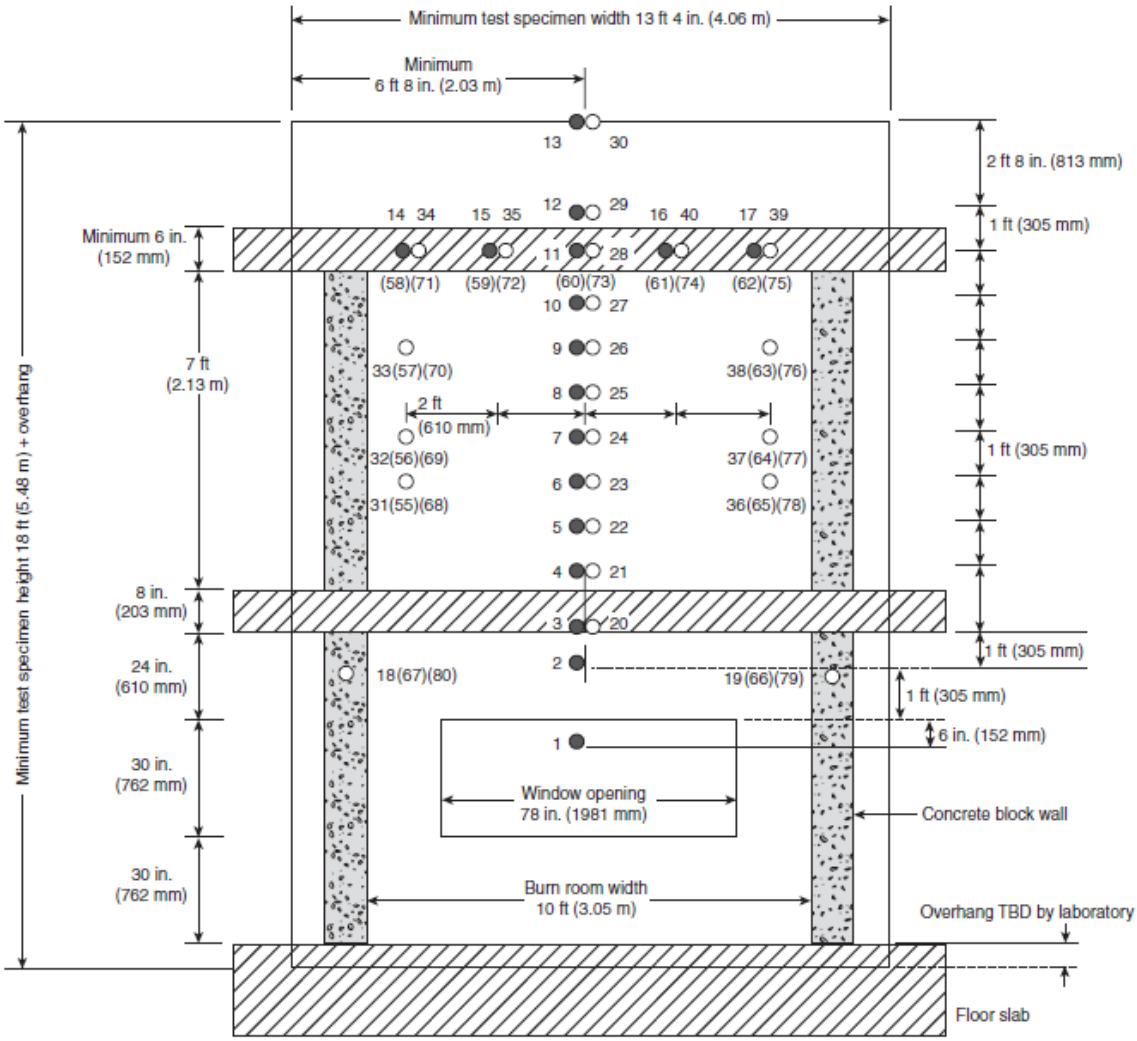

● Thermocouples — 1 in. (25 mm) from exterior wall surface
○ Thermocouples — In the wall cavity air space or the insulation, or both, as shown in Figure 6.1(b) Details A through I.
( ) Thermocouples — Additional thermocouples in the insulation or the stud cavity, or both, where required for the test specimen construction being tested, as shown in Figure 6.1(b) Details C through I.

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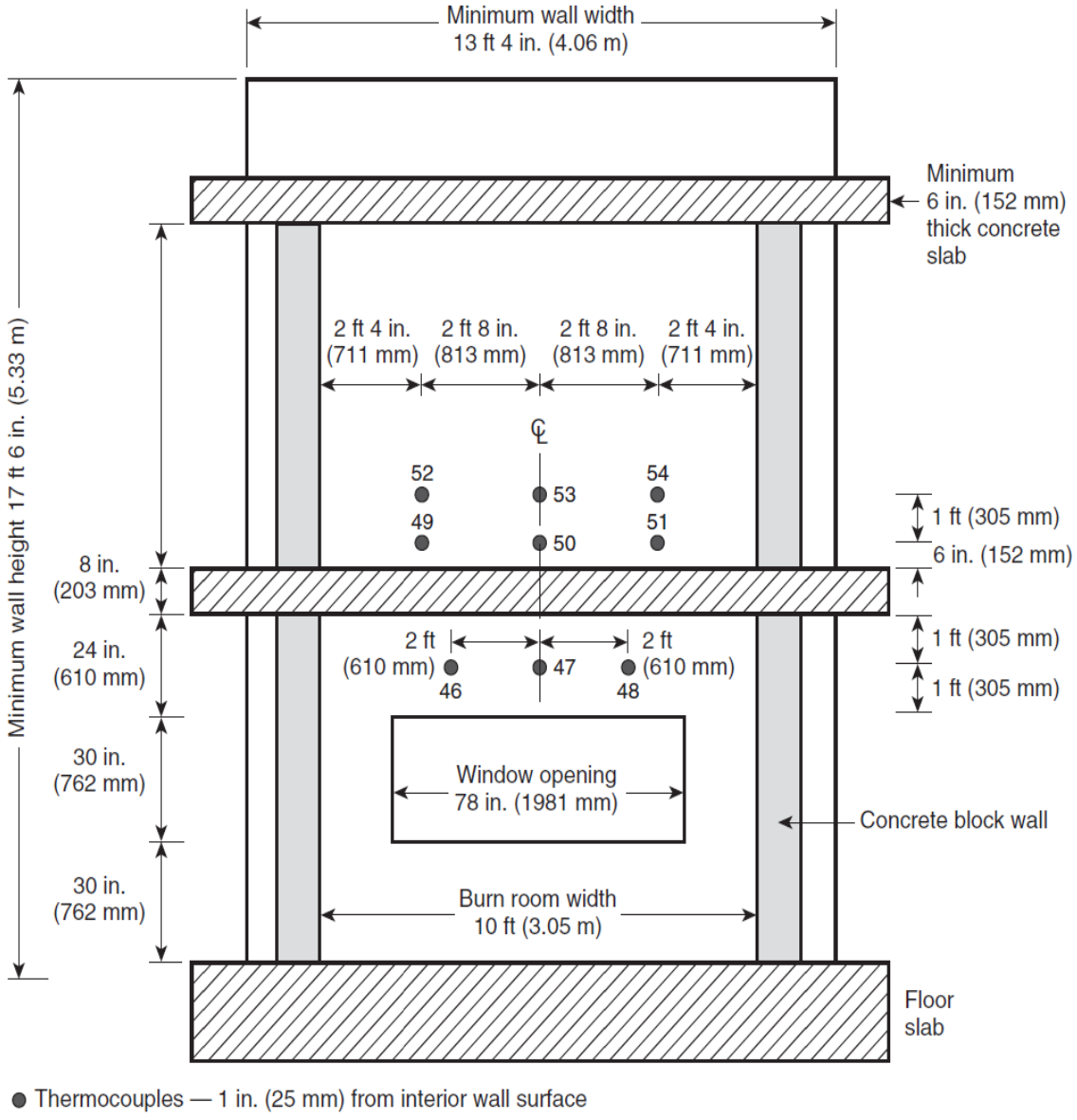

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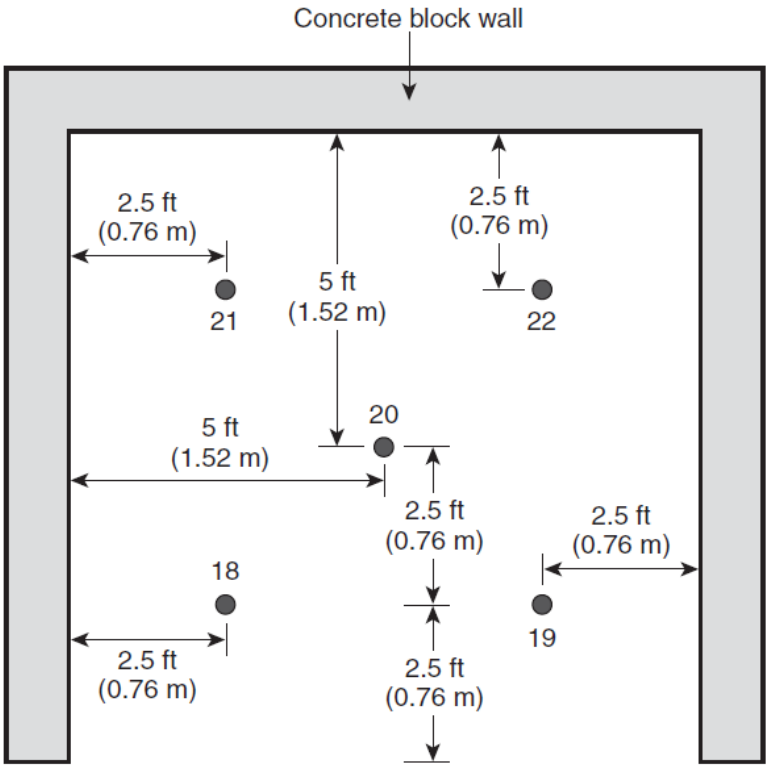

● Thermocouples (5) inside burn room 6 in. (152 mm) below ceiling

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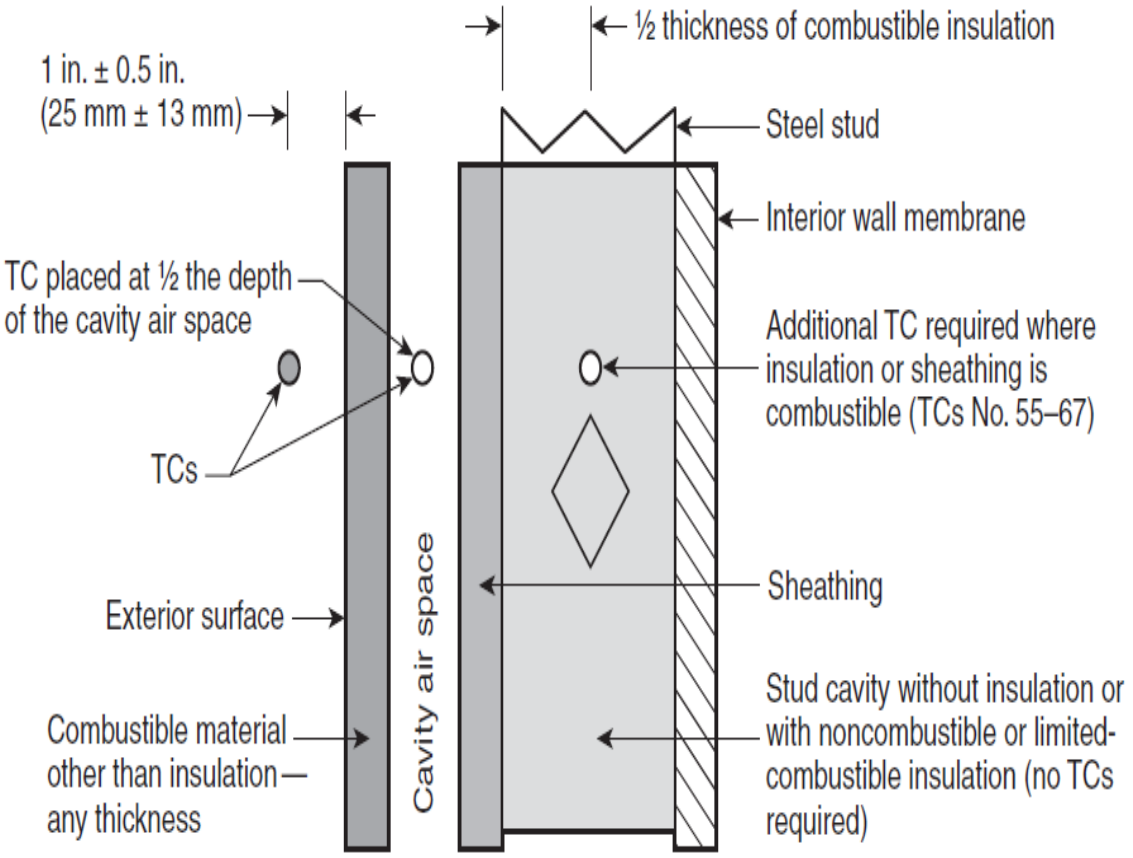

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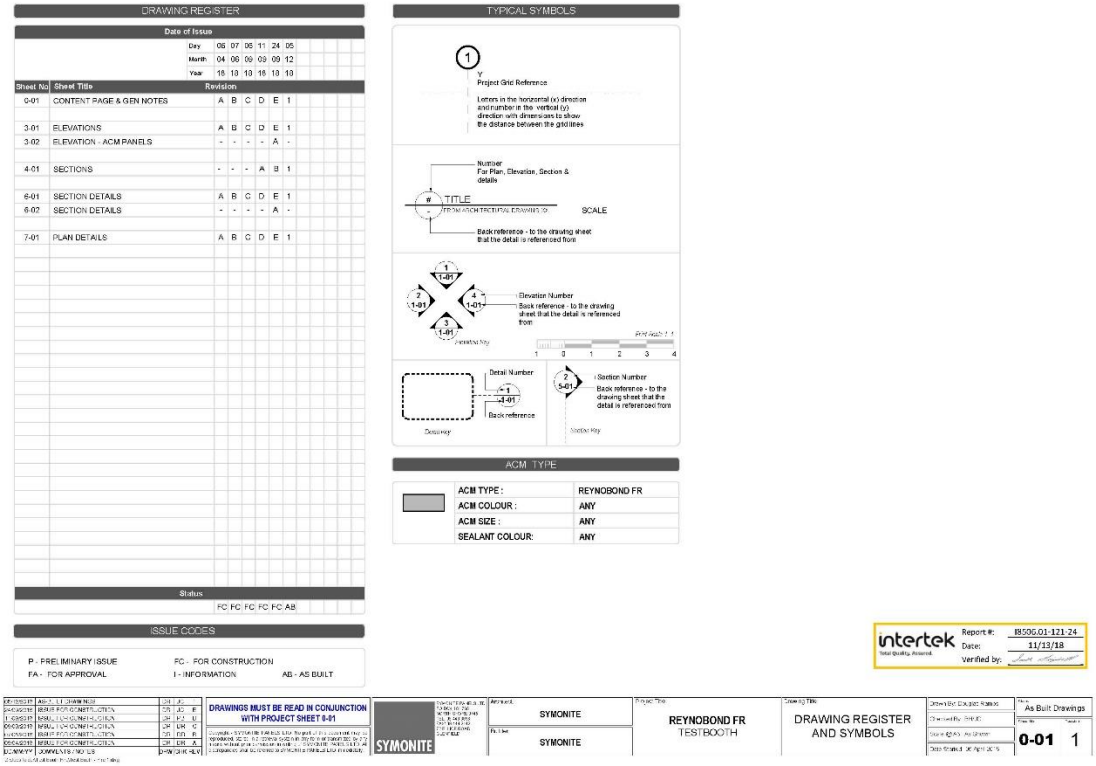

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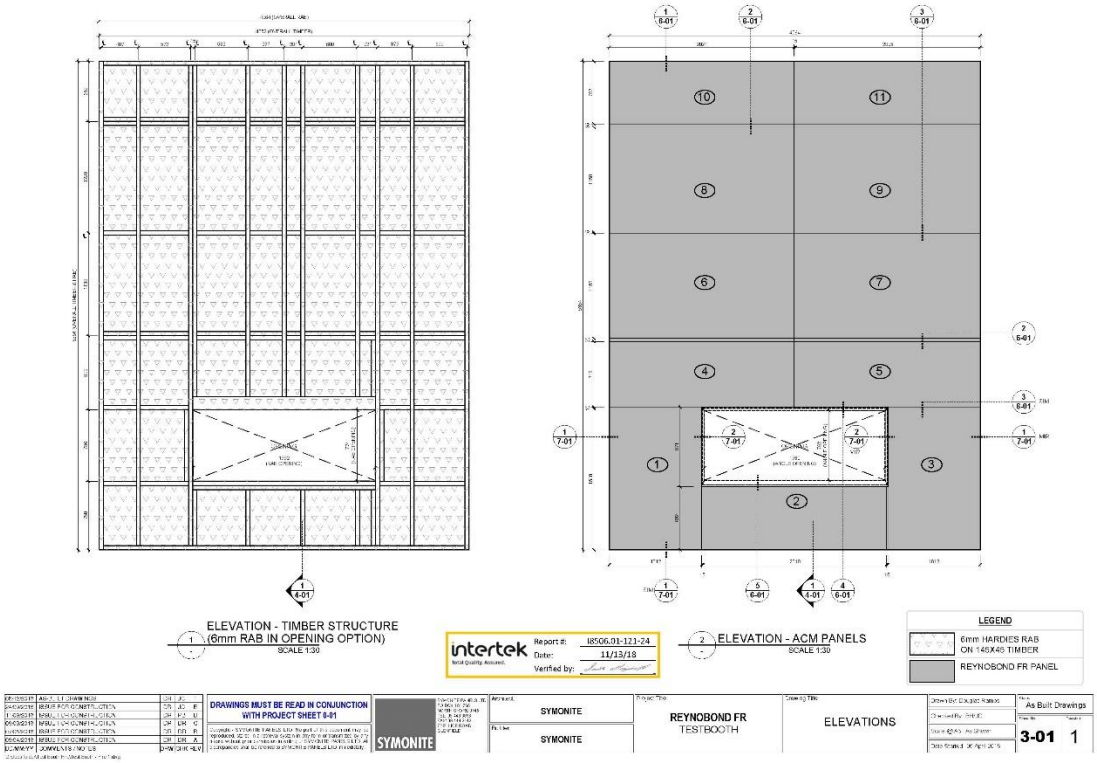

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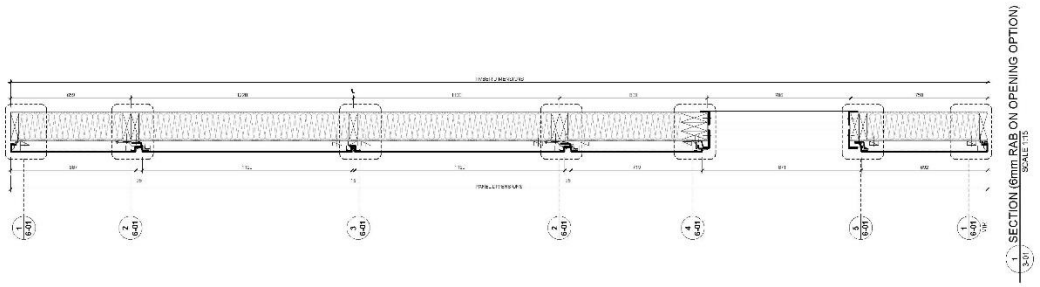

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DRAWINGS MUST BE READ IN CONJUNCTION WITH PROJECT SHEET 0-01

SYMONITE

SYMONITE

REYNOBOND FR
TESTBOOTH

SECTIONS

As Built Drawings

4-01 1

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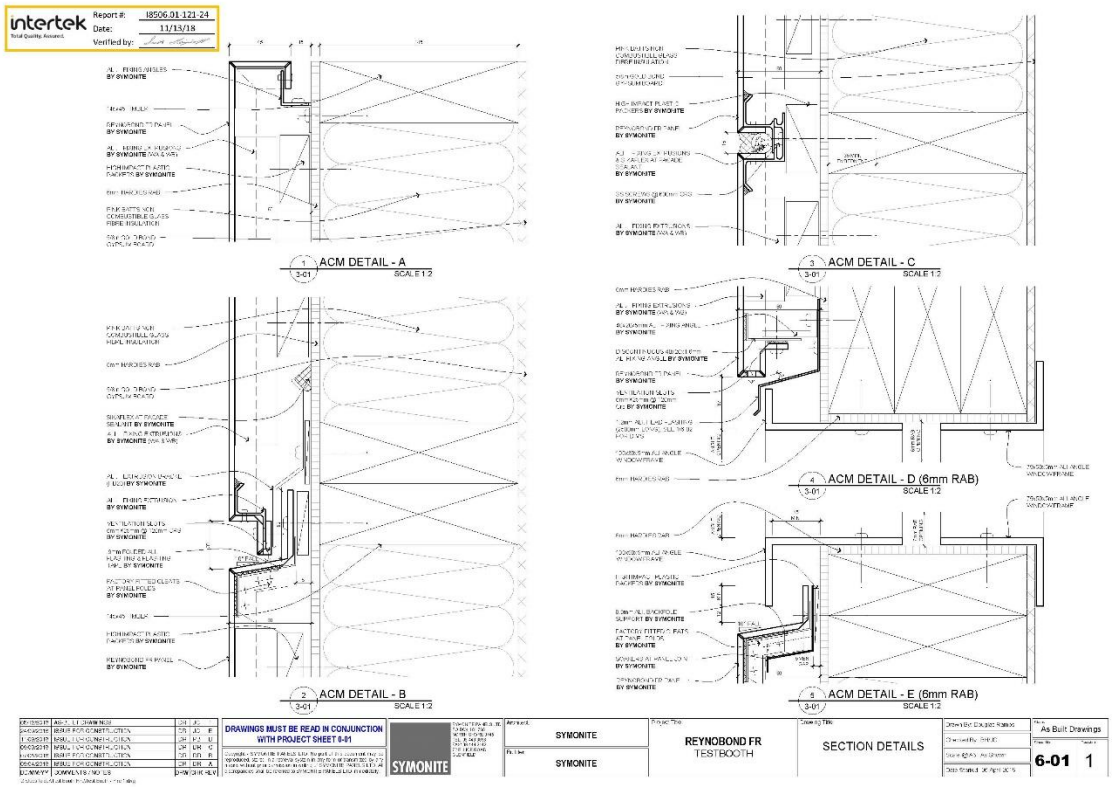

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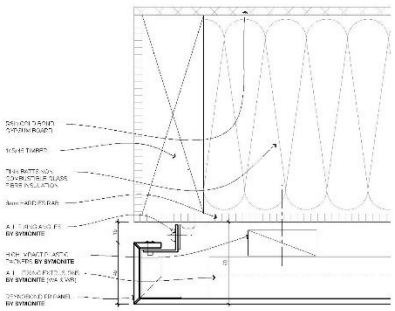

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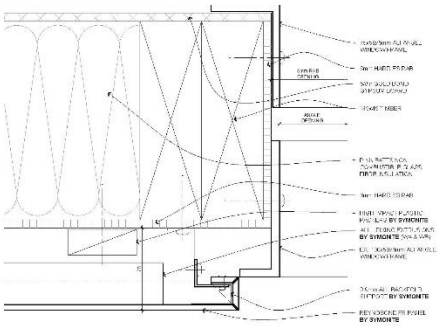
SCALE 1:2



2 3-01 ACM DETAIL - 2 (6mm RAB)
SCALE 1:2

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SYMONITE

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PLAN DETAILS

As Built Drawings

7-01 1

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SECTION 11
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	01/02/19	N/A	Original Report Issue
1	02/04/19	Added pages 8-17	Drawings