

ACCURATE PANEL SYSTEMS TEST REPORT

SCOPE OF WORK

CAN/ULC S134, STANDARD METHOD OF FIRE TESTS OF EXTERIOR WALL ASSEMBLIES

REPORT NUMBER

G104472572-SAT-005 R0

TEST DATE(S)

10/21/21

ISSUE DATE

10/28/21

[REVISED DATE]

N/A

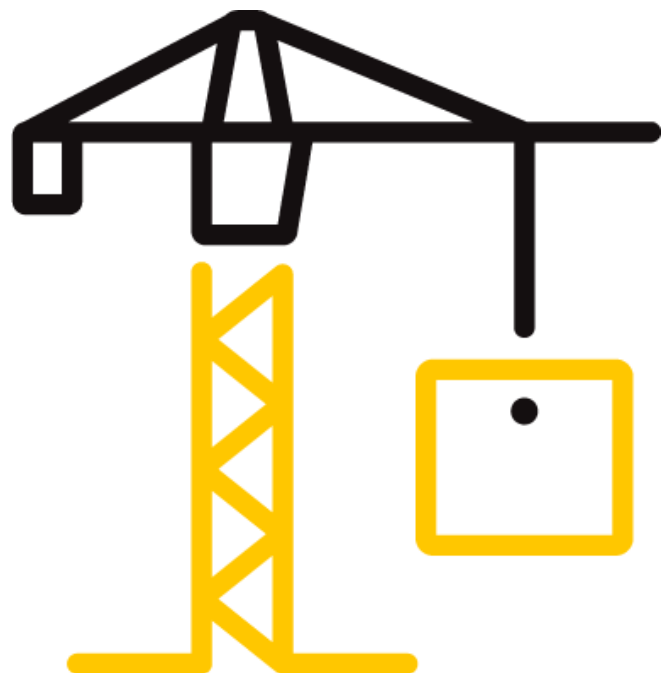
PAGES

32

DOCUMENT CONTROL NUMBER

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TEST REPORT FOR ACCURATE PANEL SYSTEMS

Report No.: G104472572-SAT-005 R0

Date: 10/28/21

REPORT ISSUED TO

ACCURATE PANEL SYSTEMS

#107-725 Industrial Way

Victoria BC

V9B 6E2

SECTION 1


SCOPE

Intertek Testing Services NA, Inc. dba Intertek Building & Construction (B&C) was contracted by Accurate Panel Systems, #107-725 Industrial Way, Victoria BC, V9B 6E2 to perform testing in accordance with CAN/ULC-S134, *Standard Method of Fire Test of Exterior Wall Assemblies*, on their Alucoil® Aluminum composite panel system. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek Testing Services test facility in Elmendorf, Texas.


Unless differently required, Intertek reports apply the "Simple Acceptance" rule also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens (where required by Certification or Accreditation bodies), or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

COMPLETED BY:	Emmanuel Ogoe
TITLE:	Project Engineer – Building and Construction
SIGNATURE:	
DATE:	10/27/21

AAA:bbb

REVIEWED BY:	Abel de Hoyos
TITLE:	Senior Project Manager – Fire Resistance
SIGNATURE:	
DATE:	10/28/21

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SECTION 2

SUMMARY OF TEST RESULTS

The Accurate Panel Systems Alucoil® FR core panel system described and tested in this report **met** the Conditions of Acceptance of in **CAN/ULC-S134, Standard Method of Fire Test of Exterior Wall Assemblies, 2nd Edition, dated August 2013(R2018)**. Construction of the full assembly is summarized in Section 8 of this test report.

SECTION 3

TEST METHOD(S)

The specimen was evaluated in accordance with the following:

CAN/ULC-S134-2013, Standard Method of Fire Test of Exterior Wall Assemblies; 2nd Edition, dated August 2013 (Reaffirmed 2018)

SECTION 4

MATERIAL SOURCE/INSTALLATION

Test samples were provided by the client. The results outlined in this report apply to the sample as received. The specimen(s) was/were witnessed during production and tagged prior to shipment 10/04/21, (Reference Intertek B&C Test Specimen Selection Report No. G104469723, dated 10/04/21).

The test samples were received by the test facility on 10/18/21 and given sample ID# SAT2110181453-001.

SECTION 5

EQUIPMENT

ASSET #	DESCRIPTION	MODEL	CAL DUE DATE
170199540	Stopwatch	Fisherbrand	02/24/22
HB9002195	DAQ Unit	Yokogawa	02/05/22
10361068	Thermo/Hygrometer	Omega	08/05/22
17331	Anemometer	Adafruit	08/31/22
17332	Anemometer	Adafruit	08/31/22
17334	Anemometer	Adafruit	08/31/22
189854	Radiometer	Medtherm	03/02/22

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EQUIPMENT CONT.

215262	Radiometer	Medtherm	10/30/21
215263	Radiometer	Medtherm	03/02/22
2642089	Gas Flow Transducer	Rosemount	10/06/21
461564	E-Type TC	Omega	10/06/21
1217181017	Gas Pressure Transducer	Omega	10/06/21

SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Robin Saxl	Accurate Panel Systems
John Wilson	Accurate Panel Systems
Steve Craft	CHM
Adriana Machuca	Intertek B&C
Emmanuel Ogoe	Intertek B&C

SECTION 7

TEST PROCEDURE

Testing was performed on 10/18/2021 in accordance with the CAN/ULC-S134 test method. Ambient conditions were 26.7°C and 67.4% relative humidity. Anemometers were used to verify ambient air velocity did not exceed 2 m/s as specified in the test method. Video recording, digital photographs, visual observations, and data collection were performed prior, during, and after testing was completed. All observations are recorded in the table located in Section 9.

In accordance with CAN/ULC-S134, once ambient conditions are met, the pilot burners are lit. The test then starts with the ignition of the burners. The burners proceed, controlled as specified in the test method, with a 5 min growth period, followed by a 15 min steady state period, followed by a 5 min ramp down period to zero.

Three water cooled heat flow transducers (0-100 kW/m²) were installed through the test specimen and the front wall of the test chamber 3.5 m above the top of the window opening; one within 0.2 m ± 0.05 m horizontally of the center line of the opening and one on each side and within 0.5 ± 0.1 m horizontally from the first. The transducers were installed so that their sensing faces were flush with the outer face of the test specimen. 24 GA (0.51 mm), Type K bare beaded thermocouples were used to monitor temperature of the specimen and were located approximately 89 mm to the right of the vertical center line and above the opening at 1.5 ± 0.05

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m, 2.5 ± 0.05 m, 3.5 ± 0.05 m, 4.5 ± 0.05 m, 5.5 ± 0.05 m. At each of these levels, one thermocouple was installed on the outermost ridge of the test specimen, one on the outer face of the 4-inch thick mineral wool, and one on the outer face of the Sopraseal® Stick VP vapor barrier.

The assembly was instrumented with fifteen (15) thermocouples, at the prescribed heights, as follows:

- TCs 1-5: Flush with exterior FR core ACM panels at 1.5 m, 2.5 m, 3.5 m, 4.5 m, and 5.5 m, respectively.
- TCs 6-10: (Layer 1) On the exterior 4-inch-thick mineral wool surface at 1.5 m, 2.5 m, 3.5 m, 4.5 m, and 5.5 m, respectively.
- TCs 11-15: (Layer 2) On the SOPRASEAL® STICK VP surface 1.5 m, 2.5 m, 3.5 m, 4.5 m, and 5.5 m, respectively.

SECTION 8

TEST SPECIMEN DESCRIPTION

The concrete base wall was sheathed with one layer of 1/2 in. thick type X gypsum sheathing. SOPRASEAL® STICK VP weather barrier was applied to the surface of the gypsum sheathing by sheets with adhesive backing. 4 in. long, 16GA stainless steel APS clips were then installed to the vapor barrier using Hilti KH-EZ 1/4x1 – 7/8 in. long concrete anchors, using two fasteners per APS clip. A single layer of 4-in. Rockwool mineral wool of 6.2 pcf outer density, and 4.1 pcf inner density, was then installed to make a friction fit between the APS clips. 16GA, 1 in. x 2 in. vertical angle at nominal 16 in. oc was fastened to the APS clips using ¼ #14x1 410 stainless steel TEK screws with xylan coating. Using #10-16x1 pan head Tek screws with Ruspert coating, APS Parapet clips were then installed to the vertical angle at 16 in. oc.

The 4mm Alucoil® FR Black ACM panels were installed to the APS parapet clips using APS Framing Extrusions.

The window opening jambs, sill and header were lined with 16GA steel flashing, width of 10 in. with 1 in. thick ceramic fiber blanket.

See **Section 14** for detailed drawings of the test assembly.

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SECTION 9

TEST OBSERVATIONS

FIRE-RESISTANCE TEST OBSERVATIONS	
Time (min:sec)	Observations
00:00	Test Start at 10:57 a.m.
03:20	Flame tips coming out of window opening
07:53	Flaming at header in center
10:40	Flaming at center joint up to 1 meter above window opening
12:12	Debris falling
16:00	Debris continuing to fall
16:30	Flaming along length of header
25:00	Gas off, no residual flaming seen

SECTION 10

TEST RESULTS

The acceptance criteria in accordance with Clause 10.2 of the standard has the following requirements:

- Flaming on or in the wall assembly shall not spread more than 5 m above the opening in the test specimen.
- The average heat flux shall not be more than 35 kW/m² measured 3.5 m above the opening in the test specimen.

Data for the three radiometers installed at the 3.5 m height above the window is listed in the table below. The maximum flame spread observed above the window opening was 4 m. The maximum average heat flux determined as required by the standard was 26.7 kW/m².

Time (min)	Left Radiometer 1 min Avg. (kW/m ²)	Right Radiometer 1 min Avg. (kW/m ²)	Center Radiometer 1 min Avg. (kW/m ²)	Visual Flame Height (meters)
0	-1.39	-1.58	-1.57	0
1	-1.50	-1.60	-1.42	0
3	-1.19	-1.47	-1.27	0
4	-1.25	-1.20	-1.18	1
5	-0.33	-0.52	-0.90	1.5
6	0.23	-0.11	-0.80	2

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RESULTS CONT.				
7	0.39	-0.06	-0.44	2
8	1.14	-0.09	-0.27	2
9	1.57	0.37	1.57	2
10	1.38	0.55	2.18	3
11	1.88	0.72	2.49	3
12	2.43	1.39	2.96	4
13	3.62	2.03	4.00	3
14	4.54	3.48	13.87	2.5
15	5.30	4.72	19.44	2
16	5.39	3.63	7.02	2.5
17	5.57	3.93	5.65	2
18	4.79	5.14	5.52	2
19	5.76	5.30	6.44	1.5
20	6.21	5.58	7.77	2
21	7.38	6.75	8.23	1
22	8.01	7.55	9.26	1
23	5.85	6.38	10.63	0
24	4.48	5.30	16.93	0
25	3.24	4.97	10.21	0

Note: Table displays heat flux values at every minute.

SECTION 11

CONCLUSION

The Accurate Panel Systems aluminum composite panel wall system containing 4 mm thick Alucoil® FR core Panels **met** the conditions of acceptance outlined in **CAN/ULC S134-2013**, Standard Method of Fire Test of Exterior Wall Assemblies 2nd Edition, dated August 2013 (Reaffirmed 2018).

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SECTION 12

PHOTOGRAPHS



Photo No. 1
Weather barrier installed



Photo No. 2
Installation of insulation

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Photo No. 3
Vertical Angle Spacing



Photo No. 4
Vertical Angle attachment

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Photo No. 5
Installation of mineral wool



Photo No. 6
Installation of panels

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Photo No. 7
Wall installation complete



Photo No. 8
Window opening pre-test

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Photo No. 9
Start of test



Photo No. 10
Flames exiting window opening

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Photo No. 11
Flame height at 2 meters



Photo No. 12
Flaming at window header

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Photo No. 13
Flame up center to 4 meters



Photo No. 14
Debris falling

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Photo No. 15
Gas decreased



Photo No. 16
Gas off

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Photo No. 17
Post-test



Photo No. 18
Mineral wool char

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Photo No. 19
WRB post-test



Photo No. 20
WRB above window opening

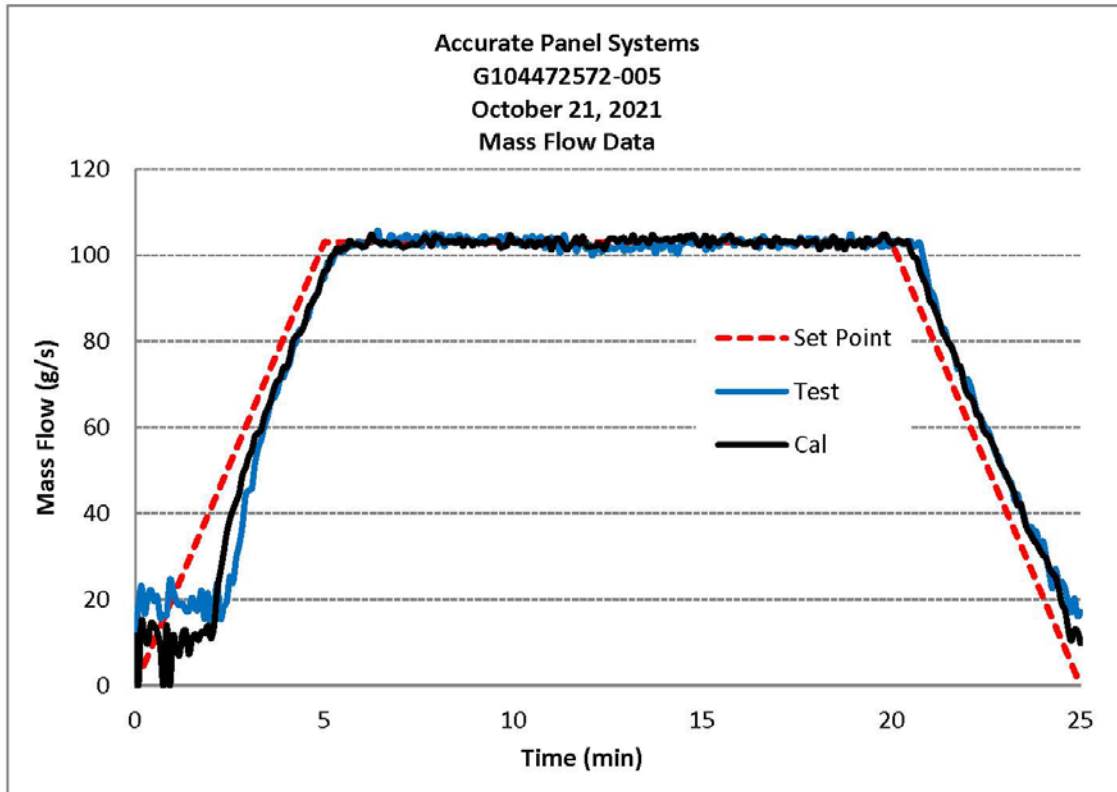
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SECTION 13

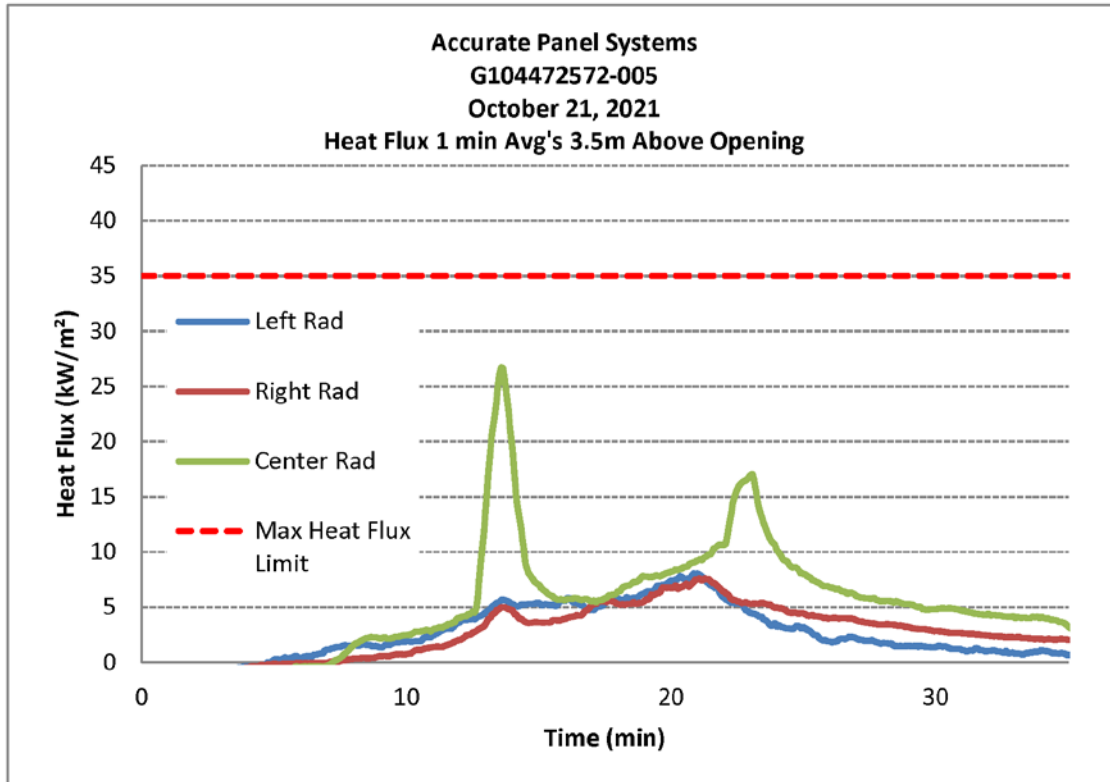
GRAPHS



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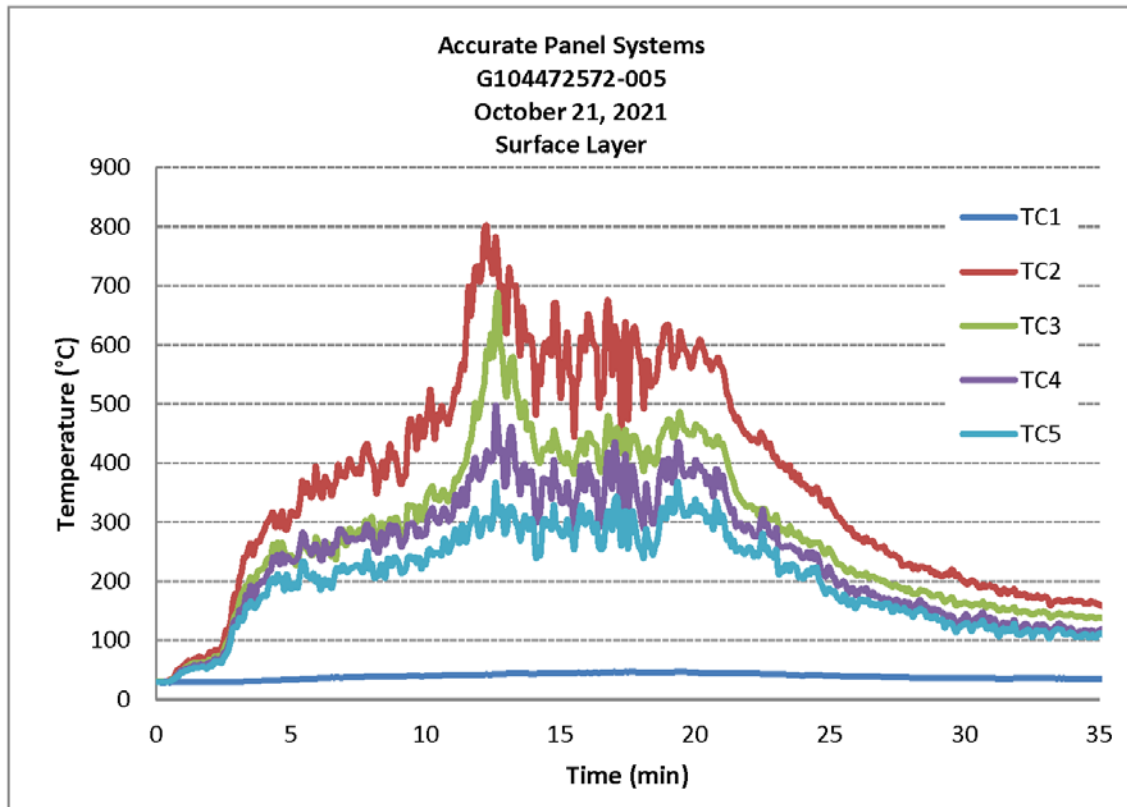
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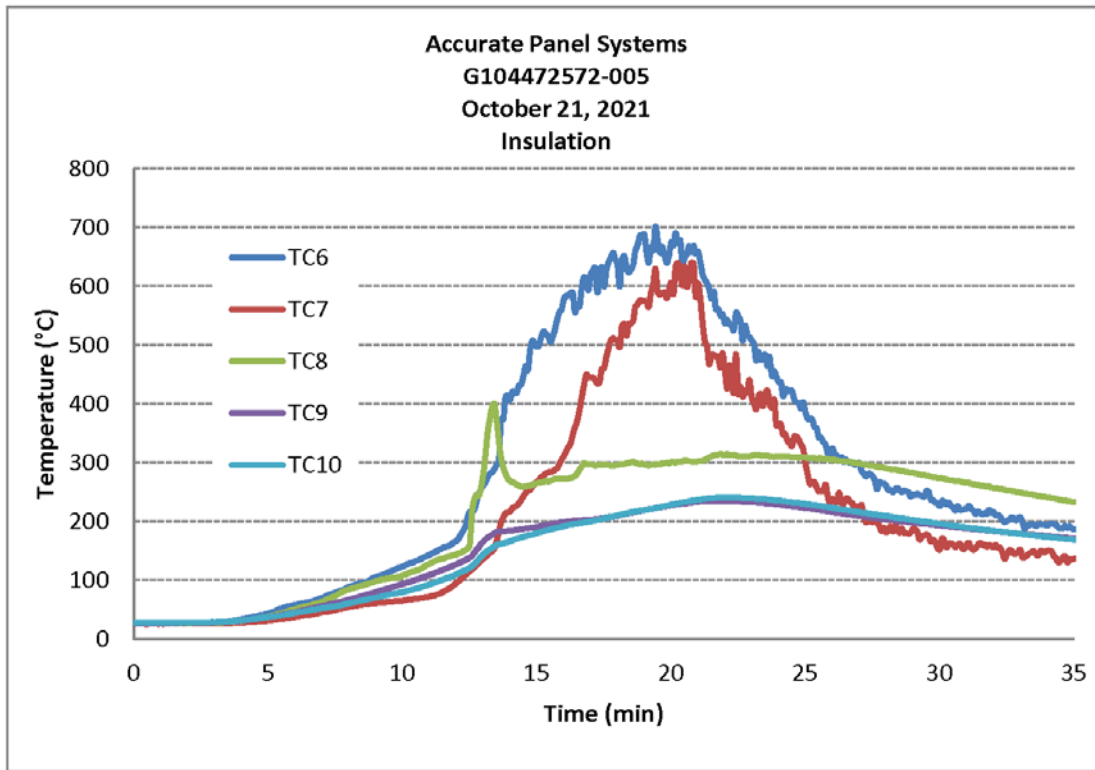
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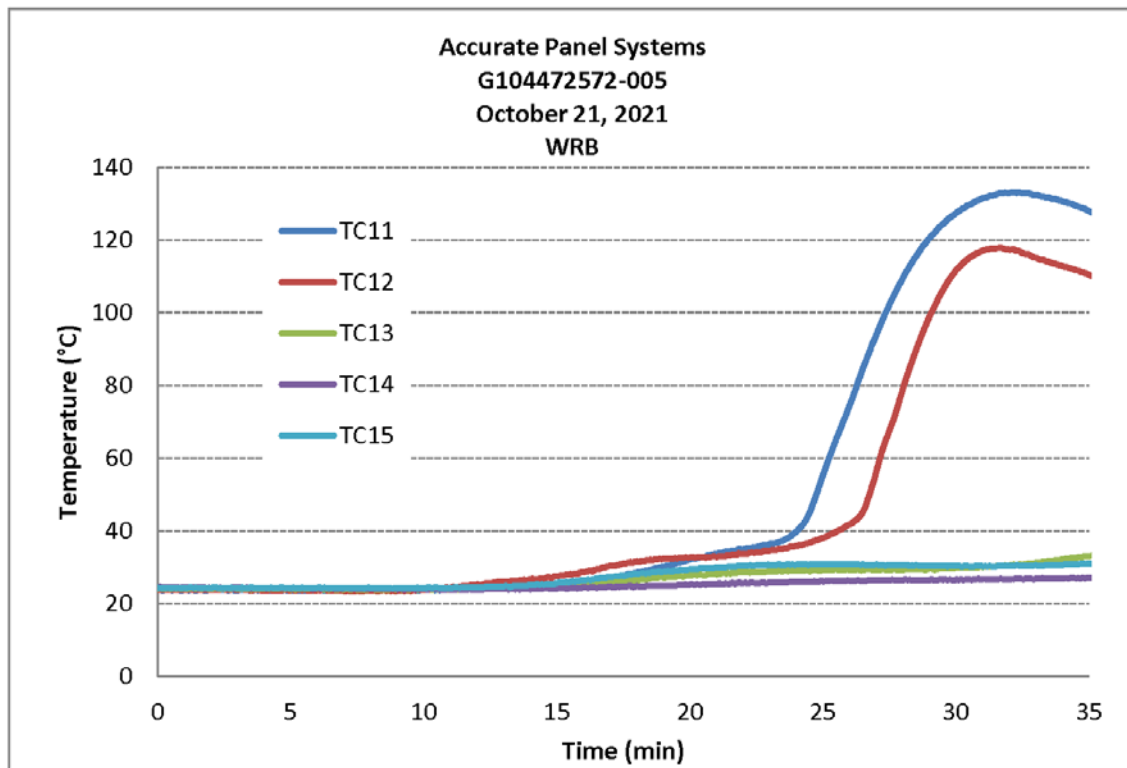
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SECTION 14

DRAWINGS

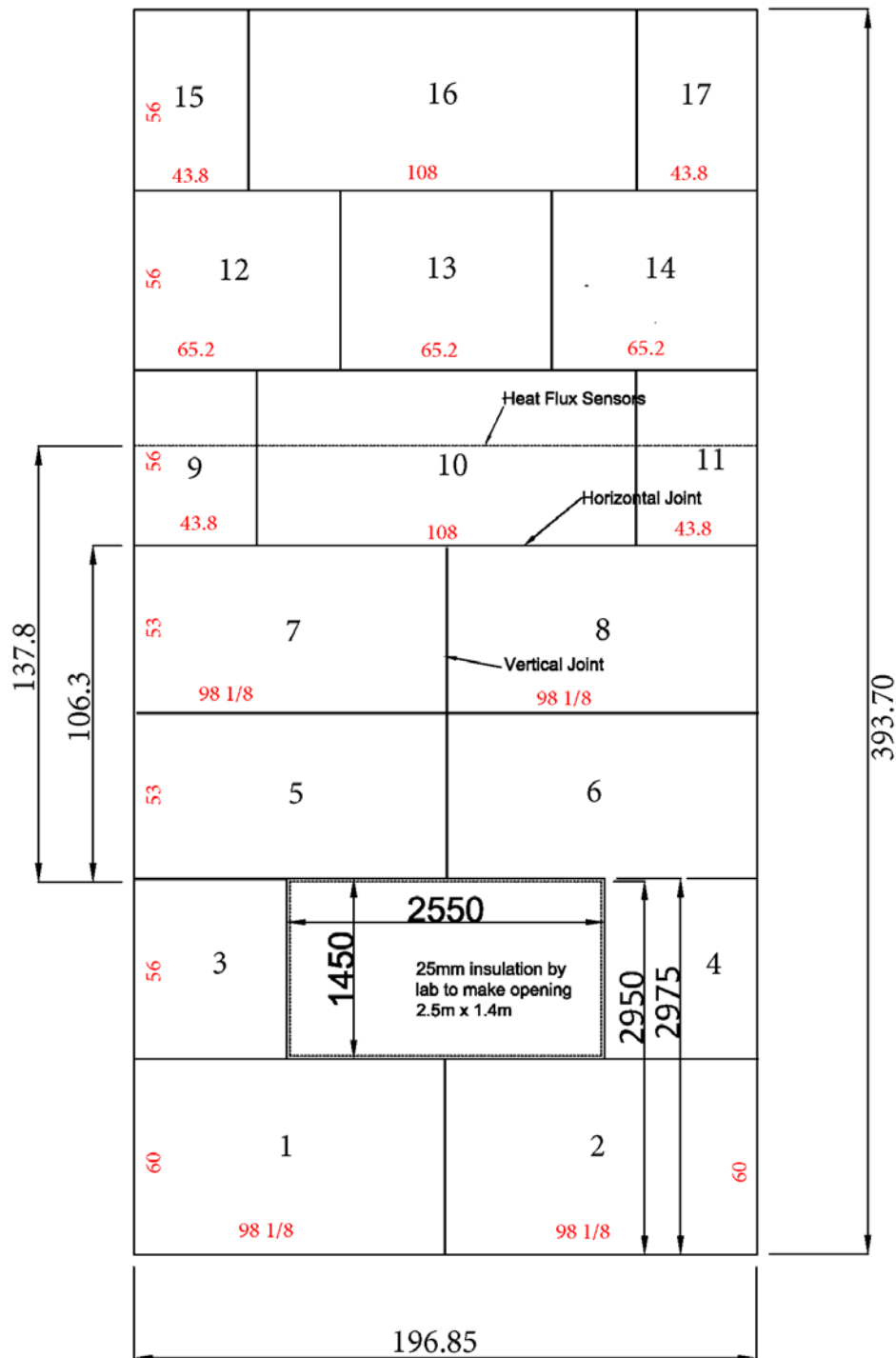
The "As-Built" drawings for the Accurate Panels System CAN/ULC S134 test; Sheet Nos. 1-8 and dated 09/24/2021; which follow have been reviewed by Intertek B&C and are representative of the project reported herein. Project construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

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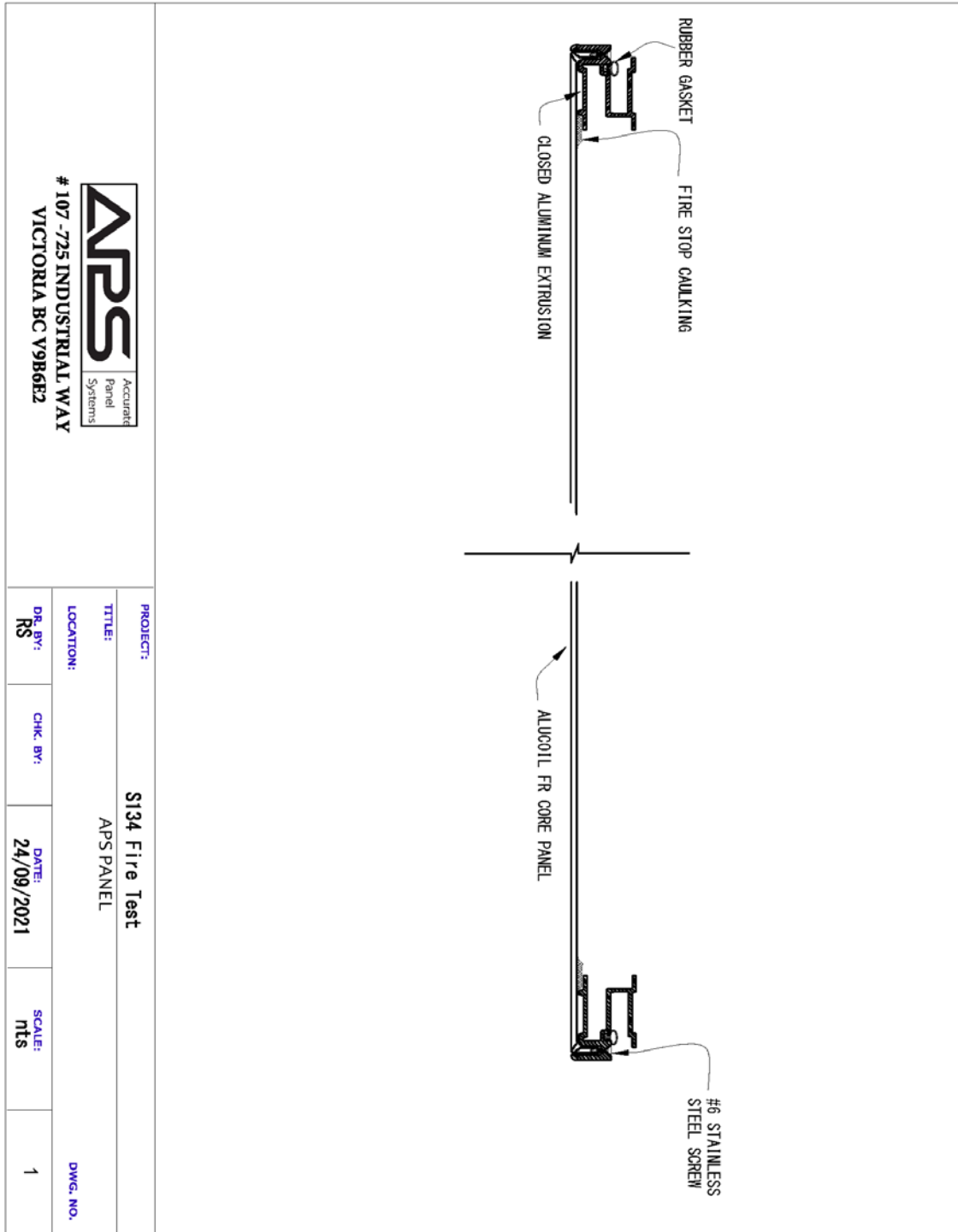
S-134 TEST - PANEL LAYOUT



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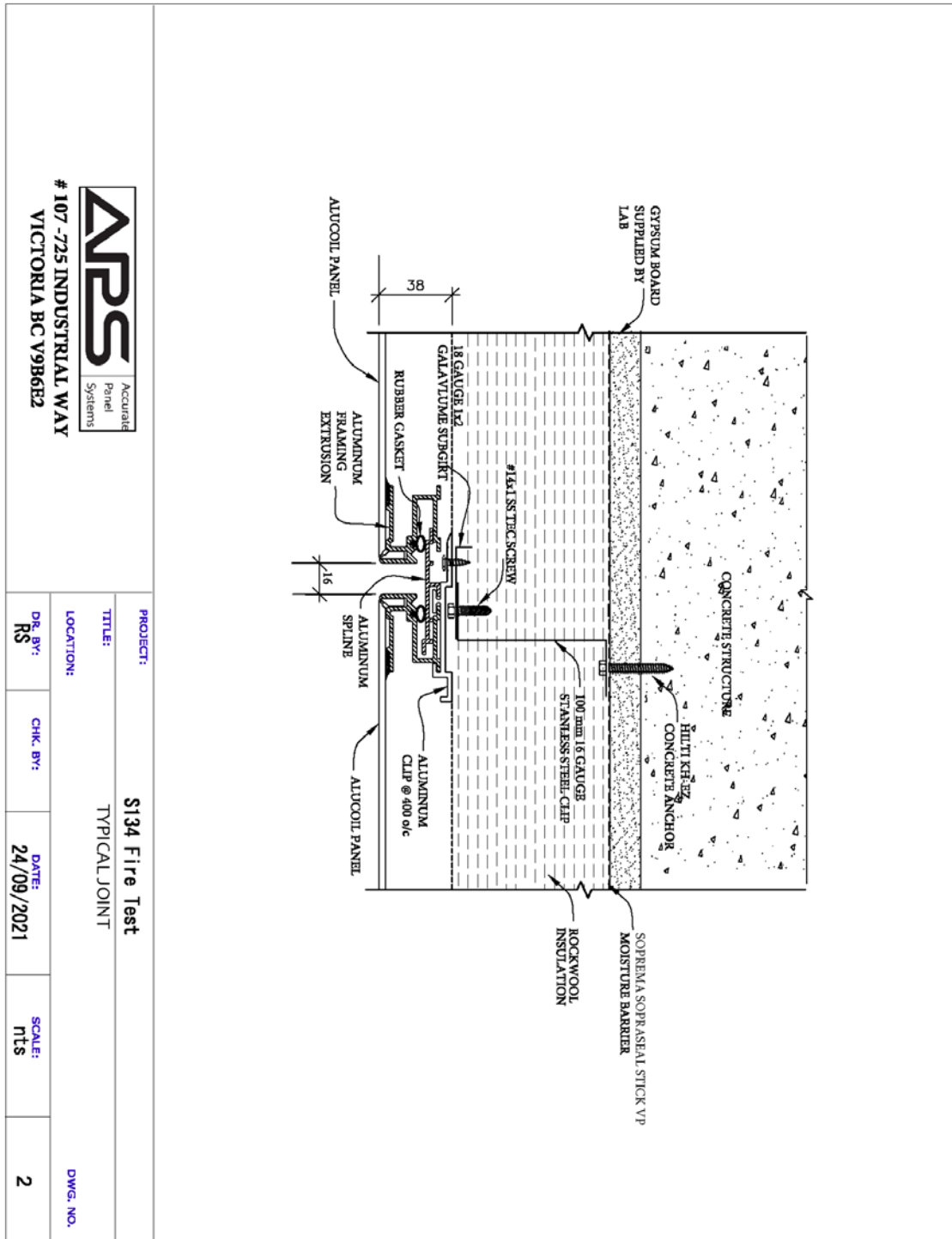
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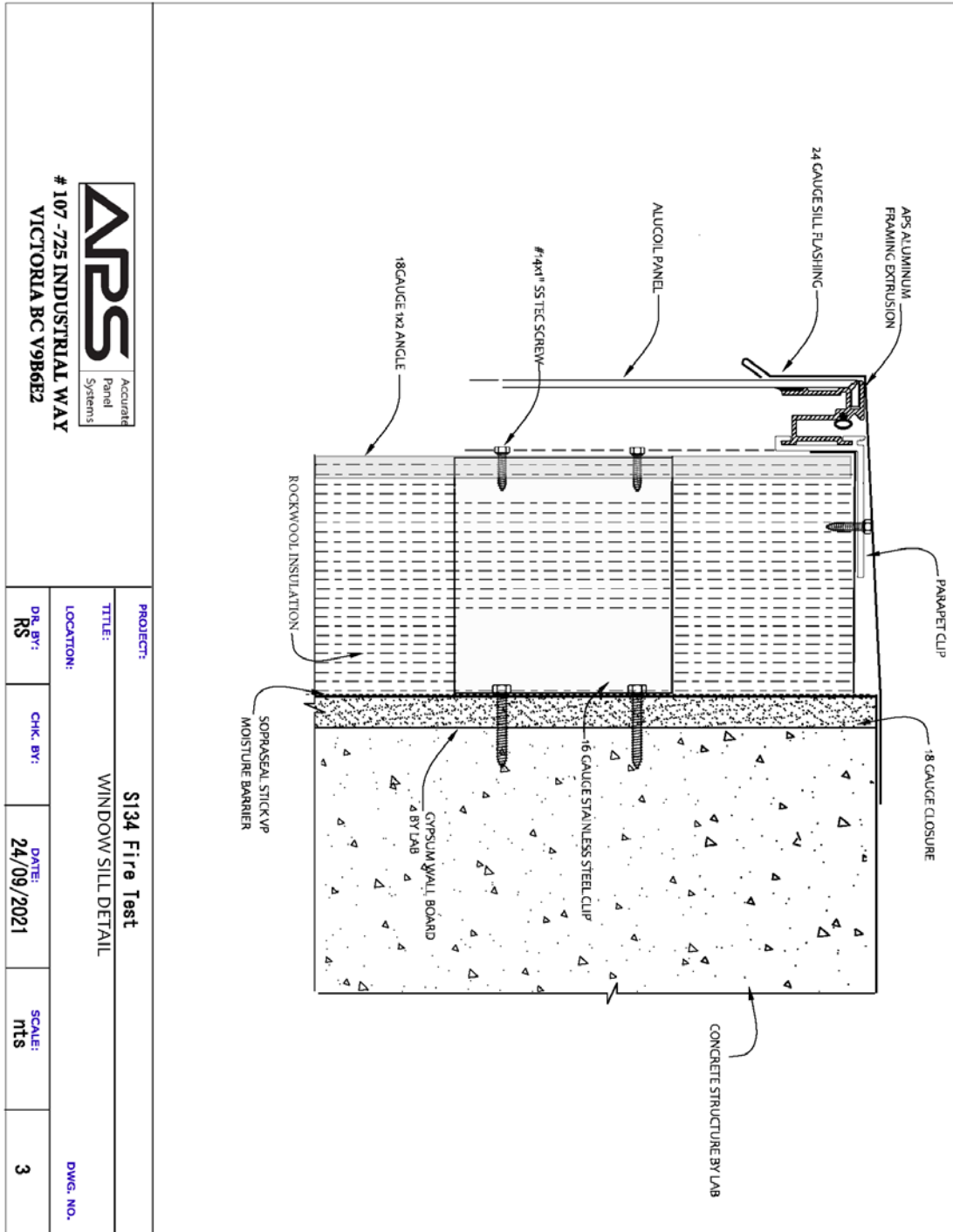
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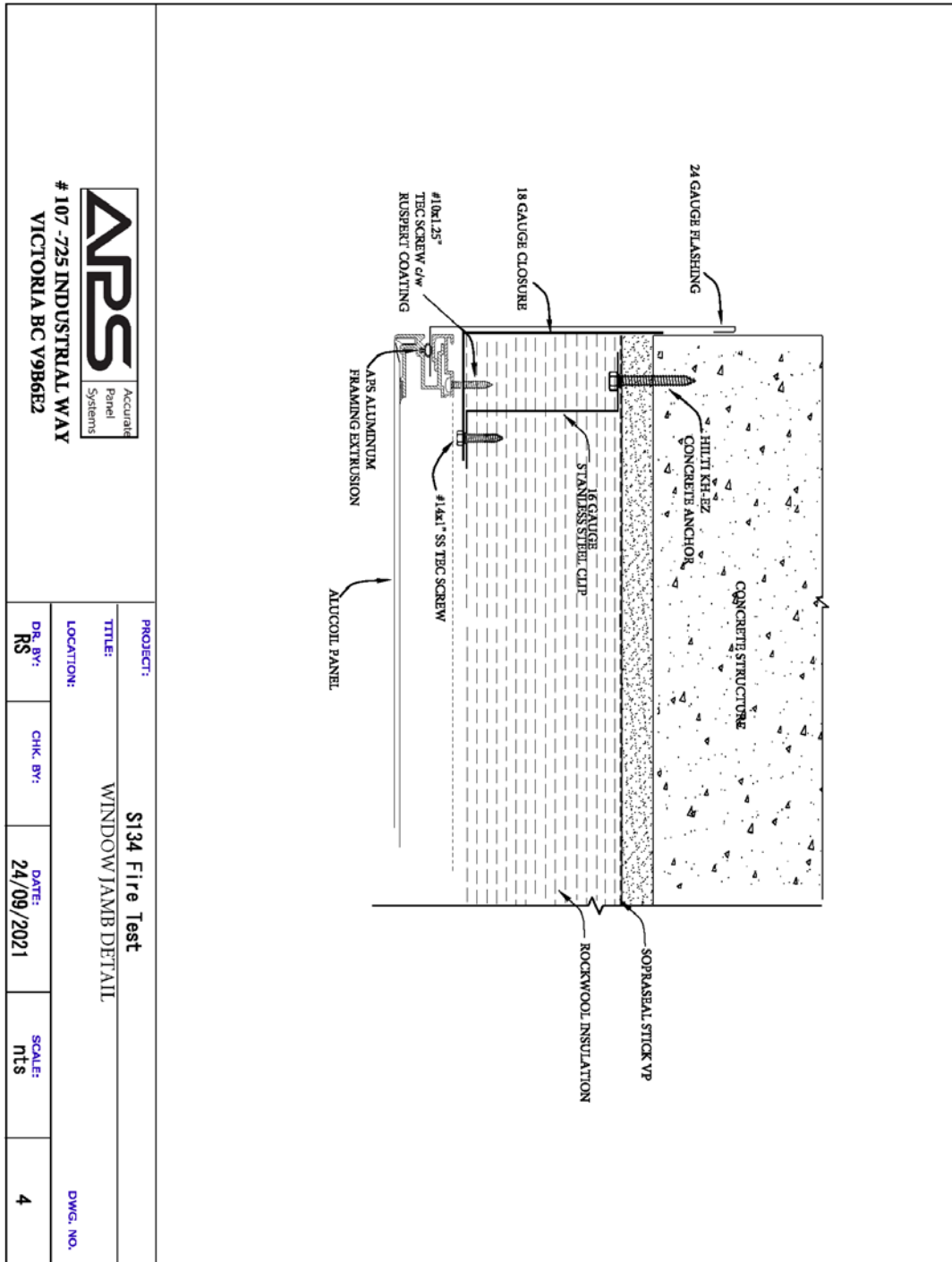
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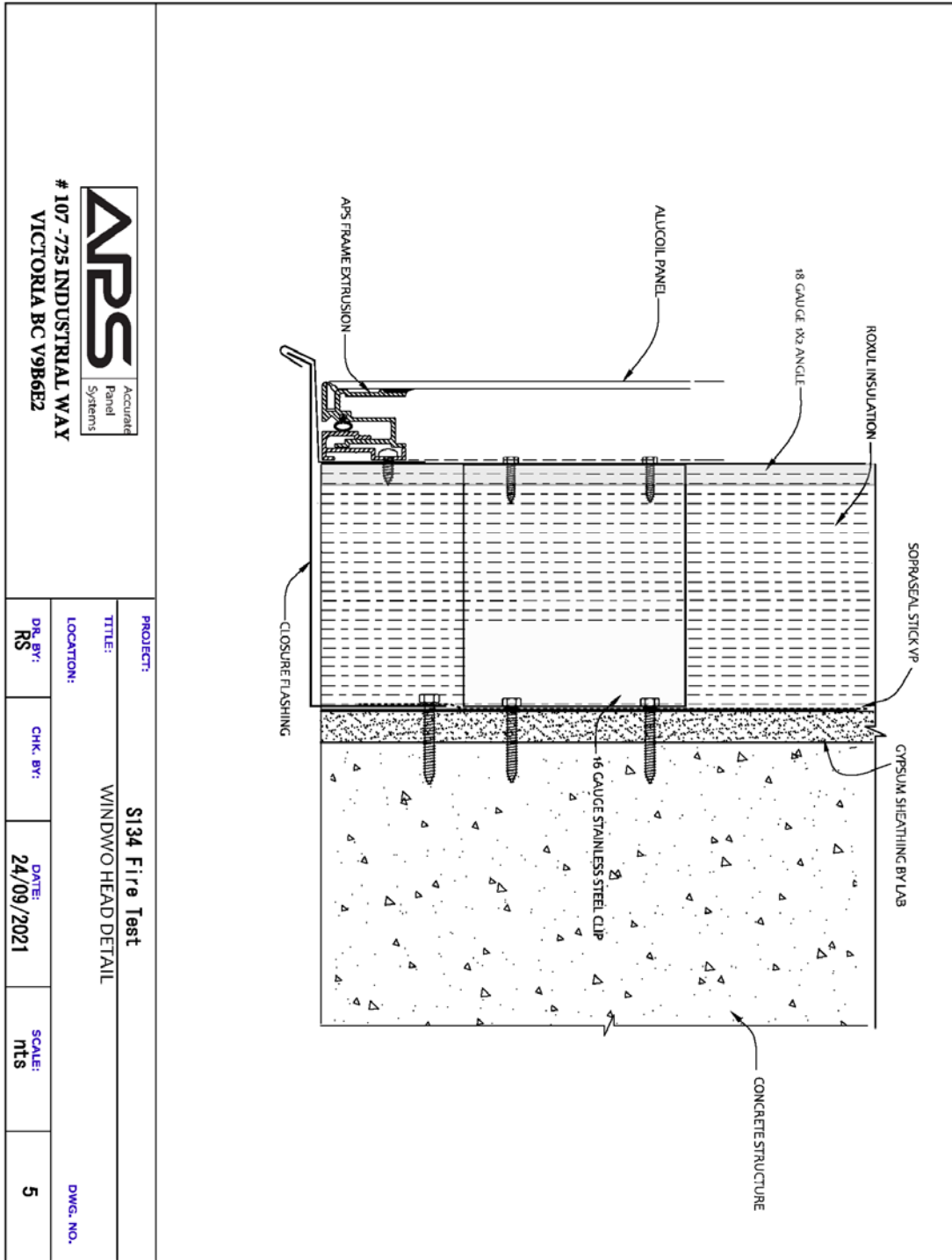
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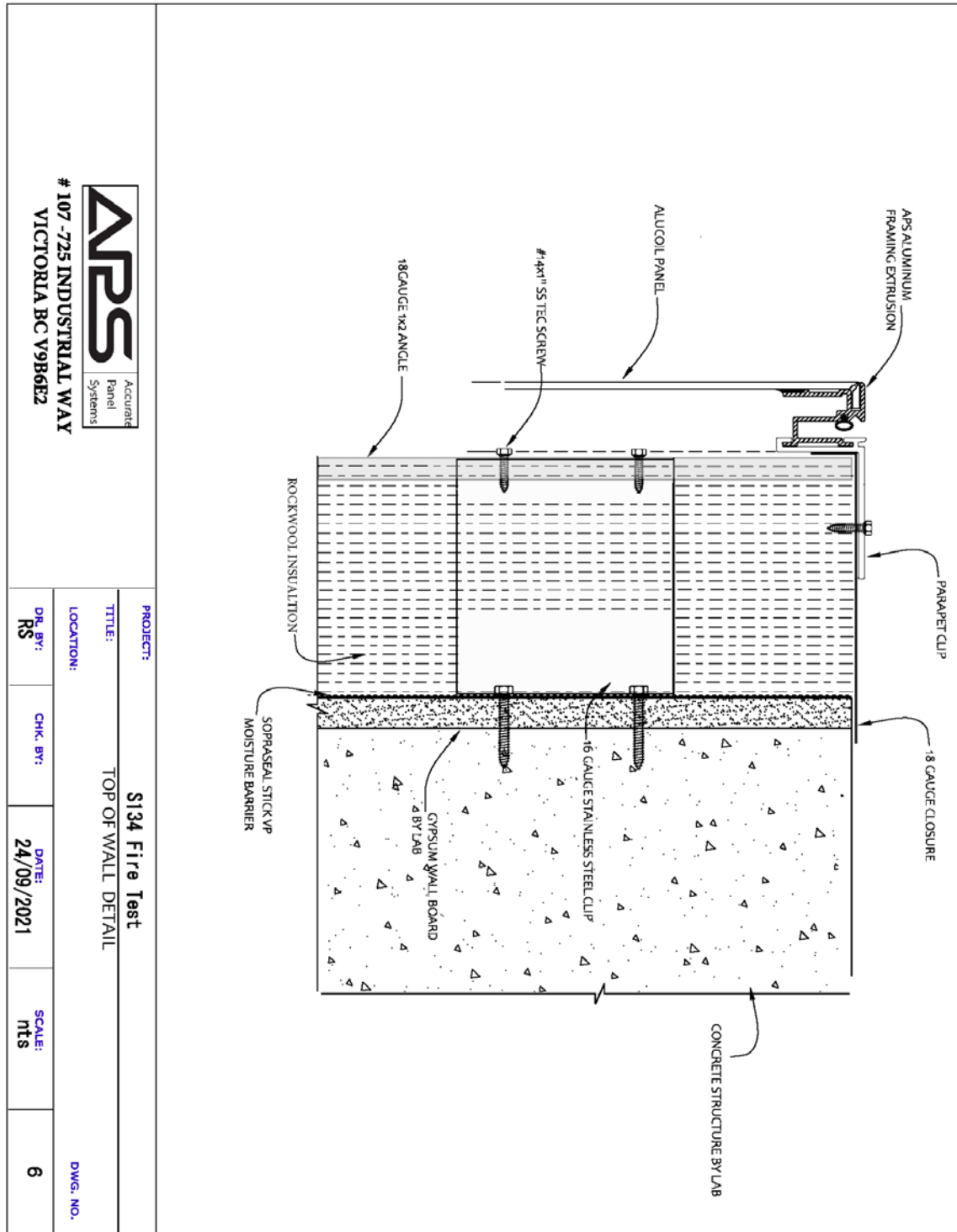
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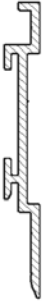


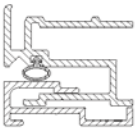
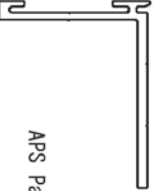

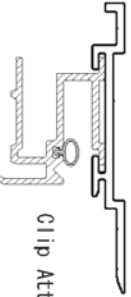
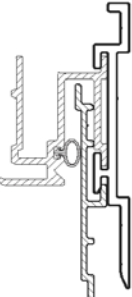
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SECTION 15

REVISION LOG

REVISION #	DATE	SECTION	REVISION
0	10/28/21	N/A	Original Report Issue