

ARCOPLAST
1873 Williamstown Drive
St. Peters, MO 63376

February 25, 2021
Lab No. 21P-0611
PO. No. 12581
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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: Closed Edge Insulated Panel

SUBJECT: Leakage Rate @ 200 Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 200 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame W/RTV Silicone	No Leakage	No Leakage	1.00
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket	0.142 (0.028)	0.020 (0.013)	9.01
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	0.610 (0.120)	0.088 (0.057)	6.50
"T" Frame, Bubble Gasket	0.437 (0.086)	0.063 (0.041)	8.00

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: Closed Edge Insulated Panel
SUBJECT: Leakage Rate @ 500 Pa Negative Pressure
METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 500 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame W/RTV Silicone	No Leakage	No Leakage	1.50
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket	0.188 (0.037)	0.028 (0.018)	12.69
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	0.706 (0.139)	0.102 (0.066)	8.00
"T" Frame, Bubble Gasket	0.457 (0.090)	0.067 (0.043)	9.50

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: Closed Edge Insulated Panel
SUBJECT: Positive Pressure for Panel Uplift Without HD Clips
METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

**Leakage occurred at test box to "T" Frame interface. RTV Silicone seal was intact after testing.*

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame W/RTV Silicone	96.53 (14) *	24.20 *	448.16 (65)	23.50
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	6.90 (1)	0.50	468.84 (68)	0.50
"T" Frame, Black Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 1.50mm Deflection			
"T" Frame, Fin Gasket	20.68 (3)	3.50	448.16 (65)	4.50
"T" Frame, Bubble Gasket	6.90 (1)	1.00	468.84 (68)	1.00

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: GFRMC 5mm Panel

SUBJECT: Leakage Rate @ 200Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 200 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	1.00 *
"T" Frame, Black Foam Gasket	1.839 (0.362)	0.265 (0.171)	0.50
"T" Frame, Fin Gasket	1.036 (0.204)	0.149 (0.096)	3.00
"T" Frame, Bubble Gasket	0.472 (0.093)	0.068 (0.044)	4.00

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TEST REPORT

SAMPLE ID: GFRMC 5mm Panel

SUBJECT: Leakage Rate @ 500 Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 500 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	1.00 *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	0.50 *
"T" Frame, Fin Gasket	1.224 (0.241)	0.177 (0.114)	4.50
"T" Frame, Bubble Gasket	0.508 (0.100)	0.073 (0.047)	5.00

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: GFRMC 5mm Panel

SUBJECT: Positive Pressure for Panel Uplift With HD Clips

METHOD: Per Client's Instructions

Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	6.90 (1)	0.50	468.84 (68)	2.50
"T" Frame, Black Foam Gasket	Constant Leakage Through 468.84 kPa (68 psi) 2.00mm Deflection			
"T" Frame, Fin Gasket	Constant Leakage Through 468.84 kPa (68 psi) 3.00mm Deflection			
"T" Frame, Bubble Gasket	6.90 (1)	1.00	468.84 (68)	1.00

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TEST REPORT

SAMPLE ID: GFRMC 5mm Panel

SUBJECT: Positive Pressure for Panel Uplift Without HD Clips

METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, Black Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	Constant Leakage Through 468.84 kPa (68 psi) 2.00mm Deflection			
"T" Frame, Bubble Gasket	6.90 (1)	1.00	468.84 (68)	1.00

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TEST REPORT

SAMPLE ID: GFRMC 9.5mm Panel

SUBJECT: Leakage Rate @ 200Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 200 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	0.671 (0.132)	0.098 (0.063)	1.50
"T" Frame, Bubble Gasket	0.472 (0.093)	0.068 (0.044)	2.30

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TEST REPORT

SAMPLE ID: GFRMC 9.5mm Panel

SUBJECT: Leakage Rate @ 500 Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 500 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	0.803 (0.158)	0.116 (0.075)	2.00
"T" Frame, Bubble Gasket	0.508 (0.100)	0.073 (0.047)	2.50

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TEST REPORT

SAMPLE ID: GFRMC 9.5mm Panel

SUBJECT: Positive Pressure for Panel Uplift With HD Clips

METHOD: Per Client's Instructions

Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	20.68 (3)	0.50	468.84 (68)	1.00
"T" Frame, Black Foam Gasket	Constant Leakage Through 468.84 kPa (68 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	20.68 (3)	2.00	475.74 (69)	2.50
"T" Frame, Bubble Gasket	20.68 (3)	1.00	468.84 (68)	1.50

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TEST REPORT

SAMPLE ID: GFRMC 9.5mm Panel

SUBJECT: Positive Pressure for Panel Uplift Without HD Clips

METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, Black Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	Constant Leakage Through 475.74 kPa (69 psi) 2.50mm Deflection			
"T" Frame, Bubble Gasket	20.68 (3)	1.00	468.84 (68)	1.50

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TEST REPORT

SAMPLE ID: Acryloyl 6mm Panel

SUBJECT: Leakage Rate @ 200Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 200 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	0.945 (0.186)	0.136 (0.088)	2.50
"T" Frame, Bubble Gasket	0.493 (0.097)	0.071 (0.046)	2.50

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: Acryloyl 6mm Panel

SUBJECT: Leakage Rate @ 500 Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 500 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	1.036 (0.204)	0.150 (0.097)	3.50
"T" Frame, Bubble Gasket	0.528 (0.104)	0.077 (0.050)	3.00

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TEST REPORT

SAMPLE ID: Acryloyl 6mm Panel
SUBJECT: Positive Pressure for Panel Uplift With HD Clips
METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	Constant Leakage Through 468.84 kPa (68 psi) 0.50mm Deflection			
"T" Frame, Black Foam Gasket	Constant Leakage Through 468.84 kPa (68 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	20.68 (3)	2.00	475.74 (69)	2.50
"T" Frame, Bubble Gasket	20.68 (3)	2.00	468.84 (68)	2.00

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TEST REPORT

SAMPLE ID: Acryloyl 6mm Panel
SUBJECT: Positive Pressure for Panel Uplift Without HD Clips
METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Black Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	20.68 (3)	2.00	468.84 (68)	3.70
"T" Frame, Bubble Gasket	20.68 (3)	1.00	468.84 (68)	2.00

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Attention: Ghislain Beauregard

TEST REPORT

SAMPLE ID: Acryloyl 9.5mm Panel

SUBJECT: Leakage Rate @ 200Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 200 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	1.036 (0.204)	0.150 (0.097)	1.50
"T" Frame, Bubble Gasket	0.457 (0.090)	0.067 (0.043)	1.80

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TEST REPORT

SAMPLE ID: Acryloyl 9.5mm Panel

SUBJECT: Leakage Rate @ 500 Pa Negative Pressure

METHOD: ASTM E283 / Per Client's Instructions.
Pressure was held for 20 minutes before reading was taken.
Area calculated as visible area of ceiling panel on "T" frame (22.75" x 22.75").

RESULTS:

** Unable to reach 500 Pa.*

Test Components	L/s/m ² (cfm/ft ²)	L/s/per linear m (cfm/linear ft)	Panel Displacement mm
"T" Frame, No Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, White Foam Gasket *	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Black Foam Gasket	>1.98 (> 0.390) *	>0.285 (> 0.184) *	N/A *
"T" Frame, Fin Gasket	1.107 (0.218)	0.159 (0.103)	2.00
"T" Frame, Bubble Gasket	0.488 (0.096)	0.071 (0.046)	2.00

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TEST REPORT

SAMPLE ID: Acryloyl 9.5mm Panel
SUBJECT: Positive Pressure for Panel Uplift With HD Clips
METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	Constant Leakage Through 468.84 kPa (68 psi) 1.00mm Deflection			
"T" Frame, Black Foam Gasket	Constant Leakage Through 482.63 kPa (70 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	13.79 (2)	1.50	496.42 (72)	2.30
"T" Frame, Bubble Gasket	55.16 (8)	5.00	468.84 (68)	10.00

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TEST REPORT

SAMPLE ID: Acryloyl 9.5mm Panel

SUBJECT: Positive Pressure for Panel Uplift Without HD Clips

METHOD: Per Client's Instructions
Positive pressure was put into the chamber to determine the initial panel uplift pressure. Full pressure (125 psi) was then applied to determine the maximum pressure reading that could be reached within the test chamber.

RESULTS:

Test Components	Initial Panel Uplift Pressure kPa (psi)	Initial Panel Uplift Deflection mm	Maximum Panel Uplift Pressure kPa (psi)	Maximum Panel Uplift Deflection mm
"T" Frame, No Gasket	No Deflection Through a Maximum Pressure of 468.84 kPa (68psi)			
"T" Frame, White Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Black Foam Gasket	Constant Leakage Through 448.16 kPa (65 psi) 0.50mm Deflection			
"T" Frame, Fin Gasket	20.68 (3)	2.00	496.42 (72)	3.50
"T" Frame, Bubble Gasket	20.68 (3)	1.00	468.84 (68)	1.30

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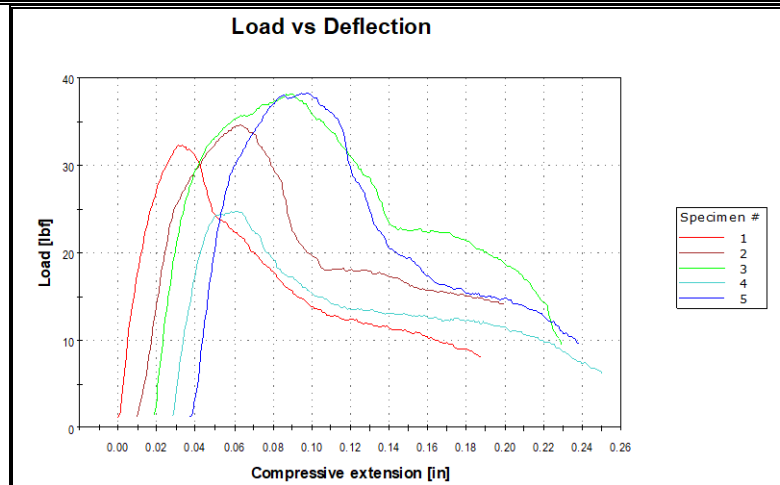
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Attention: Ghislain Beauregard

REPORT OF MECHANICAL TEST

SUBJECT: Pull strength of the pultruded/panel with silicone 999-A
METHOD: Per Client's Instructions
INSTRUMENT: Instron 5500R with Bluehill software
RESULTS:

Specimen #	Area (in ²)	Max Load (lbf)	Shear Strength (psi)	Deflection @ Max Load (in)	Failure Mode
1	0.619	32.3	52.2	0.031	Silicone/T-Panel
2	0.611	34.6	56.7	0.054	
3	0.636	38.2	60.1	0.068	
4	0.614	24.7	40.3	0.034	
5	0.655	38.3	58.5	0.060	
Average	0.627	33.6	53.5	0.049	



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