



Force Engineering & Testing Inc.

2405 A S. Houston Ave. Suite 500
Humble, Texas 77396
Phone: (281) 540-6603
Fax: (281) 540-9966

Project Number : 72-0313T-06A-C

Test Report Date : March 24, 2007

Test Material : 24 Ga. Mechanical Lock 1.5" Rib x 16" Wide Double Lock

Test Procedure : TAS 125-03
PER UL 580-94 w/Rev THRU 1998
UL 1897-98

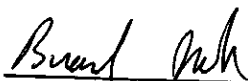
Test Location : Force Engineering & Testing Inc.
2405 A S. Houston Ave. Suite 500
Humble, Texas 77396

Dade County Lab Certification No: 05-1122.13

24 GA. MECHANICAL LOCK 16"

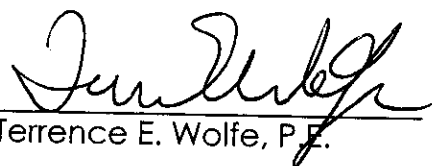
(Over 15/32" Plywood)

Report Prepared by:



Brandon Jasek

Report Reviewed by:



Terrence E. Wolfe, P.E.

Project Number : 72-0313T-06A-C

GENERAL:

The subject of this report is a standing seam metal roof panel attaching to 15/32" Plywood with floating clips.

The object of this investigation was to establish by test, the max uplift pressure for the roof panel described in this report. The test assembly and test were completed under the observation of a licensed professional.

TEST DATE:

72-0313T-06A	January 25, 2007
72-0313T-06B	January 30, 2007
72-0313T-06C	January 26, 2007

TEST ASSEMBLY:

Manufacturer: Metalforming Inc.

100 International Drive
Peachtree City, GA 30269

Roof Panel: Mechanical Lock, Double Lock 180° Seam, 24 Ga. 0.024" Coated thickness, Fy= 50 ksi, 16" Coverage, 1.5" tall rib.

Panel Clip: Floating Clip Part No. 1500SC

Fastener: (2) #12-11 x 1" Type A by Buildex Per Clip

Clip Spacing:	72-0313T-06A	Clips @ 24" O.C.
	72-0313T-06B	Clips @ 24" O.C.
	72-0313T-06C	Clips @ 6" O.C.

Panel Length: 10'-0"

Substrate: 15/32" B-C 4 Ply Plywood attached to 2x10 @ 6" O.C. Int./Ext. with 8D 2-1/2" Hot Galv. Ring Shank Patio/Deck Nails

TESTING APPARATUS:

UL 580 Chamber

Project Number : 72-0313T-06A -C

PROCEDURE:

1. The roof assembly was subjected to all five phases of the Class 30, Class 60 & Class 90. At the end of each phase the test specimen was inspected.
2. Throughout the test, observations were made of the control of positive and negative pressures and of the condition of the top surface and the under side of the test assembly.
3. The action of the roof assembly during the application of the steady pressures in Phases I, II, IV, and V was a bowing up between screw attachments, with the joists and plywood substrate following the same pattern.
4. The action of the test assembly during the oscillating phase of each test (Phase III) was a rising and settling of the members.
5. After the Class 90 phase, the positive pressure was set at 9.3 inches of water and remained constant; the negative pressure was increased by increments of 15 psf until the panel assembly failed.

RESULTS/CONCLUSIONS:

72-0313T-06A

The maximum sustained combined pressure was 112.0 psf and the ultimate combined pressure was 115.0 psf. The failure mode was the panel clip fasteners pulled out of the plywood causes loss of pressure.

72-0313T-06B

The maximum sustained combined pressure was 127.0 psf and the ultimate combined pressure was 130.0 psf. The failure mode was the panel clip fasteners pulled out of the plywood causes loss of pressure.

72-0313T-06C

The maximum sustained combined pressure was 247.0 psf and the ultimate combined pressure was 250.0 psf. The failure mode was the panel rib buckled between clips.

Note: During this test, tape and plastic were used to seal against air leakage. The tape and plastic had no restrictive influence on the test.

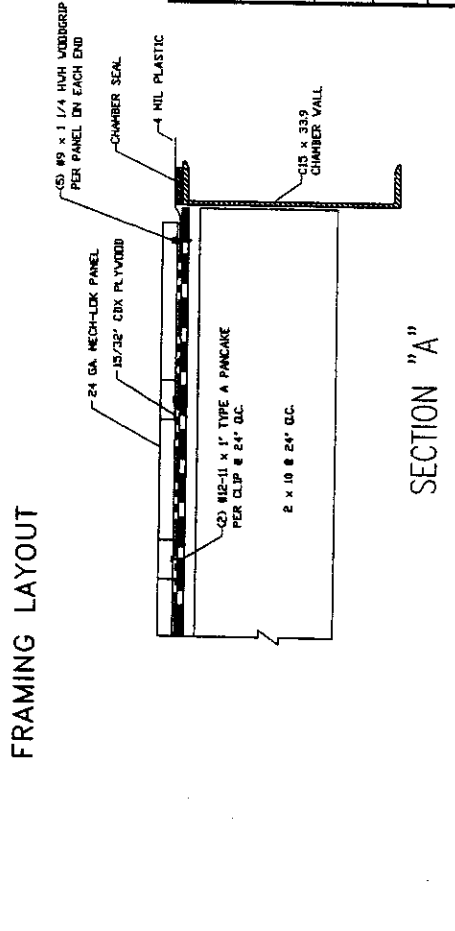
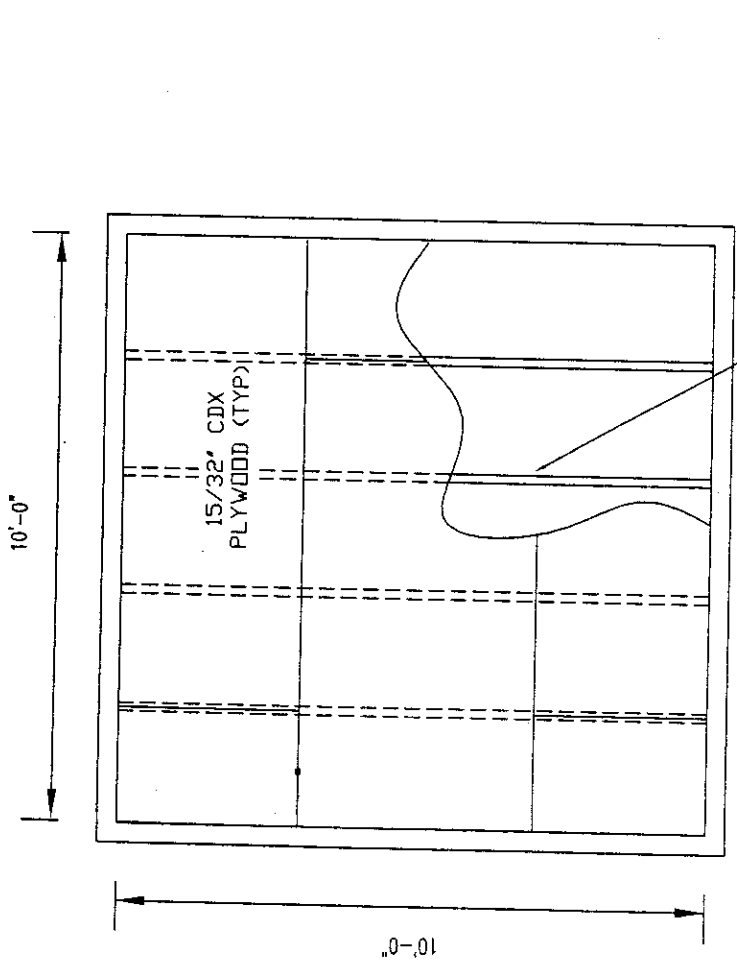
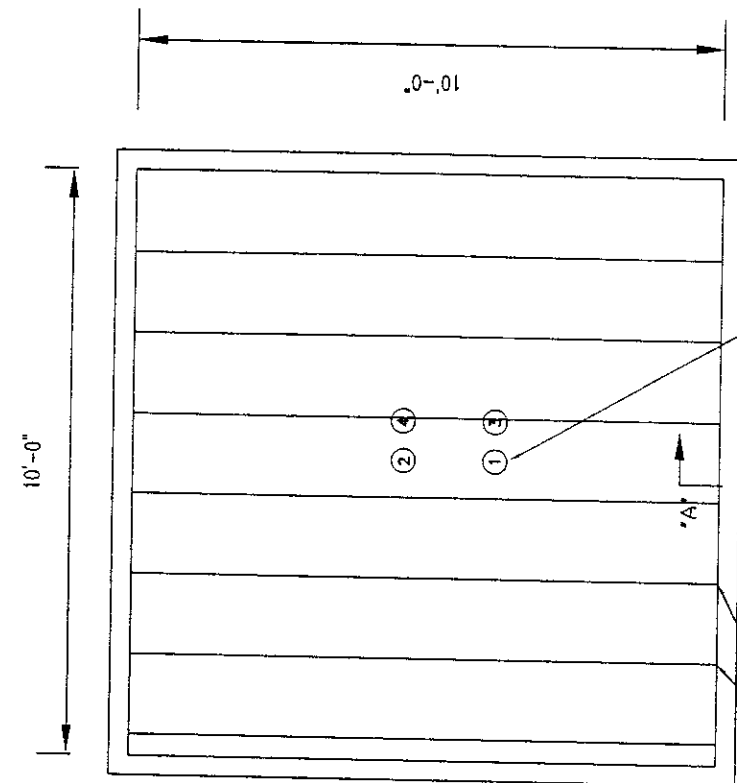


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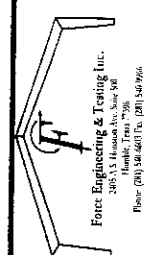
STATEMENT OF INDEPENDENCE:

Force Engineering & Testing, Inc. or any persons employed by them do not have any financial interest in Metalforming Inc.

Force Engineering & Testing, Inc. is not owned, operated or controlled by Metalforming Inc.



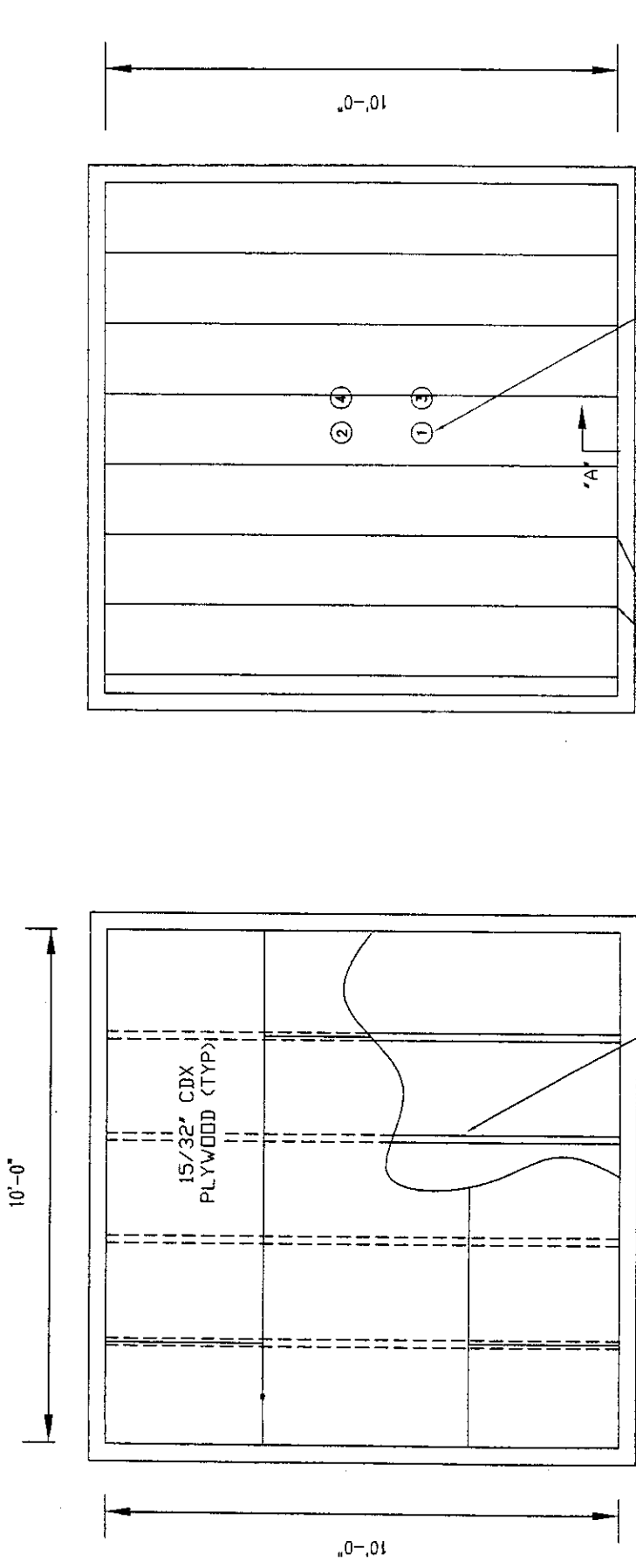
TEST:		DESCRIPTION:		DATE:	
BY:					
TEST:		CLIP TYPE: 1500SC		DATE:	
BY:		CLIP FASTENER: (2) #12-11 x 1"		SPAN: 24" O.C.	
TEST:		QUOTE NUMBER: 72-0313T-06A		MAX PRESSURE:	
BY:					
TEST:		PANEL TYPE: 24 GA MECH-LOK, 1.5" RIB, 16" WIDE			
BY:		MANUFACTURER: METALFORMING INC.			
TEST:		TEST PROTOCOL: TAS 125-03: UL 580/1897			
BY:					



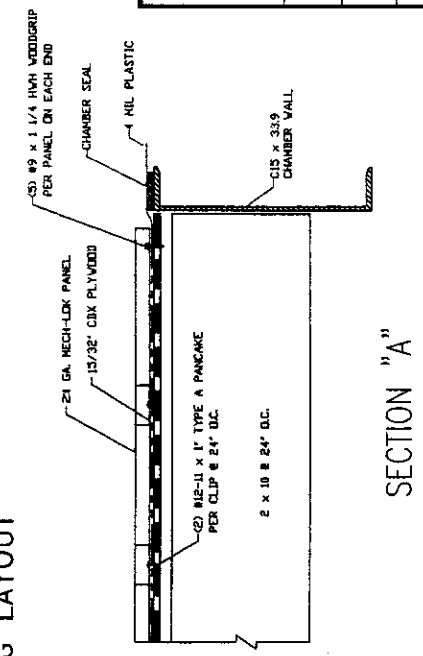
UL 580 DEFLECTION READINGS

Test Date: 1/25/2007
Project Number: 72-0313T-06A Test #1 Main
Panel Description: 2 4ga. Mechanical Lock, 1.5" Tall x 16" Wide, DBL Lock
Panel Fasteners: (2) #12 x 1" Pancake Per Clip
Panel Clip: 1500SC @ 24"O.C.
Substrate: 15/32" Plywood, 4-Ply w/ 8D x 2.5" Ring shank nails @ 6" O.C. Int/Ext

Static Pressure Inches Of H ₂ O (Neg./Pos.)	Deflection Readings			
	D-1	D-2	D-3	D-4
CLASS 30				
0	11.0000	24.9375	5.0000	4.9375
-3.1 / +0	11.7500	24.1875	5.0000	4.8750
0	11.0625	24.9375	5.0000	4.9375
-3.1 / +2.7	12.1250	23.8750	4.9375	4.8750
0	11.0625	24.9375	5.0000	4.9375
-5.3 / +2.7	12.2500	23.8750	4.9375	4.8750
0	11.0625	24.9375	5.0000	4.9375
-4.7 / +0	12.0000	23.9375	4.9375	4.8750
0	11.0000	24.9375	5.0000	4.8750
-4.7 / +4.0	12.3750	23.6250	4.8750	4.8125
0	11.0000	24.8750	5.0000	4.9375
CLASS 60				
0	11.0000	24.8750	5.0000	4.9375
-6.2 / +0	12.1875	23.8125	4.9375	4.8750
0	11.0625	24.9375	5.0000	4.9375
-6.2 / +5.3	12.4375	23.5625	5.0000	4.9375
0	10.8750	25.1250	5.1875	5.0625
-10.7 / +5.3	12.3750	23.5000	4.8750	4.8750
0	10.9375	25.1250	5.1875	5.0625
-7.8 / +0	12.2500	23.6875	5.0625	4.9375
0	10.9375	25.2500	5.1875	5.0625
-7.8 / +6.7	12.6875	23.3125	4.9375	4.8125
0	10.9375	25.1250	5.1875	5.0625
CLASS 90				
0	10.9375	25.1250	5.1875	5.6875
-9.3 / +0	12.3750	23.6250	5.0000	4.9375
0	10.9375	25.1250	5.1875	5.0625
-9.3 / +8.0	12.8750	23.1875	4.8750	4.8125
0	11.0000	25.1250	5.1875	5.0625
-9.3 / +8.0	12.8750	23.1875	NA	4.8750
0	11.0000	25.1250	NA	5.0000
-10.9 / +0	12.5000	23.5000	NA	4.8750
0	11.0000	25.1250	NA	5.0000
-10.9 / +9.3	13.0625	23.0000	NA	4.6875
0	11.0000	25.1250	NA	5.0000



PANEL LAYOUT



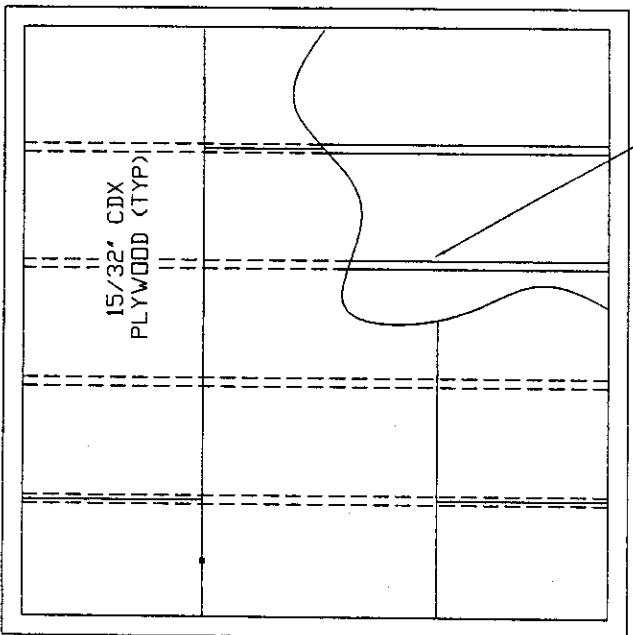
	TEST:	BY:	DESCRIPTION:	DATE:
	CLIP TYPE: 1500SC	CLIP PASTER: (2) #12-11 x 1"	CLIP PASTER: (2) #12-11 x 1"	DATE:
PANEL TYPE: 24 GA MECH-LOK, 1.5" RIB, 16" WIDE			CLIP PASTER: (2) #12-11 x 1"	SPAN: 24" O.C.
MANUFACTURER: METALFORMING INC.			QUOTE NUMBER: 72-0313T-06B	MAX PRESSURE:
TEST PROTOCOL: TAS 125-03: UL 580/1897				

UL 580 DEFLECTION READINGS

Test Date: 1/30/2007
Project Number: 72-0313T-06B Test #2 Main
Panel Description: 2 4ga. Mechanical Lock, 1.5" Tall x 16" Wide, DBL Lock
Panel Fasteners: (2) #12 x 1" Pancake Per Clip
Panel Clip: 1500SC @ 24"O.C.
Substrate: 15/32" Plywood, 4-Ply w/ 8D x 2.5" Ring shank nails @ 6" O.C. Int/Ext

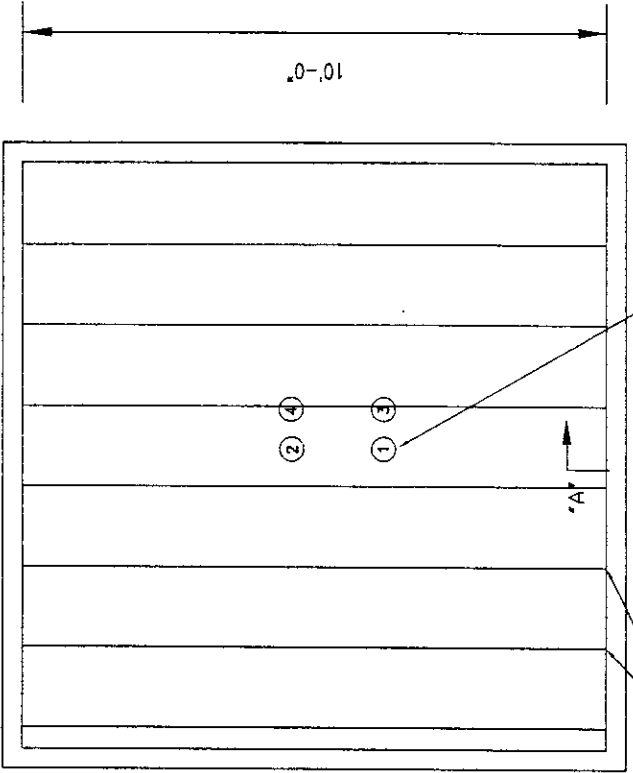
Static Pressure Inches Of H ₂ O (Neg./Pos.)	Deflection Readings			
	D-1	D-2	D-3	D-4
CLASS 30				
0	11.0625	24.8750	5.1250	4.8750
-3.1 / +0	11.9375	24.0000	5.0625	4.8125
0	11.0625	24.8750	5.1250	4.8750
-3.1 / +2.7	12.5000	23.5000	5.0000	4.7500
0	11.0625	24.8750	5.0625	4.8750
-5.3 / +2.7	12.5000	23.5000	5.0625	4.7500
0	11.0625	24.8750	5.0625	4.8125
-4.7 / +0	12.3125	23.6875	5.0000	4.7500
0	11.0000	24.8750	5.1250	4.8750
-4.7 / +4.0	12.7500	23.2500	5.0000	4.7500
0	11.0000	24.8750	5.1250	4.8750
CLASS 60				
0	11.0000	24.8750	5.1250	4.8750
-6.2 / +0	12.5000	23.5000	5.0625	4.7500
0	11.0000	24.8750	5.0625	4.8125
-6.2 / +5.3	13.0625	23.0000	4.9375	4.6875
0	11.0000	24.8750	5.0625	4.8125
-10.7 / +5.3	13.2500	22.7500	4.8750	4.6250
0	11.0625	24.8750	5.0000	4.7500
-7.8 / +0	12.8125	23.1250	4.9375	4.0625
0	11.0625	24.8750	5.0000	4.7500
-7.8 / +6.7	13.3750	22.6250	4.8750	4.5625
0	11.0625	24.8750	5.0000	4.7500
CLASS 90				
0	11.0625	24.8750	5.0000	4.7500
-9.3 / +0	13.0000	23.1250	4.9375	4.5000
0	11.1250	24.8125	5.0000	4.7500
-9.3 / +8.0	13.5625	22.5000	4.7500	4.5000
0	11.0625	24.8125	5.0000	4.6875
-9.3 / +8.0	13.5625	22.4375	4.7500	4.5000
0	11.0625	24.8125	5.0000	4.7500
-10.9 / +0	13.1250	22.8750	4.8750	4.5625
0	11.0625	24.8125	5.0000	4.6875
-10.9 / +9.3	13.7500	22.2500	4.7500	4.4375
0	11.1250	24.8125	4.9375	4.6250

10'-0"



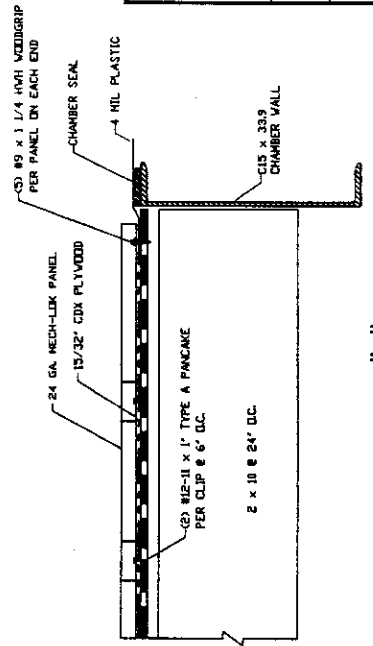
FRAMING LAYOUT

10'-0"



PANEL LAYOUT

DEFLECTION INDICATOR LOCATIONS:
 D-1 & D-3 WERE @ SUPPORT.
 D-2 & D-4 WERE @ MIDSPAN.
 D-1 & D-2 WERE IN THE PAN OF THE PANEL.
 D-3 & D-4 WERE ON THE RIB OF THE PANEL.



 Force Engineering & Testing Inc. 2400 A.S. Highway, Suite 500 Houston, Texas 77056 Phone: (281) 546-6071 Fax: (281) 546-0794	TEST:	DESCRIPTION:	DATE:
	BY:		
PANEL TYPE: 24 GA. MECH-LOK, 1.5" RIB, 16" WIDE		CLIP TYPE: 1500SC	DATE:
MANUFACTURER: METALFORMING INC.		CLIP FASTENER: (2) #12-11 x 1"	SPAN: 6' O.C.
TEST PROTOCOL: TAS 125-03: UL 580/1897		QUOTE NUMBER: 72-03131-06C	MAX PRESSURE:

UL 580 DEFLECTION READINGS

Test Date: 1/26/2007
Project Number: 72-0313T-06C Test #1 Edge
Panel Description: 24 ga. Mechanical Lock, 1.5" Tall x 16" Wide, DBL Lock
Panel Fasteners: (2) #12 x 1" Pancake Per Clip
Panel Clip: 1500SC @ 6" O.C.
Substrate: 15/32" Plywood, 4-Ply w/ 8D x 2.5" Ring shank nails @ 6" O.C. Int/Ext

Static Pressure Inches Of H ₂ O (Neg./Pos.)	Deflection Readings			
	D-1	D-2	D-3	D-4
CLASS 30				
0	10.6875	25.2500	5.6250	5.2500
-3.1 / +0	11.1875	24.5625	5.6250	5.2500
0	10.6250	25.2500	5.6250	5.2500
-3.1 / +2.7	11.9375	24.0000	5.4375	5.0625
0	10.7500	25.1250	5.5000	5.1250
-5.3 / +2.7	12.0000	24.0625	5.4375	5.0625
0	10.8125	25.1250	5.5000	5.1250
-4.7 / +0	11.7500	24.1250	5.4375	5.1250
0	10.8125	25.1250	5.5000	5.1250
-4.7 / +4.0	12.1250	23.8125	5.4375	5.0625
0	10.8125	25.1250	5.5000	5.1250
CLASS 60				
0	10.8125	25.1250	5.5000	5.1250
-6.2 / +0	11.9375	24.0000	5.5625	5.1875
0	10.6875	25.2500	5.5625	5.1875
-6.2 / +5.3	12.1875	23.7500	5.5625	5.1250
0	10.7500	25.1875	5.5625	5.1875
-10.7 / +5.3	12.5000	24.6250	5.5000	5.0625
0	10.7500	25.1250	5.5000	5.1250
-7.8 / +0	12.1250	23.8750	5.5000	5.0625
0	10.7500	25.1250	5.5000	5.0625
-7.8 / +6.7	12.5000	23.5000	5.5000	5.0000
0	10.7500	25.1250	5.5000	5.1250
CLASS 90				
0	10.7500	25.1250	5.5000	5.1250
-9.3 / +0	12.2500	23.7500	5.5000	5.1250
0	10.7500	25.1875	5.5000	5.1250
-9.3 / +8.0	12.6250	23.3750	5.4375	5.0000
0	10.8125	25.1250	5.5000	5.1250
-9.3 / +8.0	12.6250	23.4375	5.5000	5.1250
0	10.7500	25.1875	5.6250	5.1875
-10.9 / +0	12.3125	23.6875	5.5625	5.1250
0	10.6875	25.1875	5.6250	5.1875
-10.9 / +9.3	12.7500	23.3125	5.5000	5.0000
0	10.7500	25.1875	5.5625	5.1250

