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CLADDING FAÇADE SOLUTIONS
TEST REPORT

SCOPE OF WORK
ASTM E330/E330M TESTING ON CFS FF (FACE FASTENED) EQUITONE 8 MM, CEMENT PANELS

REPORT NUMBER
M6718.01-109-44

TEST DATE
09/27/21

ISSUE DATE
12/01/21

RECORD RETENTION END DATE
09/27/25

PAGES
15

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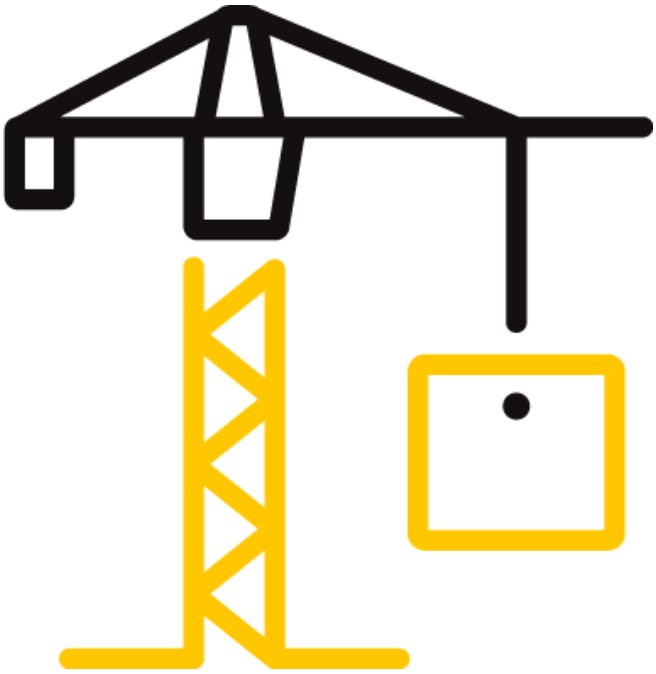

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TEST REPORT FOR CLADDING FAÇADE SOLUTIONS

Report No.: M6718.01-109-44
Date: 12/01/21

REPORT ISSUED TO

CLADDING FAÇADE SOLUTIONS
5109 Commonwealth Drive
Fredericksburg, Virginia 22407

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Cladding Façade Solutions to perform testing in accordance with ASTM E330/E330M on their CFS FF (Face Fastened) Equitone 8 mm, cement panels. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek B&C test facility in York, Pennsylvania.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	TEST SPECIMEN #1 RESULTS
Negative Design Pressure	-4309 Pa (-90.00 psf)

TITLE	TEST SPECIMEN #2 RESULTS
Positive Design Pressure	+4309 Pa (+90.00 psf)

For INTERTEK B&C:

COMPLETED BY:	Andrew P. Mehalick	**REVIEWED BY:**	Vicki L. McElwain
TITLE:	Technician – Product Testing	**TITLE:**	Manager – Product Testing
SIGNATURE:	Digitally Signed by: Andrew Mehalick	**SIGNATURE:**	Digitally Signed by: Vicki L. McElwain
DATE:	12/01/21	**DATE:**	12/01/21

APM:nls

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SECTION 3
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

> **ASTM E330/E330M-14**, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimens were provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 5
EQUIPMENT

Tape Measure Verification: 63788
Weather Station: 63316
Control Panel: 005406
Linear Transducers: 62182, 62187, 64325, 62189, Y003060, 64460

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Michael Dasaro	Cladding Façade Solutions
Robert J. Beatty	Intertek B&C
Vicki L. McElwain	Intertek B&C
Andrew P. Mehalick	Intertek B&C

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SECTION 7
TEST SPECIMEN DESCRIPTION

Product Type: Cement Panels
Series/Model: CFS FF (Face Fastened) Equitone 8 mm

Product Size(s):

Test Specimens #1 and #2:

OVERALL AREA:	**WIDTH**		**HEIGHT**	
5.1 m^2 (54.7 ft^2)	**millimeters**	**inches**	**millimeters**	**inches**
Overall size	2083	82	2438	96
Panel size	2083	82	1184	46-5/8

The following descriptions apply to all specimens.

Test Wall Construction: The test wall was constructed from 18-gauge steel studs and tracks. The studs were secured to the track using #6 x 1/2" Tek screws upon the interior and exterior of the tracks. The wall was sheathed with 5/8" exterior gypsum board. The gypsum board was secured using #8 x 1-5/8" self-tapping flat head screws spaced 8" on center. The test wall had an air water vapor barrier placed upon it and stapled into place using 3/8" crown X 1/2" long staples every 12" on center. The vapor barrier allowed for a 3" overlap at each seam and the seams were taped. Clips were placed 1" below the top and 1" above the bottom of the test wall at each stud and spaced 16" on center. The "L" clips were made from 0.170" thick aluminum and measured 3-3/4" wide, 4-3/4" high, 2" deep. Two #12 x 2-1/2" hex head self-tapping screws were utilized to secure the clips to the test wall. A 1/4" PVC spacer was placed under the clip prior to it being secured to the wall. A 0.075" thick aluminum "T" rail was secured to the clips and was run vertically. The "T" rail measured 3-1/2" wide by 2-1/4" tall and was secured using two #10 x 7/8" hex head self-tapping screws through the clip and into the rail. One #10 x 1" hex head self-tapping screw was utilized to secure the rail to the "T" rails. The panels were installed onto the test wall using 1/4" diameter pop rivets. The rivets were spaced 4" from each edge and spaced 16" horizontally and 13" vertically. For negative loads, 2 mil plastic was placed on top of the rail system. For positive loads, the 2 mil plastic was placed on top of the panels to facilitate testing.

Panel Construction: The panel was constructed from 8 mm thick fiber cement board.

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SECTION 8
TEST RESULTS

The temperature range during testing was 22°C - 23°C (72°F - 73°F). The results are tabulated as follows:

Test Specimen #1:

TITLE OF TEST	RESULTS	NOTE
Uniform Load Deflection, per ASTM E330 Deflections taken between fasteners -4309 Pa (-90.00 psf)	0.3 mm (0.01")	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken between installation rails -4309 Pa (-90.00 psf)	0.5 mm (0.02")	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken at center of the panel -4309 Pa (-90.00 psf)	1.3 mm (0.05")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken between fasteners -6464 Pa (-135.00 psf)	0.8 mm (0.03")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken between installation rails -6464 Pa (-135.00 psf)	1.0 mm (0.04")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken at center of the panel -6464 Pa (-135.00 psf)	1.0 mm (0.04")	1, 2

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Test Specimen #2:

TITLE OF TEST	RESULTS	NOTE
Uniform Load Deflection, per ASTM E330 Deflections taken between fasteners +4309 Pa (+90.00 psf)	0.5 mm (0.02")	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken between installation rails +4309 Pa (+90.00 psf)	0.5 mm (0.02")	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken at center of the panel +4309 Pa (+90.00 psf)	1.0 mm (0.04")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken between fasteners +6464 Pa (+135.00 psf)	<0.3 mm (<0.01")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken between installation rails +6464 Pa (+135.00 psf)	<0.3 mm (<0.01")	1, 2
Uniform Load Structural, per ASTM E330 Permanent set taken at center of the panel +6464 Pa (+135.00 psf)	<0.3 mm (<0.01")	1, 2

***General Note**: All testing was performed in accordance with the referenced standard(s).*

Note 1: Loads were held for 10 seconds.

Note 2: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

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SECTION 9
CONCLUSION

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. 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, or other pertinent project documentation, will be retained for the entire test record retention period.

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.

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SECTION 10
PHOTOGRAPH

Photo No. 1
Test Specimen Prior to Testing

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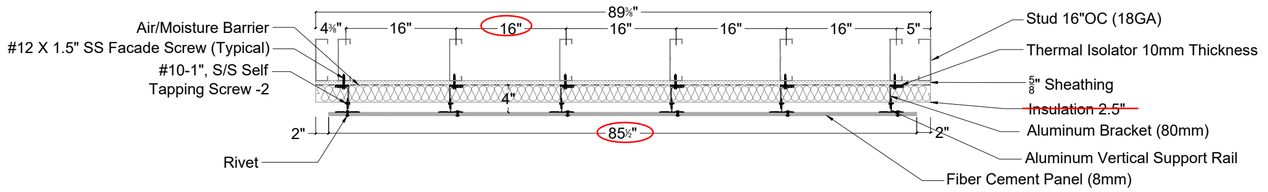
SECTION 11
DRAWINGS

The test specimen drawings 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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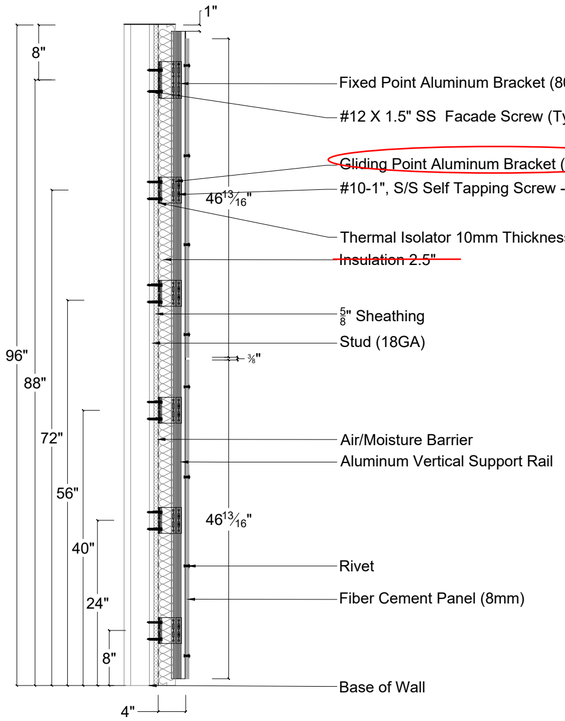

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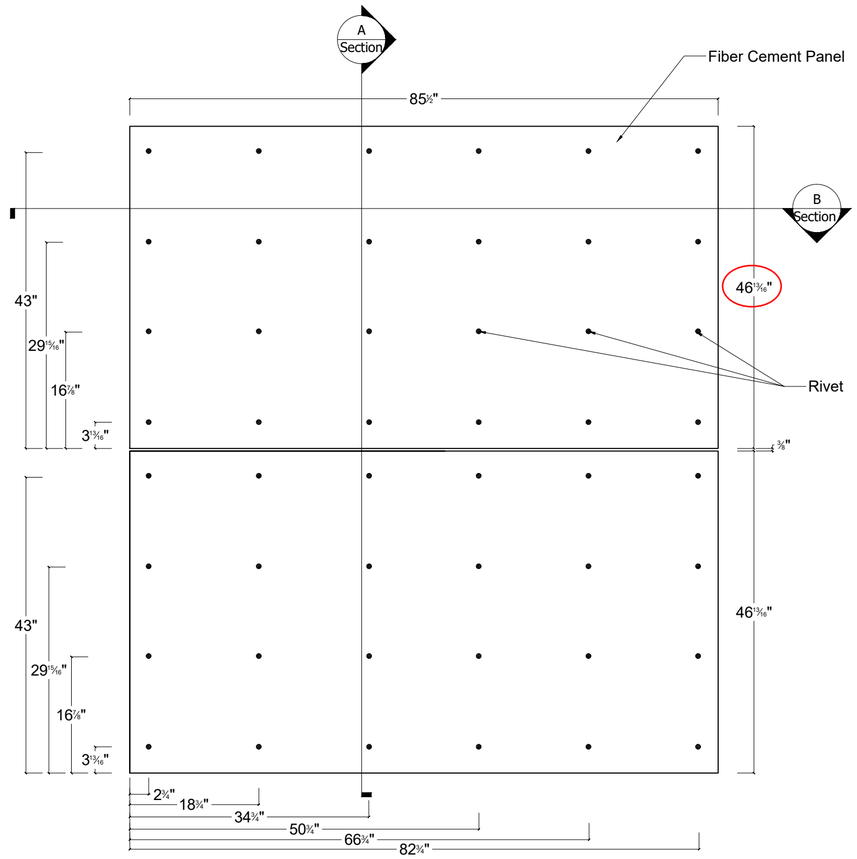

Panel Layout

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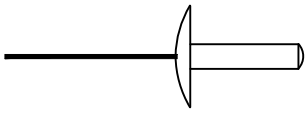
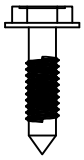
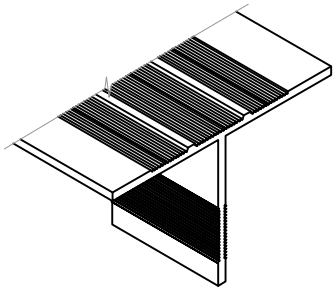
Date:	10/19/2021
Verified by:	Andrew P. Mehalek

Mock Up Drawing
(Face Fastener System)

CFS
CLADDING FACADE SOLUTIONS

CFS FIBER CEMENT PANEL

Face Fastened Testing Component List

No		Materials	
01		Fiber Cement Panel	
02		Rivets (color-matched)	
03		#10-1", S/S Self Tapping Screw	
04		Aluminum Vertical Support Rail	

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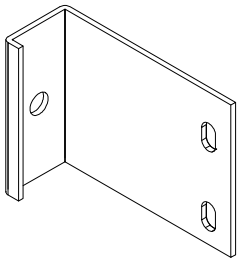
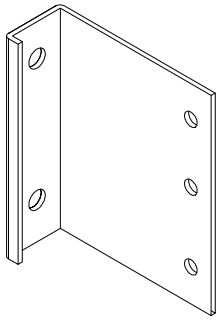
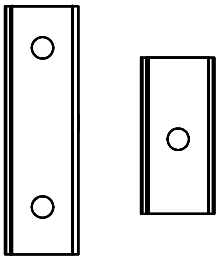
05		Gliding Point Aluminum Bracket	
06		Fixed Point Aluminum Bracket	
07		Thermal Isolator	

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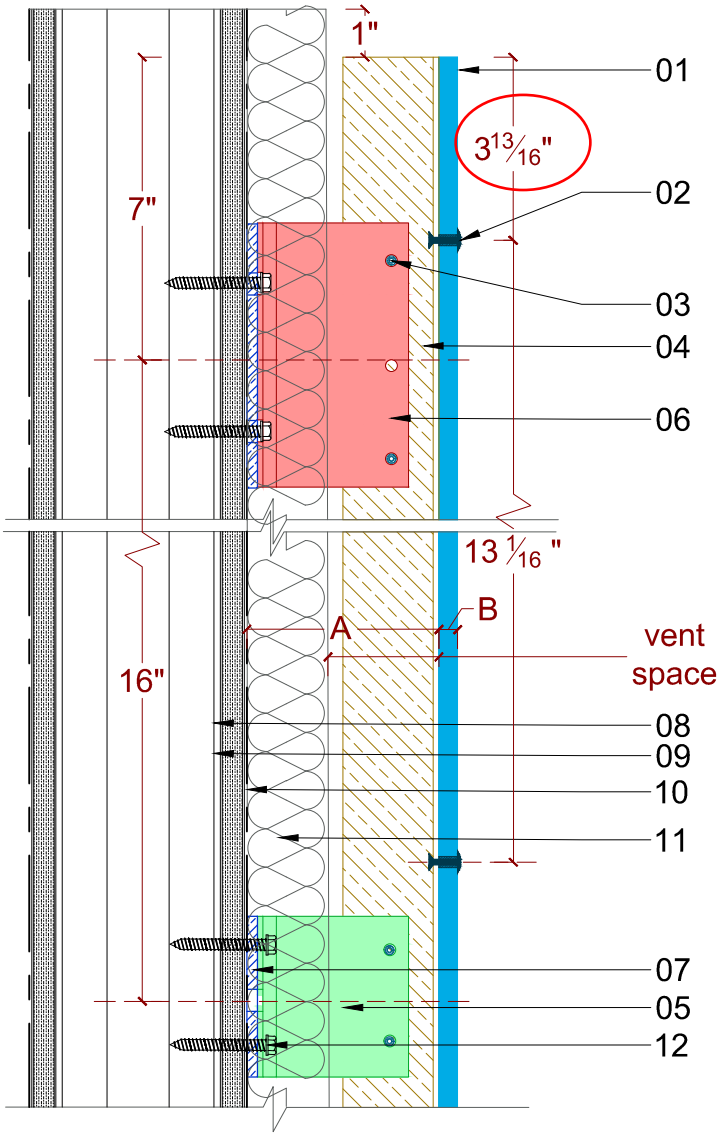
CFS FIBER CEMENT PANEL - FF



1 Vertical Section Detail

Scale: NTS

No		Materials
01		Fiber Cement Panel
02		Rivets (color-matched)
03		#10-1", S/S Self Tapping Screw
04		Aluminum vertical support rail
05		Gliding Point Aluminum Bracket
06		Fixed Point Aluminum Bracket
07		Thermal Isolator
08		Metal Stud Framing (18 Gauge)
09		Sheathing (5/8" - Gypsum board)
10		Air / Moisture Barrier
11		Insulation (Mineral wool) Thickness varies
12		Facade Screw #12 x1.5" SS

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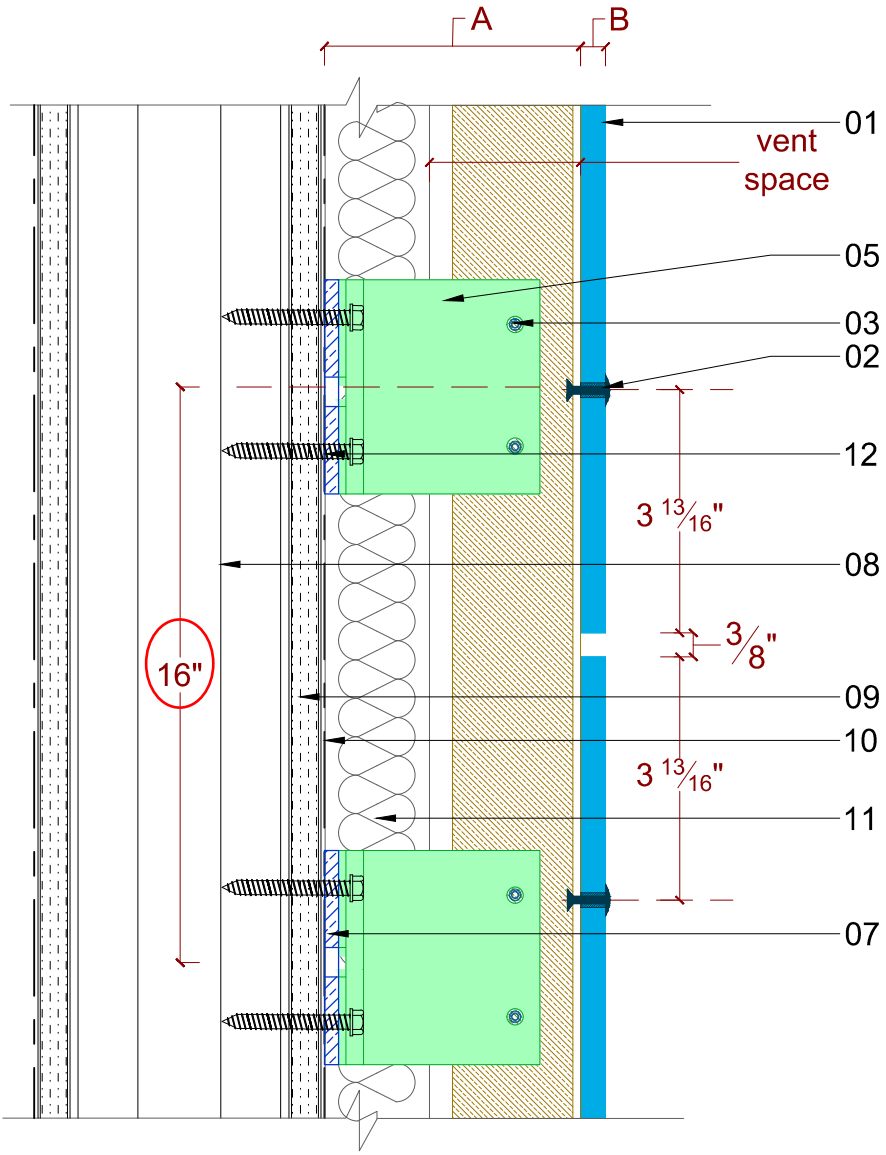
DIMENSION LEGEND		
Code	Measurements	Remarks
A	4" (100mm)	
B	3/8" (8mm)	

CFS FIBER CEMENT PANEL - FF



2 Horizontal Panel Joint Detail

Scale: NTS

No		Materials
01		Fiber Cement Panel
02		Rivets (color-matched)
03		#10-1", S/S Self Tapping Screw
04		Aluminum vertical support rail
05		Gliding Point Aluminum Bracket
06		Fixed Point Aluminum Bracket
07		Thermal Isolator
08		Metal Stud Framing (18 Gauge)
09		Sheathing (5/8" - Gypsum board)
10		Air / Moisture Barrier
11		Insulation (Mineral wool) Thickness varies
12		Facade Screw #12 x1.5" SS

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DIMENSION LEGEND		
Code	Measurements	Remarks
A	4" (100mm)	
B	3/8" (8mm)	

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SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	12/01/21	N/A	Original Report Issue