

TEST REPORT

REPORT NUMBER: 3182745TOR-003b
ORIGINAL ISSUE DATE: August 21, 2009
REVISED: May 17, 2010

EVALUATION CENTER
Intertek Testing Services NA Ltd.
6225 Kenway Drive
Mississauga, ON L5T 2L3

RENDERED TO

AIRLITE PLASTICS COMPANY
6110 ABBOTT DRIVE
OMAHA, NEBRASKA USA 68110

Attn: Mr. Pat Gredys

PRODUCT EVALUATED: Fox Blocks Insulating Concrete Forms

EVALUATION PROPERTY: Testing of Webs for Fastener Strength
(Lateral Shear and Withdrawal Resistance)

Report of Testing Fox Blocks Insulating Concrete Forms (ICF) for compliance with the applicable requirements of the following criteria: ICC Evaluation Services AC308 "Acceptance Criteria for Stay-in-Place, Foam Plastic Insulating Concrete Form (ICF) System for Solid Concrete Walls", Approved October 2007.

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Report of Testing Fox Blocks Insulating Concrete Forms (ICF) for compliance with the applicable requirements of the following criteria: ICC Evaluation Services AC308 "Acceptance Criteria for Stay-in-Place, Foam Plastic Insulating Concrete Form (ICF) System for Solid Concrete Walls", Approved October 2007.

DATE	SUMMARY
May 17, 2010	Updated to Include Shank Diameter for Tree Island Screw

2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for Airlite Plastics, Omaha Plant, on Fox Blocks Insulating Concrete Forms (ICF) to evaluate Fastener Strength. Samples were tested for fastener withdrawal and lateral shear resistance. Testing was conducted in accordance with ICC Evaluation Services AC 353 "Acceptance Criteria for Stay-in-Place, Foam Plastic Insulating Concrete Form (ICF) System for Solid Concrete Walls", dated October 2007 following the standard methods of ASTM D1761-06 modified Standard Test Method for Mechanical Fasteners in Wood. This evaluation began July 29, 2009 and was completed August 21, 2009.

3 Test Samples

3.1. SAMPLE SELECTION

The subject test specimens are traceable samples selected from the manufacturers Omaha facility located at 6110 Abbot Drive, Omaha, NE, USA manufactured from bead material Flint Hills Resources Bead Series 6340 and Airlite Plastics molded polypropylene webties. Intertek representative Bob Lyngaas selected the specimen June 19, 2009 and has verified the composition, manufacturing techniques and quality assurance procedures. Samples were received at the Evaluation Center on June 26, 2009.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

Material:	Fox Blocks Insulating Concrete Forms EPS plastic foam insulation manufactured from one (1) bead type identified Flint Hills Resources Bead Series 6340 manufactured Omaha, Nebraska, USA facility.
Foam Panel Dimensions:	406 mm (16") high X 1220 mm (48") long X 67 mm (2.6") thick each side
Web Description:	Polypropylene reinforcing webs are cast into EPS foam to create a positive connection between interior and exterior EPS walls and to serve as an anchor point for surface finishing materials.
Web Material:	Injection Molded Polypropylene manufactured by Airlite Plastics
Web Spacing:	Every 8" horizontally
Web Color:	Black

The following table outlines the fasteners used for both withdrawal resistance and lateral shear testing.

Table 1. Fastener Description

Paulin Fasteners 6 x 1-5/8 Fine Drywall Screws number 214-172
Paulin Fasteners 6 x 1-5/8 Coarse Drywall Screws number 214-178
Paulin Fasteners 8 x 2 Duradized II HP Deck Screws Saw Tooth Threads no. 214-545
Paulin Fasteners 10 x 2-1/2 Wood Screws number 197-702
Tree Island Fasteners 2" Blue Ring Drywall Nails (Shank Diameter – 0.098 inches)

The fastener withdrawal and lateral shear tests were both performed on specimens where the fasteners were inserted into the webs of the insulated concrete forms filled with concrete. Concrete was 3/8" pea gravel 2900 psi (20 MPa) strength.

4 Testing and Evaluation Methods

4.1. WITHDRAWAL LOAD STRENGTH

Fastener Withdrawal was performed in basic accordance ASTM D 1761–06 Modified.

Ten (10) of each type of fastener were driven into the centre of the width of the web specimens without pre-drilling pilot holes. This left a 1/2" length of each fastener head exposed. Fasteners were inserted a minimum of 4" apart and from any end of a web specimen. Concrete filled insulated concrete form test specimen panels 16" wide with two webs in the specimen panels were used for the test. The specimens were affixed either to the bed of the Satec Unidrive Testing Machine (inventory number 280-01-0987a) or the lower cross head of the Baldwin Universal Testing Machine (inventory number 280-01-0015). The head of the free end of the test screw or nail was held by a fixture affixed to the cross head of the either the Unidrive Testing Machine incorporating a 2000 lbf capacity load cell Interface model 1210AF-2K, S/N 114767A (inventory number 280-01-0987b) or the upper cross head of the Baldwin Universal Testing Machine. Each of the test specimens of each type of screw / nail in turn were gradually loaded using a test speed of 0.1 in / min. until failure (See Photograph Number 6 of test set-up). The ultimate load achieved was recorded.

Allowable Loads were determined by dividing the average ultimate load for each fastener type by a safety factor of 5. The Allowable Loads are outlined in Table 2. Fastener Withdrawal Loads of this report.

4.2. LATERAL LOAD STRENGTH

Lateral Resistance tests were performed in basic accordance with ASTM D1761-06 Modified.

The lateral resistance test samples used a 150 mm (6") long by 150 mm (6") by 1/2" plywood with one (1) fastener. Fasteners were inserted a minimum of 4" apart and from any end of a web specimen. Concrete filled Insulated concrete form test specimen panels 16" wide with two webs

in the specimen panels were used for the test. The fasteners went through the 1/2" plywood, and penetrated through the web. Fasteners were driven without pre-drilling pilot holes.

The ICF forms test specimens were in turn placed in a holding fixture on the bed of the Baldwin/UTS Universal Testing Machine (inventory number 280-01-0015) with the cut end of each panel facing the bed of the testing machine. The plywood panel with the fasteners was positioned vertically under the loading head. The load was applied to the top edge of the plywood at a cross head speed of 2.5 mm/min (0.10 in/min). The downward movement of the plywood panel was measured with our linear transducer (inventory number 280-01-0656) (See Photograph Number 7 of test set-up).

The Allowable Load shall not exceed 75% of the average Proportional Limit Load, or the average Ultimate Load divided by a safety factor of 3.2, whichever is lower. The safety factor of 3.2 assumes a maximum coefficient of variation (COV) of 15%. When the COV is greater than 15%, the Allowable Load was calculated using the following equation:

$$F_{all} = F(1 - 2COV / 2.24)$$

Where F_{all} = Allowable Load, pounds (N).
 $COV = s/F$ = Coefficient of variation in a test series.
 s = Standard deviation in a test series.
 F = Average Ultimate Load in test series, pounds (N).

4.3. DEVIATION FROM STANDARD

ASTM D 1761-06 is for testing mechanical fasteners in wood and specifies the dimensions and pre-conditioning of the wood materials to be used. The method was modified to be used for testing the plastic webs cast into EPS foam insulation. The method specifies that pilot holes be drilled prior to inserting the fasteners. Since this not normally part of the installation procedure we did not pre-drill pilot holes prior to installing the fasteners.

5 Testing and Evaluation Results

5.1. RESULTS AND OBSERVATIONS

Table 2. Fastener Withdrawal Resistance

Test Result		
Fastener Type	Ultimate Load, lb (N)	Allowable Load, lb (N)
Paulin 6 x 1-5/8 Fine Drywall Screws number 214-172	159 (705)	32 (141)
Paulin 6 x 1-5/8 Coarse Drywall Screws number 214- 178	147 (653)	29 (131)
Paulin 8 x 2 Duradized II High Performance Deck Screws Saw Tooth Threads number 214-545	178 (790)	36 (158)
Paulin 10 x 2-1/2 Wood Screws number 197-702	190 (846)	38 (169)
Tree Island 2" Blue Ring Drywall Nails (Shank Diameter – 0.098 inches)	82 (363)	16 (73)

Table 3. Fastener Lateral Shear

Test Result					
Fastener Type	Ultimate Load, lb (N)	Proportional Limit, lb (N)	Ultimate Load / 3.2, lb (N)	Proportional Limit x 75%, lb (N)	Allowable Load, lb (N)
Paulin 6 x 1-5/8 Fine Drywall Screws number 214-172	143 (634)	68 (304)	45 (198)	51 (228)	37 (163)
Paulin 6 x 1-5/8 Coarse Drywall Screws number 214-178	173 (770)	79 (352)	54 (241)	59 (264)	45 (200)
Paulin 8 x 2 Duradized II High Performance Deck Screws Saw Tooth Threads number 214-545	227 (1008)	103 (459)	71 (315)	77 (345)	71 (315)
Paulin 10 x 2-1/2 Wood Screws number 197-702	221 (981)	104 (462)	69 (307)	78 (346)	68 (301)
Tree Island 2" Blue Ring Drywall Nails	73 (326)	34 (152)	23 (102)	26 (114)	19 (84)

Note: The allowable lateral strength of the average connection shall not exceed the 75% of the average proportional limit, or the average ultimate load divided by 3.2 whichever is lower.

7 Conclusion

Intertek has conducted testing for Airlite Plastics, Omaha Plant, on Fox Blocks ICF to evaluate Fastener Strength. Testing was conducted in accordance with ICC Evaluation Services AC 353 "Acceptance Criteria for Stay-in-Place, Foam Plastic Insulating Concrete Form (ICF) System for Solid Concrete Walls", dated October 2007.

Tested by: Paul Roberts and Dave Carter

INTERTEK TESTING SERVICES NA LTD

Reported by: Paul Roberts
Paul Roberts
Physical Testing Services

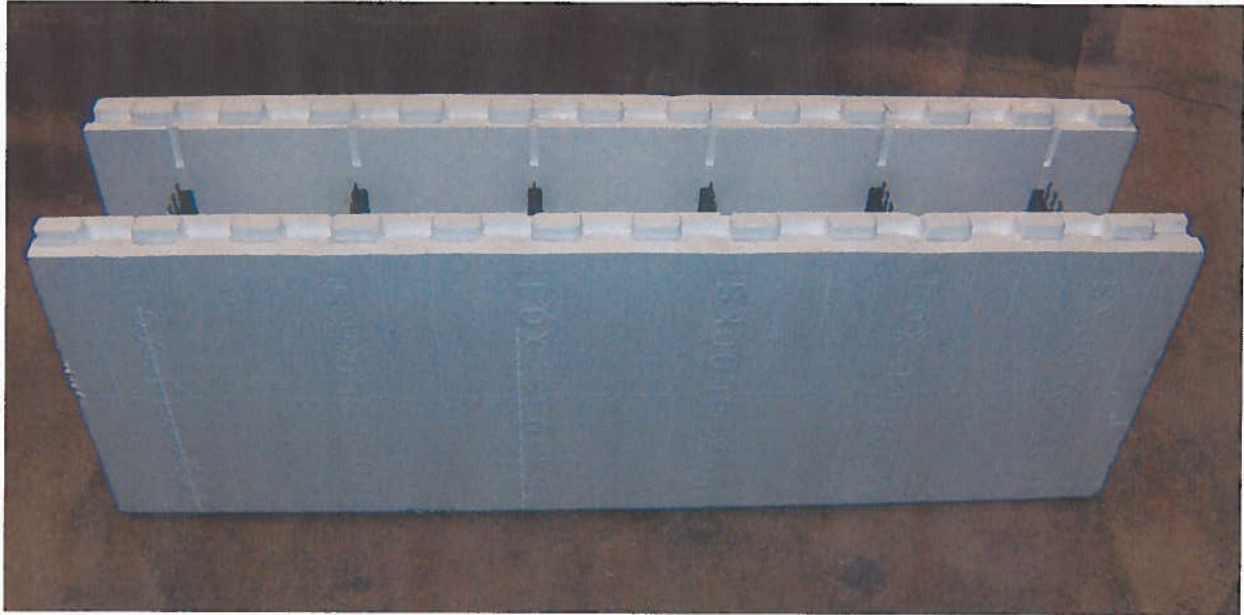
Reviewed by: Vern Jones
Vern Jones, Q.E.T.
Manager
Physical Testing Services

APPENDIX A

Photographs – 15 pages



Photograph No. 1: Showing a typical web specimen.



Photograph No. 2: Showing a typical insulated concrete form specimen as received.



Photograph No. 3: Showing a typical insulated concrete form test specimen.



Photograph No. 4: Showing Paulin Fasteners 6 x 1-5/8 Fine Drywall Screw Number 214-172.



Photograph No. 5: Showing Paulin Fasteners 6 x 1-5/8 Coarse Drywall Screw Number 214-178.



Photograph No. 6: Showing Paulin Fasteners 8 x 2 Duradized II High Performance Deck Screws Saw Tooth Threads Number 214-545.



Photograph No. 7: Showing Paulin Fasteners 10 x 2-1/2 Wood Screws Number 197-702.



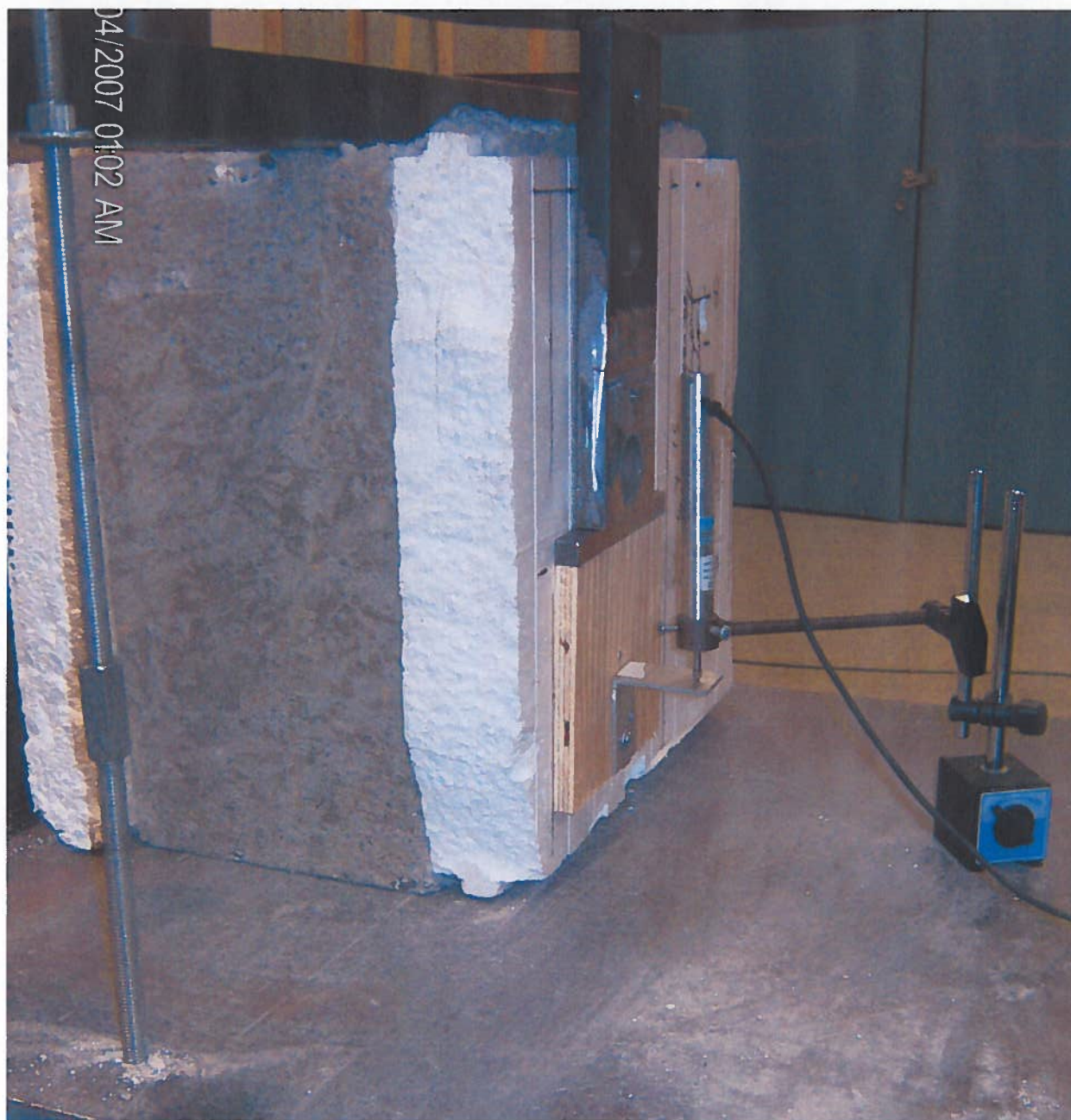
Photograph No. 9: Showing Tree Island Fasteners 2" Drywall Nails



Photograph No. 10: Showing test set-up for screw and nail withdrawal test using Satec Unidrive Testing Machine.



Photograph No. 11: Showing test set-up for screw and nail withdrawal test using Baldwin Universal Testing Machine.



Photograph No. 12: Showing set-up for lateral fastener resistance tests.



Photograph No. 13 Showing a deck screw having pulled through the plywood during a lateral fastener resistance test.



Photograph No. 14: Showing a shaft of a drywall screw fracturing at the foam to plywood interface due lateral fastener resistance tests.



Photograph No. 15: Showing a typical 2" dry wall nail bending and pulling out of the web due lateral fastener resistance tests.



Photograph No. 16: Showing the web fracturing during a screw withdrawal test.

APPENDIX B

Test Data – 10 Pages



Test: Fastener Withdrawal Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #10 x 2 1/2" Wood Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Specimen	Ultimate Load		Allowable Load	
	(lbf)	(N)	(lbf)	(N)
1	164	730	33	146
2	115	512	23	102
3	225	1001	45	200
4	327	1455	65	291
5	131	583	26	117
6	223	992	45	198
7	237	1054	47	211
8	120	534	24	107
9	257	1143	51	229
10	103	458	21	92
Mean:	190	846	38	169
StdDev:	75	332	15	66
COV:	39%	39%	39%	39%

Allowable Load (lbs):	38
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Test: Fastener Withdrawal Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Tree Island Fasteners 2" Blue Ring Drywall Nail - 0.098" Shank Diameter
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
 0-1" Linear Transducer 280-01-0656
 Satec Unidrive Test Machine 280-01-0987a
 2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Ultimate Load		Allowable Load	
	(lbf)	(N)	(lbf)	(N)
1	87	388	17	78
2	70	311	14	62
3	82	364	16	73
4	70	313	14	63
5	88	393	18	79
6	78	349	16	70
7	92	410	18	82
8	109	485	22	97
9	80	355	16	71
10	59	260	12	52
Mean:	82	363	16	73
StdDev:	14	62	3	12
COV:	17%	17%	17%	17%

Allowable Load (lbs):	16
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Test: Fastener Withdrawal Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #8 x 2" Deck Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Ultimate Load		Allowable Load	
	(lbf)	(N)	(lbf)	(N)
1	179	796	36	159
2	269	1197	54	239
3	171	761	34	152
4	144	641	29	128
5	206	916	41	183
6	200	890	40	178
7	141	627	28	125
8	145	645	29	129
9	140	623	28	125
10	180	801	36	160
Mean:	178	790	36	158
StdDev:	40	180	8	36
COV:	23%	23%	23%	23%

Allowable Load (lbs):	36
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Test: Fastener Withdrawal Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #6 x 1-5/8" Fine Thread Drywall Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Specimen	Ultimate Load		Allowable Load	
	(lbf)	(N)	(lbf)	(N)
1	139	618	28	124
2	165	734	33	147
3	157	698	31	140
4	197	876	39	175
5	138	614	28	123
6	145	645	29	129
7	126	560	25	112
8	136	605	27	121
9	182	810	36	162
10	201	894	40	179
Mean:	159	705	32	141
StdDev:	27	119	5	24
COV:	17%	17%	17%	17%

Allowable Load (lbs):	32
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Test: Fastener Withdrawal Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #6 x 1-5/8" Coarse Thread Drywall Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Ultimate Load		Allowable Load	
	(lbf)	(N)	(lbf)	(N)
1	173	770	35	154
2	173	770	35	154
3	133	592	27	118
4	131	583	26	117
5	103	458	21	92
6	170	756	34	151
7	132	587	26	117
8	203	903	41	181
9	114	507	23	101
10	136	605	27	121
Mean:	147	653	29	131
StdDev:	31	139	6	28
COV:	21%	21%	21%	21%

Allowable Load (lbs):	29
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Test: Fastener Lateral Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #10 x 2 1/2" Wood Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of 23 ± 2°C and relative humidity of 50 ± 5%
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Maximum Load		Proportional Load	
	(lbf)	(N)	(lbf)	(N)
1	283	1259	124	552
2	235	1045	110	489
3	229	1019	75	334
4	199	885	94	418
5	195	867	123	547
6	186	827	82	365
7	249	1108	146	649
8	173	770	64	285
9	205	912	119	529
10	252	1121	101	449
Mean:	221	981	104	462
StdDev:	35	154	25	113
COV:	16%	16%	24%	24%

NOTE: IF COEFFICIENT > 15%, ALLOWABLE LOAD NOTED BELOW GOVERNS

Allowable Load (Ultimate Load / 3.2) (lbs): 69
75% Proportional Limit (lbs): 78
Greater than 15% COV, Allowable Load (lbs): 68

Allowable Load (lbs):	68
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Test:	Fastener Lateral Resistance Testing		Project:	3182745
Date:	21-Aug-09		Eng/Tech:	P. Roberts
Client:	Airlite Plastics			
Product:	Fox Blocks EPS ICF with 8" cavity			
Fastener:	Tree Island Fasteners 2" Blue Ring Drywall Nail - 0.098" Shank Diameter			
Method:	ASTM D1761-06, <i>Standard Test Methods for Mechanical Fasteners in Wood</i>			
Conditioning:	48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$			
Crosshead Speed:	0.1	in/min		
Equipment:	Baldwin Universal Tester	280-01-0015		
	0-1" Linear Transducer	280-01-0656		
	Satec Unidrive Test Machine	280-01-0987a		
	2000 lbf Load Cell	280-01-0987b		

Specimen	Maximum Load		Proportional Load	
	(lbf)	(N)	(lbf)	(N)
1	79	351	37	165
2	66	294	36	160
3	50	222	34	151
4	63	280	40	178
5	66	294	26	116
6	88	391	32	142
7	91	405	41	182
8	65	289	34	151
9	100	445	30	133
10	65	289	31	138
Mean:	73	326	34	152
StdDev:	16	69	5	20
COV:	21%	21%	14%	14%

NOTE: IF COEFFICIENT > 15%, ALLOWABLE LOAD NOTED BELOW GOVERNS

Allowable Load (Ultimate Load / 3.2) (lbs):	23	102
75% Proportional Limit (lbs):	26	114
Greater than 15% COV, Allowable Load (lbs):	19	84

Allowable Load (lbs):	19
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Test: Fastener Lateral Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #8 x 2" Deck Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Maximum Load		Proportional Load	
	(lbf)	(N)	(lbf)	(N)
1	196	872	131	583
2	248	1103	116	516
3	222	988	133	592
4	275	1223	119	529
5	202	899	98	436
6	234	1041	93	414
7	250	1112	105	467
8	211	939	77	343
9	194	863	82	365
10	234	1041	79	351
Mean:	227	1008	103	459
StdDev:	27	118	21	93
COV:	12%	12%	20%	20%

NOTE: IF COEFFICIENT > 15%, ALLOWABLE LOAD NOTED BELOW GOVERNS

Allowable Load (Ultimate Load / 3.2) (lbs): 71
75% Proportional Limit (lbs): 77
Greater than 15% COV, Allowable Load (lbs): 0

Allowable Load (lbs):	71
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Test: Fastener Lateral Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #6 x 1-5/8" Fine Thread Drywall Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Maximum Load		Proportional Load	
	(lbf)	(N)	(lbf)	(N)
1	142	632	66	294
2	186	827	95	423
3	179	796	78	347
4	137	609	83	369
5	153	681	61	271
6	121	538	45	200
7	170	756	101	449
8	100	445	42	187
9	100	445	33	147
10	137	609	79	351
Mean:	143	634	68	304
StdDev:	30	134	23	102
COV:	21%	21%	34%	34%

NOTE: IF COEFFICIENT > 15%, ALLOWABLE LOAD NOTED BELOW GOVERNS

Allowable Load (Ultimate Load / 3.2) (lbs): 45
75% Proportional Limit (lbs): 51
Greater than 15% COV, Allowable Load (lbs): 37

Allowable Load (lbs):	37
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Test: Fastener Lateral Resistance Testing
Date: 21-Aug-09
Client: Airlite Plastics
Product: Fox Blocks EPS ICF with 8" cavity
Fastener: Paulin Fasteners #6 x 1-5/8" Coarse Thread Drywall Screws
Method: ASTM D1761-06, *Standard Test Methods for Mechanical Fasteners in Wood*
Conditioning: 48 hours at a temperature of $23 \pm 2^{\circ}\text{C}$ and relative humidity of $50 \pm 5\%$
Crosshead Speed: 0.1 in/min
Equipment: Baldwin Universal Tester 280-01-0015
0-1" Linear Transducer 280-01-0656
Satec Unidrive Test Machine 280-01-0987a
2000 lbf Load Cell 280-01-0987b

Project: 3182745
Eng/Tech: P. Roberts

Specimen	Maximum Load		Proportional Load	
	(lbf)	(N)	(lbf)	(N)
1	159	707	72	320
2	225	1001	124	552
3	219	974	121	538
4	185	823	110	489
5	165	734	64	285
6	193	859	60	267
7	171	761	72	320
8	110	489	67	298
9	126	560	59	262
10	178	792	42	187
Mean:	173	770	79	352
StdDev:	36	161	29	127
COV:	21%	21%	36%	36%

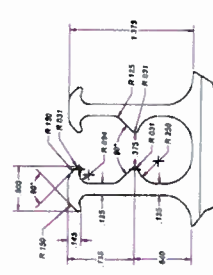
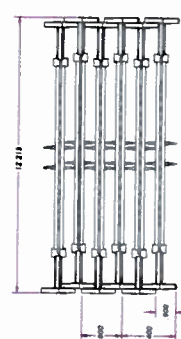
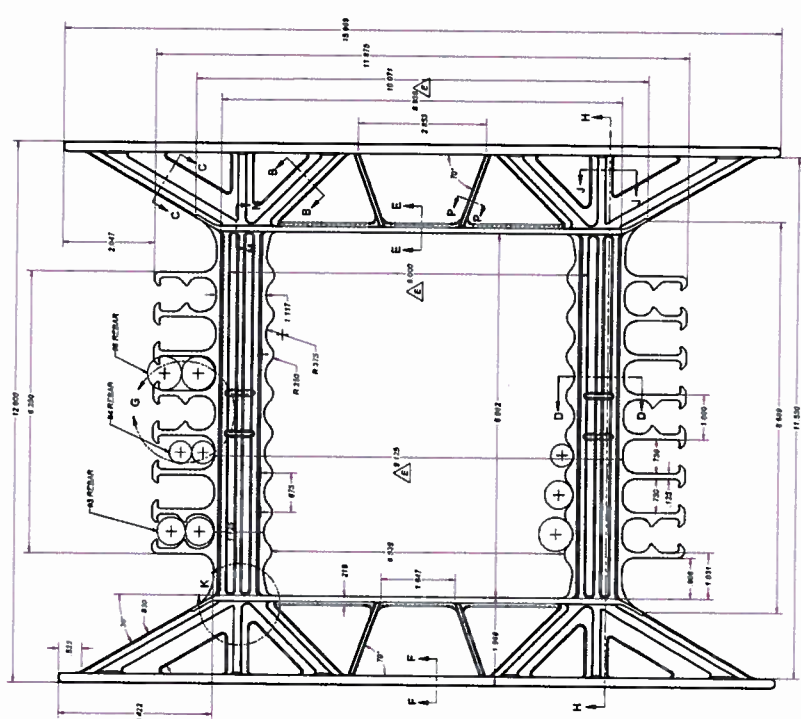
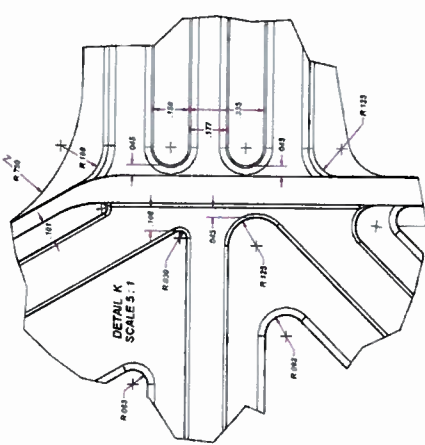
NOTE: IF COEFFICIENT > 15%, ALLOWABLE LOAD NOTED BELOW GOVERNS

Allowable Load (Ultimate Load / 3.2) (lbs): 54
75% Proportional Limit (lbs): 59
Greater than 15% COV, Allowable Load (lbs): 45

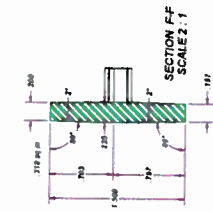
Allowable Load (lbs):	45
-----------------------	----

APPENDIX C

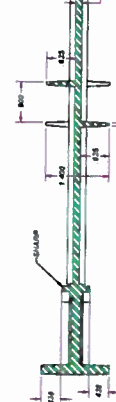
Drawings – 1 Page



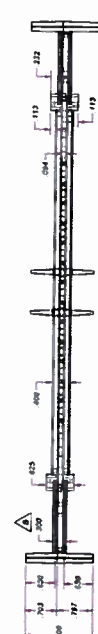
DETAIL G
SCALE 2:1



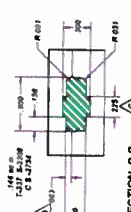
SECTION E-E
SCALE 2:1



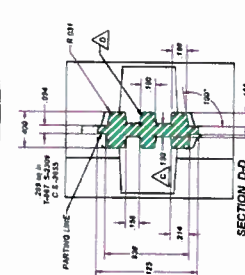
SECTION H-H
SCALE 1:1



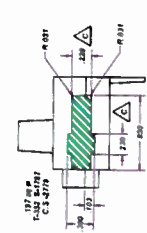
SECTION D-D
SCALE 2:1



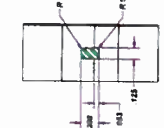
SECTION B-B
SCALE 2:1



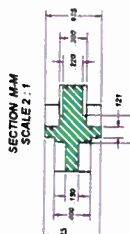
SECTION J-J
SCALE 2:1



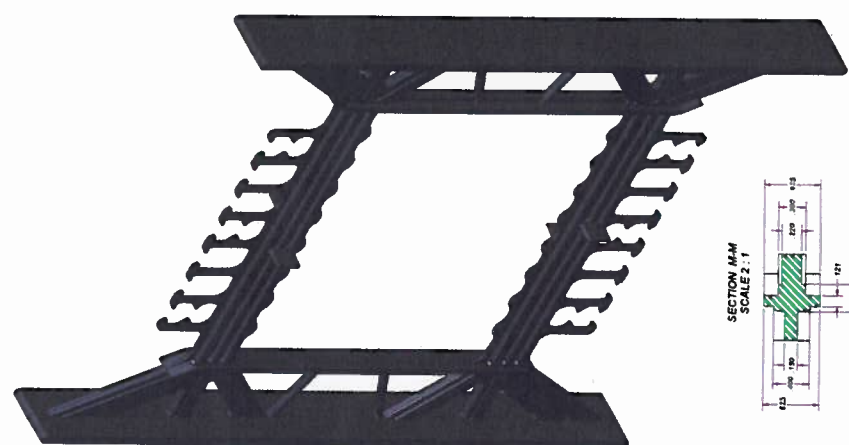
SECTION C-C
SCALE 2:1



SECTION P-P
SCALE 2:1



SECTION M-M
SCALE 2:1



Airrite Plastics Co. 1000 S. 10th St., Suite 100 Lincoln, Nebraska 68502		AP12 TIE - F SYSTEM AP12 Tie - F System AP12 Tie - F System		AP12 Tie - F System AP12 Tie - F System
DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith	PROJECT AP12 Tie - F System
REV 1	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 2	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 3	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 4	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 5	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 6	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 7	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 8	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 9	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 10	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 11	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 12	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 13	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 14	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 15	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 16	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 17	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 18	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 19	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith
REV 20	DATE 10/1/83	BY J. L. Smith	CHECKED J. L. Smith	APPROVED J. L. Smith