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NORTHCLAD RAINSCREEN SOLUTIONS TEST REPORT

SCOPE OF WORK

AIR / WATER / STRUCTURAL TESTING ON PRESSURE EQUALIZED RAIN SCREEN CF SYSTEM FOR PHENOLIC PLANK

REPORT NUMBER
J1746.01-901-44 R1

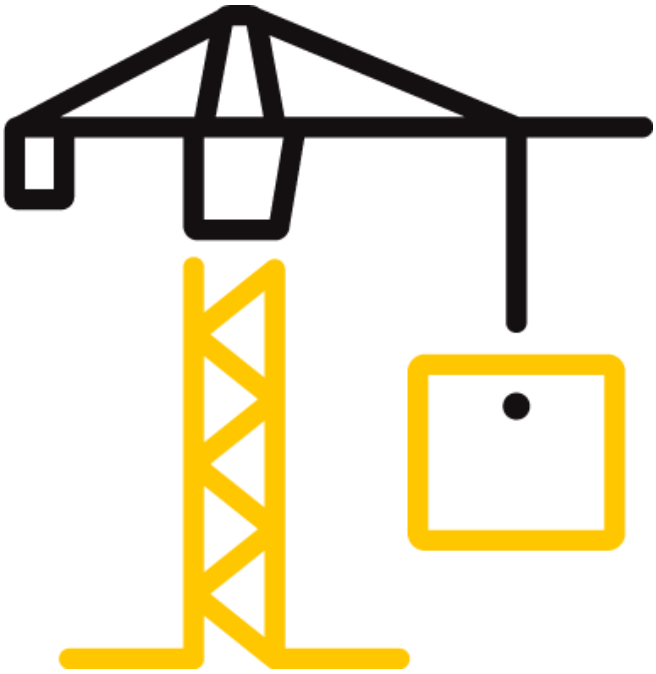
TEST DATE(S)
03/11/19 - 03/22/19

ISSUE DATE 04/02/19
REVISED DATE 04/04/19

RECORD RETENTION END DATE
03/22/23

PAGES
18

DOCUMENT CONTROL NUMBER
ATI 00479 (07/24/17)
RT-R-AMER-Test-2805



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TEST REPORT FOR NORTHCLAD RAINSCREEN SOLUTIONS

Report No.: J1746.01-901-44 R1
Date: 04/02/19

REPORT ISSUED TO

NORTHCLAD RAINSCREEN SOLUTIONS
11831 Beverly Park Road, Building C
Everett, Washington 98204

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by NorthClad Rainscreen Solutions to perform testing in accordance with ASTM E283, ASTM E547, and ASTM E330, on their CF System for Phenolic Plank. 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 Kent, Washington.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
Design Pressure	±3840 Pa (±80.20 psf)
Air Infiltration	0.1 L/s/m^2 (0.01 cfm/ft^2)
Air Exfiltration	0.1 L/s/m^2 (0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	720 Pa (15.04 psf)
Uniform Load Structural Test Pressure	±5760 Pa (±120.30 psf)

For INTERTEK B&C:

COMPLETED BY:	John David	**REVIEWED BY:**	Kenny White
TITLE:	Technician	**TITLE:**	Laboratory Manager
SIGNATURE:	John David Digitally Signed by: John David	**SIGNATURE:**	K.C. White Digitally Signed by:Kenny C. White
DATE:	04/04/19	**DATE:**	04/04/19

EC:cns

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SECTION 3
TEST METHOD(S)

The specimens were evaluated in accordance with the following:

ASTM E283-04(2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

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

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was 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.

The specimen was installed onto plywood over a 2 x 4 stud wall with 2 x 4 supports 16" on center and 4" from corners. The 2 x 4 stud wall was installed into a 2 x 8 (nominal) Douglas-Fir wood buck. The rough opening allowed for no shim space. The exterior perimeter of the system was sealed with Permathane 7108. Installation of the panels was performed by the client. Installation of the 2 x 4 stud wall was performed by Intertek B&C.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Perimeter of stud wall	#10 x 3" screws	Through 2 x 8 buck into 2 x 4 stud wall

SECTION 5
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Che Rodriguez	Intertek B&C
John David	Intertek B&C
Erick Caldera	Intertek B&C
Timothy Boyle	Intertek B&C

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SECTION 6
TEST SPECIMEN DESCRIPTION

Product Type: Pressure Equalized Rain Screen
Series/Model: CF System for Phenolic Plank

Product Sizes:

OVERALL AREA:	**WIDTH**		**HEIGHT**	
6.16 m² (66.3 ft²)	**millimeters**	**inches**	**millimeters**	**inches**
Overall Size	2430	96	2527	99-1/2

Frame Construction:

FRAME MEMBER	**MATERIAL**	**DESCRIPTION**
Studwall	2 x 4 lumber	Stud wall with supports 16" on center and 4" from corners
Plywood	3/4" plywood	Seated over stud wall

Panels: *See drawing packet for breakdown of panel sizes and locations.*

Reinforcement: *No reinforcement was utilized.*

Weatherstripping:

DESCRIPTION	**LOCATION**
Carlisle WIP 300HT	Wrapped over entirety of plywood

Drainage: *No drainage was utilized.*

Hardware:

DESCRIPTION	**QUANTITY**	**LOCATION**
CFHB clips	Spaced per drawings	Fastened to the 3/4" plywood

Screen Construction: *No screen construction was utilized.*

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SECTION 7
TEST RESULTS

The temperature during testing was 20-22.8°C (68-73°F). The results are tabulated as follows:

Test Specimen #1:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	 0.1 L/s/m^2 (0.00 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	 1, 2, 3
Air Leakage, Exfiltration per ASTM E283 at 75 Pa (1.57 psf)	 0.1 L/s/m^2 (0.00 cfm/ft^2)	 1.5 L/s/m^2 (0.3 cfm/ft^2) max.	 1, 2, 3
Water Penetration, per ASTM E547 at 720 Pa (15.04 psf)	 Pass	 No leakage	 2
Uniform Load Deflection, per ASTM E330 Deflections taken panel #2 height span +3840 Pa (+80.20 psf) -3840 Pa (-80.20 psf)	 0.5 mm (0.02") 3.0 mm (0.12")	 N/A	 4, 5
Uniform Load Structural, per ASTM E330 Permanent set taken at panel #2 height span +5760 Pa (+120.30 psf) -5760 Pa (-120.30 psf)	 <0.1 mm (<0.01") <0.1 mm (<0.01")	 N/A	 4, 5
Uniform Load Deflection, per ASTM E330 Deflections taken at panel #2 height span +4080 Pa (+85.21 psf) -4080 Pa (-85.21 psf)	 0.5 mm (0.02") 3.8 mm (0.15")	 N/A	 4, 5
Uniform Load Structural, per ASTM E330 Permanent set taken at panel #2 height span +6120 Pa (+127.82 psf) -6120 Pa (-127.82 psf)	 <0.1 mm (<0.01") Could not achieve pressure	 N/A	 4, 5 6

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

Note 1: Test Date 03/11/19 / Time: 08:00 AM

Note 2: System was tested with open corners.

Note 3: Allowable determined by industry standards.

Note 4: Loads were held for 10 seconds.

Note 5: Open corners were sealed with Permathane 7108 in order to achieve pressurization.

Note 6: Uniform Load Structural pressure of -6120 Pa (-127.82 psf) was not achieved due to pressure loss from the sealed corners blowing out (see Photo).

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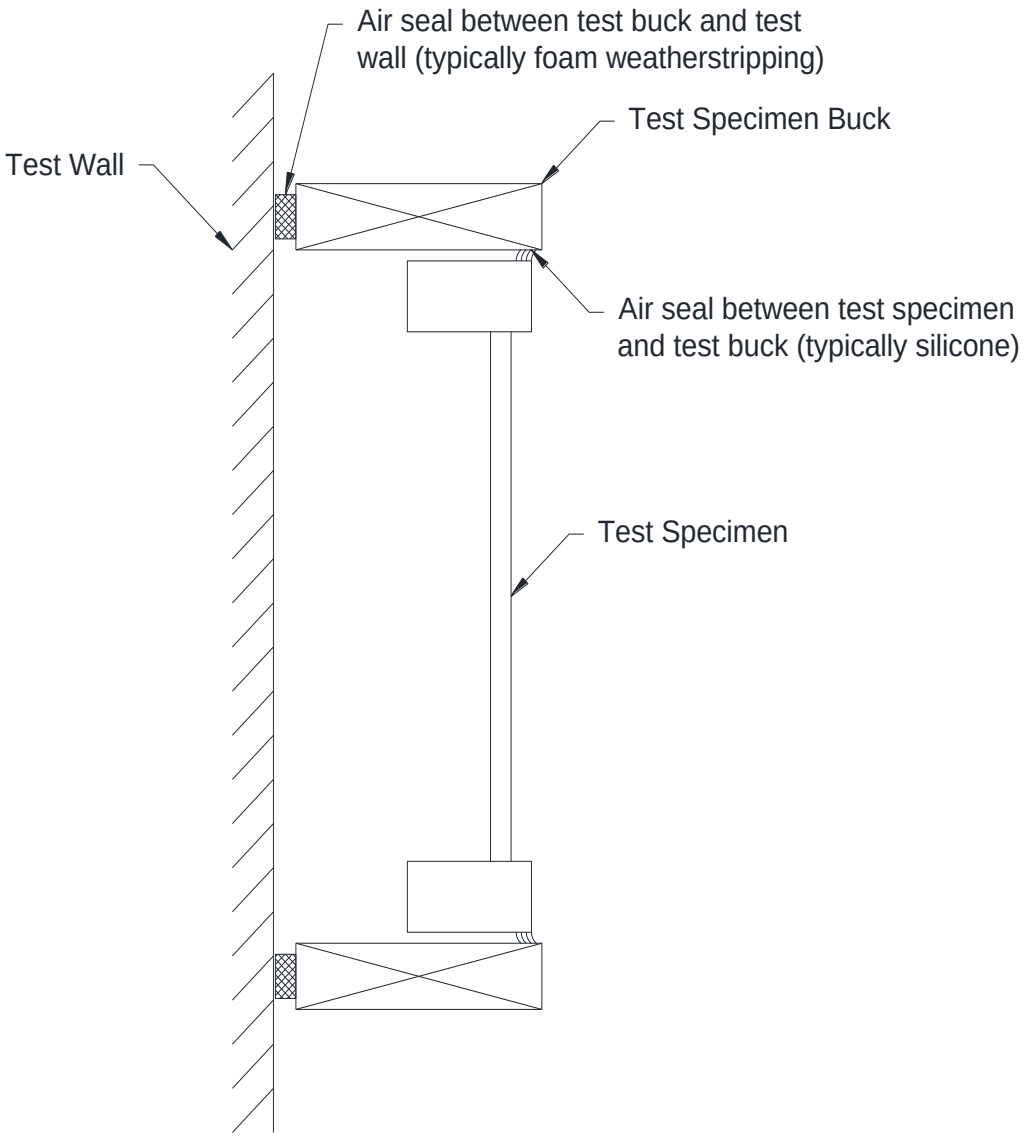
SECTION 8
LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



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SECTION 9
PHOTOGRAPHS

Corner blowout

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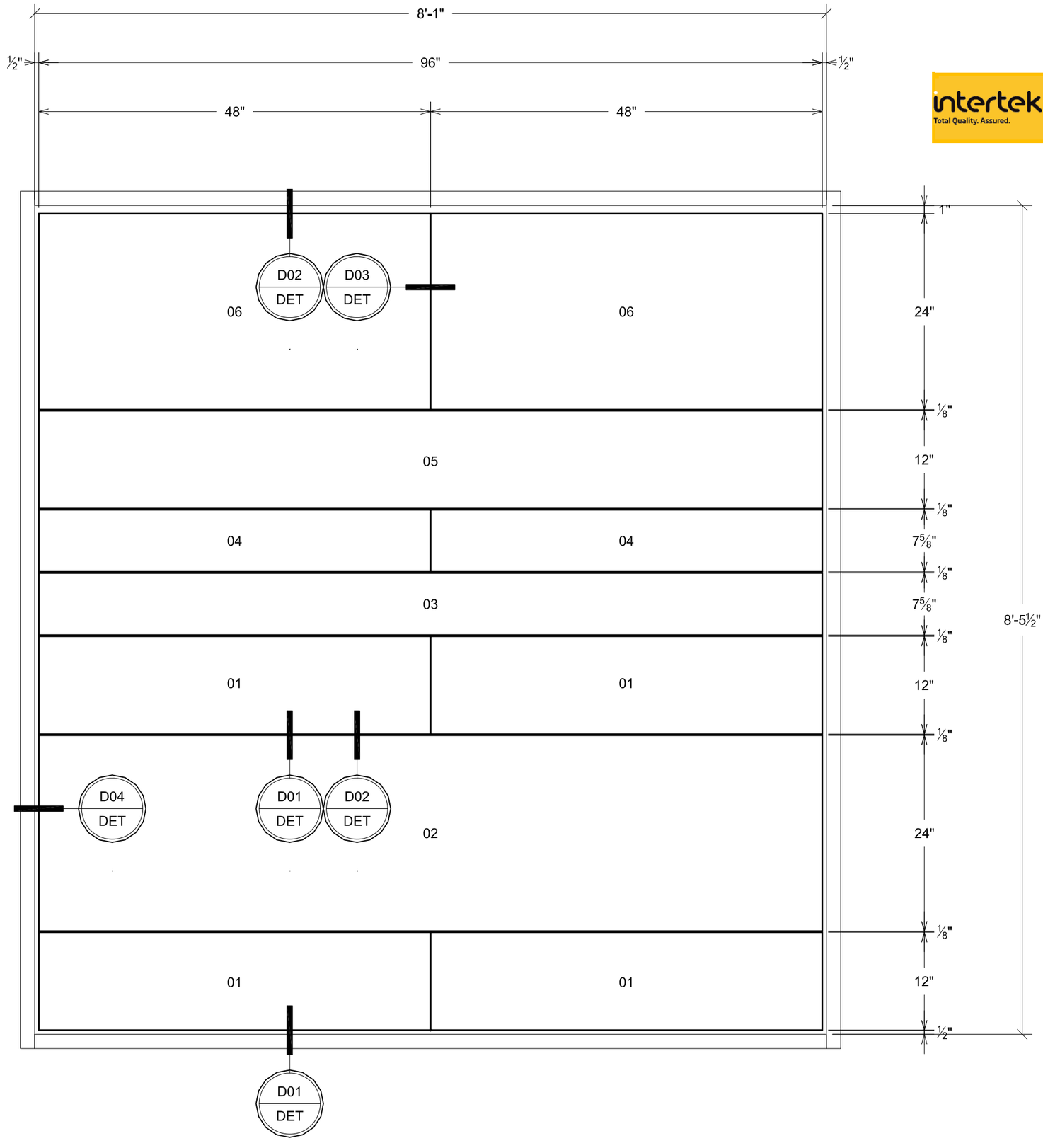
SECTION 10
DRAWINGS

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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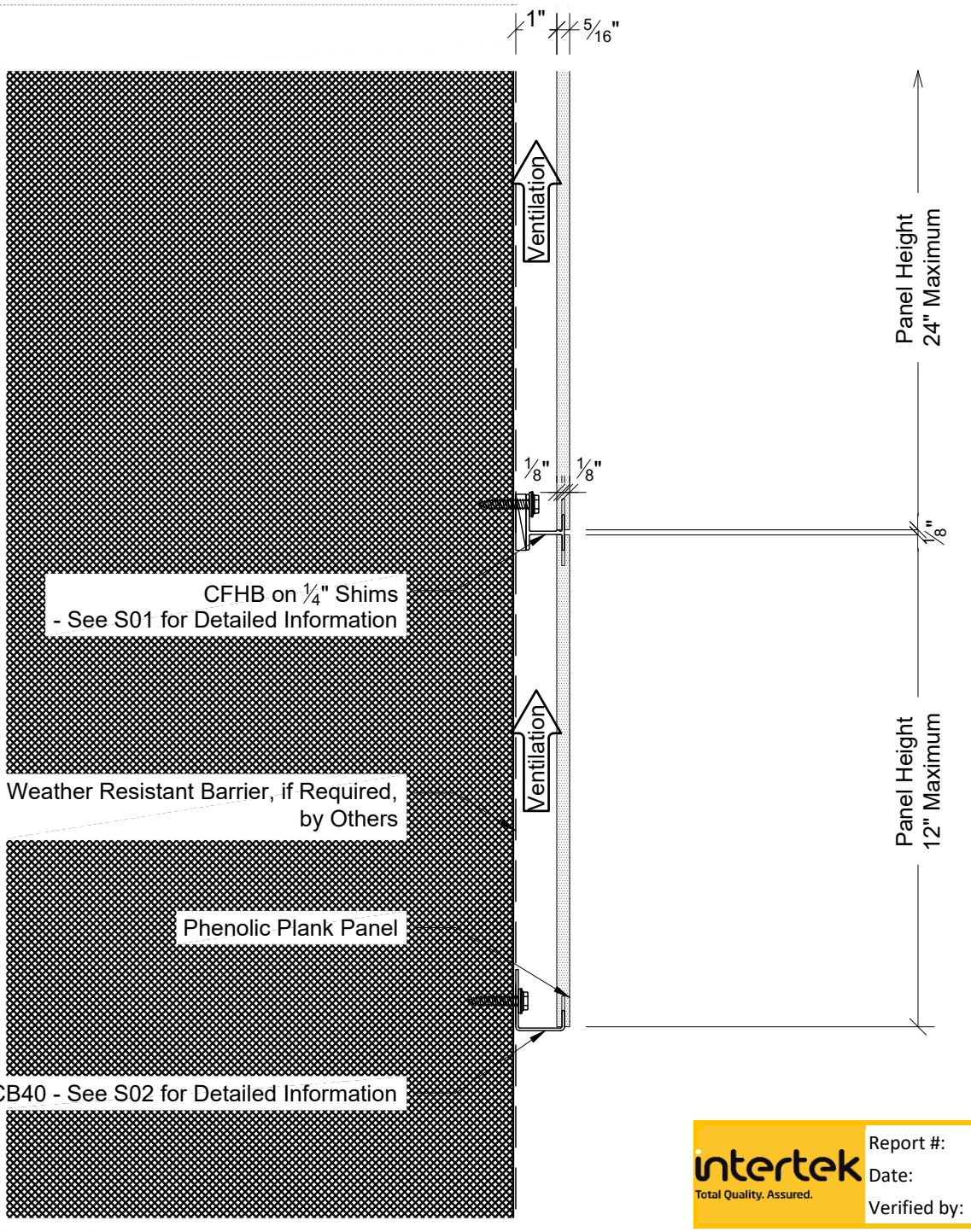

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D01 Section - Phenolic Plank Panel at Bottom Termination

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NO.	DESCRIPTION	DATE	INIT.
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Project

CF System for Phenolic Plank

11831 Beverly Park Rd, Bldg C
Everett, WA 98204

Category: DET

Scale: 3" = 1'-0"

Job Number: N000

Sheet: D01

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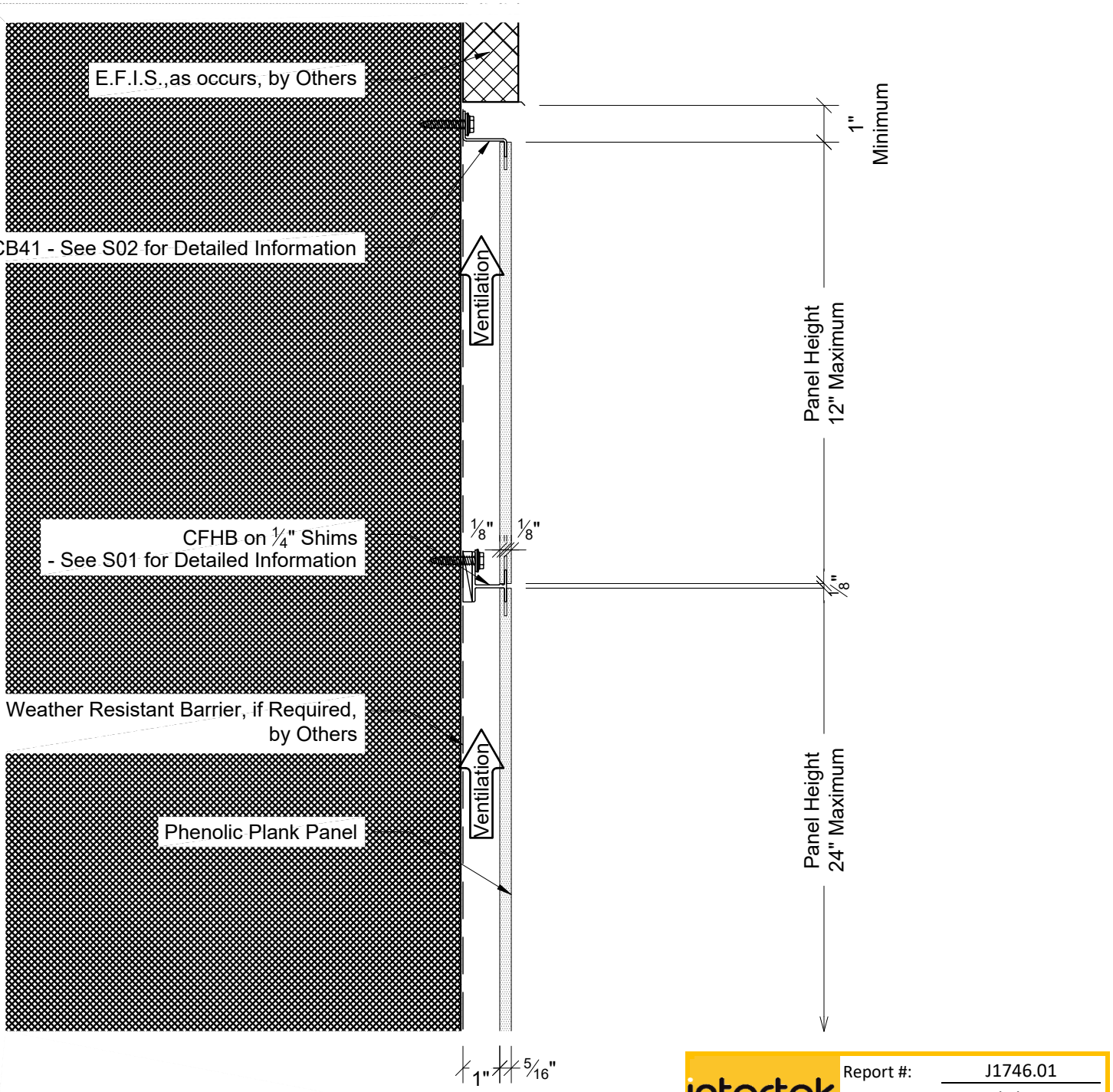

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Report #:	J1746.01
Date:	4/4/2019
Verified by:	John David

D02 Section - Phenolic Plank Panel at Top Termination

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Project

CF System for Phenolic Plank

11831 Beverly Park Rd, Bldg C
Everett, WA 98204

Category: DET

Scale: 3" = 1'-0"

Job Number: N000

Sheet: D02

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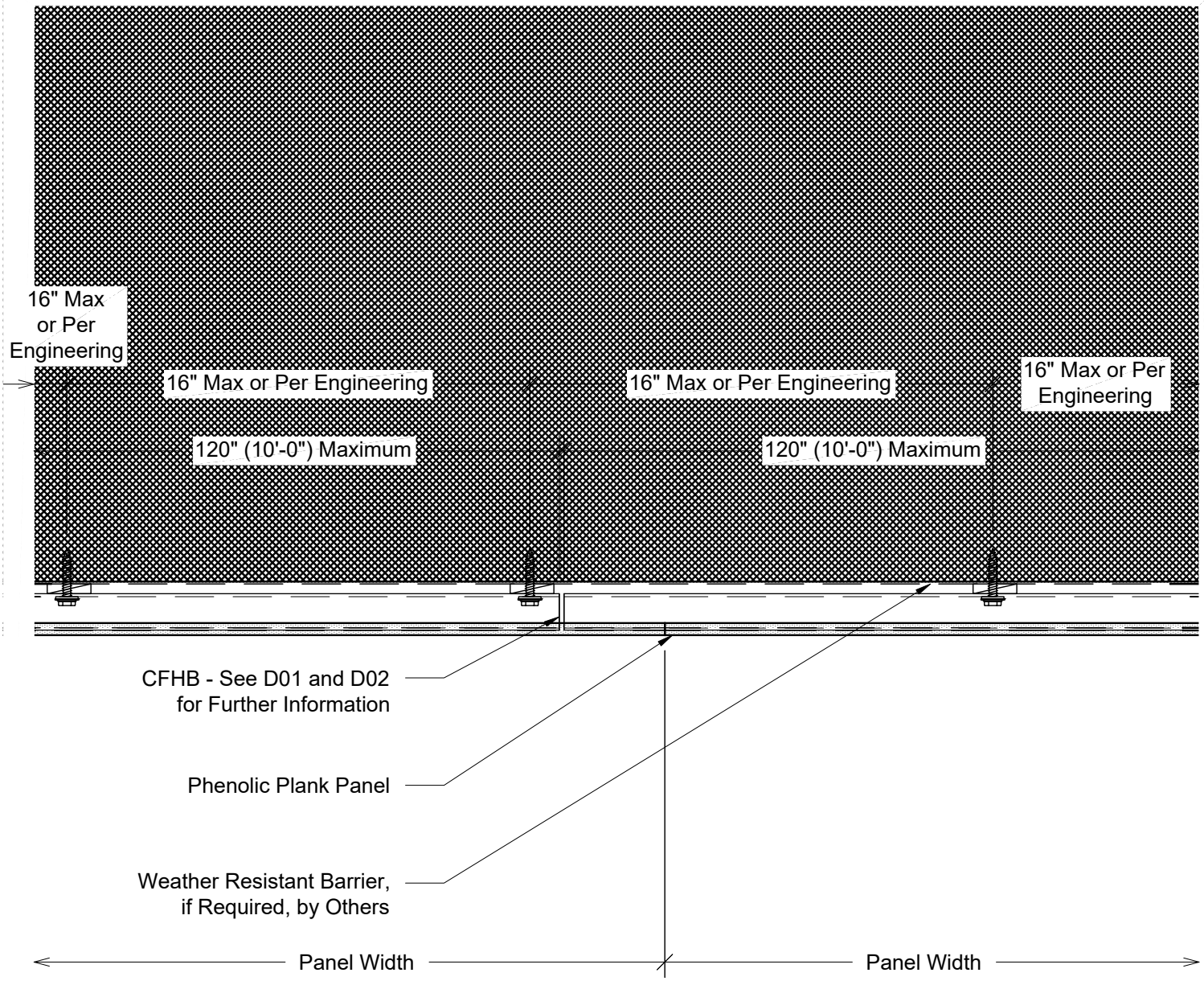

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D03 Plan - Phenolic Plank Panel at Vertical Joining

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Category: DET

Scale: 3" = 1'-0"

Job Number: N000

Sheet: D03

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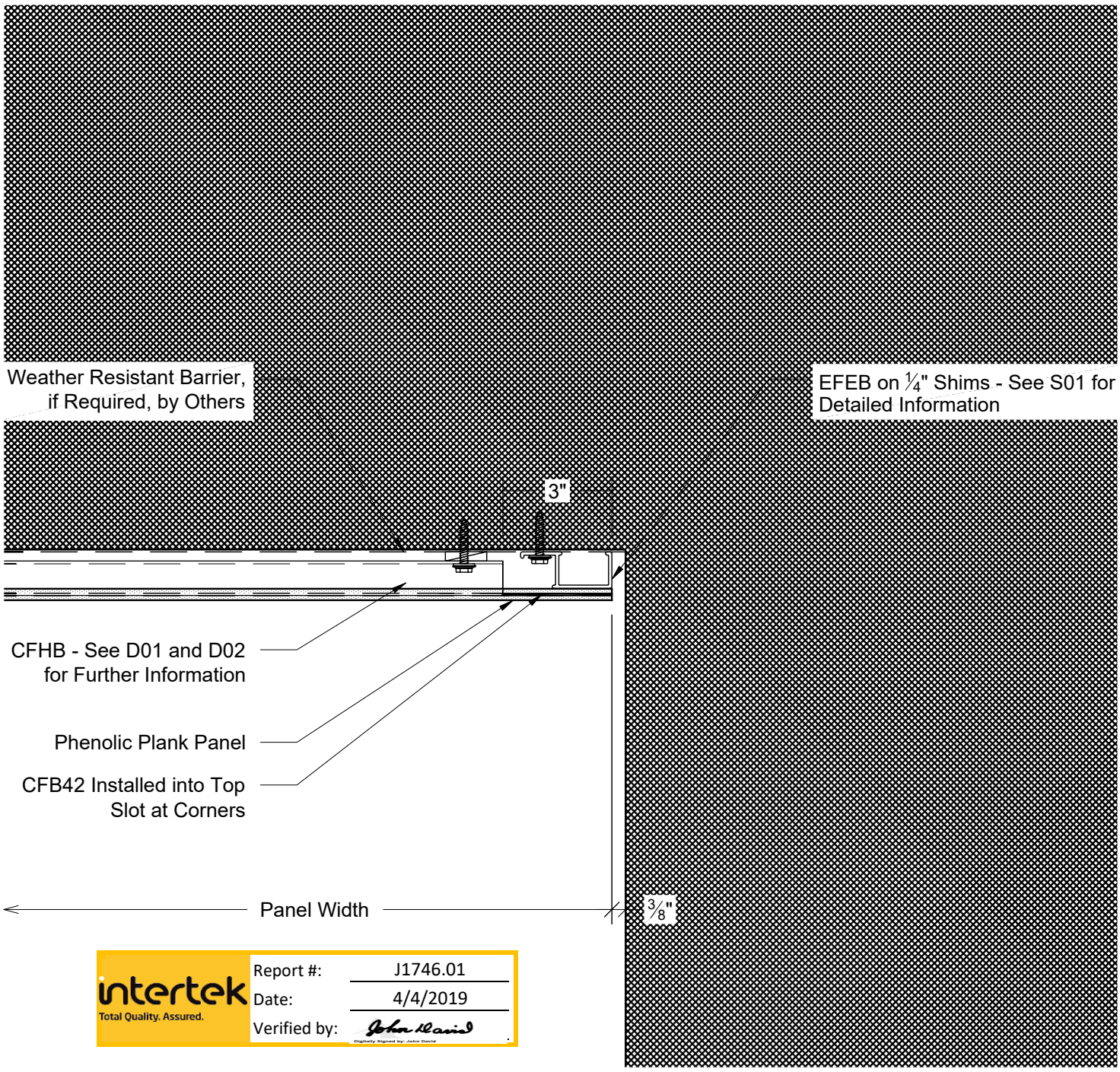

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D04 Plan - Phenolic Plank Panel at Inside Corner Termination

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Category: DET

Scale: 3" = 1'-0"

Job Number: N000

Sheet: D04

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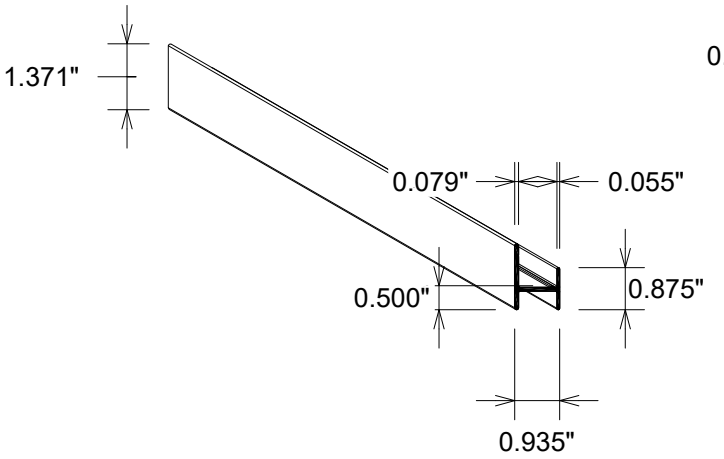
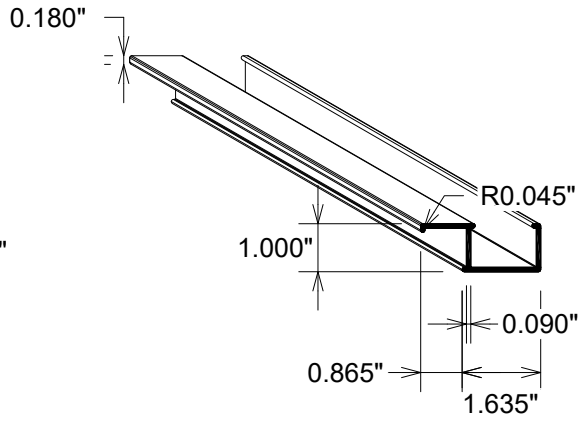


CFHB - Horizontal Intemediate Panel Attachment
Structural Grade Alloy Extrusion - Factory Finished Black



EFEB - Vertical Panel Termination Edge Closure
Structural Grade Alloy Extrusion - Factory Finished Black

S01 Typical Extrusion Profiles

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Project

CF System for Phenolic Plank

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Category: STD
Scale: 3" = 1'-0"
Job Number: N000
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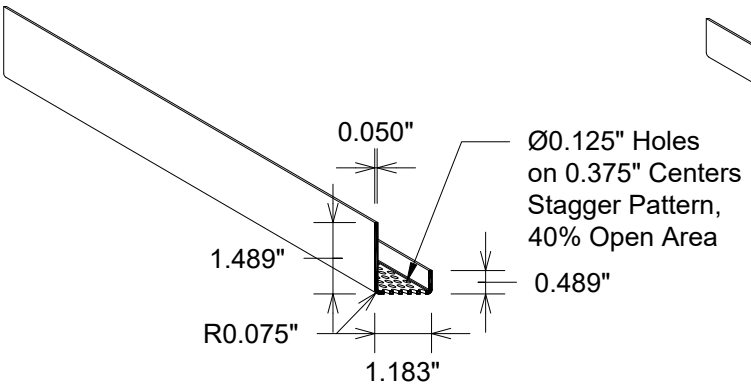
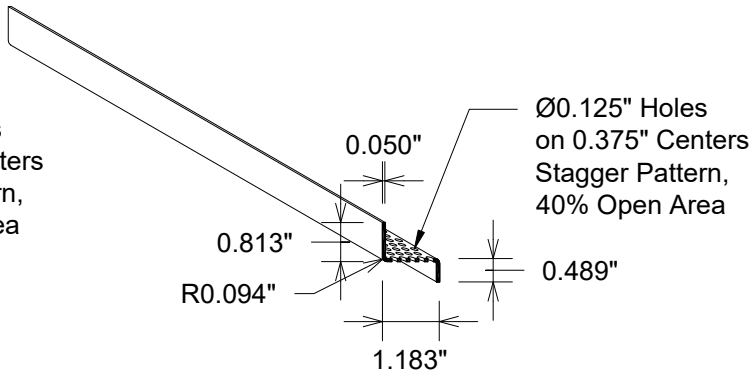


CB40 - Horizontal Bottom Termination Panel Attachment
Formed Sheet Metal, Factory Finished Black



CB41 - Horizontal Top Termination Panel Attachment
Formed Sheet Metal, Factory Finished Black

S02 Typical Formed Profiles

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CF System for Phenolic Plank

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Category: STD
Scale: 3" = 1'-0"
Job Number: N000
Sheet: S02
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SECTION 11
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	04/02/19	N/A	Original Report Issue
1	04/04/19	10-17	Incorporated Correct Drawings