BOCA ENGINEERING CO. | SPAR
STRUCTURAL & CIVIL CONSULTANTS

LETTER REPORT

Date	2023-05-12
Report Number	0093-14-1
Client	Easy Trim Reveals
Address	101-4441 76th Ave SE, Calgary, AB T2C 2G8

SUBJECT

Summary conclusion and application of test results derived from ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*, completed for Easy Trim's QuickPanel Systems.

TEST SUMMARY

Five (5) representative wall assemblies have been tested for Transverse Load – Negative Wind Load in accordance with ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*, at EasyTrim Reveals in Calgary, Alberta. Tests were witnessed by Chris Bowness, P.E. of Boca Engineering Co.

Product Description

QuickPanel Systems are aluminum composite panels with panel anchoring, serving as an exterior wall covering. The composite panel is nominally 4mm in thickness, composed of an inside and outside skin of nominal 0.5mm thick aluminum sheets bonded to a nominal 3mm thickness inner core of polyethylene with mineral (magnesium hydroxide) fire-retardant, and available in lengths of 10 ft.

Table 1: Test Assembly Configurations for QuickPanel

Test Series	Configuration	Stiffener Fixing	Framing	Fastener	Sheathing
QP-1	Horiz. stiffener @ 12" O.C. fastened to framing	Screw through stud, tape and silicon to panel	6" x 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking @ midspan	2-#10-12 x 1(1/2)" screw @ each stud, 12" o/c vertical, 3m double-sided tape and Dowsil 995 silicon at panel	1/2" exterior gypsum
QP-5	Horiz. stiffener @ 36" O.C. fastened to framing	Screw through stud, tape and silicon to panel	6" x 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking @ midspan	Backplate w/ 2 #10-12 x 1(1/2)" screw @ each stud, Dowsil 995 silicon and 3m double-sided tape at panel	1/2" exterior gypsum
QP-7	Horiz. stiffener @ 12"	Tape and silicon to panel	6" x 1(5/8) 18 GA 50 ksi steel stud @16" o/c	Dowsil 995 silicon and 3m double-sided tape	1/2" exterior gypsum
QP-11	Horiz. stiffener @ 36" O.C. straight	Tape and silicon to panel	6" x 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking at midspan	Dowsil 995 silicon, 3m double-sided tape	1/2" exterior gypsum

-Table continued on the following page-

QP-13	Vert. stiffener @ 16" O.C. fastened to framing	Screw through stud, tape and silicon to panel	6" x 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking @ midspan	1-#10-12 x 1(1/2)" screw @ 16" o/c along stud through backplate, 3m double sided tape, Dowsil 995 silicon attaching E207 to panel	1/2" exterior gypsum

Table 2: Testing Results

Test	Max Load (psf)	Allowable Design Load (psf)[3]	Allowable Deflection Service Load (psf)[1]	Allowable Deflection[1,5] at Deflection Service Load				
				L/180 Limit (in.)	Measured Deflection (in.)[2]	L/60 Limit (in.)	Measured Deflection (in.)[2]	PASS/FAIL
				Wall		Panel		
QP-1	153.0	76.5	53.6	0.533	0.1023	0.267	0.0486	PASS
QP-5	90.7	45.4	31.7	0.533	0.0709	0.600	0.3444	PASS
QP-7	120.2	60.1	42.1	0.533	0	1.600	1.6142	FAIL
QP-11	120.7	60.4	42.2	0.533	0	1.600	1.2567	PASS
QP-13	90.2	45.1	31.6	0.533	0.0458	0.267	0.0653	PASS

1. Allowable Deflection Service Load is equal to Allowable Design Load multiplied by 0.7
2. A linear trendline was created for each data set and used to calculate the wall/panel deflection at the Allowable Deflection Service Load of the test series.
3. Allowable Design Load is equal to the test assembly's Maximum Load divided by two (2).
4. Measured wall deflection removed due to sensor failure.
5. Span (L) is the distance between anchorage points of the element being considered.

Table 3: Adjusted Allowable Design Load

Test	Allowable Deflection at Deflection Service Load, L/60 Limit (in.)	Adjusted Allowable Deflection Service Load (psf)[1]	Adjusted Allowable Design Load (psf)[1]
QP-7	1.600	41.5	59.2

1. Allowable design load has been calculated by finding from the test data trend line based on deflection limit.

CONCLUSION

This test report includes five (5) representative wall assemblies that have been tested for Transverse Load – Negative Wind Load in accordance with the criteria of ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference)*.

BOCA Engineering Co, recommends further testing to be completed on these exterior wall assemblies.

The testing results in Table 2 have been evaluated by engineering design methodology in general accordance with ASCE7-22 and Table 1 has been prepared in a format with design information that is based on the IBC and NBCC Codes. The results are intended to be for informational purposes at this time and not suitable for distribution or use for code compliance or building design.

Signed

This report has been prepared and reviewed on behalf of BOCA by:

FILE 0093

Nico Nordal

2023/05/15

Date

Chris Bowness, P.Eng., P.E.

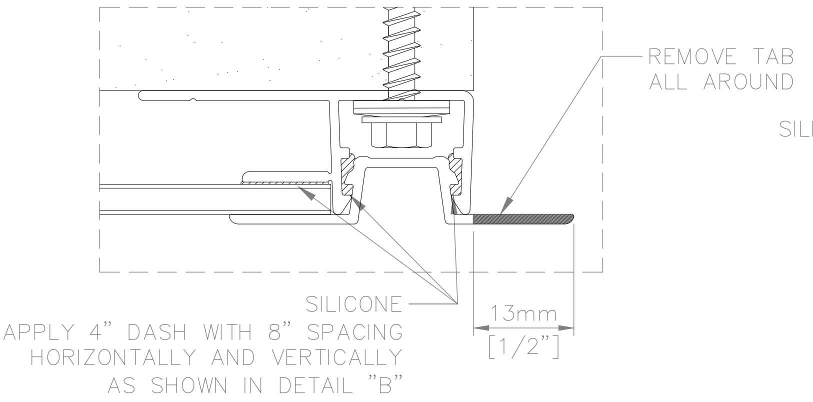
LICENSED PROFESSIONAL ENGINEER
CHRISTOPHER W.C. BOWNESS
C 90057
CIVIL
STATE OF CALIFORNIA

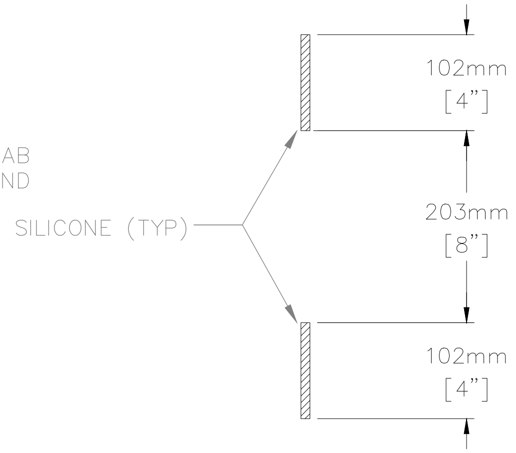
2023-05-15

Date

ATTACHMENTS:

QP TEST DETAILS



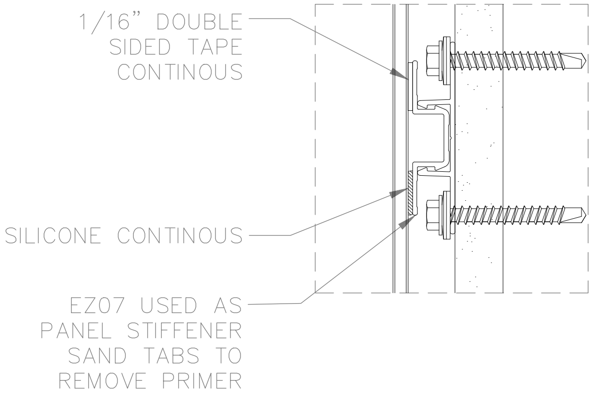


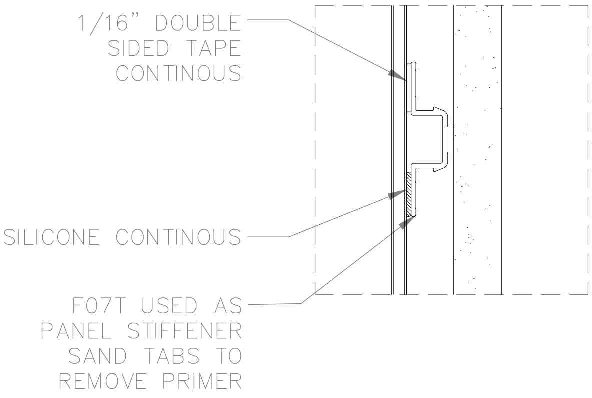
A QP FAB & SILICONE

Scale: NTS

B QP SILICONE

Scale: NTS



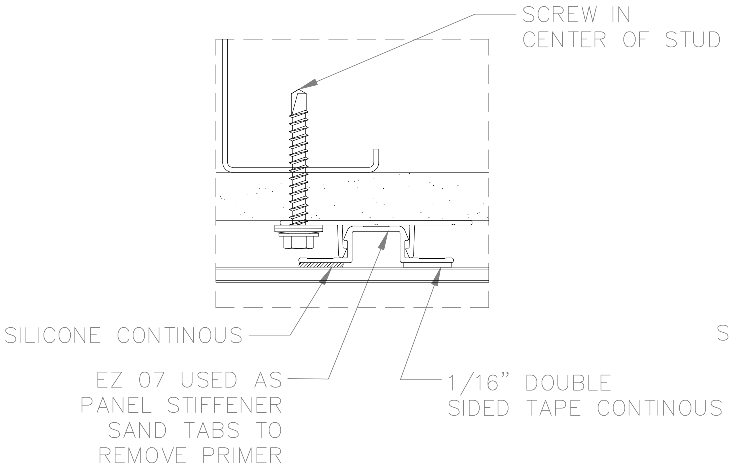


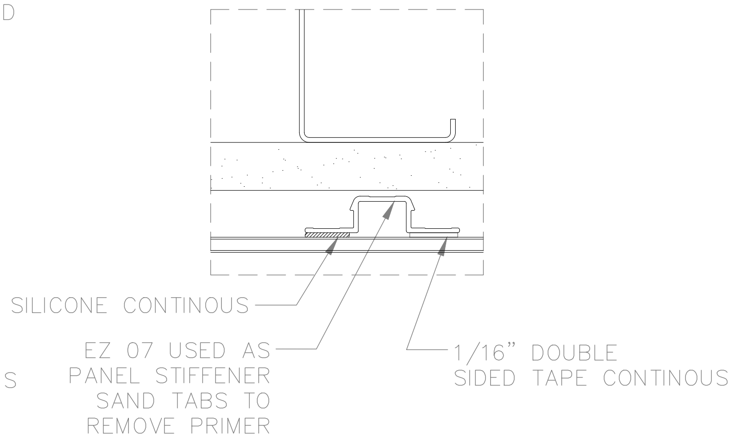
C EZ07 HORIZONTAL STIFFENER

Scale: NTS

D F07T HORIZONTAL STIFFENER

Scale: NTS





E EZ07 STIFFENER @ STUD

Scale: NTS

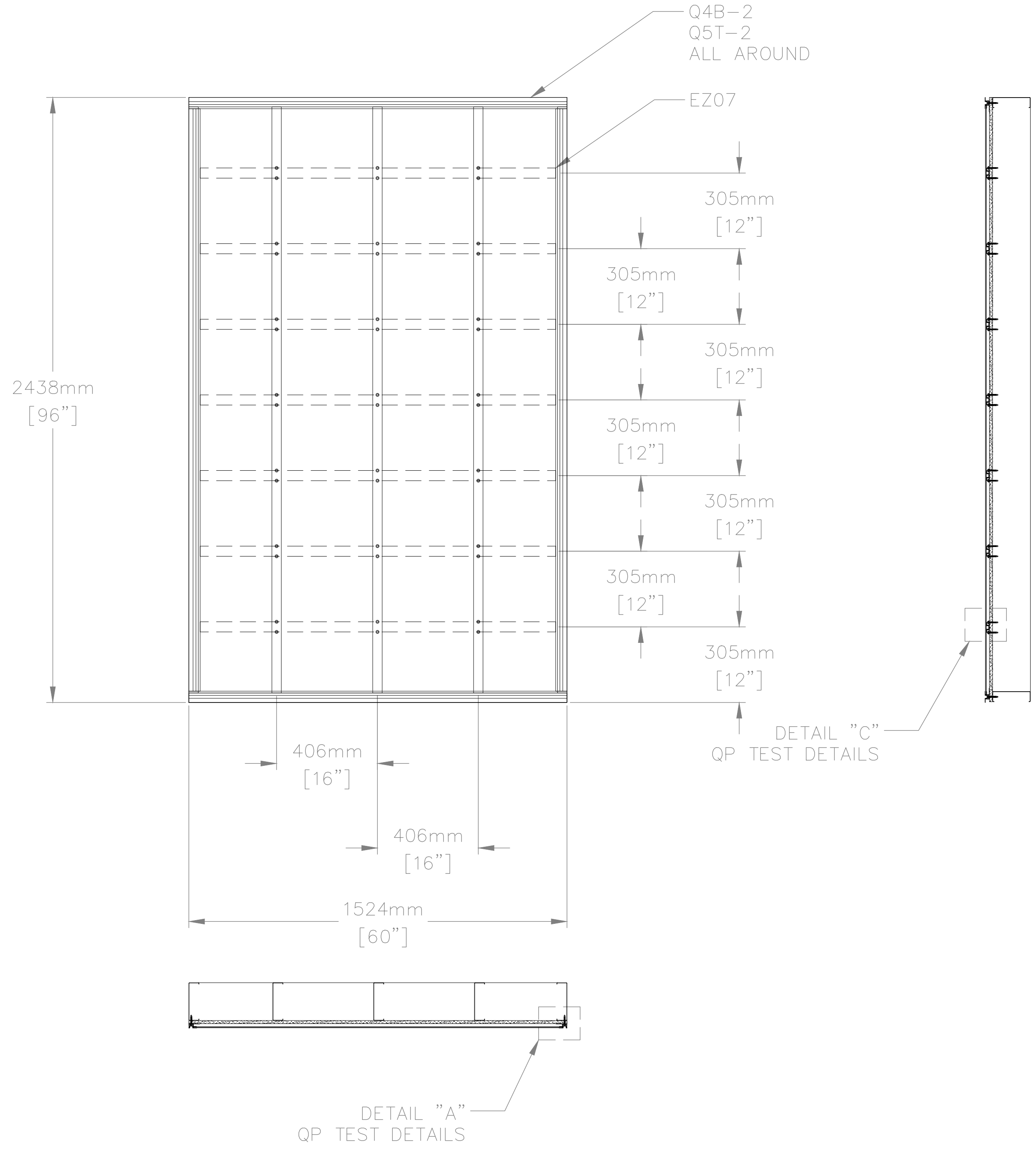
F F07T STIFFENER @ STUD

Scale: NTS

SILICONE TO BE DOWSIL 995
SILICONE STRUCTURAL SEALANT

21DEC2022

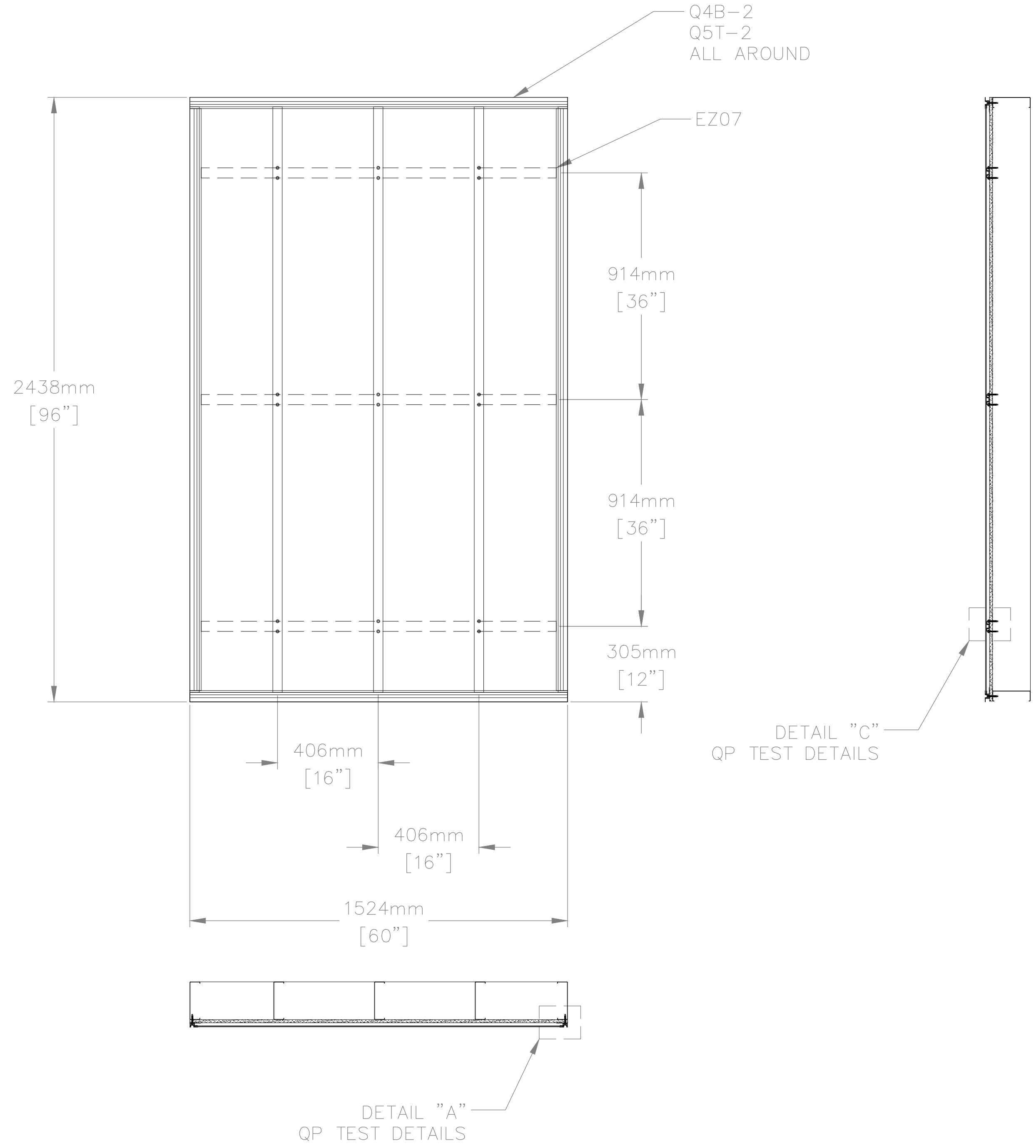
QP1 TEST WALL



ONE MOCK-UP REQUIRED
2x6 18 Ga. STEEL STUDS W/ 1/2" DENSGLASS
#10-12 X 1-1/2" HWH SELF DRILLING SCREWS
C/W EDPM WASHER
EZ07 PANEL STIFFENERS @ 12" O/C HORIZONTALLY

21DEC2022

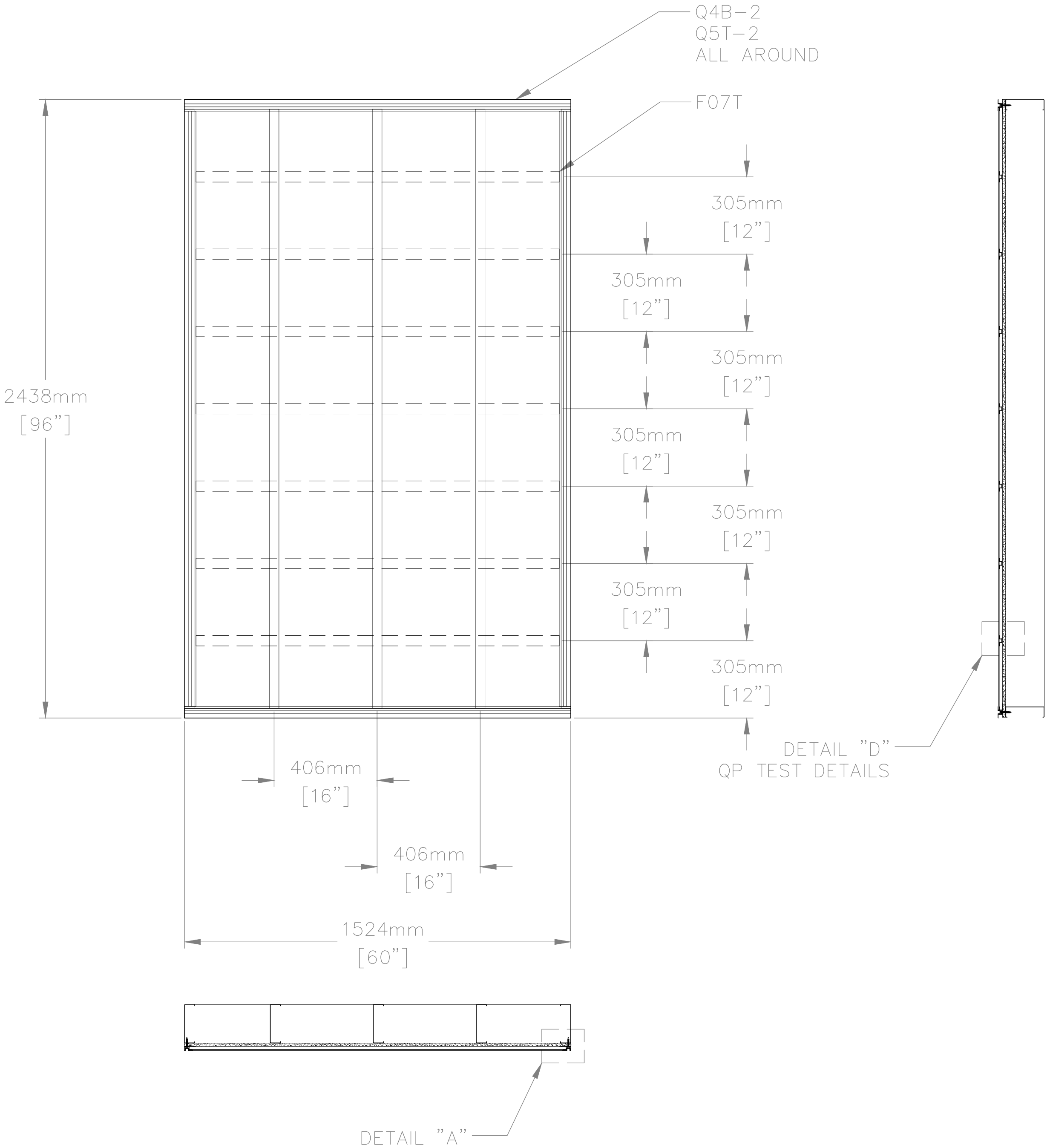
QP5 TEST WALL



ONE MOCK-UP REQUIRED
2x6 18 Ga. STEEL STUDS W/ 1/2" DENSGLASS
#10-12 X 1-1/2" HWH SELF DRILLING SCREWS C/W
EDPM WASHER
EZ07 PANEL STIFFENERS @ 36" O/C HORIZONTALLY
(STARTING @ CENTER)

21DEC2022

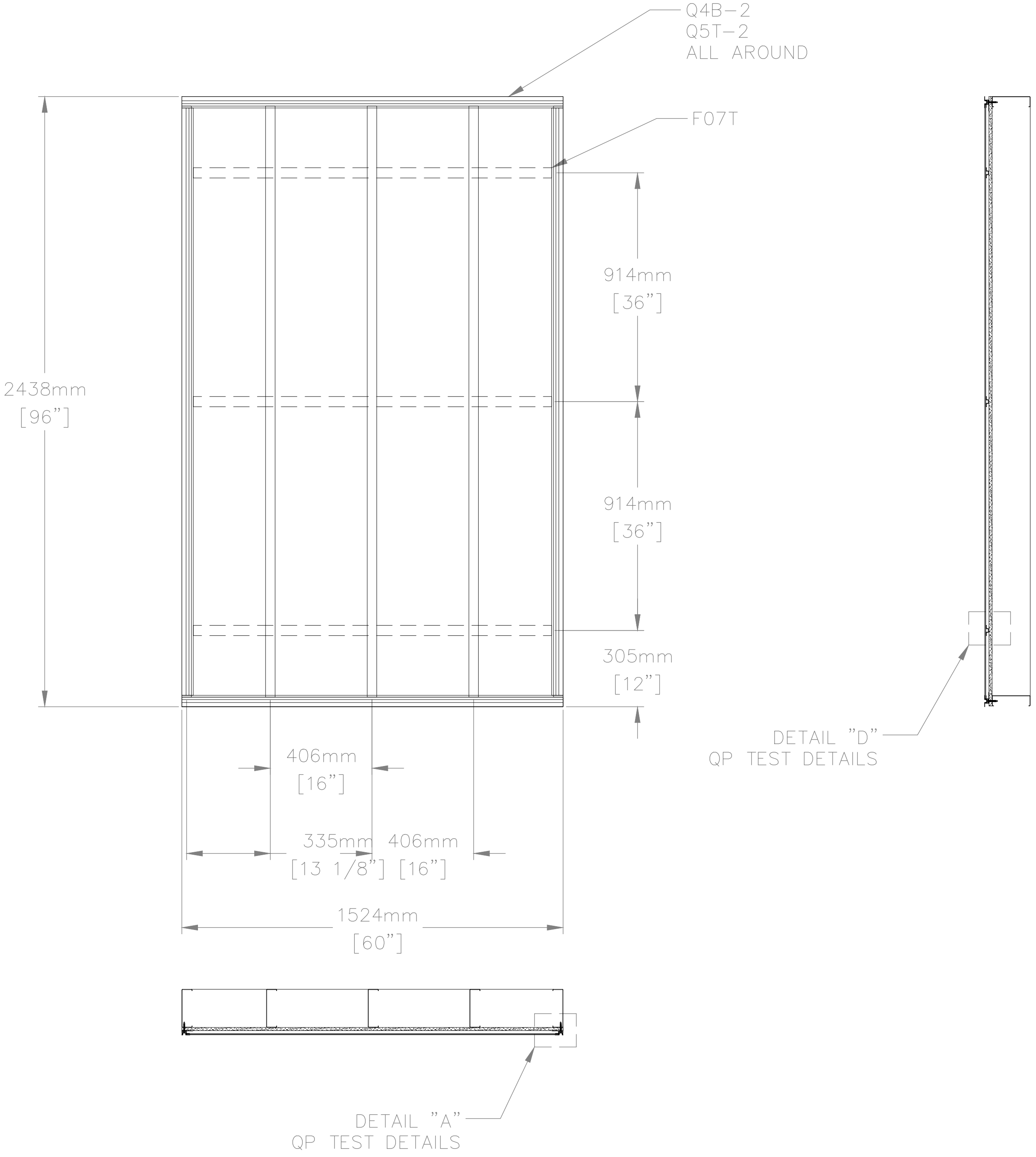
QP7 TEST WALL



ONE MOCK-UP REQUIRED
2x6 18 Ga. STEEL STUDS W/ 1/2" DENSGLASS
#10-12 X 1-1/2" HWH SELF DRILLING SCREWS C/W EDPM
WASHER
F07T PANEL STIFFENERS @ 12" O/C HORIZONTALLY

21DEC2022

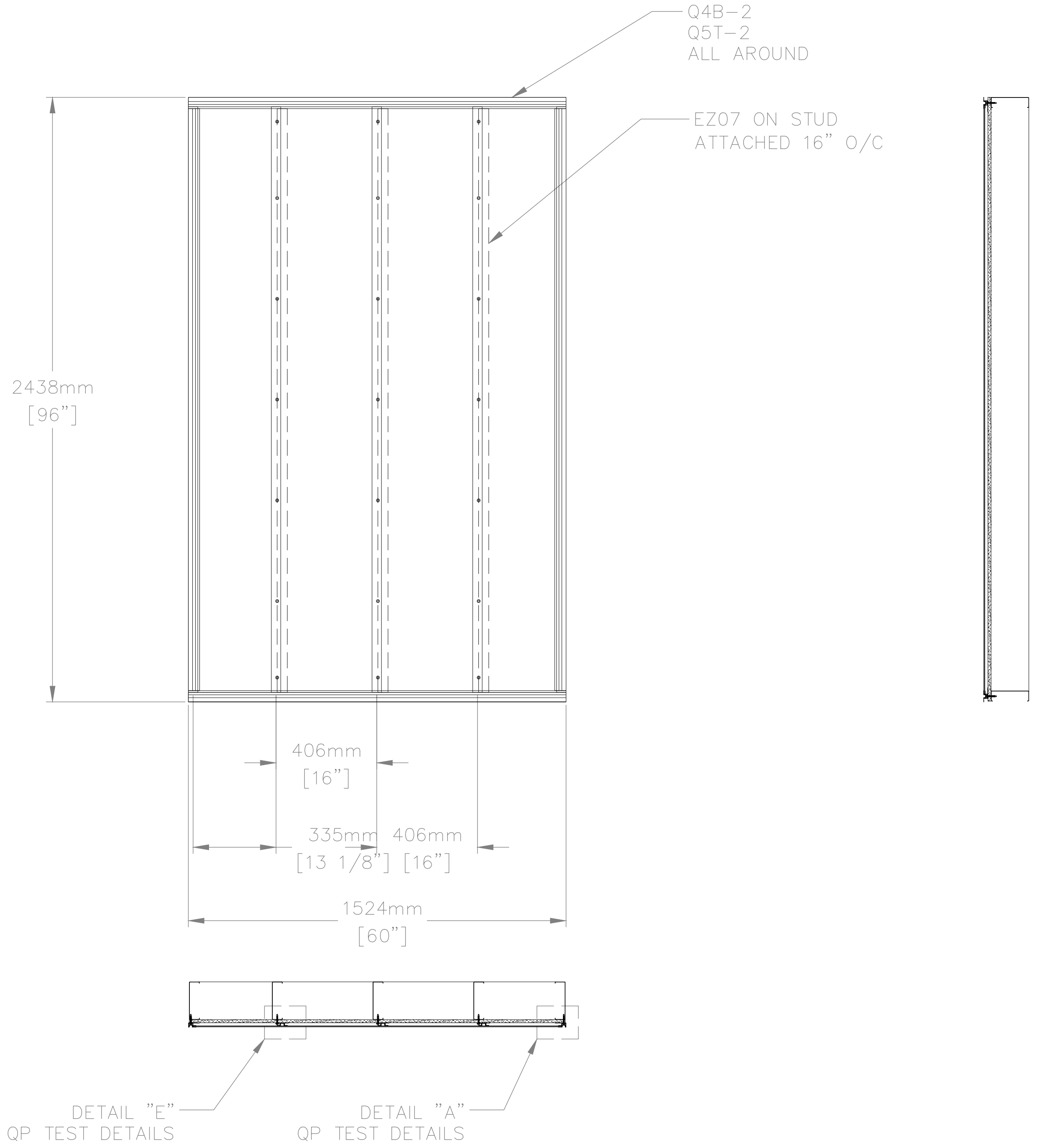
QP11 TEST WALL



ONE MOCK-UP REQUIRED
2x6 18 Ga. STEEL STUDS W/ 1/2" DENSGLASS
#10-12 X 1-1/2" HWH SELF DRILLING SCREWS C/W
EDPM WASHER
F07T PANEL STIFFENERS @ 36" O/C HORIZONTALLY
(STARTING @ CENTER)

21DEC2022

QP13 TEST WALL



ONE MOCK-UP REQUIRED
2x6 18 Ga. STEEL STUDS W/ 1/2" DENSGLASS
#10-12 X 1-1/2" HWH SELF DRILLING SCREWS C/W
EDPM WASHER
EZ07 PANEL STIFFENERS @ 16" O/C VERTICALLY

21DEC2022

Test:	**Transverse Load - Negative Wind Load** **Test#: QP-1**	Project#:	0093
Client:	FastPlank - 101-4441 76th Ave SE, Calgary, AB T2C 2G8	Technician(s):	Jordan
Date:	14-Apr-23	Reviewer:	C. Bowness
Product:	**Quick Panel**	Location:	101-4441 76 Ave. SE Calgary AB T2C2G8

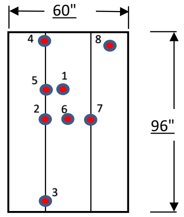
Test Method(s): ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

Installation:

Configuration:	Horizontal stiffener @12" o/c with screw attached backplate, silicon
Framing:	5" * 1(5/8)" 18 GA 50 ksi steel stud @16" o/c
Fastener:	2-#10-12 * 1(1/2)" screw @ each stud, 12" o/c vertical, 3m double-sided tape, dowsil 995
Sheathing:	1/2" exterior gyp
Air Seal:	Tape used to air seal plank gaps, tape will not influece test results

Gauge Locations
(not to scale)

Gauge 1:	Panel
Gauge 2:	Stud
Gauge 3:	Stud
Gauge 4:	Stud
Gauge 5:	Stud
Gauge 6:	Panel
Gauge 7:	Stud
Gauge 8:	Panel



Equipment:

Pressure Chamber	Deflection Gauges(Phidget potentiometers)
Motor: Greenco s/n XB810-7AH27	Sensor 1: GALT s/n 20160504
Press. Controller: s/n G205141344	Sensor 2: GALT s/n 20160504
Pressure Sensors:	Sensor 3: GALT s/n 20160504
+/- 2 kPa: p/n 1136	Sensor 4: GALT s/n 20160504
+/- 7 kPa: p/n 1137	Sensor 5: GALT s/n 20160504
50 kPa: p/n 1138	Sensor 6: GALT s/n 20160504
Phidget: s/n 628179	Sensor 7: GALT s/n 20160504
	Sensor 8: GALT s/n 20160504

	Description	Taken [✓]
Photo 1:	Before test, back of wall	✓
Photo 2:	Before test, front of wall	✓
Photo 3:	After test, back of wall	
Photo 4:	After test, front of wall	
Photo 5:		

Time/Temp/RH:			
Start:	10:37 AM	Temp:	18.5 °C
Finish:	11:38 AM	%RH	19 %RH

Test Assembly		
Width (in)	Length (in)	Panel Anchorage Spacing (in)
60.0	96.0	16

Target Load (psf)	Actual Load (psf)	Time	Gauge 1 (in.)	Gauge 2 (in.)	Gauge 3 (in.)	Gauge 4 (in.)	Gauge 5 (in.)	Gauge 6 (in.)	Gauge 7 (in.)	Gauge 8 (in.)	Observations
0	**0.0**	immed.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	**15.1**	10 sec.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
0	**0.0**	1-5mins	Zero Deflection Gauges								
30	**31.4**	10 sec.	0.150	0.119	0.041	0.075	0.116	0.125	0.094	0.044	
0	**0.0**	1-5mins	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
45	**45.7**	10 sec.	0.210	0.166	0.066	0.091	0.167	0.185	0.135	0.053	
0	**0.0**	1-5mins	0.016	0.009	0.016	0.009	0.009	0.019	0.009	0.013	
60	**60.8**	10 sec.	0.266	0.216	0.081	0.125	0.207	0.241	0.175	0.069	
0	**0.0**	1-5mins	0.034	0.019	0.016	0.016	0.016	0.022	0.019	0.022	
75	**75.4**	10 sec.	0.332	0.266	0.106	0.150	0.258	0.298	0.225	0.085	
0	**0.0**	1-5mins	0.034	0.028	0.025	0.016	0.025	0.025	0.025	0.019	
90	**91.2**	10 sec.	0.388	0.316	0.131	0.175	0.318	0.360	0.266	0.085	
0	**0.0**	1-5mins	0.047	0.044	0.031	0.025	0.035	0.034	0.025	0.022	
105	**104.1**	10 sec.	0.501	0.401	0.172	0.215	0.409	0.448	0.322	0.135	
0	**0.0**	1-5mins	0.047	0.044	0.031	0.025	0.035	0.034	0.025	0.022	
120	**153.0**	10 sec.	0.698	0.573	0.240	0.240	0.569	0.645	0.435	0.213	
0	**0.0**	1-5mins									
135		10 sec.									
0	**0.0**	1-5mins									
150		10 sec.									
0	**0.0**	1-5mins									
165		10 sec.									
0	**0.0**	1-5mins									
180		10 sec.									
0	**0.0**	1-5mins									
195		10 sec.									
0	**0.0**	1-5mins									
210		10 sec.									
0	**0.0**	1-5mins									
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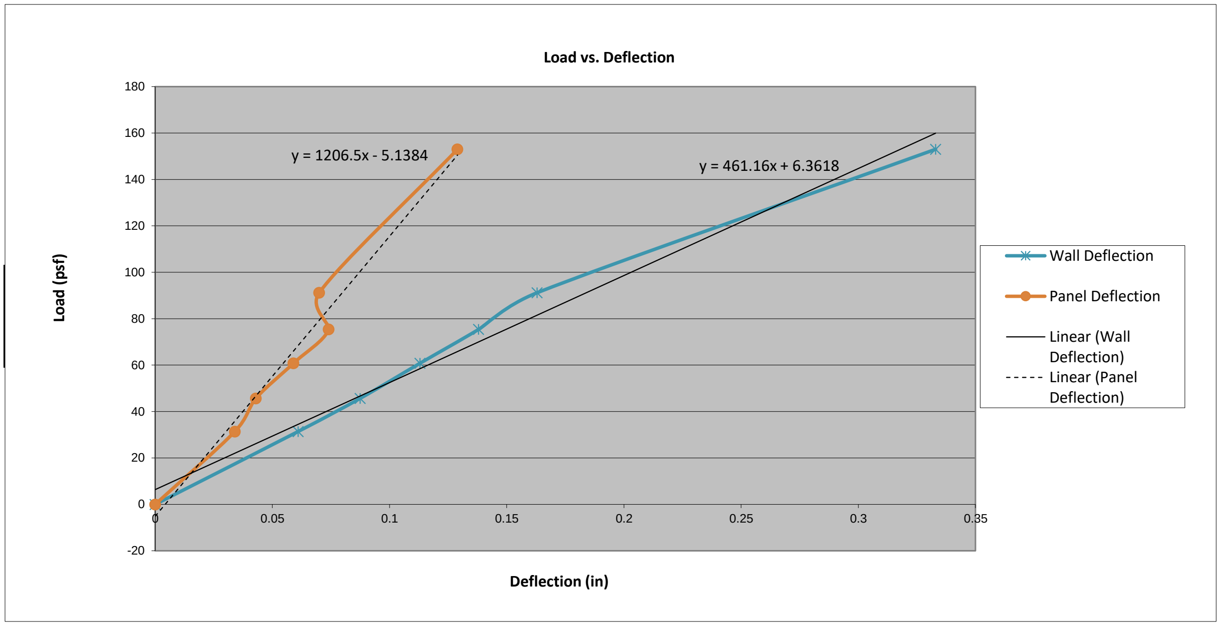
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0.0	**0.0**	1-5mins									

		Mode of Failure
Max Load (psf)	**153.0**	N/A test machine lost pressure

Test#:	QP-1	
Max Load	153.0	psf
Allowable Design Load = Max Load / 2	76.5	psf
Deflection Service Load = Allowable * 0.7	53.6	psf
Wall Deflection limit = L / 180 of wall height	0.533	in
Panel Deflection limit = L / 60 of panel anchorage spacing	0.267	in
Wall Deflection @ Deflection Service Load	0.1023	in
Panel Deflection @ Deflection Service Load	0.0486	in



Target Load (psf)	Wall Deflection (= ga 2 - (ga 3 + ga 4)/2) (in)	Panel Deflection (= ga 6 - ga 5) (in)
0	0.0000	0.000
0		
31	0.0610	0.034
0	0.0000	0.000
46	0.0875	0.043
0	-0.0035	0.007
61	0.1130	0.059
0	0.0030	0.018
75	0.1380	0.074
0	0.0075	0.009
91	0.1630	0.070
0	0.0160	0.012
104	0.2075	0.092
0	0.0160	0.012
153	0.3330	0.129

Test: **Transverse Load - Negative Wind Load** **Test#: QP-5**
Client: FastPlank - 101-4441 76th Ave SE, Calgary, AB T2C 2G8
Date: 11-Apr-23
Product: **Quick Panel**
Test Method(s): ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

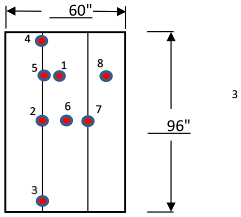
Project#: 0093
Technician(s): Jordan
Reviewer: C. Bowness
Location: 101-4441 76 Ave. SE Calgary AB T2C2G8

Installation:
Configuration: Horizontal stiffener @36" o/c, panel siliconed to stiffener. Alucoil ACM 4cm
Framing: 6" * 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking @ midspan
Fastener: Backplate w/ 2-#10-12 * 1(1/2)" screw @ each stud, Dowsil 995 Silicon, 3m double-sided tape
Sheathing: 1/2" exterior gypsum
Air Seal: Tape used to air seal plank gaps, tape will not influece test results
Equipment:

Pressure Chamber
Motor: Greenco s/n XB810-7AH27
Press. Controller: s/n G205141344
Pressure Sensors:
+/- 2 kPa: p/n 1136
+/- 7 kPa: p/n 1137
50 kPa: p/n 1138
Phidget: s/n 628179

Deflection Gauges(Phidget potentiometers)
Sensor 1: GALT s/n 20160504
Sensor 2: GALT s/n 20160504
Sensor 3: GALT s/n 20160504
Sensor 4: GALT s/n 20160504
Sensor 5: GALT s/n 20160504
Sensor 6: GALT s/n 20160504
Sensor 7: GALT s/n 20160504
Sensor 8: GALT s/n 20160504

Gauge Locations
(not to scale)
Gauge 1: Panel
Gauge 2: Stud
Gauge 3: Stud
Gauge 4: Stud
Gauge 5: Stud
Gauge 6: Stiffener
Gauge 7: Stud
Gauge 8: Panel



	Description	Taken [✓]
Photo 1:	Before test, back of wall	✓
Photo 2:	Before test, front of wall	✓
Photo 3:	After test, back of wall	
Photo 4:	After test, front of wall	
Photo 5:		

Time/Temp/RH:			
Start:	12:00 AM	Temp:	19.3 °C
Finish:	12:30 PM	%RH	19 %RH

Test Assembly		
Width (in)	Length (in)	Panel Anchorage Spacing (in)
60.0	96.0	36

Target Load (psf)	Actual Load (psf)	Time	Gauge 1 (in.)	Gauge 2 (in.)	Gauge 3 (in.)	Gauge 4 (in.)	Gauge 5 (in.)	Gauge 6 (in.)	Gauge 7 (in.)	Gauge 8 (in.)	Observations
0	**0.0**	immed.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	**15.0**	10 sec.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
0	**0.0**	1-5mins	Zero Deflection Gauges								
30	**30.2**	10 sec.	0.560	0.156	0.069	0.097	0.144	0.235	0.113	0.313	
0	**0.0**	1-5mins	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
45	**45.0**	10 sec.	0.684	0.199	0.089	0.108	0.187	0.321	0.146	0.395	gauge did not stay at 45
0	**0.0**	1-5mins	0.036	0.013	0.017	0.002	0.010	0.032	0.005	0.021	
60	**60.3**	10 sec.	0.807	0.241	0.109	0.119	0.229	0.407	0.179	0.476	
0	**0.0**	1-5mins	0.072	0.025	0.034	0.003	0.019	0.063	0.009	0.041	
75	**75.4**	10 sec.	1.051	0.310	0.134	0.150	0.291	0.773	0.207	0.699	1
0	**0.0**	1-5mins	0.153	0.050	0.041	0.009	0.034	0.210	0.016	0.106	
90	**90.7**	10 sec.	1.205	0.353	0.150	0.159	0.342	0.946	0.241	0.818	
0	**0.0**	1-5mins	0.191	0.050	0.041	0.019	0.041	0.294	0.016	0.125	
105		10 sec.									2
0	**0.0**	1-5mins									
120		10 sec.									
0	**0.0**	1-5mins									
135		10 sec.									
0	**0.0**	1-5mins									
150		10 sec.									
0	**0.0**	1-5mins									
165		10 sec.									
0	**0.0**	1-5mins									
180		10 sec.									
0	**0.0**	1-5mins									
195		10 sec.									
0	**0.0**	1-5mins									
210		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
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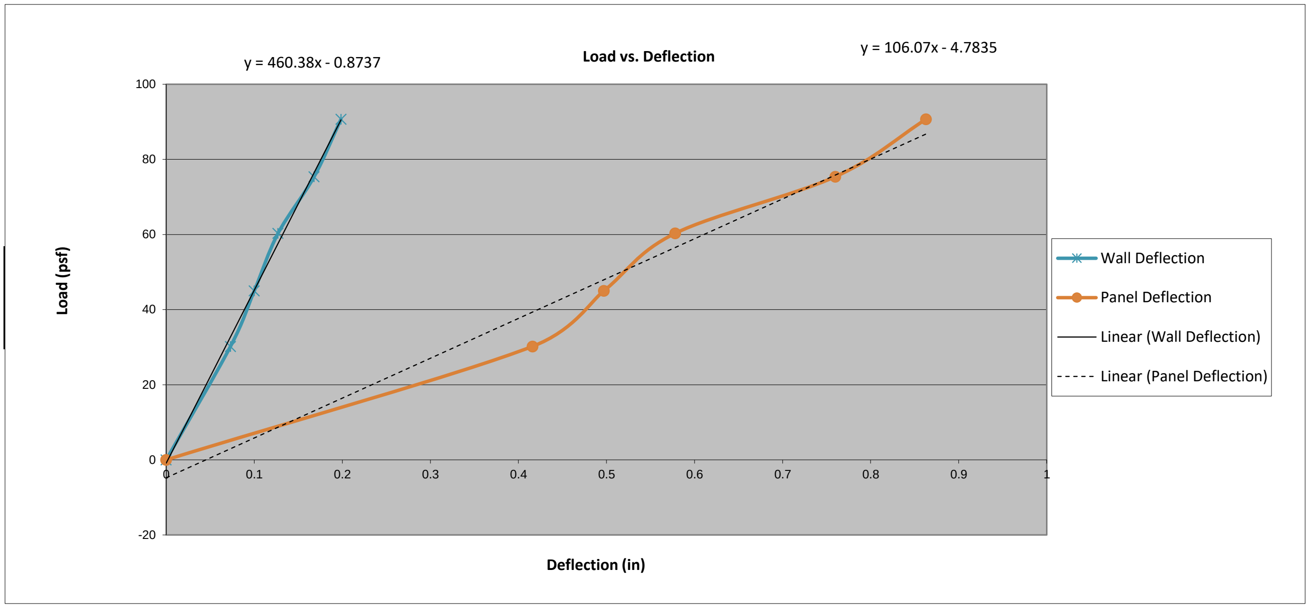
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0.0	**0.0**	1-5mins									

		Mode of Failure
Max Load (psf)	**90.7**	E207 Disengaged from backplate partially. Notes: 1. Heard a popping noise at 72 psf. Could not see any signs of component failure. Took load to 75 psf and held, 2. failure observed ~102 psf during loading up to the 105 set mark, 3. idea discussed, add silicon glue at E 207 / backplate interface

Test#: **QP-5**		
Max Load	90.7	psf
Allowable Design Load = Max Load / 2	45.4	psf
Deflection Service Load = Allowable * 0.7	31.7	psf
Wall Deflection limit = L / 180 of wall height	0.533	in
Panel Deflection limit = L / 60 of panel anchorage spacing	0.600	in
Wall Deflection @ Deflection Service Load	0.0709	in
Panel Deflection @ Deflection Service Load	0.3444	in



Target Load (psf)	**Wall Deflection (= ga 2 - (ga 3 + ga 4)/2) (in)**	**Panel Deflection (= ga 6 - ga 5) (in)**
0	0.0000	0.000
0	0.0000	0.000
30	0.0730	0.416
0	0.0000	0.000
45	0.1000	0.497
0	0.0033	0.027
60	0.1270	0.578
0	0.0065	0.053
75	0.1680	0.760
0	0.0250	0.119
91	0.1985	0.863
0	0.0200	0.150

Test: **Transverse Load - Negative Wind Load** **Test#: QP-7**
Client: FastPlank - 101-4441 76th Ave SE, Calgary, AB T2C 2G8
Date:
Product: **Quick Panel**
Test Method(s): ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

Project#: 0093
Technician(s): Jordan
Reviewer: C. Bowness
Location: 101-4441 76 Ave. SE Calgary AB T2C2G8

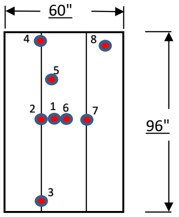
Installation:
Configuration: Horizontal stiffener @12" o/c no attachment to studs, stiffeners bonded to panel w/ 3m tape, dowsil 995 silicon
Framing: 6" * 1(5/8) 18 GA 50 ksi steel stud @16" o/c
Fastener: Dowsil 995 silicon and 3m double-sided tape
Sheathing: 1/2" exterior gypsum
Air Seal: Tape used to air seal plank gaps, tape will not influece test results

Equipment:

Pressure Chamber
Motor: Greenco s/n XB810-7AH27
Press. Controller: s/n G205141344
Pressure Sensors:
+/- 2 kPa: p/n 1136
+/- 7 kPa: p/n 1137
50 kPa: p/n 1138
Phidget: s/n 628179

Deflection Gauges(Phidget potentiometers)
Sensor 1: GALT s/n 20160504
Sensor 2: GALT s/n 20160504
Sensor 3: GALT s/n 20160504
Sensor 4: GALT s/n 20160504
Sensor 5: GALT s/n 20160504
Sensor 6: GALT s/n 20160504
Sensor 7: GALT s/n 20160504
Sensor 8: GALT s/n 20160504

Gauge Locations
(not to scale)
Gauge 1: Panel
Gauge 2: Stud
Gauge 3: Stud
Gauge 4: Stud
Gauge 5: Panel
Gauge 6: Panel
Gauge 7: Panel
Gauge 8: Panel



	Description	**Taken [✓]**
Photo 1:	Before test, back of wall	✓
Photo 2:	Before test, front of wall	✓
Photo 3:	After test, back of wall	
Photo 4:	After test, front of wall	
Photo 5:		

Time/Temp/RH:			
Start:	2:10 AM	Temp:	18 °C
Finish:	2:52 AM	%RH	19 %RH

Test Assembly		
Width (in)	Length (in)	Panel Anchorage Spacing (in)
60.0	96.0	96

Target Load (psf)	**Actual Load (psf)**	**Time**	**Gauge 1 (in.)**	**Gauge 2 (in.)**	**Gauge 3 (in.)**	**Gauge 4 (in.)**	**Gauge 5 (in.)**	**Gauge 6 (in.)**	**Gauge 7 (in.)**	**Gauge 8 (in.)**	**Observations**
0	**0.0**	immed.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	**15.0**	10 sec.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
0	**0.0**	1-5mins	Zero Deflection Gauges								
15	**15.7**	10 sec.	1.013	0.000	0.000	0.000	0.862	0.983	0.718	0.091	
0	**0.0**	1-5mins	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
30	**32.1**	10 sec.	1.606	0.000	0.009	0.000	1.338	1.577	1.165	0.226	
0	**0.0**	1-5mins	0.041	0.000	0.000	0.000	0.013	0.019	0.012	0.190	
45	**45.6**	10 sec.	1.961	0.000	0.000	0.000	1.676	1.919	1.437	0.313	
0	**0.0**	1-5mins	0.034	0.000	0.000	0.000	0.016	0.022	0.025	0.013	
60	**60.9**	10 sec.	2.317	0.000	0.000	0.000	1.980	2.266	1.702	0.407	
0	**0.0**	1-5mins	0.050	0.000	0.000	0.000	0.022	0.041	0.025	0.019	
75	**77.6**	10 sec.	2.643	0.000	0.019	0.000	2.281	2.579	1.971	0.530	
0	**0.0**	1-5mins	0.097	0.000	0.000	0.000	0.075	0.069	0.062	0.038	
90	**92.3**	10 sec.	2.934	0.000	0.000	0.000	2.535	2.867	2.221	0.642	
0		1-5mins	0.156	0.000	0.000	0.000	0.141	0.135	0.112	0.060	
105	**106.4**	10 sec.	3.196	0.000	0.000	0.000	2.773	3.127	2.436	0.746	
0	**0.0**	1-5mins	0.260	0.000	0.000	0.000	0.244	0.228	0.184	0.088	
120	**120.2**	10 sec.	3.467	0.009	0.025	0.009	3.049	3.430	2.695	0.884	
0	**0.0**	1-5mins	0.450	0.000	0.000	0.000	0.429	0.413	0.325	0.154	
135		10 sec.									
0	**0.0**	1-5mins									
150		10 sec.									
0	**0.0**	1-5mins									
180		10 sec.									
0	**0.0**	1-5mins									
195		10 sec.									
0	**0.0**	1-5mins									
210		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
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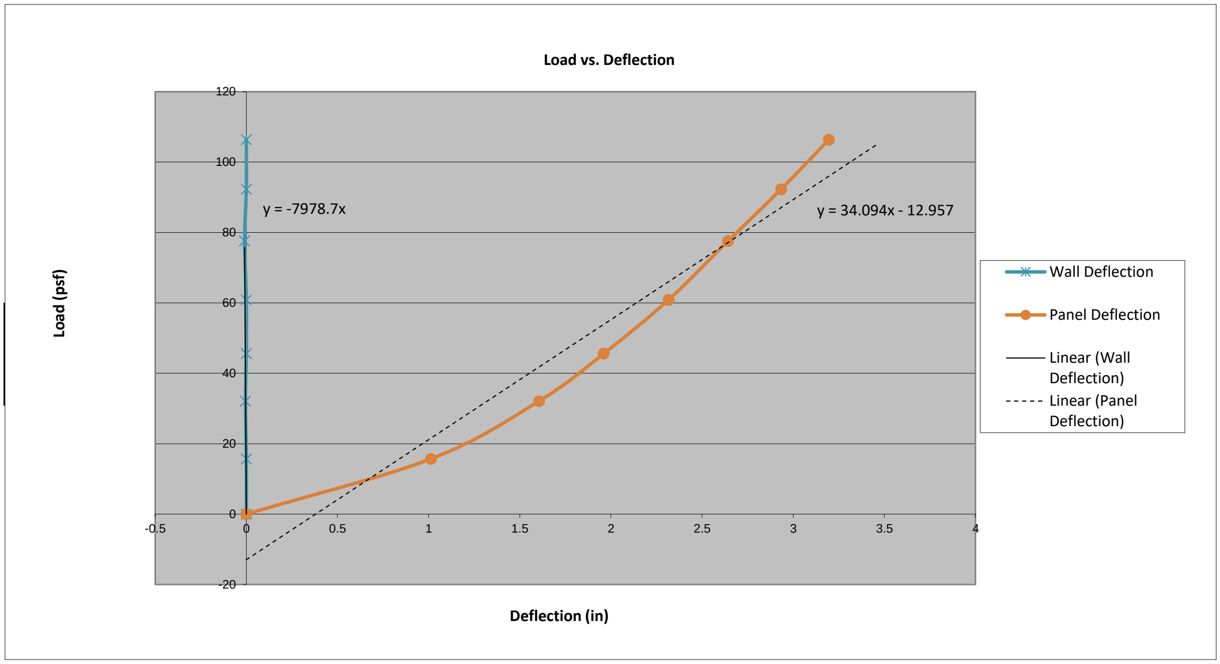
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0.0	**0.0**	1-5mins									

		Mode of Failure
Max Load (psf)	**120.2**	Failed while loading next incriment, was ~100psf when stopped holding pressure

Test#: **QP-7**		
Max Load	120.2	psf
Allowable Design Load = Max Load / 2	60.1	psf
Deflection Service Load = Allowable * 0.7	42.1	psf
Wall Deflection limit = L / 180 of wall height	0.533	in
Panel Deflection limit = L / 60 of panel anchorage spacing	1.600	in
Wall Deflection @ Deflection Service Load	-0.0053	in
Panel Deflection @ Deflection Service Load	1.6142	in



Target Load (psf)	Wall Deflection (= ga 2 - (ga 3 + ga 4)/2) (in)	Panel Deflection (= ga 6 - ga 5) (in)
0	0.0000	0.000
0		
16	0.0060	1.141
0	0.0090	0.016
32	0.0010	1.498
0	0.0100	0.032
46	-0.0020	1.829
0	0.0100	0.050
61	-0.0020	2.077
0	0.0100	0.106
78	0.0050	2.371
0	0.0030	0.257
92	0.0005	2.697
0	0.0000	0.596
106	-0.0045	3.142
0	0.0090	1.143
120	-0.0080	3.458
0	0.0000	0.450

Test: **Transverse Load - Negative Wind Load** **Test#: QP-11**
Client: FastPlank - 101-4441 76th Ave SE, Calgary, AB T2C 2G8
Date: 12-Apr-23
Product: **Quick Panel**
Test Method(s): ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

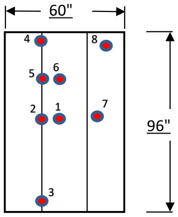
Project#: 0093
Technician(s): Jordan
Reviewer: C. Bowness
Location: 101-4441 76 Ave. SE Calgary AB T2C2G8

Installation:
Configuration: Horizontal stiffener @36" o/c, panel siliconed to stiffener. Alucoil 4mm ACM
Framing: 6" * 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid blocking at midspan
Fastener: Dowsil 995 silicon / 3m double-sided tape
Sheathing: 1/2" exterior gyp
Air Seal: Tape used to air seal plank gaps, tape will not influece test results
Equipment:

Pressure Chamber
Motor: Greenco s/n XB810-7AH27
Press. Controller: s/n G205141344
Pressure Sensors:
+/- 2 kPa: p/n 1136
+/- 7 kPa: p/n 1137
50 kPa: p/n 1138
Phidget: s/n 628179

Deflection Gauges(Phidget potentiometers)
Sensor 1: GALT s/n 20160504
Sensor 2: GALT s/n 20160504
Sensor 3: GALT s/n 20160504
Sensor 4: GALT s/n 20160504
Sensor 5: GALT s/n 20160504
Sensor 6: GALT s/n 20160504
Sensor 7: GALT s/n 20160504
Sensor 8: GALT s/n 20160504

Gauge Locations
(not to scale)
Gauge 1: Panel
Gauge 2: Stud
Gauge 3: Stud
Gauge 4: Stud
Gauge 5: Stud
Gauge 6: Panel
Gauge 7: Panel
Gauge 8: Panel



	Description	**Taken [✓]**
Photo 1:	Before test, back of wall	✓
Photo 2:	Before test, front of wall	✓
Photo 3:	After test, back of wall	✓
Photo 4:	After test, front of wall	✓
Photo 5:		

Time/Temp/RH:			
Start:	9:10 AM	Temp:	19.3 °C
Finish:	10:02 AM	%RH	19 %RH

Test Assembly		
Width (in)	Length (in)	Panel Anchorage Spacing (in)
60.0	96.0	96

Target Load (psf)	Actual Load (psf)	Time	Gauge 1 (in.)	Gauge 2 (in.)	Gauge 3 (in.)	Gauge 4 (in.)	Gauge 5 (in.)	Gauge 6 (in.)	Gauge 7 (in.)	Gauge 8 (in.)	Observations
0	**0.0**	immed.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	**15.5**	10 sec.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
0	**0.0**	1-5mins	Zero Deflection Gauges								
30	**30.4**	10 sec.	1.701	0.009	0.000	0.006	0.009	1.150	1.580	0.304	
0	**0.0**	1-5mins	0.025	0.009	0.000	0.000	0.009	0.025	0.340	0.009	
45	**45.4**	10 sec.	2.127	0.009	0.000	0.016	0.009	1.507	1.990	0.460	
0	**0.0**	1-5mins	0.034	0.016	0.006	0.006	0.009	0.041	0.340	0.019	
60	**62.0**	10 sec.	2.547	0.009	0.006	0.016	0.019	1.848	2.403	0.605	
0	**0.0**	1-5mins	0.094	0.016	0.006	0.006	0.019	0.069	0.091	0.044	
75	**76.3**	10 sec.	2.869	0.009	0.006	0.016	0.019	2.096	2.675	0.733	
0	**0.0**	1-5mins	0.172	0.016	0.006	0.006	0.019	0.125	0.172	0.078	
90	**90.7**	10 sec.	3.192	0.016	0.006	0.016	0.019	2.390	2.997	0.899	
0	**0.0**	1-5mins	0.423	0.009	0.006	0.006	0.009	0.266	0.422	0.160	
105	**105.7**	10 sec.	3.596	0.016	0.006	0.025	0.019	2.716	3.407	1.106	
0	**0.0**	1-5mins	0.965	0.000	0.000	0.000	0.009	0.605	0.923	0.355	
120	**120.7**	10 sec.	4.097	0.016	0.016	0.025	0.025	3.167	3.907	1.139	1
0	**0.0**	1-5mins	1.848	0.009	0.000	0.000	0.000	1.143	1.792	0.665	
135		10 sec.									2
0	**0.0**	1-5mins									
150		10 sec.									
0	**0.0**	1-5mins									
165		10 sec.									
0	**0.0**	1-5mins									
180		10 sec.									
0	**0.0**	1-5mins									
195		10 sec.									
0	**0.0**	1-5mins									
210		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
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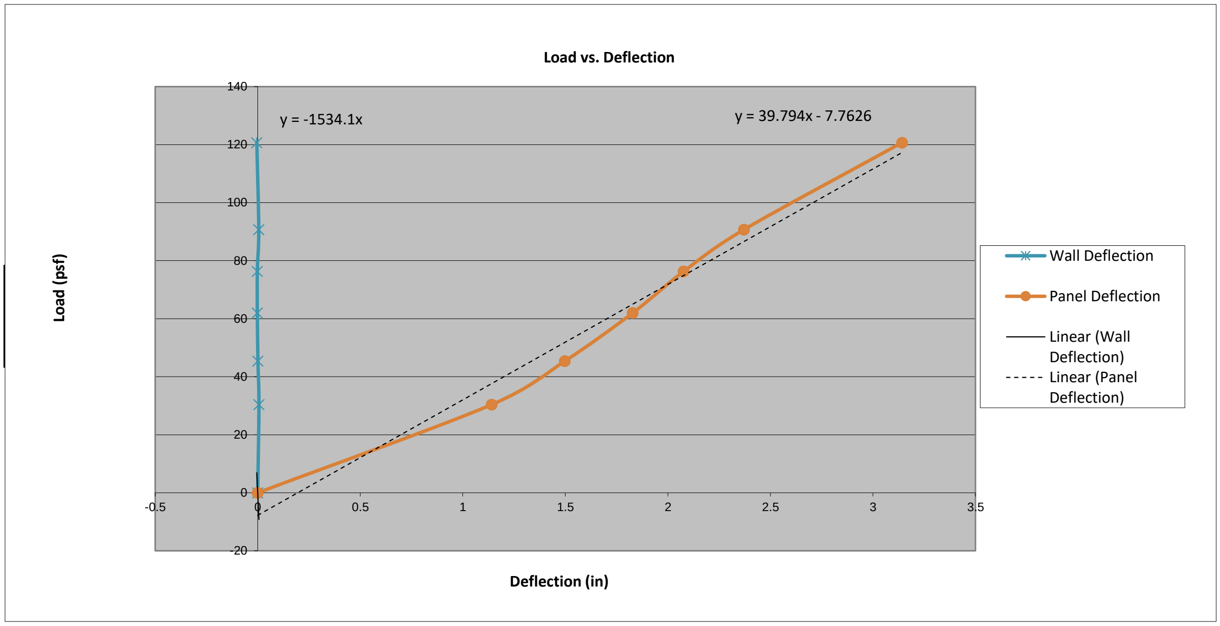
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0.0	**0.0**	1-5mins									

Max Load (psf)	**120.7**	**Mode of Failure** ACM dislodged from cavity between platform and top cap. Notes: 1. made poppinng noiss at 119 psf, and more popping when load came down, 2. system failed at ~100 psf on way up to 135

Test#: **QP-11**		
Max Load	120.7	psf
Allowable Design Load = Max Load / 2	60.4	psf
Deflection Service Load = Allowable * 0.7	42.2	psf
Wall Deflection limit = L / 180 of wall height	0.533	in
Panel Deflection limit = L / 60 of panel anchorage spacing	1.600	in
Wall Deflection @ Deflection Service Load	-0.0275	in
Panel Deflection @ Deflection Service Load	1.2567	in



Target Load (psf)	Wall Deflection (= ga 2 - (ga 3 + ga 4)/2) (in)	Panel Deflection (= ga 6 - ga 5) (in)
0	0.0000	0.000
0		
30	0.0060	1.141
0	0.0090	0.016
45	0.0010	1.498
0	0.0100	0.032
62	-0.0020	1.829
0	0.0100	0.050
76	-0.0020	2.077
0	0.0100	0.106
91	0.0050	2.371
0	0.0030	0.257
106	0.0005	2.697
0	0.0000	0.596
121	-0.0045	3.142
0	0.0090	1.143

Test: **Transverse Load - Negative Wind Load** **Test#: QP-13**
Client: FastPlank - 101-4441 76th Ave SE, Calgary, AB T2C 2G8
Date: 13-Apr-23
Product: **Quick Panel**
Test Method(s): ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

Project#: 0093
Technician(s): Jordan
Reviewer: C. Bowness
Location: 101-4441 76 Ave. SE Calgary AB T2C2G8

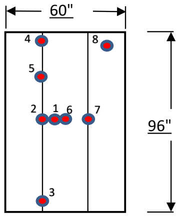
Installation:
Configuration: Vertical stiffener @16" o/c w/ mechanically attached backplate / silicon, Alucoil 4mm AM
Framing: 6" * 1(5/8)" 18 GA 50 ksi steel stud @16" o/c w/ solid backing
Fastener: 1-#10-12 * 1(1/2)" screw @ 16" o/c along stud through backplate, 3m double sided tape,
Sheathing: 1/2" exterior gypsum
Air Seal: Tape used to air seal plank gaps, tape will not influece test results

Equipment:

Pressure Chamber
Motor: Greenco s/n XB810-7AH27
Press. Controller: s/n G205141344
Pressure Sensors:
+/- 2 kPa: p/n 1136
+/- 7 kPa: p/n 1137
50 kPa: p/n 1138
Phidget: s/n 628179

Deflection Gauges(Phidget potentiometers)
Sensor 1: GALT s/n 20160504
Sensor 2: GALT s/n 20160504
Sensor 3: GALT s/n 20160504
Sensor 4: GALT s/n 20160504
Sensor 5: GALT s/n 20160504
Sensor 6: GALT s/n 20160504
Sensor 7: GALT s/n 20160504
Sensor 8: GALT s/n 20160504

Gauge Locations
(not to scale)
Gauge 1: Panel
Gauge 2: Stud
Gauge 3: Stud
Gauge 4: Stud
Gauge 5: Panel
Gauge 6: Panel
Gauge 7: Stud
Gauge 8: Panel



	Description	Taken [✓]
Photo 1:	Before test, back of wall	✓
Photo 2:	Before test, front of wall	✓
Photo 3:	After test, back of wall	✓
Photo 4:	After test, front of wall	
Photo 5:		

Time/Temp/RH:			
Start:	10:05 AM	Temp:	18.7 °C
Finish:	11:00 AM	%RH	19 %RH

Test Assembly		
Width (in)	Length (in)	Panel Anchorage Spacing (in)
60.0	96.0	16

Target Load (psf)	Actual Load (psf)	Time	Gauge 1 (in.)	Gauge 2 (in.)	Gauge 3 (in.)	Gauge 4 (in.)	Gauge 5 (in.)	Gauge 6 (in.)	Gauge 7 (in.)	Gauge 8 (in.)	Observations
0	**0.0**	immed.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15	**15.5**	10 sec.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
0	**0.0**	1-5mins	Zero Deflection Gauges								
30	**30.4**	10 sec.	0.135	0.091	0.031	0.059	0.125	0.147	0.075	0.022	
0	**0.0**	1-5mins	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
45	**45.7**	10 sec.	0.207	0.131	0.056	0.084	0.251	0.228	0.110	0.047	
0	**0.0**	1-5mins	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
60	**61.2**	10 sec.	0.272	0.182	0.081	0.100	0.383	0.303	0.160	0.097	
0	**0.0**	1-5mins	0.034	0.016	0.016	0.099	0.025	0.019	0.019	0.006	
75	**76.3**	10 sec.	0.370	0.232	0.100	0.116	0.696	0.422	0.210	0.160	1
0	**0.0**	1-5mins	0.094	0.025	0.016	0.016	0.157	0.097	0.019	0.009	
80	**80.3**	10 sec.	0.482	0.232	0.106	0.125	0.863	0.488	0.216	0.194	1
0	**0.0**	1-5mins	0.172	0.025	0.019	0.019	0.156	0.025	0.025	0.016	
85	**85.6**	10 sec.	0.554	0.247	0.125	0.125	1.064	0.716	0.241	0.254	2
0	**0.0**	1-5mins	0.279	0.022	0.025	0.016	0.235	0.256	0.025	0.019	
90	**90.2**	10 sec.	0.767	0.257	0.131	0.125	1.202				3
0	**0.0**	1-5mins									
135		10 sec.									
0	**0.0**	1-5mins									
150		10 sec.									
0	**0.0**	1-5mins									
165		10 sec.									
0	**0.0**	1-5mins									
180		10 sec.									
0	**0.0**	1-5mins									
195		10 sec.									
0	**0.0**	1-5mins									
210		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
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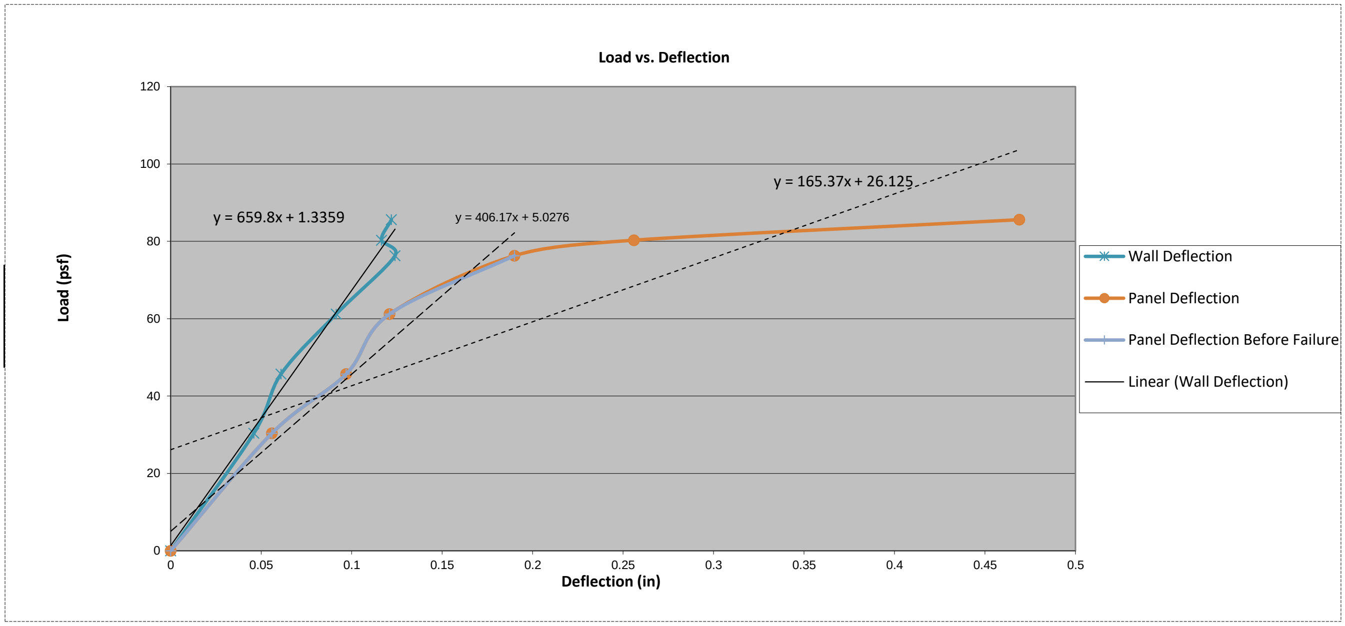
0	**0.0**	1-5mins									
		10 sec.									
0	**0.0**	1-5mins									
		10 sec.									
0.0	**0.0**	1-5mins									

		Mode of Failure
Max Load (psf)	**90.2**	E207 hat and backplate disengages. Silicon disengaged from hat/panel connection. Notes: 1. Some audibles heard at 76.3 load and 80.3 load, 2. louder popping noises during 85.6 load, held pressure > 10s, 3. failed after 10s at 90.2, did not capture gauge 6,7,8

Test#: **QP-13**		
Max Load	90.2	psf
Allowable Design Load = Max Load / 2	45.1	psf
Deflection Service Load = Allowable * 0.7	31.6	psf
Wall Deflection limit = L / 180 of wall height	0.533	in
Panel Deflection limit = L / 60 of panel anchorage span	0.267	in
Wall Deflection @ Deflection Service Load	0.0458	in
Panel Deflection @ Deflection Service Load	0.0653	in



Target Load (psf)	Wall Deflection (= ga 2 - (ga 3 + ga 4)/2) (in)	Panel Deflection (= ga 6 - ga 5) (in)
0	0.0000	0.000
0		
30	0.0460	0.056
0	0.0000	0.000
46	0.0610	0.097
0	0.0000	0.000
61	0.0915	0.121
0	-0.0415	0.003
76	0.1240	0.190
0	0.0090	0.072
80	0.1165	0.256
0	0.0060	0.000
86	0.1220	0.469
0	0.0015	0.234
90	0.1290	-0.257