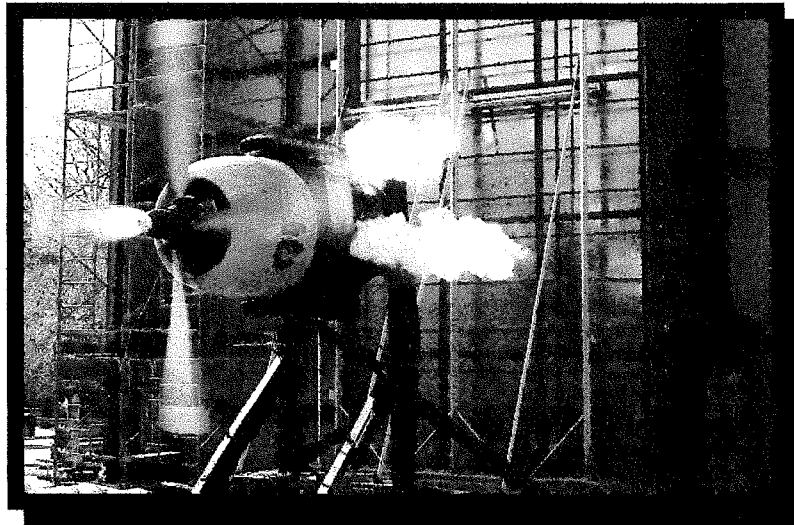




CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

**TAS 201, 202, and 203, and ASTM E 1886 & 1996 PERFORMANCE TEST
EFCO, a Pella Company SERIES 5XPT SLIDING GLASS DOOR
REPORT CCLI #10-256**

January 19, 2011

Prepared for:

EFCO, a Pella Company
1000 County Road
Monett, MO 65708

1601 Luna Road
Carrollton, Texas 75006

S-UNITED, INC.
A Quality Control Company

Office: (972) 242-0556
FAX: (972) 245-6047



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3. TEST SPECIMEN	2
4. PERFORMANCE RESULTS	5
5. IMPACT ACCEPTANCE CRITERIA	13
6. DISCLAIMER	13

APPENDICES

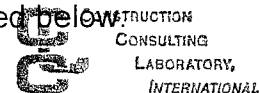
APPENDIX A: EFCO, a Pella Company
SERIES 5XPT SLIDING GLASS DOOR DRAWINGS

APPENDIX B: IMPACT DIAGRAM

APPENDIX C: DEFLECTION DIAGRAM

Report No. CCLI-10-256
DC Notification Number: CCLI-10-005
Date: November 17, 2010
CCLI Certification Number: 06.0515.02
Test Start Date: October 4, 2010
Test End Date: October 19, 2010

Refer to mock-up drawing in **Appendix A**. This report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.



1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report # 10-256 Date 1-19-11
Reviewed BY GW

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2011 – Abdol Rezadad, P.E.

Signature: Abdol Rezadad 1/27/11



1. PROJECT DATA

Series Tested: EFCO, a Pella Company
Series 5XPT Sliding Glass Door (Vanceva)
TAS 201, 202, 203, and ASTM E 1886 & 1996
Large Missile Impact

Date(s) of Testing: October 4, 2010 – October 19, 2010

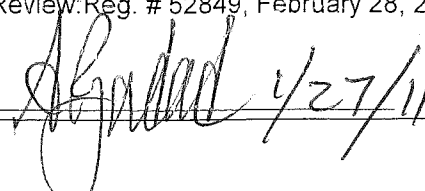
Tested For: EFCO, a Pella Company
1000 County Road
Monett, MO 65708

Witnessed By: (All or Partial Viewing)
Abdol H. Rezadad, P.E. Construction Consulting Laboratory, *International*
Jeffrey Crump Construction Consulting Laboratory *International*
Wesley Wilson Construction Consulting Laboratory *International*

2. SUMMARY

This report presents the performance results of EFCO, a Pella Company Series 5XPT Sliding Glass Door. Tests were conducted in accordance with Testing Application Standard, Protocol 201, 202, 203, and ASTM E 1886 & 1996. Specimens were impacted with a 94", 9 lb. large missile in accordance with TAS 201 and ASTM E 1996, cycled at a Design load of 120 psf positive and 120 psf negative in accordance with TAS 203 and ASTM E 1886 and achieved a positive and negative test load of 180 psf in accordance with TAS 202. Tests were conducted at Construction Consulting Laboratory, *International* (CCLI) in Carrollton, TX.

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3. TEST SPECIMEN

Product Type: Aluminum Sliding Glass Doors,
Product Drawings, Appendix A
Series / Model: Series 5XPT Sliding Glass Door
Test Method: Testing Application Standard, Protocol 201, 202, 203, and
ASTM E 1886-05 and 1996-05b

Test Specimen #1

Frame Size: 5461 x 3016 (17'-11" x 9'-10³/₄"")
Active Panel Size: 1435 x 2859 (4'-8¹/₂" x 9'-4⁹/₁₆"")
In-Active Panel Size: 1384 x 2859 (4'-6¹/₂" x 9'-4⁹/₁₆"")
Fixed Panel Size: 1372 x 2889 (4'-6" x 9'-5³/₄"")
Configuration: O.X.X.O

Test Specimen #2

Frame Size: 4089 x 3016 (13'-5" x 9'-10³/₄"")
Active Panel Size: 1383 x 2859 (4'-6⁷/₁₆" x 9'-4⁹/₁₆"")
In-active Panel Size: 1365 x 2889 (4'-5³/₄" x 9'-5³/₄"")
Fixed Panel Size: 1384 x 2889 (4'-6¹/₂" x 9'-5³/₄"")
Configuration: O.X.O

WEATHER-STRIP: One (1) row of wool pile (part #WW78) at the interior face of frame head exterior leg. One (1) row of wool pile (part # WW98) at the exterior face of the OXXO active panel lock stile and at interior face of exterior leg of the OXO locking meeting rail. One (1) row of Q-Lon bulb (part #WQO6) located at the exterior face of frame snap-in head filler, snap-in sill threshold, exterior face of fixed interlock stiles, interior face of operable panel interlock stile, and the interior face of active panel lock stile of the OXXO meeting rail.

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GLASS: 30.16mm ($1\frac{3}{16}$ ") Insulated Unit: Exterior 6.35mm ($\frac{1}{4}$ ") tempered, 12.7mm ($\frac{1}{2}$ ") air space, and 11.11mm ($\frac{7}{16}$ ") (Vanceva) laminated glass which is comprised of heat strengthened 4.76mm ($\frac{3}{16}$ ") glass, 1.96mm (.077") polycarbonate and heat strengthened 4.76mm ($\frac{3}{16}$ ") glass at interior.

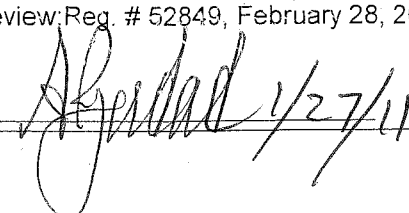
GLAZING: Interior glazed with Bondaflex® silicone at the exterior face of glass and heel bead at lateral perimeter of glass with rubber sealant dam part # (WS05) at exterior face of glass and aluminum glazing bead with drive in gasket at the interior of the glass.

WEEP ARRANGEMENT: Water weeps out from under operable panel over and around the sill wind load adaptor.

SEALANT: Fixed panel sealed in place with Bondaflex® silicone at the exterior perimeter of the panel top and bottom rail and at the jamb stile. Foam gasket at the frame and panel corner intersections with Bondaflex® silicone applied to the thermal break behind the gasket in all corner joinery locations. Arrow shim at the interior face between frame, subhead and sill starter capped with Bondaflex® silicone. Threshold and head filler (part #14N6) sealed to head and sill with Bondaflex® silicone at the exterior leg.

HARDWARE: Amesbury Lock double throw hardware attached to pull stile with two (2) # 10 x 9.52mm ($\frac{3}{8}$ ") sheet metal screws per lock and exterior flush pull attached to active panel stile with two (2) #8 x 19.05mm ($\frac{3}{4}$ ") screws located approximately 1041.4mm (41") from the bottom. Stainless steel keeper attached to inactive panel lock stile with four (4) # 10 x 9.52mm ($\frac{3}{8}$ ") screws. Stainless steel tandem roller assembly located at each end of operable panel bottom rail attached with two (2) #10 x 9.52mm ($\frac{3}{8}$ ") screws. Wind load adapter (part #14B2) located at the sill track under the operable panels. The wind load adaptor is a reinforcement that fits into frame sill and is secured with two (2) set screws. Head spacer (part #14B1) located at the fixed panel top rail and frame head cavity.

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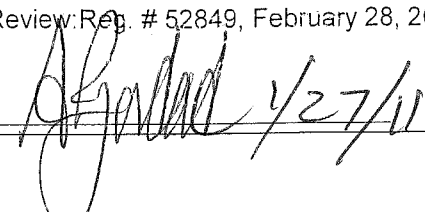


REINFORCEMENT: Test Specimen #1: 25.4mm x 95.25mm wide (1" x 3¾" wide, 10 gage steel) combined with 76.2mm x 12.7mm (3" x .500" thick steel) located inside the fixed meeting rail (part #1D14) and attached with #12-24 x 12.7mm (½") PL-FH-MS screws spaced 127mm (5") from each and one at center. Operable panel reinforced with rail stiffener (part #22R5). Stiffener attached to operable meeting rail (part #1D17) with #12-24 x 12.7mm (½") PL-FH-MS screws, three (3) located at each end and one (1) 24" O.C. Test Specimen #2: 25.4mm x 95.25mm wide (1" x 3¾" wide, 10 gage steel) combined with 76.2mm x 12.7mm (3" x .500" thick steel) located inside fixed meeting rail (part #1D14) and attached with #12-24 x 25.4mm (1") PL-FH-MS screws spaced 127mm (5") from each and one at center. 25.4mm x 69.85mm wide (1" x 2¾" wide steel) located inside fixed meeting rail (part #1D15) and attached with #12-24 x 25.4mm (1") PL-FH-MS screws spaced 127mm (5") from each and one at center. Extruded aluminum stiffener 31.75mm x 50.8mm wide (1¼" x 2" wide aluminum) located inside the inactive panel astragal and attached with #12-24 x 25.4mm (1") PL-FH-MS screws spaced 127mm (5") from each and one at center. 355.6mm (14") long aluminum channel shaped sub-head stiffener (part #18E5) located at each meeting rail member inside sub-head.

OTHER FEATURES: Frame corners are coped, butted, and connected with four (4) #10 x 1¼" pilot point screws. Panel corners are coped, butted, and connected with two (2) #10 x 1¼" pilot point screws. Aluminum corner keys 63.5mm x 63.5mm x 19.05mm wide x 4.19mm thick (2½" x 2½" x ¾" wide x .165" thick) inserted into internal slots on each panel member. Panel and frame members are thermally broken with thermal struts. Fixed panel stile attached to fixed astragal with #10 x 1" screws spaced 139.7mm (5½") from each end and 304.8 (12") O.C.

INSTALLATION FEATURES: Test specimen was installed in a double #2 (2" x 10") yellow pine wood test buck. Sub-head, sill starter, and frame jamb attached to test buck with 15.9mm x 101.6mm (⅝" x 4") lag bolts. Sub-head reinforcements are anchored through sub-head with twenty-four (24) ⅝" x 4" lag bolts per stiffener. Reinforcements located at each panel interlock. Each end of frame sub-head is also anchored with one lag bolt 152.4mm (6") from each end. Sill starter anchor bolts located at quarter points at each fixed panel spaced 12" apart. Sill starter anchor bolts located at center and 12" off center at each operable panel. Sill starter anchor bolts also located at each interlock with screws spaced 25.4mm (1") apart, total of ten (10) per meeting rail. Frame is inserted into sub-head and positioned and shimmed into sill starter with an interior applied rigid vinyl arrow shim (part #WNA1). Frame jamb anchor bolts spaced 76.2mm (3") from each end and on 247.65mm (9¾") centers.

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4. PERFORMANCE RESULTS

Specification: Testing Application Standard, Protocol 202.
Test Specimen 1 OXXO

<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Uniform Load	ASTM E 330-02		
Astragal Meeting Rail			
-4320Pa (90.00 psf) Interior		6.223mm (.245")	16.26mm (.640")
-4320Pa (90.00 psf) Exterior		7.62mm (.300")	16.26mm (.640")
Air Infiltration	ASTM E 283-04		
@ 300 Pa (6.24 psf)		.05 L/s•m ² (.01 cfm/sf)	1.5 L/s•m ² (0.30 cfm/sf)
Water Resistance	ASTM E 547 & 331-00		
@ 960 Pa (20.00 psf) without Screen	No Leakage		No Leakage
@ 960 Pa (20.00 psf) with Screen	No Leakage		No Leakage
Uniform Deflection	ASTM E 330-02		
Interlock 30 (30-Second Load)			
-5760Pa (120.00 psf) Interior		15.24mm (.600")	16.26mm (.640")
-5760Pa (120.00 psf) Exterior		7.36mm (.290")	16.26mm (.640")
Uniform Deflection	ASTM E 330-02		
Operable Panel Meeting Rail 30 (30-Second Load)			
-5760Pa (120.00 psf) Interior		11.94mm (.470")	16.26mm (.640")
-5760Pa (120.00 psf) Exterior		15.24mm (.600")	16.26mm (.640")
Uniform Deflection	ASTM E 330-02		
Subhead Reinforcements and Anchors (30-Second Load)			
-5760Pa (120.00 psf) Interior		1.65mm (.065")	8.13mm (.320")
-5760Pa (120.00 psf) Exterior		1.78mm (.07")	8.13mm (.320")

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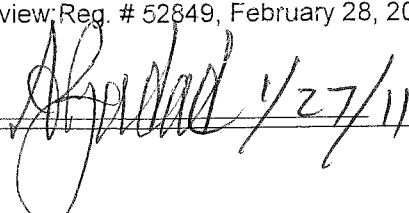


TAS 201, 202, AND 203 AND ASTM E 1886 & 1996 PERFORMANCE TEST
EFCO, a PELLA COMPANY SERIES 5XPT SLIDING GLASS DOOR
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<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Uniform Structural Positive 30-second load	ASTM E 330-02	8640Pa (180.00 psf)	8640Pa (180.00 psf)
Interlock Permanent Set		4.76mm (.1875")	5.68mm (.224")
Operable Panel Permanent Set		3.175mm (.125")	5.68mm (.224")
Subhead Permanent Set		.508mm (.02")	2.84mm (.112")
Negative 30-second load		8640Pa (180.00 psf)	8640Pa (180.00 psf)
Interlock Permanent Set		4.76mm (.1875")	5.68mm(.224")
Operable Panel Permanent Set		4.76mm (.1875")	5.68mm(.224")
Subhead Permanent Set		1.01mm (.04")	2.84mm (.112")
Forced Entry Resistance	ASTM F 842-04		
Grade 20 Type C Door			
Lock Manipulation		No Entry	No Entry
Test C1One Lock			
2224.1 N (500 lbs) @ mid-span		No Entry	No Entry
C2		No Entry	No Entry
C3		No Entry	No Entry
C4		No Entry	No Entry
C5		No Entry	No Entry
C7		No Entry	No Entry
Lock Manipulation		No Entry	No Entry
Deglazing Test	ASTM E 987		
-Top Rail @ 50 lbs		.005%	100%
-Bottom Rail @ 50 lbs		.01%	100%
-Interior Lock Stile @ 70 lbs		.01%	100%
-Meeting Rail @ 70 lbs		.02%	100%
-Exterior Lock Stile @ 70 lbs		.01%	100%

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TAS 201, 202, AND 203 AND ASTM E 1886 & 1996 PERFORMANCE TEST
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Specification: Testing Application Standard, Protocol 201 and ASTM E 1996

Test Specimen 1 OXXO, #1-3, Impact Diagrams, Appendix B

Test Specimen 1

Speed	Rotation	Title of Test	Measured
50.2fps	0°	Center of Rt. Oper. Panel	No Penetration
50.6fps	0°	Lower Rt Corner of Rt. Oper. Panel	No Penetration

Test Specimen 2

Speed	Rotation	Title of Test	Measured
50.4fps	0°	Lr. Rt Corner of Left Op. Panel	No Penetration
51.0fps	0°	Center of Left Op. Panel	No Penetration
50.5fps	0°	Upper Rt. Corner of Rt. Oper. Panel	No Penetration
50.6fps	0°	Center of Rt. Oper. Panel	No Penetration
50.2fps	0°	Center of Rt. Fixed Interlock	No Penetration

Test Specimen 3

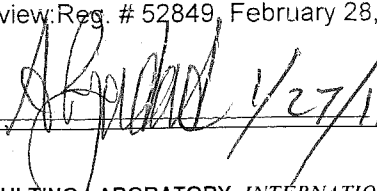
Speed	Rotation	Title of Test	Measured
49.9fps	0°	Uppr. Rt Corn of Left Oper. Panel	No Penetration
50.3fps	0°	Center of Left Oper. Panel	No Penetration
50.8fps	0°	Lower Rt. Corner of Rt. Fixed Panel	No Penetration
50.1fps	0°	Center of Fixed Panel	No Penetration
50.9fps	0°	Center of Oper. Panels Interlock	No Penetration

Specification: Testing Application Standard, Protocol 203 and ASTM E 1886

OXXO Test Specimens 1-3

Load	Sequence	Range	Cycle Time	Cycles	Damage
Direction 120 psf Positive	Cycle 1	0.2 P to 0.5 P	< 3 seconds	3500	None
	Cycle 2	0 to 0.6 P	< 3 seconds	300	None
	Cycle 3	0.5 P to 0.8 P	< 3 seconds	600	None
	Cycle 4	0.3 P to 1.0 P	< 3 seconds	100	None
Load	Sequence	Range	Cycle Time	Cycles	Damage
Direction 120 psf Negative	Cycle 1	0.3 P to 1.0 P	< 3 seconds	50	None
	Cycle 2	0.5 to 0.8 P	< 3 seconds	1050	None
	Cycle 3	0 to 0.6 P	< 3 seconds	50	None
	Cycle 4	0.2 P to 0.5 P	< 3 seconds	3350	None

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TAS 201, 202, AND 203 AND ASTM E 1886 & 1996 PERFORMANCE TEST
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The laboratory temperature during testing was 72° F. Test specimens were stored in the lab prior to testing and the skin temperature of the glass was recorded at 72° F.

*Visual inspections performed on the test specimen revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of each large missile impact test.

Interlock Deflections

Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Positive	Cycle 1	0.2 P to 0.5 P	.315"	.640"
	Cycle 2	0 to 0.6 P	.300"	.640"
	Cycle 3	0.5 P to 0.8 P	.550"	.640"
	Cycle 4	0.3 P to 1.0 P	.575"	.640"
Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Negative	Cycle 1	0.3 P to 1.0 P	.623"	.640"
	Cycle 2	0.5 to 0.8 P	.565"	.640"
	Cycle 3	0 to 0.6 P	.560"	.640"
	Cycle 4	0.2 P to 0.5 P	.450"	.640"

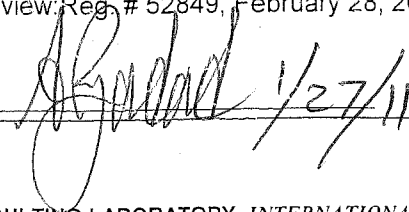
Operable Panel Interlock Deflections

Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Positive	Cycle 1	0.2 P to 0.5 P	.180"	.640"
	Cycle 2	0 to 0.6 P	.270"	.640"
	Cycle 3	0.5 P to 0.8 P	.225"	.640"
	Cycle 4	0.3 P to 1.0 P	.245"	.640"
Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Negative	Cycle 1	0.3 P to 1.0 P	.250"	.640"
	Cycle 2	0.5 to 0.8 P	.220"	.640"
	Cycle 3	0 to 0.6 P	.200"	.640"
	Cycle 4	0.2 P to 0.5 P	.175"	.640"

Anchor Deflections

Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Positive	Cycle 1	0.2 P to 0.5 P	.02"	.320"
	Cycle 2	0 to 0.6 P	.035"	.320"
	Cycle 3	0.5 P to 0.8 P	.04"	.320"
	Cycle 4	0.3 P to 1.0 P	.055"	.320"
Load Direction	Sequence	Range	Deflect.	Allowed
120 psf Negative	Cycle 1	0.3 P to 1.0 P	.065"	.320"
	Cycle 2	0.5 to 0.8 P	.05"	.320"
	Cycle 3	0 to 0.6 P	.05"	.320"
	Cycle 4	0.2 P to 0.5 P	.03"	.320"

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Specification: Testing Application Standard, Protocol 202.

Test Specimen 1 OXO

<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Uniform Load	ASTM E 330-02		
Astragal Meeting Rail			
-4320Pa (90.00 psf) Interior		6.223mm (.405")	16.26mm (.640")
-4320Pa (90.00 psf) Exterior		7.62mm (.285")	16.26mm (.640")
Air Infiltration	ASTM E 283-04		
@ 300 Pa (6.24 psf)		.1 L/s•m ² (.02 cfm/sf)	1.5 L/s•m ² (0.30 cfm/sf)
Water Resistance	ASTM E 547 & 331-00		
@ 960 Pa (20.00psf) without Screen		No Leakage	No Leakage
@ 960 Pa (20.00 psf) with Screen		No Leakage	No Leakage
Uniform Deflection	ASTM E 330-02		
Interlock 30 (30 Second Load)			
-5760Pa (120.00 psf) Interior		15.24mm (.495")	16.26mm (.640")
-5760Pa (120.00 psf) Exterior		7.36mm (.525")	16.26mm (.640")
Uniform Deflection	ASTM E 330-02		
Astragal (30 Second Load)			
-5760Pa (120.00 psf) Interior		11.94mm (.575")	16.26mm (.640")
-5760Pa (120.00 psf) Exterior		15.24mm (.185")	16.26mm (.640")
Uniform Deflection	ASTM E 330-02		
Subhead Reinforcements and Anchors (30-Second Load)			
-5760Pa (120.00 psf) Interior		1.65mm (.06")	8.13mm (.320")
-5760Pa (120.00 psf) Exterior		1.78mm (.05")	8.13mm (.320")

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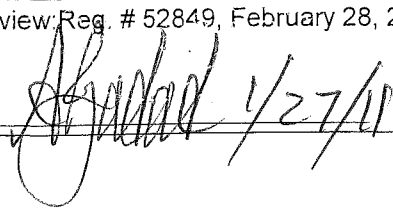


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EFCO, a PELLA COMPANY SERIES 5XPT SLIDING GLASS DOOR
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<u>Title of Test</u>	<u>Test Method</u>	<u>Measured</u>	<u>Allowed</u>
Uniform Structural Positive 30-second load	ASTM E 330-02	8640Pa (180.00 psf)	8640Pa (180.00 psf)
Interlock Permanent Set		4.76mm (.125")	5.56mm (.219")
Operable Panel Permanent Set		4.76mm (.125")	5.56mm (.219")
Subhead Permanent Set		.508mm (.02")	2.74mm (.108")
Negative 30-second load		8640Pa (180.00 psf)	8640Pa (180.00 psf)
Interlock Permanent Set		4.76mm (.1875")	5.68mm(.219")
Operable Panel Permanent Set		4.76mm (.1875")	5.68mm(.219")
Subhead Permanent Set		1.01mm (.04")	2.74mm (.108")
Forced Entry Resistance	ASTM F 842-97		
Grade 20 Type B Door			
Lock Manipulation		No Entry	No Entry
Test B1One Lock			
2224.1 N (500 lbs) @ mid-span		No Entry	No Entry
B2		No Entry	No Entry
B3		No Entry	No Entry
B4		No Entry	No Entry
B5		No Entry	No Entry
B7		No Entry	No Entry
Lock Manipulation		No Entry	No Entry
Deglazing Test	ASTM E 987		
-Top Rail @ 50 lbs		.01%	100%
-Bottom Rail @ 50 lbs		.02%	100%
-Interior Lock Stile @ 70 lbs		.02%	100%
-Meeting Rail @ 70 lbs		.02%	100%
-Exterior Lock Stile @ 70 lbs		.01%	100%

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Specification: Testing Application Standard, Protocol 201 and ASTM E 1996

Test Specimen 2 OXO, #1-3, Impact Diagrams, Appendix B

Test Specimen 1

Speed	Rotation	Title of Test	Measured
50.5fps	0°	Center of Oper. Panel	No Penetration
50.1fps	0°	Upper Rt Corner of Oper. Panel	No Penetration

Test Specimen 2

Speed	Rotation	Title of Test	Measured
50.9fps	0°	Upper Rt Corner of Op. Panel	No Penetration
50.5fps	0°	Center of Oper. Panel	No Penetration
50.2fps	0°	Center of Astragal	No Penetration

Test Specimen 3

Speed	Rotation	Title of Test	Measured
50.2fps	0°	Lower Left Corn of Op. Panel	No Penetration
50.9fps	0°	Center of Op. Panel	No Penetration
51.2fps	0°	Lower Rt. Corner of Fixed	No Penetration
50.3fps	0°	Center of Fixed Panel	No Penetration
50.7fps	0°	Center of Fixed Interlock	No Penetration

The laboratory temperature during testing was 72° F. Test specimens were stored in the lab prior to testing and the skin temperature of the glass was recorded at 72° F.

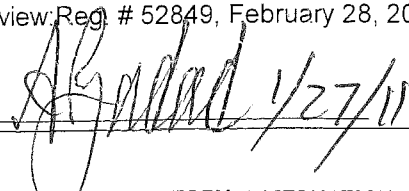
*Visual inspections performed on the test specimen revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of each large missile impact test.

Specification: Testing Application Standard, Protocol 203 and ASTM E 1886

OXO Test Specimens 1-3

Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
120 psf Positive	Cycle 1	0.2 P to 0.5 P	< 3 seconds	3500	None
	Cycle 2	0 to 0.6 P	< 3 seconds	300	None
	Cycle 3	0.5 P to 0.8 P	< 3 seconds	600	None
	Cycle 4	0.3 P to 1.0 P	< 3 seconds	100	None
Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
120 psf Negative	Cycle 1	0.3 P to 1.0 P	< 3 seconds	50	None
	Cycle 2	0.5 to 0.8 P	< 3 seconds	1050	None
	Cycle 3	0 to 0.6 P	< 3 seconds	50	None
	Cycle 4	0.2 P to 0.5 P	< 3 seconds	3350	None

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2011 – Abdol Rezadad, P.E.

Signature: 



TAS 201, 202, AND 203 AND ASTM E 1886 & 1996 PERFORMANCE TEST
EFCO, a PELLA COMPANY SERIES 5XPT SLIDING GLASS DOOR
REPORT CCLI #10-256

January 19, 2011
Page 12 of 13

Interlock Deflections

Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Positive	Cycle 1	0.2 P to 0.5 P	.370"	.640"
	Cycle 2	0 to 0.6 P	.400"	.640"
	Cycle 3	0.5 P to 0.8 P	.395"	.640"
	Cycle 4	0.3 P to 1.0 P	.415"	.640"
Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Negative	Cycle 1	0.3 P to 1.0 P	.360"	.640"
	Cycle 2	0.5 to 0.8 P	.265"	.640"
	Cycle 3	0 to 0.6 P	.275"	.640"
	Cycle 4	0.2 P to 0.5 P	.325"	.640"

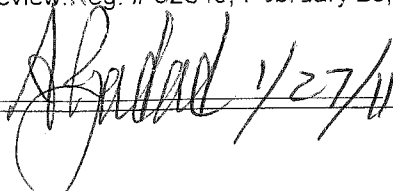
Astragal Deflections

Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Positive	Cycle 1	0.2 P to 0.5 P	.265"	.640"
	Cycle 2	0 to 0.6 P	.235"	.640"
	Cycle 3	0.5 P to 0.8 P	.330"	.640"
	Cycle 4	0.3 P to 1.0 P	.410"	.640"
Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Negative	Cycle 1	0.3 P to 1.0 P	.390"	.640"
	Cycle 2	0.5 to 0.8 P	.370"	.640"
	Cycle 3	0 to 0.6 P	.290"	.640"
	Cycle 4	0.2 P to 0.5 P	.230"	.640"

Anchor Deflections

Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Positive	Cycle 1	0.2 P to 0.5 P	.02"	.320"
	Cycle 2	0 to 0.6 P	.06"	.320"
	Cycle 3	0.5 P to 0.8 P	.05"	.320"
	Cycle 4	0.3 P to 1.0 P	.08"	.320"
Load	Sequence	Range	Deflect.	Allowed
Direction 120 psf Negative	Cycle 1	0.3 P to 1.0 P	.07"	.320"
	Cycle 2	0.5 to 0.8 P	.045"	.320"
	Cycle 3	0 to 0.6 P	.035"	.320"
	Cycle 4	0.2 P to 0.5 P	.015"	.320"

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2011 – Abdol Rezadad, P.E.

Signature: 



Visual inspections performed on the test specimen revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of the cyclic pressure differentials.

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and were compared to the test sample submitted. These records will be retained at **CCLI** for a period of four years.

5. IMPACT ACCEPTANCE CRITERIA

The test specimen shall resist the large missile impact with no tear formed longer than 5" (130mm) and wider than $\frac{1}{16}$ " (1.5875mm) through which air can pass or no opening formed through which a 3" (76mm) diameter solid sphere can freely pass when evaluated upon completion of missile impacts and test loading program.

6. DISCLAIMER

EFCO Corporation Series 5XPT Sliding Glass Door was tested in accordance with Testing Application Standard, Protocol 201, 202, 203, and ASTM E 1996-05b and ASTM 1886-05. Results are noted in Section 4 of this report. The above results were obtained by using the designated test methods indicating compliance with the above specification. This report does not constitute certification of this product, which may only be granted by the program administrator.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL

WESLEY WILSON
LABORATORY MANAGER

JEFFREY CRUMP
TESTING MANAGER

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2011 – Abdol Rezadad, P.E.

Signature:



TAS 201, 202, AND 203 AND ASTM E 1886 & 1996 PERFORMANCE TEST
EFCO, a PELLA COMPANY SERIES 5XPT SLIDING GLASS DOOR
REPORT CCLI #10-256

January 19, 2011

APPENDICES



APPENDIX A

PROJECT DRAWINGS

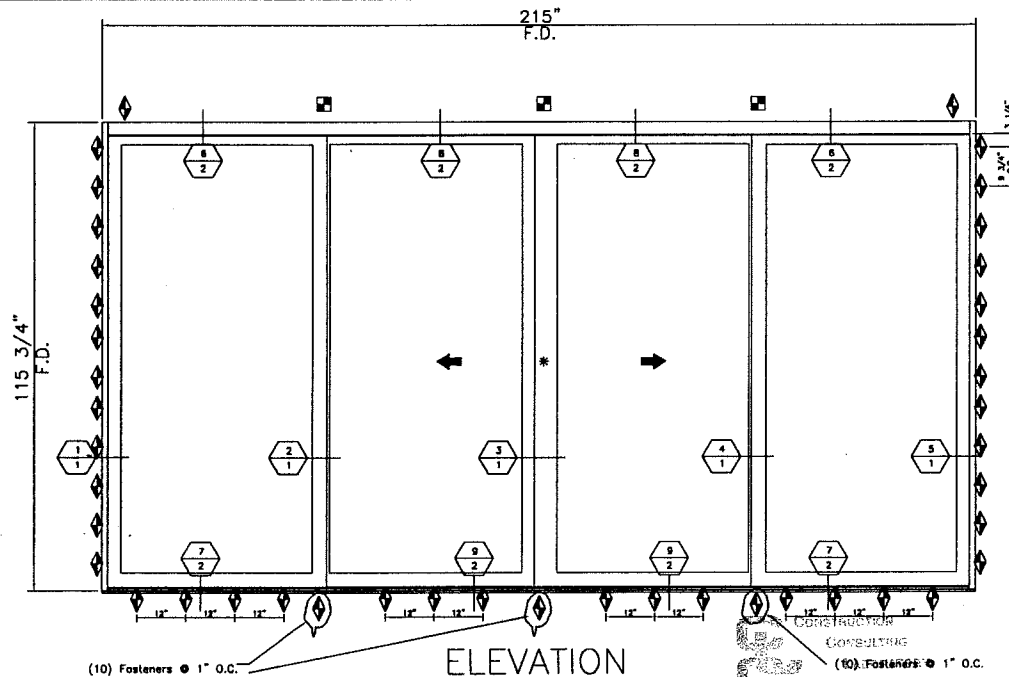
<u>Mock-Up Drawings</u>	<u>Die Number</u>	<u>Date</u>
EFCO Series 5XPT O.X.X.O SGD Elevation & Bill of Materials		
EFCO Series 5XPT O.X.X.O SGD Section View		6/3/10
EFCO Series 5XPT O.X.X.O SGD Elevation & Bill of Materials		
EFCO Series 5XPT O.X.X.O SGD Section View		6/3/10
Frame Head	1D04	5/16/07
Head (Ext)	18B1	4/30/07
Head (Int)	18B2	4/30/07
Frame Sill	1D05	5/16/07
Sill (Ext)	18B3	5/1/07
Sill (Int)	18B4	5/1/07
Frame Jamb	1D06	5/16/07
Jamb (Ext)	18B5	5/2/07
Jamb (Int)	18B6	5/2/07
Threshold/Head Filler	14N6	8/21/06
Operable Horizontal Rail	1D08	5/16/07
Oper. Panel Horizontal (Ext)	18B7	5/2/07
Oper. Panel Horizontal (Int)	18B8	5/2/07
Fixed Panel Horizontal	1D07	5/16/07
Fixed Panel Horizontal (Int)	18B9	5/2/07
Fixed Panel Horizontal (Ext)	18B8	5/16/07
Glazing Bead	14M9	8/1/06
Hardware Sideware	1D09	5/16/07
Oper. Panel Side Rail (Ext)	18C0	5/2/07
Oper. Panel Side Rail (Int)	18C1	5/2/07
Fixed Side Rail	1D10	5/16/07
Fixed Side Rail (Ext)	18C2	5/2/07
Fixed Side Rail (Int)	18C3	5/2/07
Meeting Rail	1D14	5/16/07
Meeting Rail (Int)	18D5	5/7/07
Meeting Rail (Ext)	18D6	5/7/07
Meeting Rail	1D11	3/27/07
Meeting Rail (Ext)	18C4	3/27/07
Meeting Rail (Int)	18C5	3/27/07
Meeting Rail	1D15	3/27/07
Meeting Rail (Ext)	18C8	3/27/07
Meeting Rail (Int)	18C6	3/27/07
Head Spacer	14B1	10/25/05
Performance Sill Adapter	14B2	10/25/05



APPENDIX A

PROJECT DRAWINGS

<u>Mock-Up Drawings</u>	<u>Die Number</u>	<u>Date</u>
Subhead	3S89	5/17/07
Subhead (Ext)	18E1	5/17/07
Subhead (Int)	18E2	4/30/07
Sill Starter	3S91	5/16/07
Sill Starter (Ext)	18D9	4/30/07
Sill Starter (Int)	18E0	4/30/07
Subhead Stiffener	18E5	5/8/07
OXXO Door Rail Stiffener	22R5	6/28/10
OXXO Meeting Rail	1D17	5/16/07
OXXO Hardware		
Side Rail (Ext)	18C9	5/7/07
OXXO Hardware		
Side Rail (Int)	18D0	5/7/07
Aluminum and Steel Reinforcements		



ELEVATION

(10) Fasteners @ 1" O.C.

* LOCKING POINTS

ANCHOR POINTS SUBHEAD STIFFENER

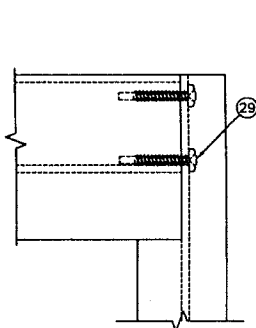
CONSULTING
(10) Fasteners @ 1" O.C.
INTERNATIONAL

1601 Luna Road
Carrollton, Texas 75006

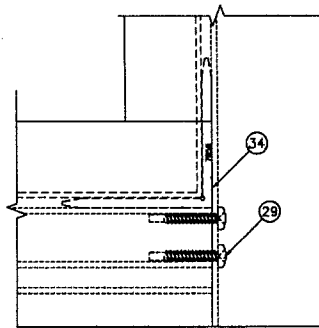
Phone (214) 242-0556

Report 10-258 Date 12/15/11

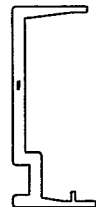
Reviewed BY



FRAME CORNER ASSEMBLY -
SQR. CUT, END COPED, AND MECH. FASTENED.



SASH CORNER ASSEMBLY - SQ. CUT, END COPED,
CORNER KEYED, AND MECH. FASTENED.



SUBHEAD STIFFENER

ITEM	# REQD	PART #	DESCRIPTION	MFG.
1	1	1004	HEAD	EFCO
2	1	1005	SILL	EFCO
3	2	1006	JAMB	EFCO
4	2	14N6	THRESHOLD/FILLER	EFCO
5	4	1008	OPERABLE SASH	EFCO
6	4	1007	FIXED PANEL	EFCO
7	16	14M9	GLAZING STOP	EFCO
8	2	1009	SASH SIDE RAIL	EFCO
9	2	1010	FIXED SIDE RAIL	EFCO
10	1	1018	OPERABLE MTG RAIL	EFCO
11	1	1017	OPERABLE MTG RAIL	EFCO
12	2	1481	HEAD SPACER	EFCO
13	2	1482	SILL WINDLOAD ADAPTER	EFCO
14	1	3591	SILL STARTER	EFCO
15	4	HR41	OPERABLE SASH ROLLER	DELUM
16	AS REQD		SILICONE	
17	8	HNE1	SETTING BLOCKS	EPG
18	24	H13/H78	EDGE BLOCKS	EPG
19	AS REQD	WEB4	DRIVE-IN GASKET	SPRING PLASTICS
20	AS REQD	WQ06	Q-LON WEATHER STRIPPING	SCHLEGEL
21	AS REQD	WW78	POLY-BOND PILE	SCHLEGEL
22	1	WNA1	DRIVE IN SHIM	TREMCO
23	1	HSV3	DEAD LOCK	AMSBURY
24	1	HS27	THUMB TURN	BRIDGE CRIFT
25	2	HS26	FLUSH PULL	
26	1	LA1A	STAINLESS ROLLER TRACK	JOHNSON
27	1	HST0	KEEPER	JOHNSON
28	4	STD3	KEEPER SCREWS	PRO FAS
29	28	SLQ9	FRAME/SASH ASSY SCREWS	PRO FAS
30	2	1014	FIXED MTG RAIL	EFCO
31	2	1011	SASH SIDE RAIL	EFCO
32	2	----	STEEL REINFORCEMENT	EFCO
33	2	SFP6	STIFFENER ASSY SCREWS	PRO FAS
34	16	KK78	PANEL CORNER KEY	EFCO
35	AS REQD	WW98	POLY-BOND PILE (SASH)	SCHLEGEL
36	1	WS05	GLAZ LEG SEALANT STOP	SPRING PLASTICS
37	2	MTZ4	ASSY SCREWS	PRO FAS
38	1	HSA1	THUMB TURN SPINDLE	JOHNSON
39	1	1GK8	NYLON WASHER	N.S.
40	1	HL95	SNAP "E" RING	N.S.
41	2	H10B	FRAME HEAD GASKETS	N.S.
42	2	H10C	FRAME SILL GASKETS	N.S.
43	16	H10D	CORNER GASKETS	N.S.
44	8	STT5	ROLLER ATTACHMENT SCREWS	PRO FAS
45	2	HNE2	DOOR STOP	N.S.
46	3	STD8	DEAD LOCK FASTENERS	PRO FAS
47	4	MT28/SM04	FLUSH PULL SCREWS	PRO FAS
48				
49	AS REQD	IM09	3/4" HOLE PLUG	
50	2	M138	#12-24 X 1/2 PL-FH-MS	PRO FAS
51	2	2285	XX RAIL STIFFENER	
52	1	3580	SUB HEAD	EFCO
53	3	18E3	SUB HEAD STIFFENER	EFCO

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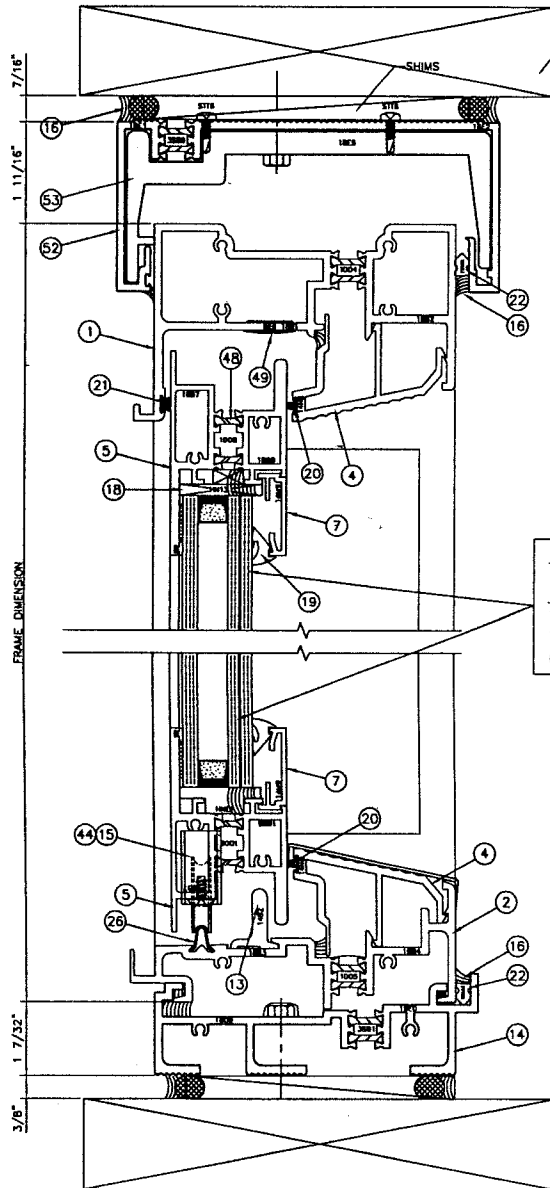
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DATE 6-3-2010
CHECKED BY
DATE
SCALE HALF
REV.



EFCO CORPORATION
1000 County Road - Monett, Missouri 65708

5XPT "OXXO" IMPACT

REPORT #
###-####-###
SHEET
1 of 3



4 OPERABLE HEAD

LABORATORY
INTERNATIONAL

1801 Luna Road
Carmichael, Texas 75006

Phone: (972) 242-6556

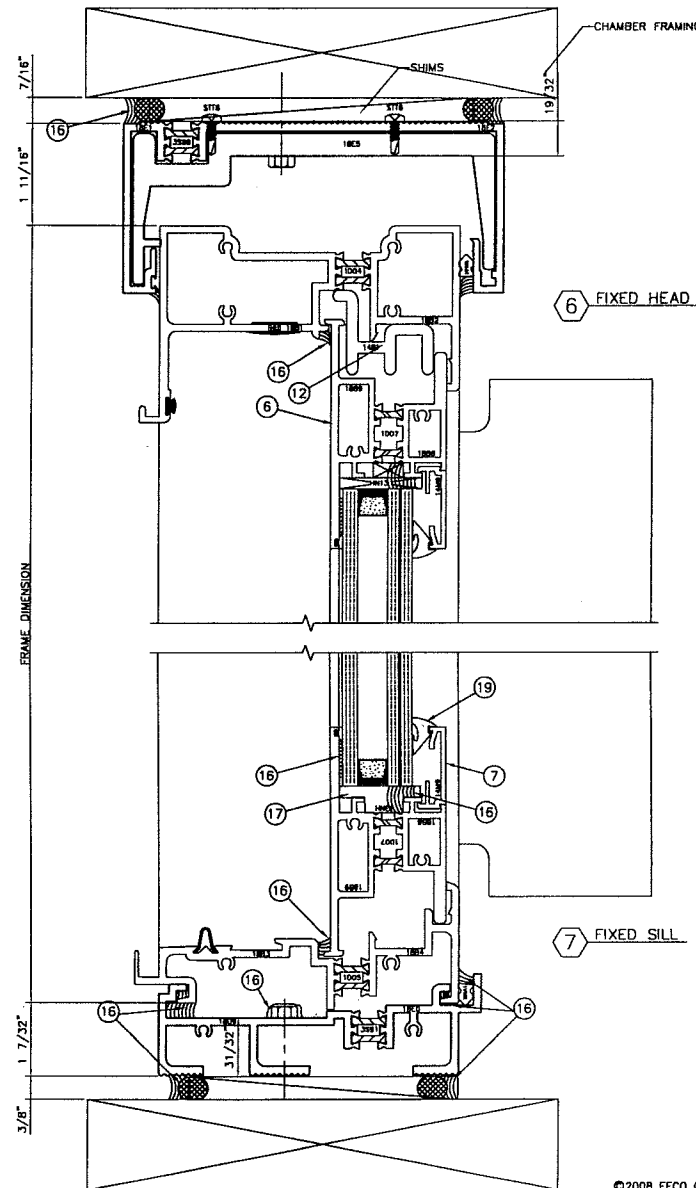
Report: 12-256 Date: 12/15/11

At: Ground B

INSULATED UNIT DESCRIPTION

1 3/16" NOMINAL INSULATED UNIT
1/4" TEMP CLEAR X 1/2" AIR SPACE X
7/16" NOMINAL LAMINATED
(3/16" HSCLR-.077 VIN STM-3/16" HSCLR.)

5 OPERABLE SILL



6 FIXED HEAD

7 FIXED SILL

DRAWN BY	SD	CHECKED BY	SCALE	REV.
DATE	6-3-2010	DATE	HALF	

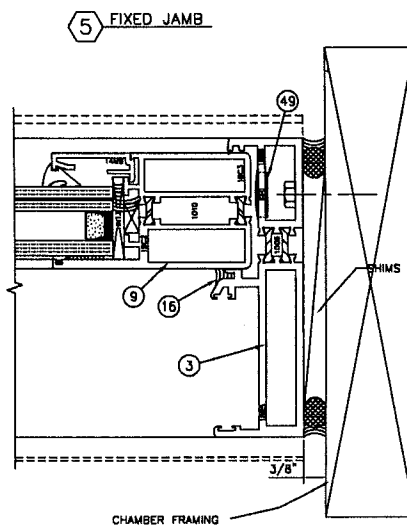
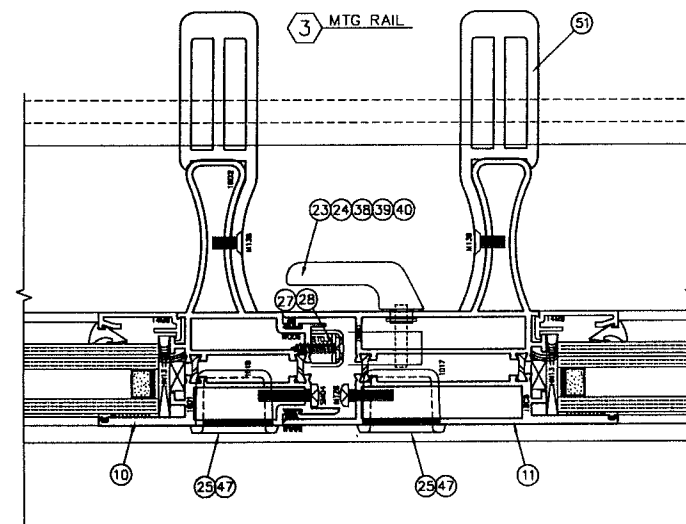
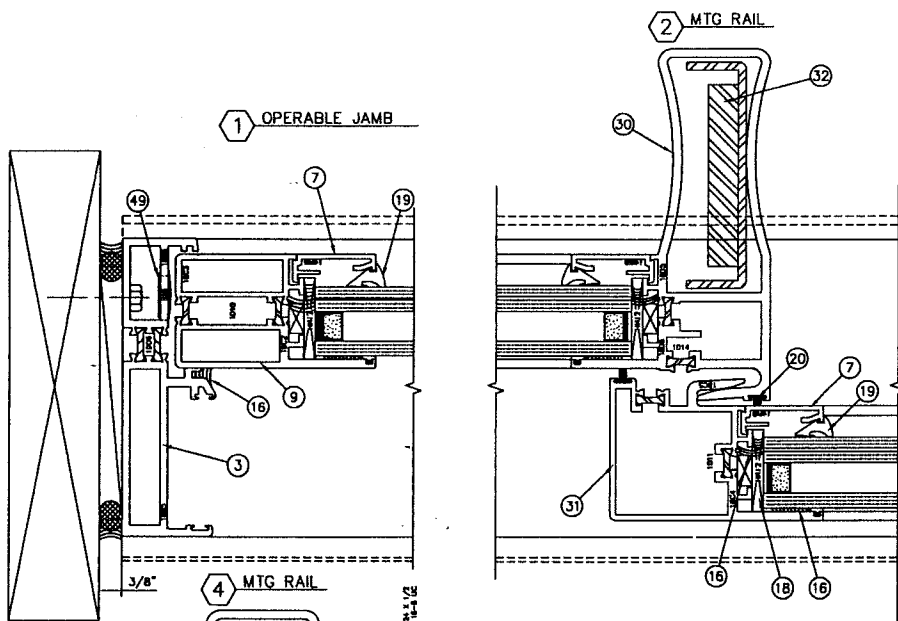


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5XPT "OXXO" IMPACT

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REPORT#	SHEET
##-####-##	3 of 3



12/25/10

14/15/10

DRAWN BY SD CHECKED BY SCALE HALF REV.
DATE 6-3-2010 DATE

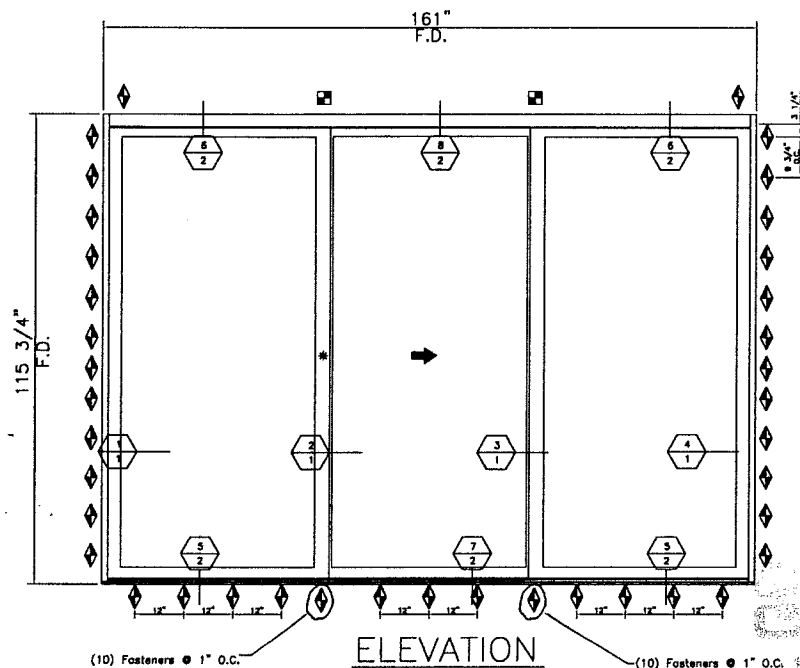


EFCO CORPORATION
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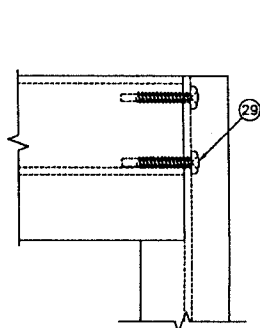
5XPT "OXXO" IMPACT

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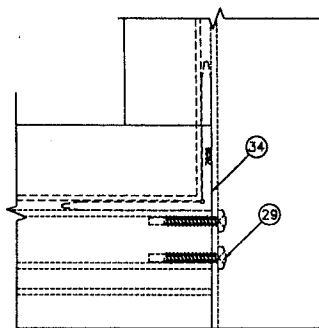
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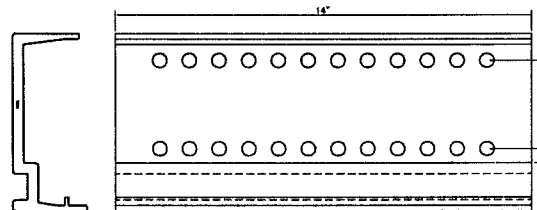
*LOCKING POINTS
 ▲ANCHOR POINTS ■SUBHEAD STIFFENER



FRAME CORNER ASSEMBLY -
 SQR. CUT, END COPED, AND MECH. FASTENED.



SASH CORNER ASSEMBLY - SQ. CUT, END COPED,
 CORNER KEYED, AND MECH. FASTENED.



■SUBHEAD STIFFENER

ITEM	#	RECD	PART #	DESCRIPTION	MFG.
1	1	1D04	HEAD	EFCCO	
2	1	1D05	SILL	EFCCO	
3	2	1D06	JAMB	EFCCO	
4	2	14N6	THRESHOLD/FILLER	EFCCO	
5	2	1008	OPERABLE SASH	EFCCO	
6	2	1D07	FIXED PANEL	EFCCO	
7	8	14M9	GLAZING STOP	EFCCO	
8	1	1D09	SASH SIDE RAIL	EFCCO	
9	1	1D10	FIXED SIDE RAIL	EFCCO	
10	1	1D15	FIXED MTG RAIL	EFCCO	
11	1	14E8	FIXED MTG RAIL	EFCCO	
12	1	14B1	HEAD SPACER	EFCCO	
13	1	14B2	SILL WINDLOAD ADAPTER	EFCCO	
14	1	JS91	SILL STARTER	EFCCO	
15	2	HR41	OPERABLE SASH ROLLER	DELUX	
16	AS REQD		SILICONE		
17	4	HNE1	SETTING BLOCKS	EPG	
18	12	HM3/HP8	EDGE BLOCKS	EPG	
19	AS REQD	WEB4	DRIVE-IN GASKET	CONTROL PLASTIC	
20	AS REQD	WQ06	O-LON WEATHER STRIPPING	SCHLEGEL	
21	AS REQD	WW78	POLY-BOND PILE	SCHLEGEL	
22	1	WNA1	DRIVE IN SHIM	TREMCO	
23	1	HSV3	DEAD LOCK	AMSBURY	
24	1	HS27	THUMB TURN	CHART	
25	1	HS26	FLUSH PULL		
26	1	LA1A	STAINLESS ROLLER TRACK	JOHNSON	
27	1	HSTO	KEEPER	JOHNSON	
28	4	STD3	KEEPER SCREWS	PRO FAS	
29	28	SLO9	FRAME/SASH ASSY SCREWS	PROFAS	
30	1	1D14	FIXED MTG RAIL	EFCCO	
31	1	1D11	SASH SIDE RAIL	EFCCO	
32	1	----	STEEL REINFORCEMENT	EFCCO	
33	2	SFP6	STIFFNER ASSY SCREWS	PRO FAS	
34	8	KK78	PANEL CORNER KEY	EFCCO	
35	AS REQD	WW98	POLY-BOND PILE (SASH)	SCHLEGEL	
36	1	WS05	GLAZING LEG SEALANT STOP	NOT SHOWN	
37	2	MTZ4	ASSY SCREWS	NOT SHOWN	
38	1	HSA1	THUMB TURN SPINDLE	PORTLAND METAL	
39	1	IGK8	NYLON WASHER	N.S.	
40	1	HL95	SNAP "E" RING	N.S.	
41	2	H10B	FRAME HEAD GASKETS	N.S.	
42	2	H10C	FRAME SILL GASKETS	N.S.	
43	1	H10D	CORNER GASKETS	N.S.	
44	4	STT5	ROLLER ATTACHMENT SCREWS	PRO FAS	
45	1	HNE2	DOOR STOP	N.S.	
46	3	STD8	DEAD LOCK FASTENERS	PRO FAS	
47	2	MTZ4	FLUSH PULL SCREWS	PRO FAS	
48	1	----	1" x 2 3/4" STEEL BAR		
49	AS REQD	IMQ9	3/4" HOLE PLUG		
50	1	JS89	SUB HEAD	EFCCO	
51	AS REQD	1BE5	SUB HEAD STIFFENER	EFCCO	
52	1	----	1 1/4" x 2" ALUMINUM	EFCCO	
53	3	M132	#12- 24 X 1 PL-FL-MS	PRO FAS	
54	9	STT7	#10- 12 X1 PL-PL-SMS	PRO FAS	

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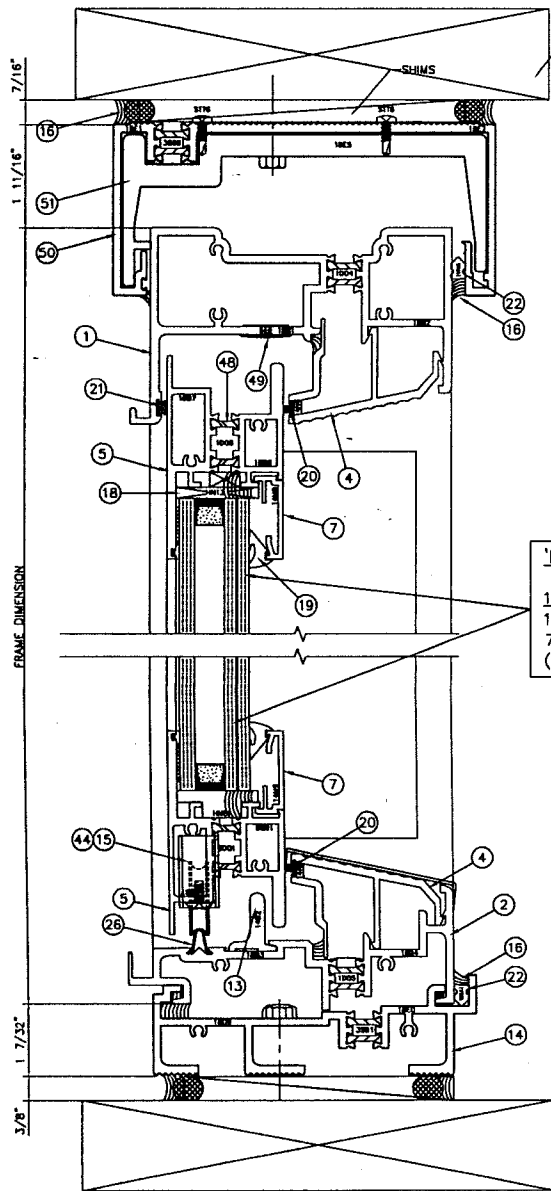
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 DATE 6-3-2010 DATE



EFCCO CORPORATION
 1000 County Road - Monett, Missouri 65708

5XPT "OXO" IMPACT

REPORT # SHEET
 ##-####-## 1 of 3



4 OPERABLE HEAD

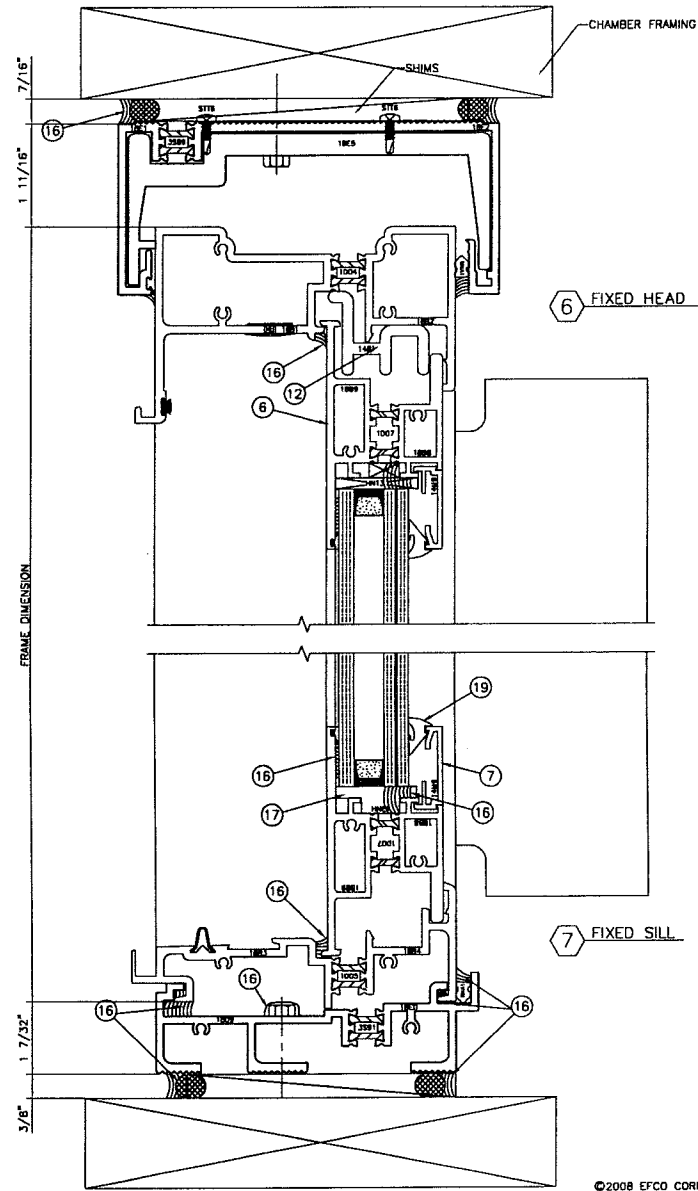
OPERABLE HEAD
FUNCTIONING
LARGELY
UNCHANGED

10-28 12/2/11

'INSULATED UNIT DESCRIPTION

1 3/16" NOMINAL INSULATED UNIT
1/4" TEMP CLEAR X 1/2" AIR SPACE X
7/16" NOMINAL LAMINATED
(3/16" HSCLR-.077 VIN STM-3/16" HSCLR.)

5 OPERABLE SILL



6 FIXED HEAD

7 FIXED SILL

DRAWN BY SD	CHECKED BY	SCALE HALF	REV.
DATE 6-3-2010	DATE		



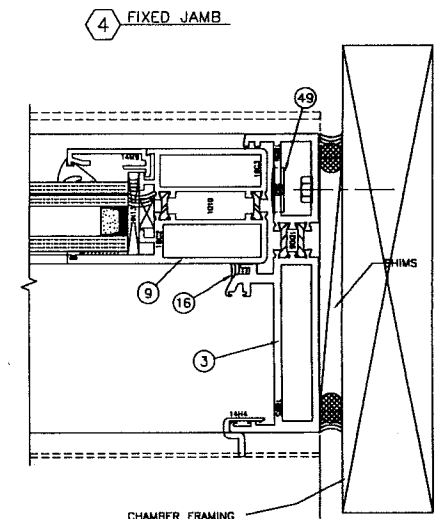
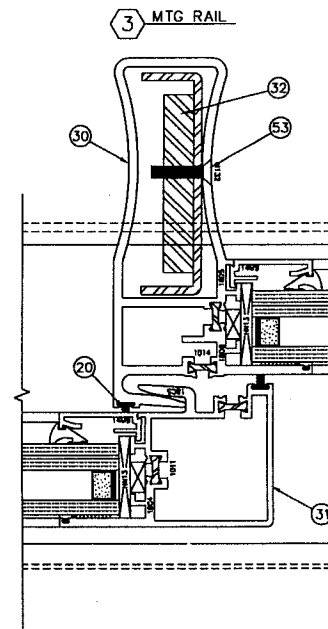
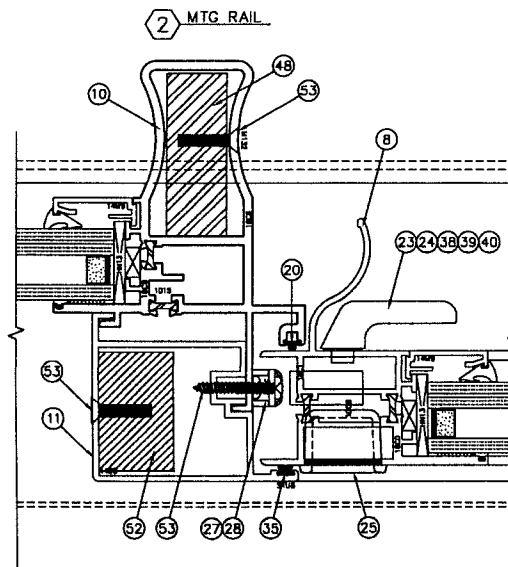
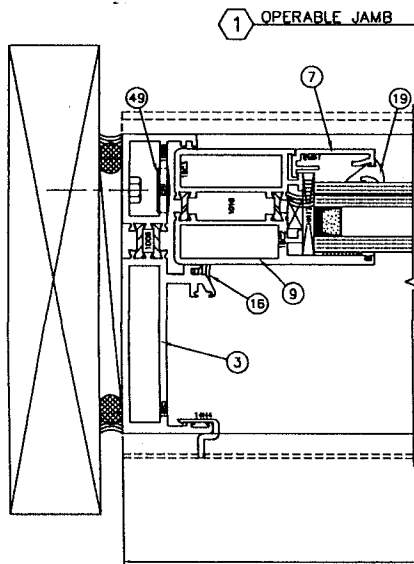
EFCO CORPORATION
1000 County Road - Monett, Missouri 65708

5XPT "OXO" IMPACT

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REPORT#
##-####-##

SHEET
3 of 3



WINDOW DIMENSION

1501 Lant Case
 Corrosion Test: 75000
 Photo: 01/31/2010
 Date: 10/26/10
 Review: 12/15/10

DRAWN BY	SD	CHECKED BY	SCALE	REV.
DATE	6-3-2010	DATE	HALF	

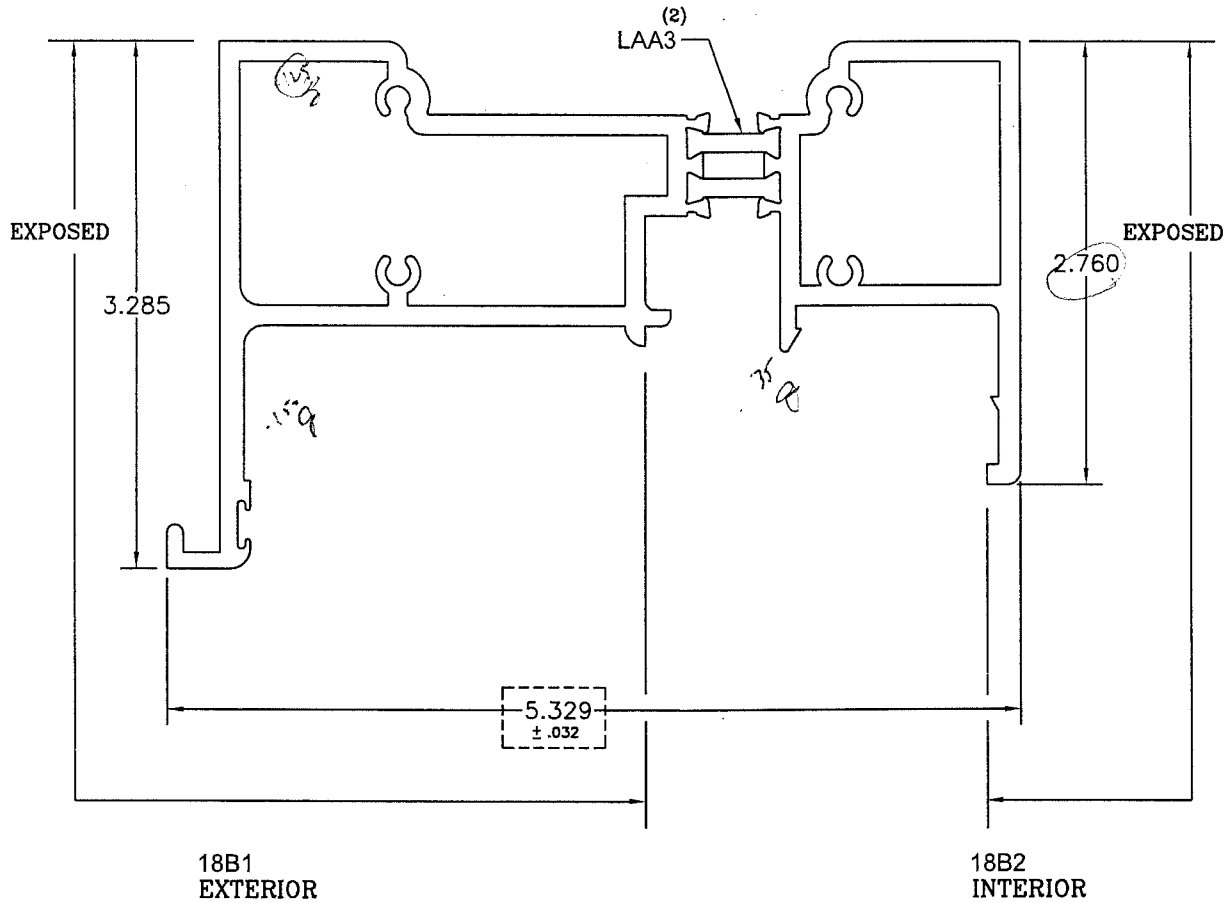
EFCO CORPORATION
 1000 County Road - Monett, Missouri 65708

5XPT "OXO" IMPACT

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		##-####-###	2 OF 3

STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.

150°
10-286
11/5/1
8



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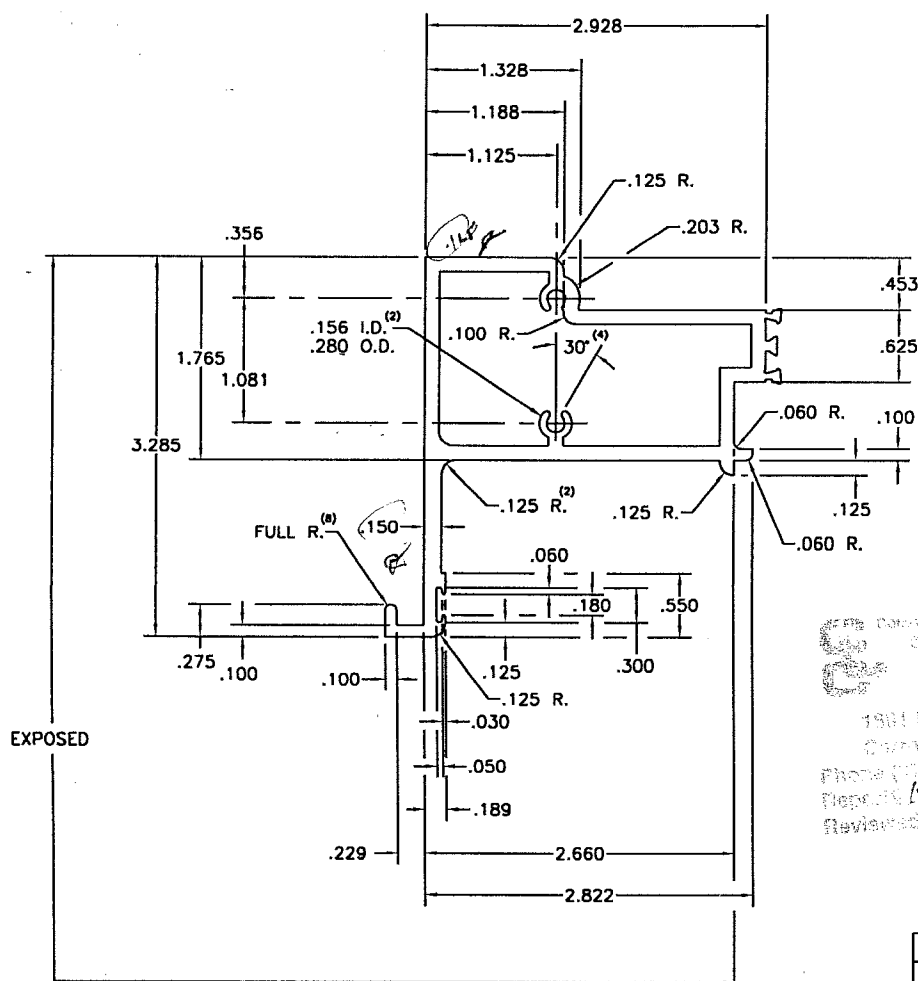
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

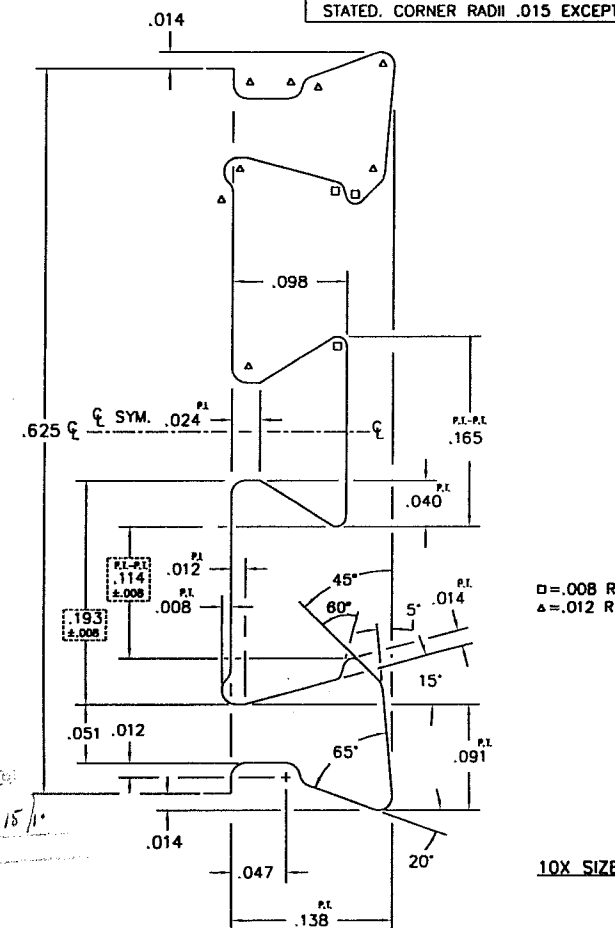
REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	HEAD		1D04

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE



□ = .008 R
△ = .012 R

10X SIZE

DO NOT SCALE PRINT

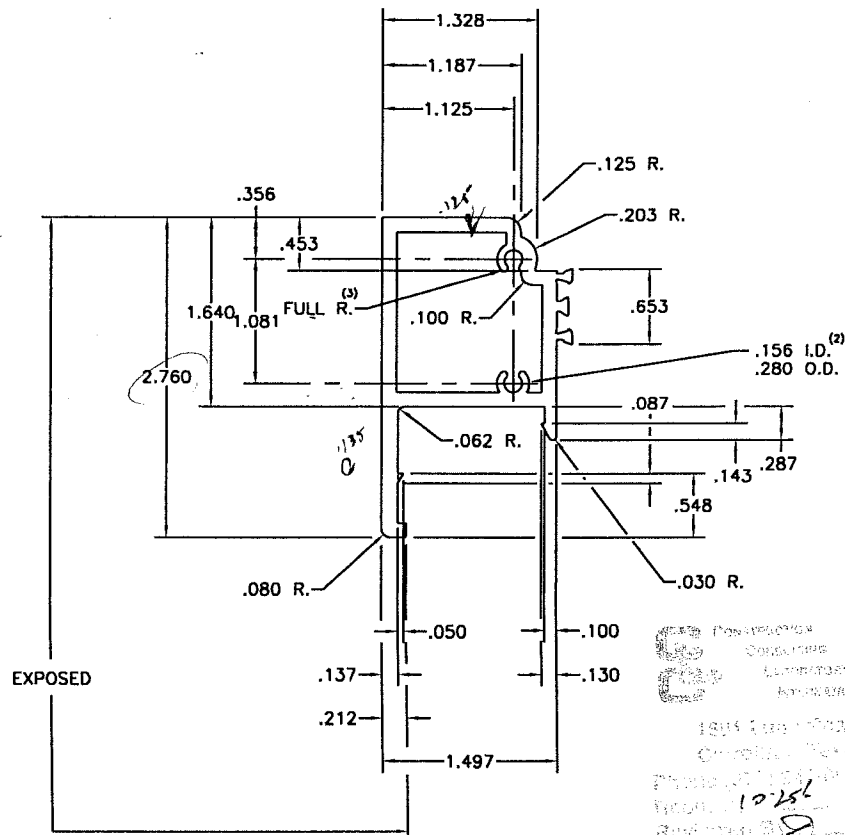
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MATERIAL: 6063-T6 ALUM.
WALL THICKNESS: .125 & AS NOTED
TOTAL PERIMETER: 24.865 OS = 15.040
PAINTED PERIMETER: 8.946 IS = 8.825
AREA: 1.502 WT/FT: 1.802
FACTOR: 14

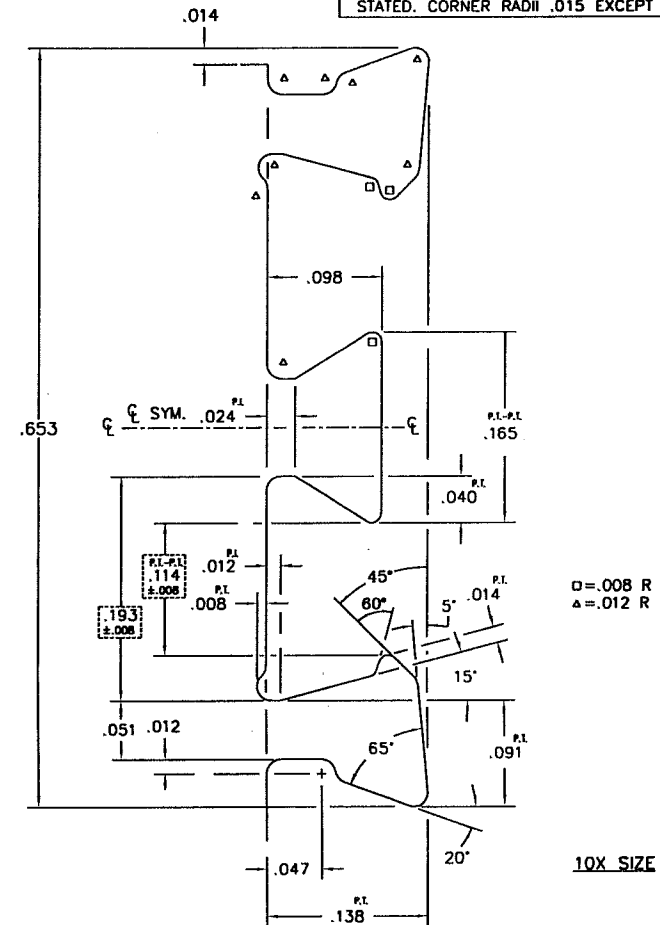
EFCO CORPORATION
1000 County Road
Monett, Missouri 65708
1-800-221-4169
Fax: 417-235-7313

DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 4/30/07			
APPROVED: SCC			
DATE: 4/30/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	DWG NO.:	6"
TITLE: HEAD (EXT.)		18B1	

STD. EXTRUSION TOLERANCES AS DEFINED BY THE ALUMINUM ASSOCIATION UNLESS OTHERWISE STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE



DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .125 & AS NOTED	
TOTAL PERMETER: 16.461	OS = 10.103 IS = 6.358
PAINTED PERMETER: 2.938	
AREA: .976	WT/FT: 1.171
FACTOR: 14	



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Monett, Missouri 65708
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Fax: 417-235-7313

DRAWN BY: SCC DATE: 4/30/07 APPROVED: SCC DATE: 4/30/07	REVISIONS #/ DATES:	
JOB REF. NO.:		
SERIES: 5XPT TITLE: HEAD (INT.)	SCALE: AS NOTED	DIE CIRCLE: 3" DWG NO. 18B2

1001 LINDEN ROAD
 LINDEN, TEXAS 75706
 PHOENIX, ARIZONA
 10-28-68 L-441



REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE: FULL	TITLE SILL	S-5XPT	NO. 1D05
DATE: 5/16/07	DATE: 5/16/07				

EXPOSED

2.928

2.660

2.056

1.931

.778

.405

.125 R.

.125 R.

.073

.333

.073

1.185

.156 I.D.

.280 O.D.

(2)

30°

(3)

FULL R.

.309

.496

1.125

.356

.060

.149 .122

.205

1.075

.559

.311

.100 .060

ACTUAL SIZE

7509 100% Round
Cotton Yarn 75009

10.25.12 12/11/12

STATED. CORNER RADII .015 EXCEPT

.014

.653

ϕ SYM. .024 P.L.

P.L.-P.L. .165

P.L. .098

P.L. .040

P.L. .012

P.L. .008

P.L. .014

45°

60°

5°

15°

65°

20°

.051 .012

.091

.047

.138

P.L.

□ = .008 R
△ = .012 R

10X SIZE

$$\square = .008 \text{ R}$$

10X SIZE

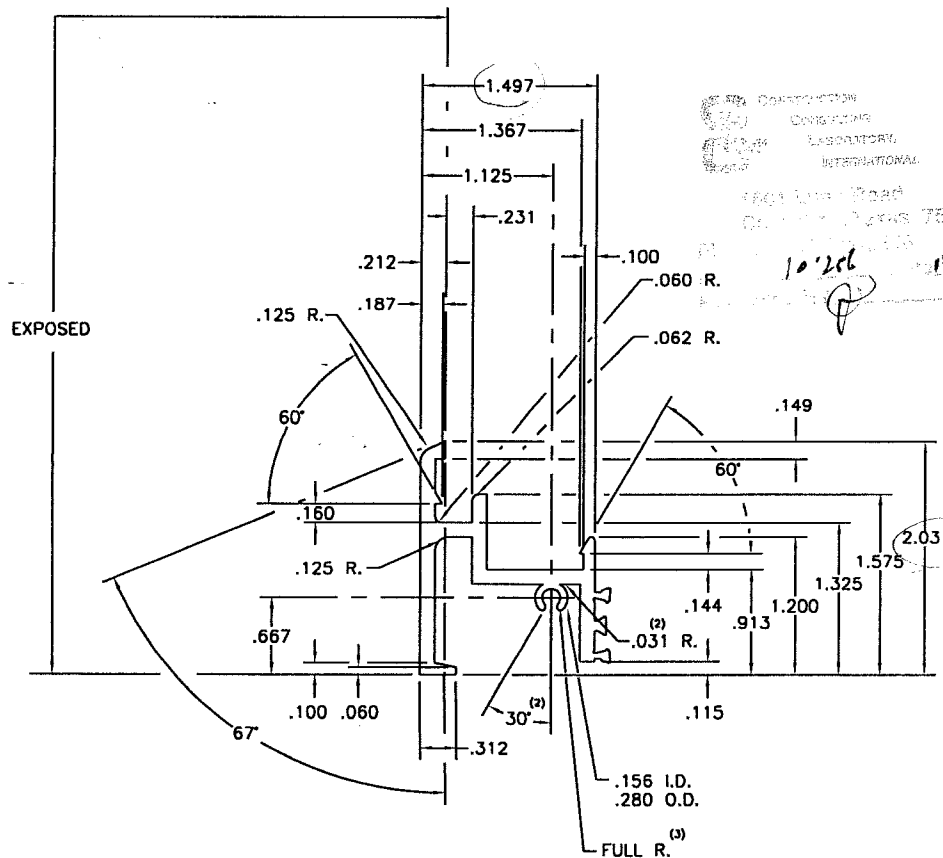
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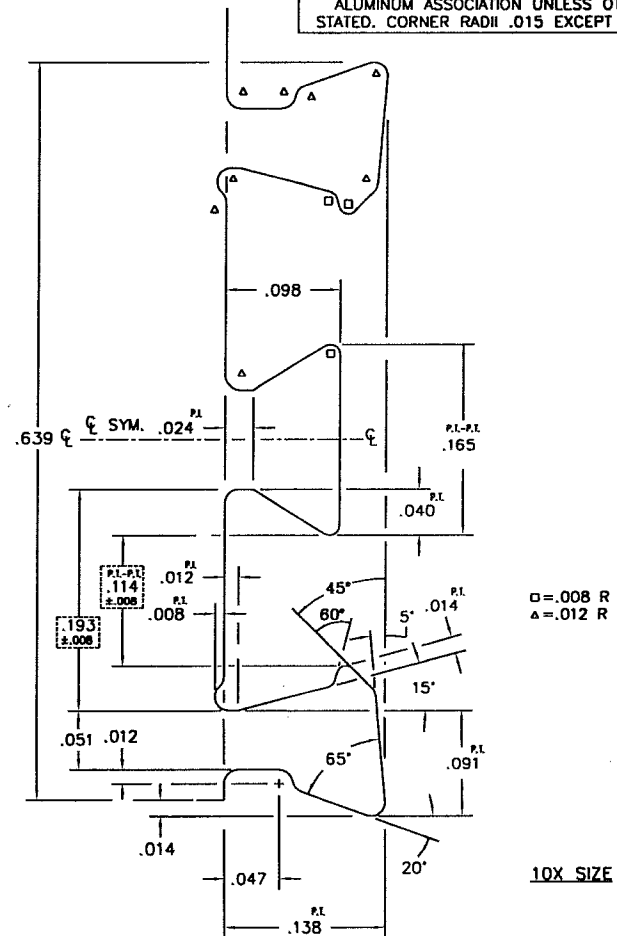
EFCO CORPORATION
 1000 County Road
 Monett, Missouri 65708
 1-800-221-4169
 Fax: 417-235-7313

DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5/1/07			
APPROVED: SCC			
DATE: 5/1/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	DE CIRCLE: 4"	
TITLE: SILL (EXT.)		DWG NO. 18B3	

STD. EXTRUSION TOLERANCES AS DEFINED BY THE ALUMINUM ASSOCIATION UNLESS OTHERWISE STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE



□=.008 R
△=.012 R

10X SIZE

DO NOT SCALE PRINT

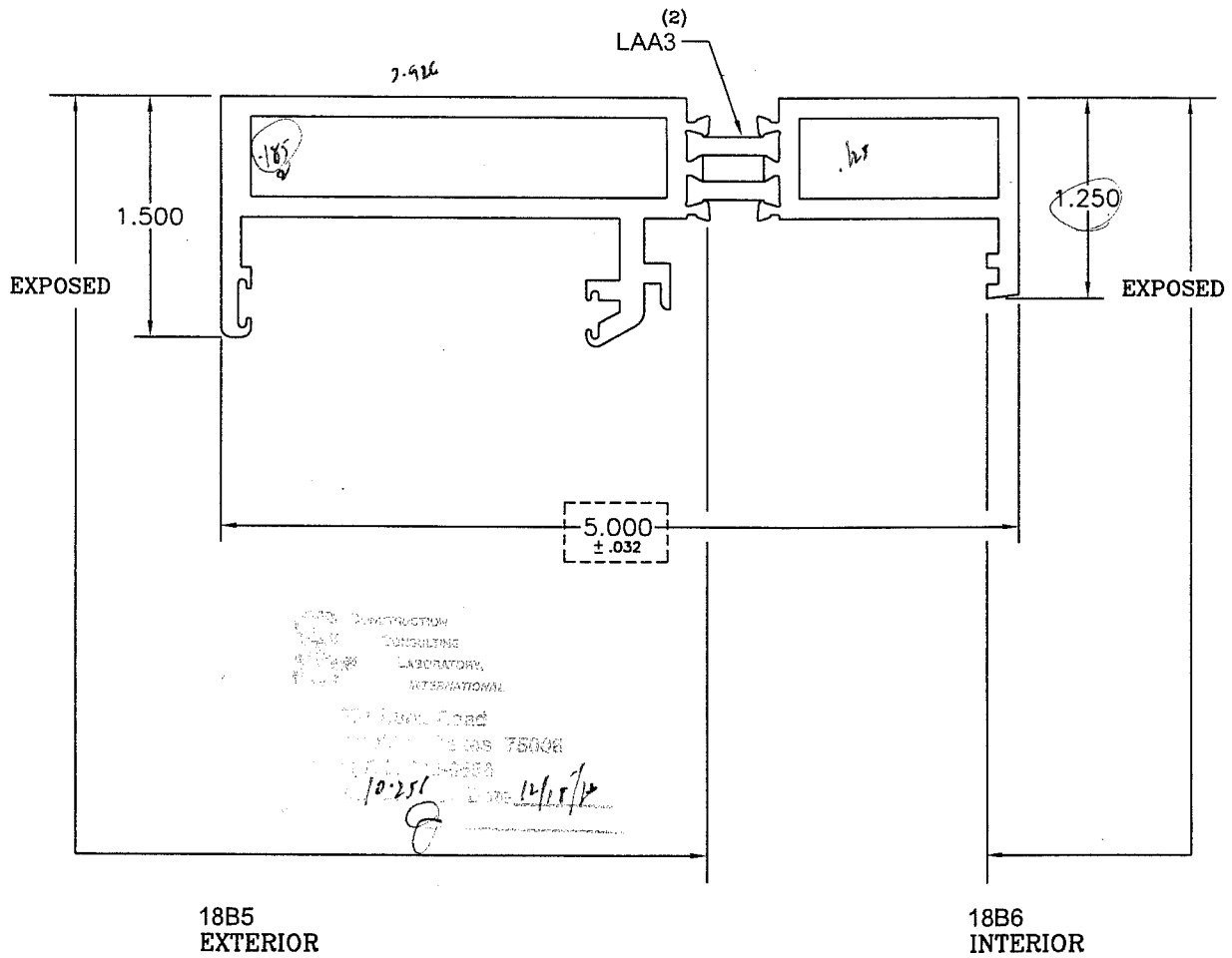
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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .125 & AS NOTED	
TOTAL PERIMETER: 12.593	
PAINTED PERIMETER: 2.178	
AREA: .710	WT/FT: .852
FACTOR: 15	

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Monett, Missouri 65708
1-800-221-4169
Fax: 417-235-7313

DRAWN BY: SCC	REVISIONS W/ DATES:	
DATE: 5/1/07		
APPROVED: SCC		
DATE: 5/1/07	JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	DR. CIRCLE: 3"
TITLE: SILL (INT.)	DWG NO. 18B4	

STD. EXTRUSION TOLERANCES AS DEFINED BY
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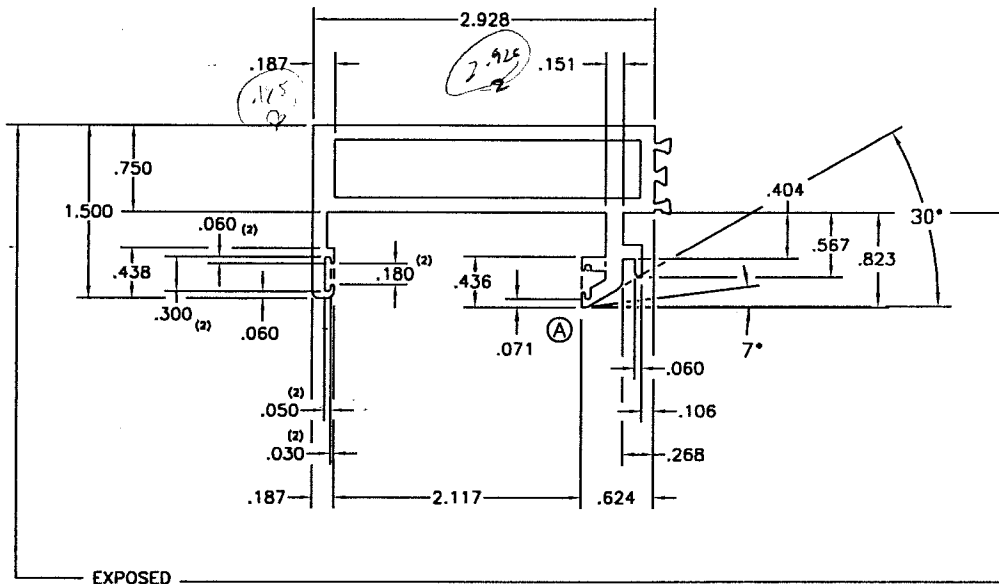
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

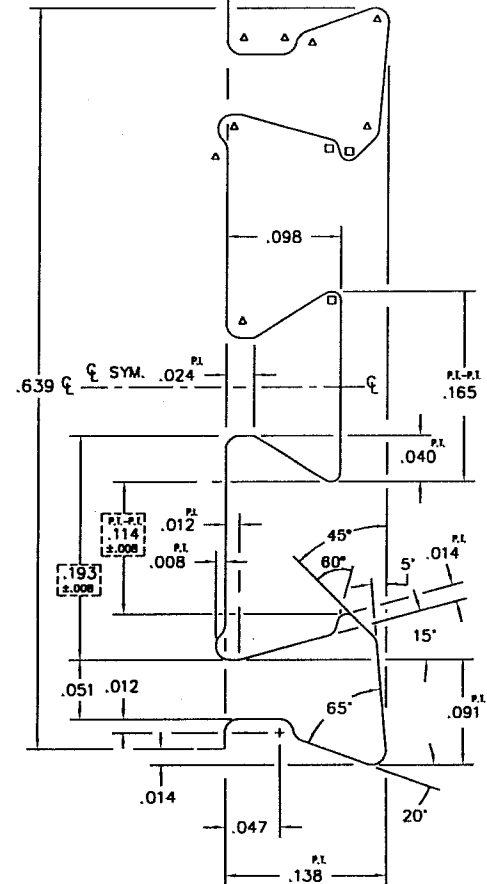
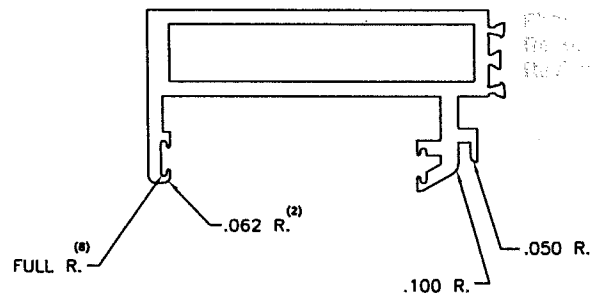
REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	JAMB		1D06

STD. EXTRUSION TOLERANCES AS DEFINED BY THE ALUMINUM ASSOCIATION UNLESS OTHERWISE STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE



□ = .008 R
△ = .012 R

10X SIZE

DO NOT SCALE PRINT

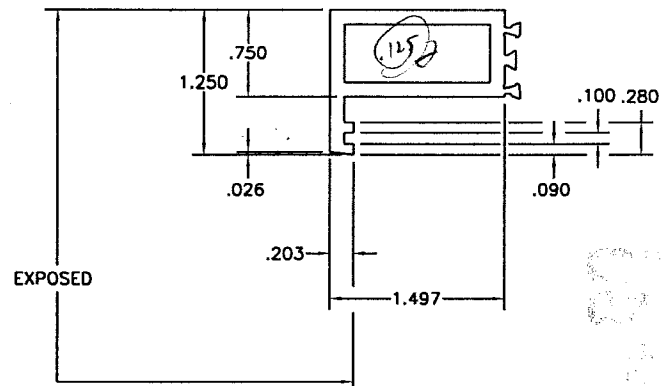
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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .125 & AS NOTED	
TOTAL PERIMETER: 19.551 (A)	OS = 13.319 IS = 6.232
PAINTED PERIMETER: 8.594	
AREA: 1.201 (A)	WT/FT: 1.441
FACTOR: 14	(A)



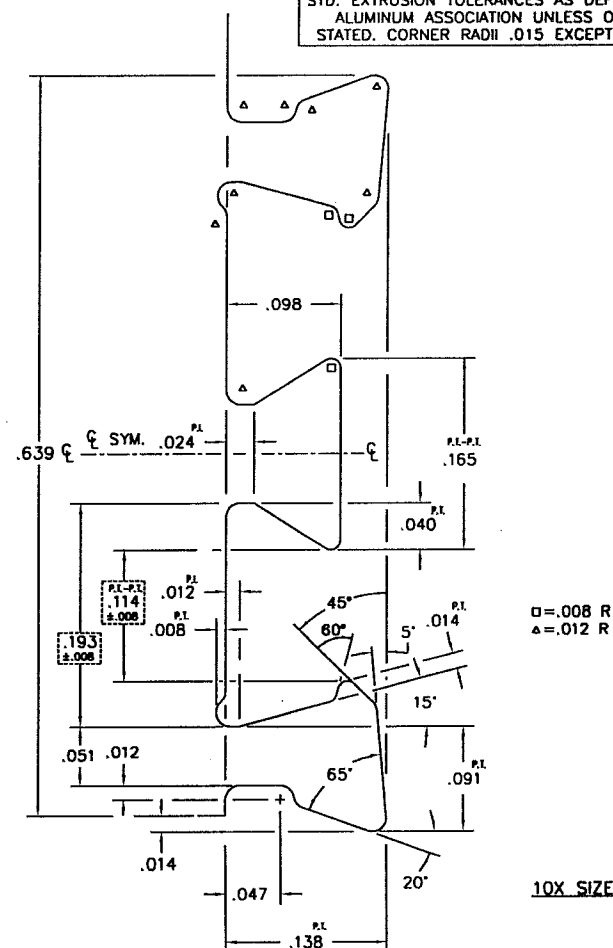
DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5-2-2007		⑤ REMOVED RADIUS 10/1/2010 SCC CHANGED PERIMETER, AREA, AND WT/FT.	
APPROVED: SCC		JOB REF. NO.:	
DATE: 10-1-2010		SCALE: AS NOTED	
SERIES: 5XPT		DIE CIRCLE: 4"	
TITLE: JAMB (EXT.)		DWG NO. 18B5	

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE

10-238 12/15/10



□=.008 R
△=.012 R

10X SIZE

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .125 & AS NOTED	
TOTAL PERIMETER: 10.269	OS = 8.775
PAINTED PERIMETER: 1.429	IS = 3.484
AREA: .607	WT/FT: .728
FACTOR: 14	

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Monett, Missouri 65708
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Fax: 417-235-7313

DRAWN BY: SCC	REVISIONS W/ DATES:	
DATE: 5/2/07		
APPROVED: SCC		
DATE: 5/2/07	JOB REF. NO.:	
SERIES: 6XPT	SCALE: AS NOTED	DWG NO. 18B6
TITLE: JAMB (INT.)		

10-27 12/15/10



FFCO

THRESHOLD

14N6	(A)
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14N6	(A)
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14N6

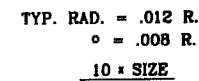
Technical drawing of a mechanical part, likely a bracket or support, showing dimensions and annotations. The drawing includes a side view and a cross-sectional view.

Dimensions:

- Overall width: .727
- Top width: .409
- Top thickness: .080
- Vertical distance from top to centerline: .550
- Horizontal distance from centerline to right edge: .060 R.
- Vertical distance from centerline to bottom: 1.422
- Horizontal distance from left edge to centerline: 3.409
- Horizontal distance from centerline to right edge: .178
- Bottom thickness: .125
- Vertical distance from bottom to centerline: 1.437
- Right side width: .423
- Right side thickness: .156 I.D., .280 I.D.
- Right side vertical distance from centerline: .170, .250
- Bottom right corner radius: .125
- Bottom right corner thickness: .080
- Bottom right corner width: .290

Annotations:

- (2) indicates two of the specified features.
- FULL R. indicates a full radius.
- 30° (2) indicates two 30-degree angles.
- 15° indicates a 15-degree angle.
- EXPOSED indicates the left side of the part.

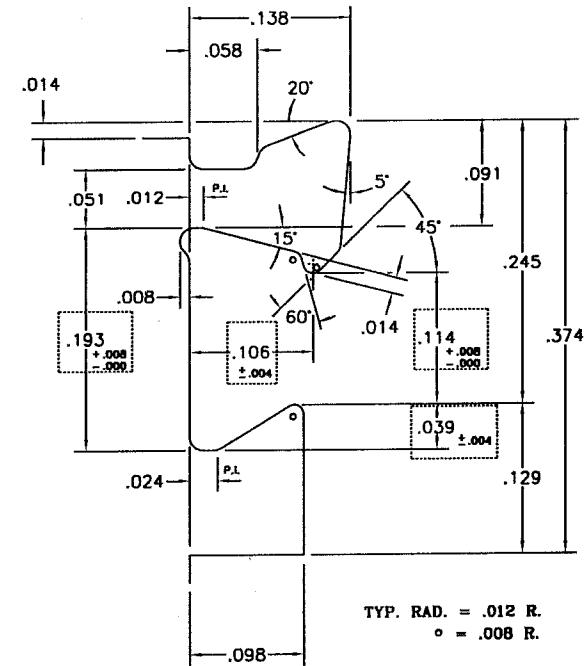
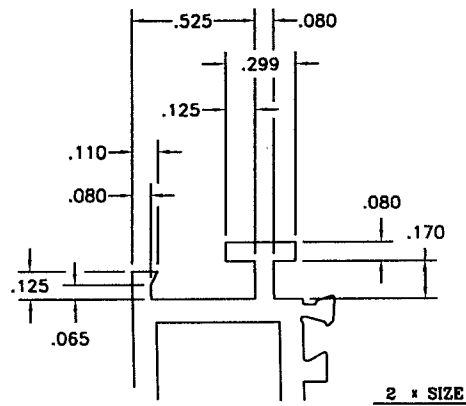
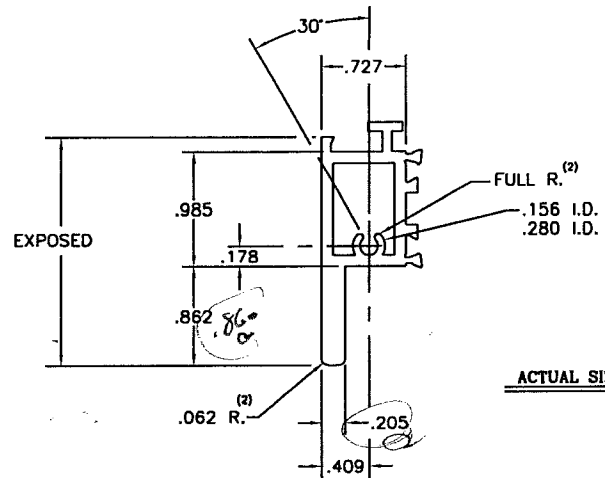


1501 Lynn Road
 Cambridge, MA 02140
 Phone (617) 452-1100
 Report # 102g
 Reviewer [Signature]

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS #/ DATES:	
WALL THICKNESS: .100 & AS NOTED			DATE: 5/2/07			
TOTAL PERIMETER: 14.337 OS = 10.396 IS = 3.941			APPROVED: SCC			
PAINTED PERIMETER: 5.453			DATE: 5/2/07		JOB REF. NO.:	
AREA: .728	WT/FT: .874		SERIES: 5XP7		SCALE: AS NOTED	DR. CIRCLE: 4"
FACTOR: 16		EFCO CORPORATION 1000 Country Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313		TITLE: (EXT.) OPERABLE PANEL HORIZ.		DWG NO. 18B7

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
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EXTRUSION
SECTION
DRAWING
LABORATORY
INTERNATIONAL

1000 County Road
Monett, Missouri 65708

12/15/10

DO NOT SCALE PRINT

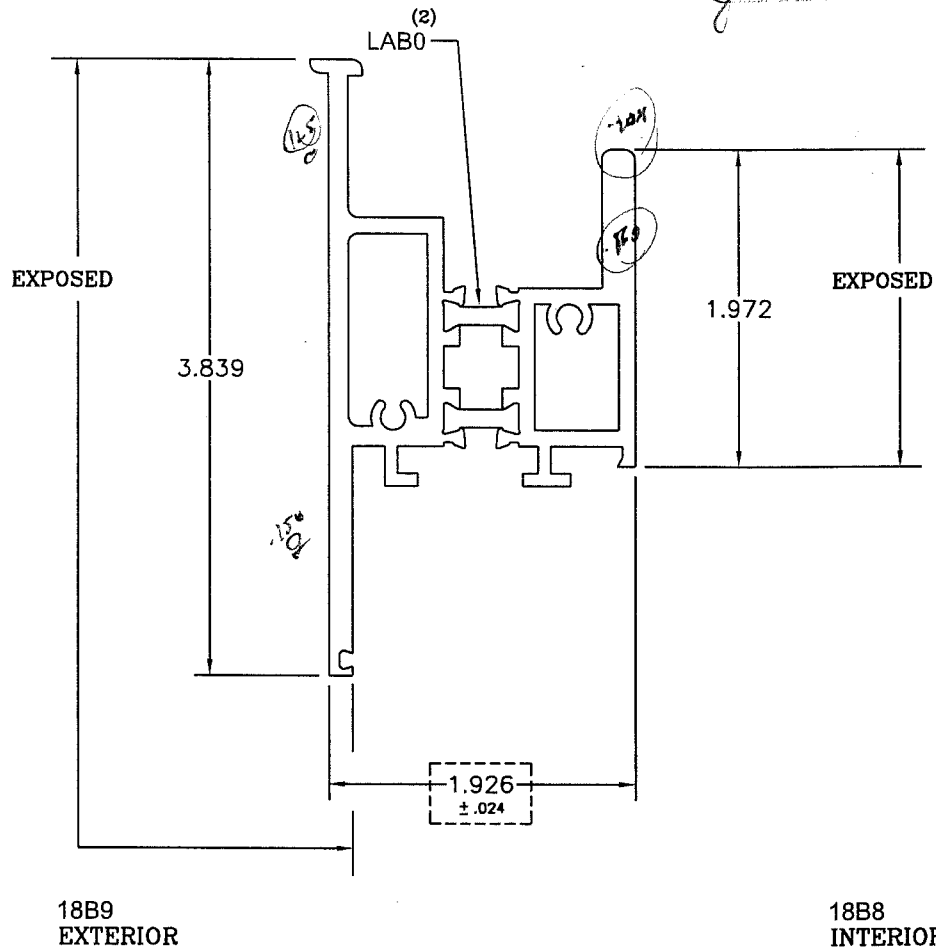
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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .100 & AS NOTED			DATE: 5/2/07			
TOTAL PERIMETER: 10.838 OS = 7.510 IS = 3.328			APPROVED: SCC			
PAINTED PERIMETER: 2.088			DATE: 5/2/07		JOB REF. NO.:	
AREA: .594 WT/FT: .713			SERIES: 5XPT		SCALE: AS NOTED DR. CIRCLE: 3"	
FACTOR: 15		TITLE: (INT.)		DWG NO. 18B8		
		OPERABLE PANEL HORIZ.				

EFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313

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1000 County Road
Monett, Missouri 65708
1-800-221-4169
Fax: 417-235-7313

STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



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EFCO CORP.

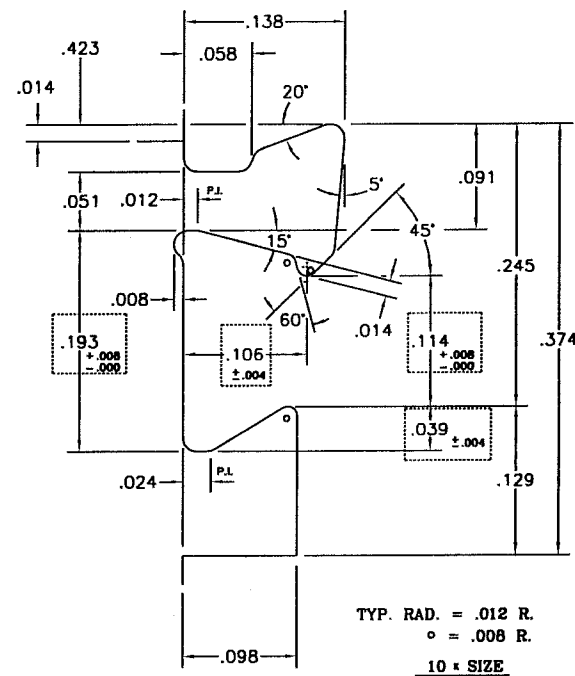
1000 COUNTY ROAD
MONETT, MO. 65708

REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	FIXED HORIZ. RAIL		1D07

1. **SECRET**
 2. **NOFORN**
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 98. **NOFORN**
 99. **NOFORN**
 100. **NOFORN**

18-252 24/11

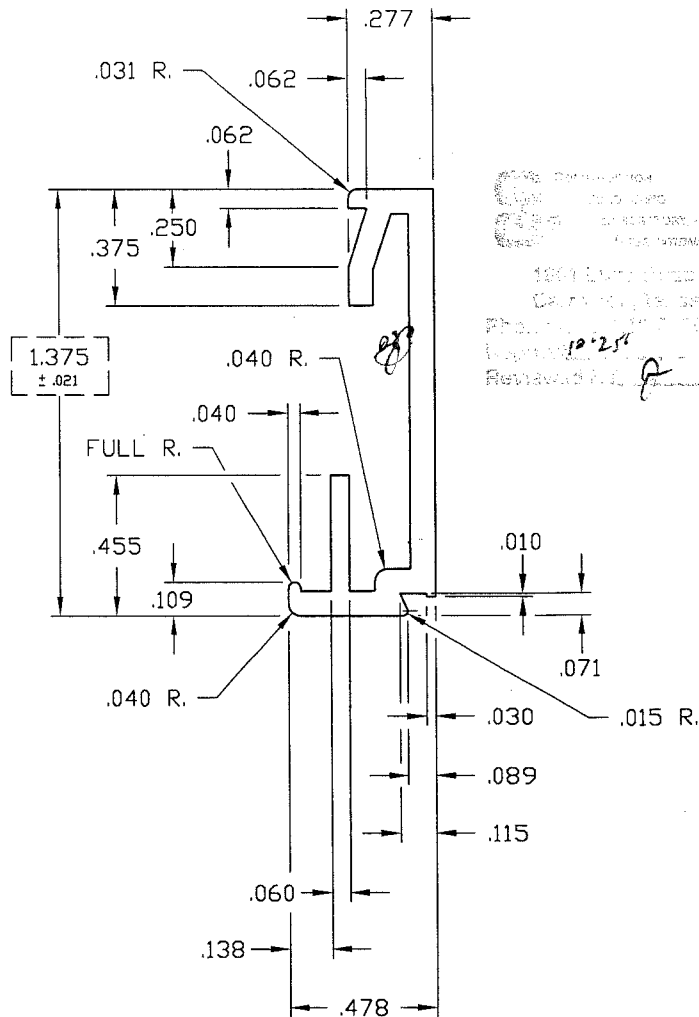
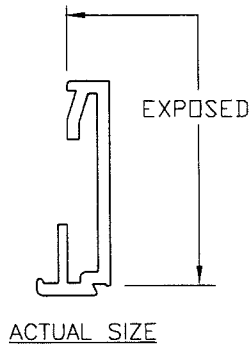


TYP. RAD. = .012 R.
 O = .008 R.
10 x SIZE

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MATERIAL: 6063-T6 ALUM.		 BFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313	DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .100 & AS NOTED			DATE: 5/2/07			
TOTAL PERMETER: 15.435 OS = 11.508 IS = 3.849			APPROVED: SCC			
PAINTED PERMETER: 4.074			DATE: 5/2/07		JOB REF. NO.:	
AREA: .878	WT/FT: 1.054		SERIES: 5XPT	SCALE: AS NOTED	DE. CIRCLE: 4"	
FACTOR: 15		TITLE: (EXT.) FIXED PANEL HORIZ.			DWG NO. 18B9	

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1-800-221-4169
Fax: 417-235-7313

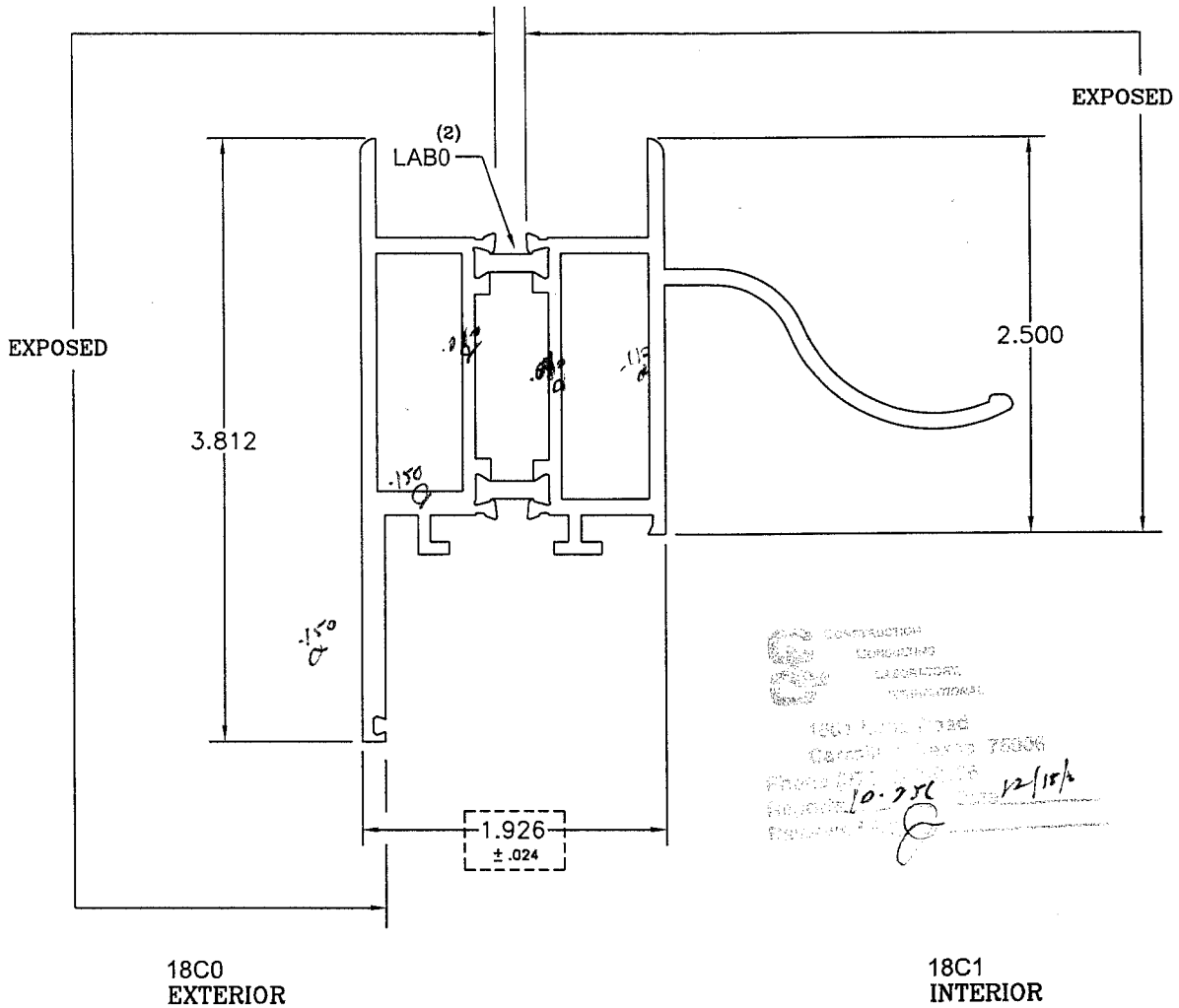
2x SIZE

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .080 & AS NOTED			DATE: 8/1/06			
TOTAL PERIMETER: 5.499			APPROVED: SCC			
PAINTED PERIMETER: 1.640			DATE: 8/1/06		JOB REF. NO.:	
AREA: .205	WT/FT: .246	EFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313	5XP	SCALE: AS NOTED	DIE CIRCLE: 2"	
FACTOR: 22			TITLE: GLAZING BEAD	1 3/16"	DWG NO. 14M9	

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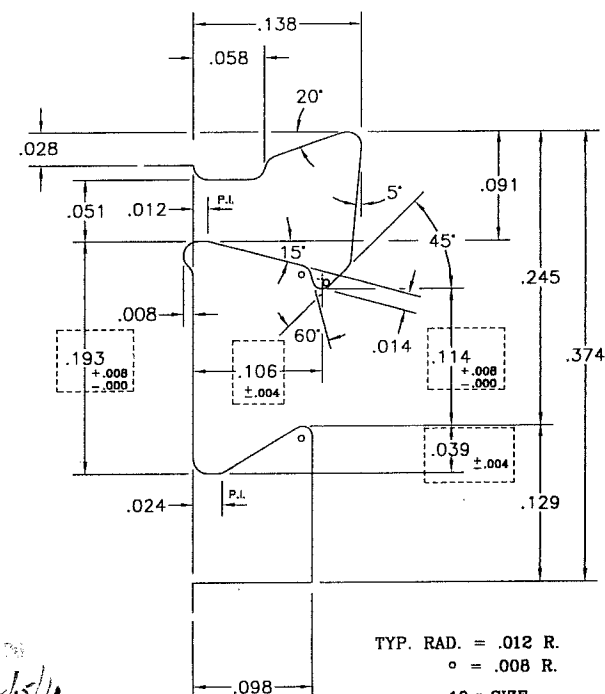
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

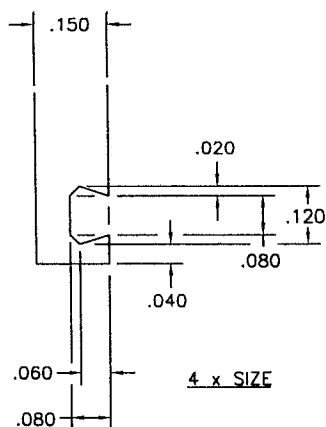
REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	HARDWARE SIDE RAIL		1D09

Technical drawing of a mechanical part, likely a bracket or plate, showing dimensions and features. The part has a rectangular main body with a vertical slot on the right side. Dimensions include overall width of 1.25, overall height of 3.187, and a central slot width of 0.150. A circular feature with a radius of 0.100 R is located on the top right. A small hole with a diameter of 0.080 is also present. The drawing includes a section line A-A on the left side, indicating a cross-section view. Handwritten annotations include '150' and '150' near the central slot, and '150' near the bottom right corner.

[illegible]

TYP. RAD. = .012 R.
 O = .008 R.
10 x SIZE



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MATERIAL: 6063-T6 ALUM.		 a Puller Company 1000 County Road Menett, Missouri 65708 1-800-221-4169 FAX: 317-235-7313 www.efcco.com	DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .100 & AS NOTED			DATE: 5/2/07		A REVISED EXPOSURE 11/2/10 SCC	
TOTAL PERIMETER: 15.253 OS = 11.158 IS = 4.094			APPROVED: SCC			
PAINTED PERIMETER: 5.437			DATE: 11/2/10		JOB REF. NO.:	
AREA: .795 WT/FT: .954		SERIES: 5XPT		SCALE: AS NOTED		DIE CIRCLE: 4"
FACTOR: 16		TITLE: OPERABLE PANEL SIDE RAIL		(EXT.) DWG NO. 18C0		REV (A)

Technical drawing of a mechanical part, likely a bracket or housing, showing multiple views and dimensions.

Top View (Left):

- Overall width: .217
- Top-left corner radius: .040 R.
- Bottom-left corner radius: .060 R.
- Internal corner radius: .040 R.
- Internal width: .149
- Internal depth: .24
- Note: 4 x SIZE

Side View (Right):

- Overall height: .727
- Top-right corner radius: .080
- Internal corner radius: .500 R.
- Internal width: .326
- Internal depth: .2201
- Internal width: .1707
- Internal depth: .999 R.
- Internal width: .625
- Internal depth: .842
- Internal depth: .925
- Internal depth: 1.425
- Internal depth: 1.624
- Internal depth: 1.750

Bottom View (Left):

- Overall width: .525
- Overall depth: .080
- Internal width: .125
- Internal depth: .299

Other Features:

- Label: (A)
- Label: AC

Technical drawing of a mechanical part with dimensions and tolerances. The drawing includes the following dimensions and tolerances:

- Overall width: .138
- Top left corner radius: .028
- Top left vertical dimension: .051
- Top left horizontal dimension: .058
- Top left vertical dimension: .012
- Top left horizontal dimension: .008
- Top left vertical dimension: .193
- Top left horizontal dimension: $+ .008$
- Top left vertical dimension: $- .000$
- Top left horizontal dimension: .106
- Top left horizontal dimension: $\pm .004$
- Top left vertical dimension: .114
- Top left vertical dimension: $+ .008$
- Top left vertical dimension: $- .009$
- Top left horizontal dimension: .014
- Top left horizontal dimension: .039
- Top left horizontal dimension: $\pm .004$
- Top left vertical dimension: .091
- Top left vertical dimension: .245
- Top left vertical dimension: .374
- Top left horizontal dimension: .024
- Top left horizontal dimension: .098
- Top left vertical dimension: .129
- Top left horizontal dimension: .058
- Top left vertical dimension: .051
- Top left horizontal dimension: .012
- Top left horizontal dimension: .008
- Top left vertical dimension: .193
- Top left horizontal dimension: $+ .008$
- Top left vertical dimension: $- .000$
- Top left horizontal dimension: .106
- Top left horizontal dimension: $\pm .004$
- Top left vertical dimension: .114
- Top left vertical dimension: $+ .008$
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- Top left horizontal dimension: .039
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- Top left vertical dimension: .091
- Top left vertical dimension: .245
- Top left vertical dimension: .374
- Top left horizontal dimension: .024
- Top left horizontal dimension: .098
- Top left vertical dimension: .129

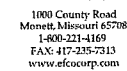
Angles and features:

- 20°
- 5°
- 15°
- 45°
- 60°
- P.I.
-

TYP. RAD. = .012 R.
○ = .008 R.

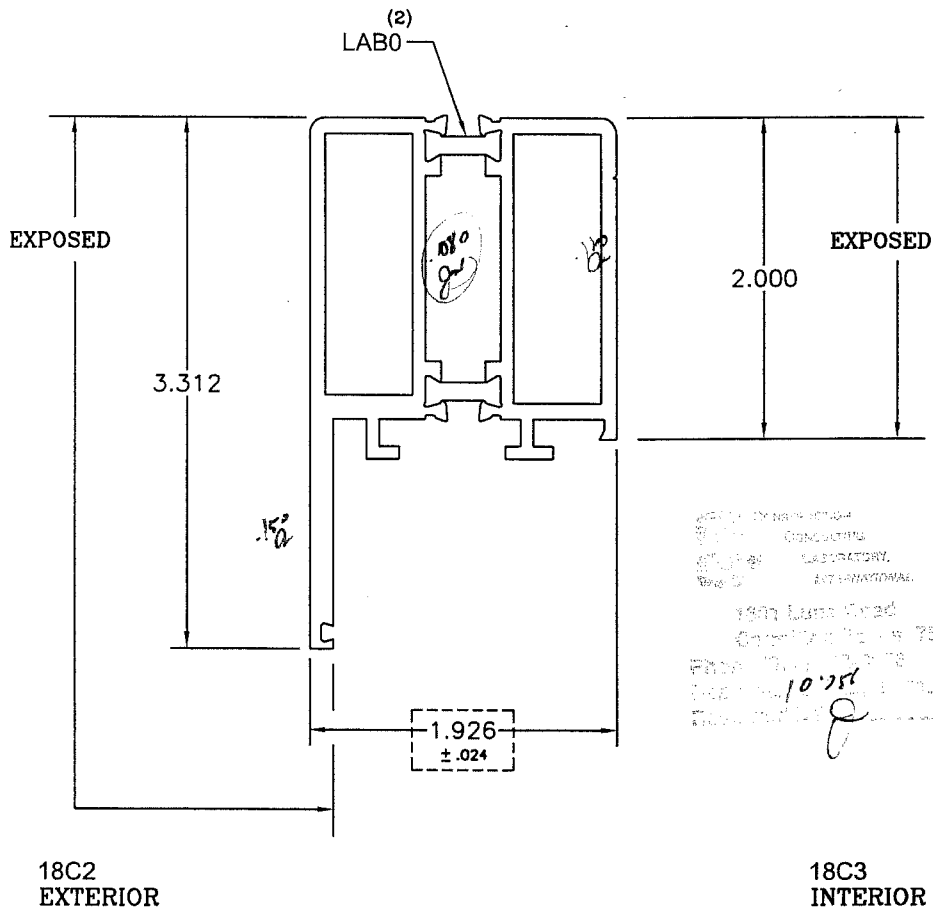
12-221 12/15/16

MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .100 & AS NOTED	
TOTAL PERIMETER: 17.937	OS = 13.743 IS = 4.194
PAINTED PERIMETER: 9.142	
AREA: .837	WT/FT: 1.004
FACTOR: 18	



DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5/2/07		① REVISED EXPOSURE 11/2/10 SCC	
APPROVED: SCC			
DATE: 11/2/10		JOB REF. NO.:	
SERIES: 5XPT		AS NOTED	
TITLE: (INT.)		DIE CIRCLE: 4"	
OPERABLE PANEL SIDE RAIL		DWG NO. 18C1	
		A	

STD. EXTRUSION TOLERANCES AS DEFINED BY
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MONETT, MO. 65708
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MONETT, MO. 65708

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Monett, MO. 65708
Phone: 417-938-1111
Fax: 417-938-1111
E-mail: info@efco.com

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REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	3-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	FIXED SIDE RAIL		1D10

Technical drawing of a mechanical part, likely a bracket or flange, showing dimensions and a note.

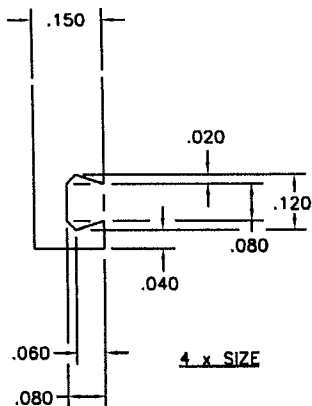
Dimensions (in inches):

- Overall width: .727
- Overall height: 3.312
- Inner width: .150
- Inner height: 1.437
- Top right corner radius: .100 R.
- Right side thickness: .170
- Bottom right corner radius: .125
- Bottom right corner thickness: .080
- Bottom right corner thickness: .290
- Bottom right corner thickness: .250

Note: EXPOSED

Handwritten note: .080 (circled)

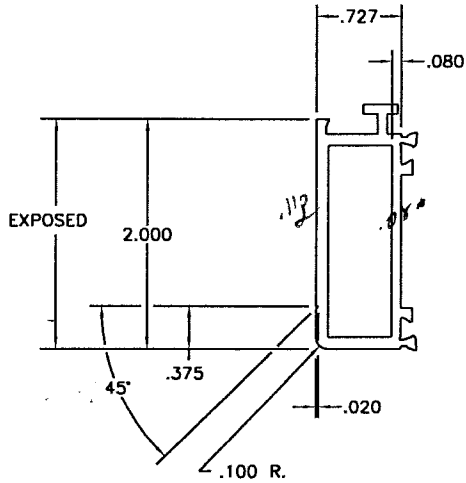
Handwritten note: 15°



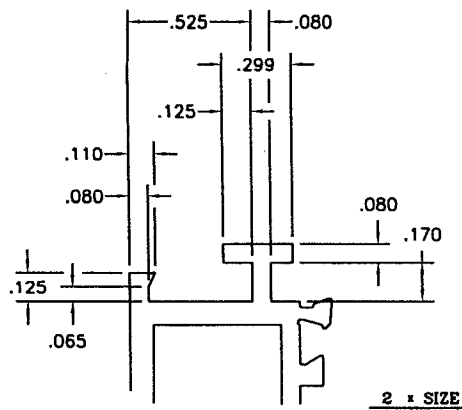
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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .100 & AS NOTED			DATE: 5/2/07			
TOTAL PERIMETER: 14.503 OS = 10.158 IS = 4.344			APPROVED: SCC			
PAINTED PERIMETER: 3.519			DATE: 5/2/07		JOB REF. NO.:	
AREA: .753	WT/FT: .904		SERIES: 5XPT		SCALE: AS NOTED	ONE CIRCLE: 4"
FACTOR: 16		TITLE: FIXED SIDE RAIL (EXT.)				DWG NO. 18C2

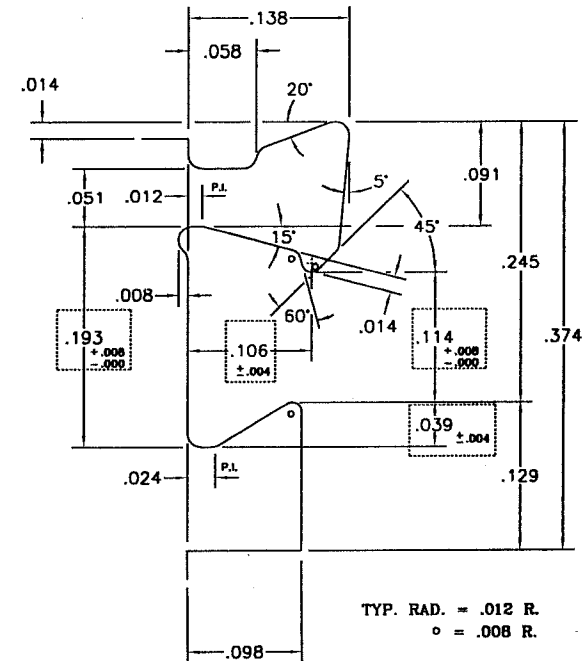
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ACTUAL SIZE



2 x SIZE



TYP. RAD. = .012 R.
o = .008 R.

10 x SIZE

DO NOT SCALE PRINT

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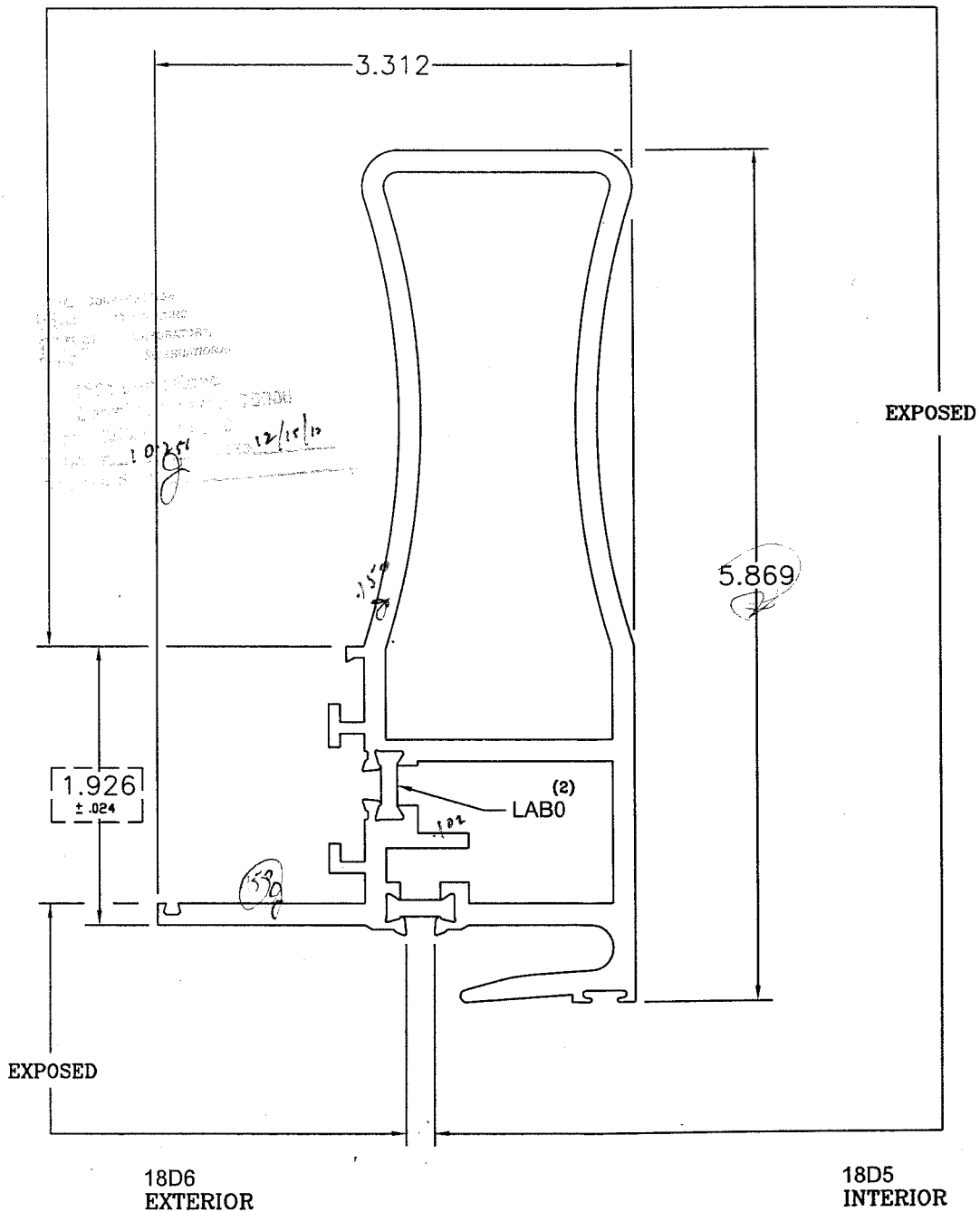
MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .100 & AS NOTED	
TOTAL PERMETER: 12.049	OS = 7.605 IS = 4.444
PAINTED PERMETER: 2.085	
AREA: .537	WT/FT: .644
FACTOR: 19	



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DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5/2/07			
APPROVED: SCC			
DATE: 5/2/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	IRE CIRCLE:	3"
TITLE: FIXED SIDE RAIL (INT.)		DWG NO. 18C3	

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REVISIONS W/DATES:

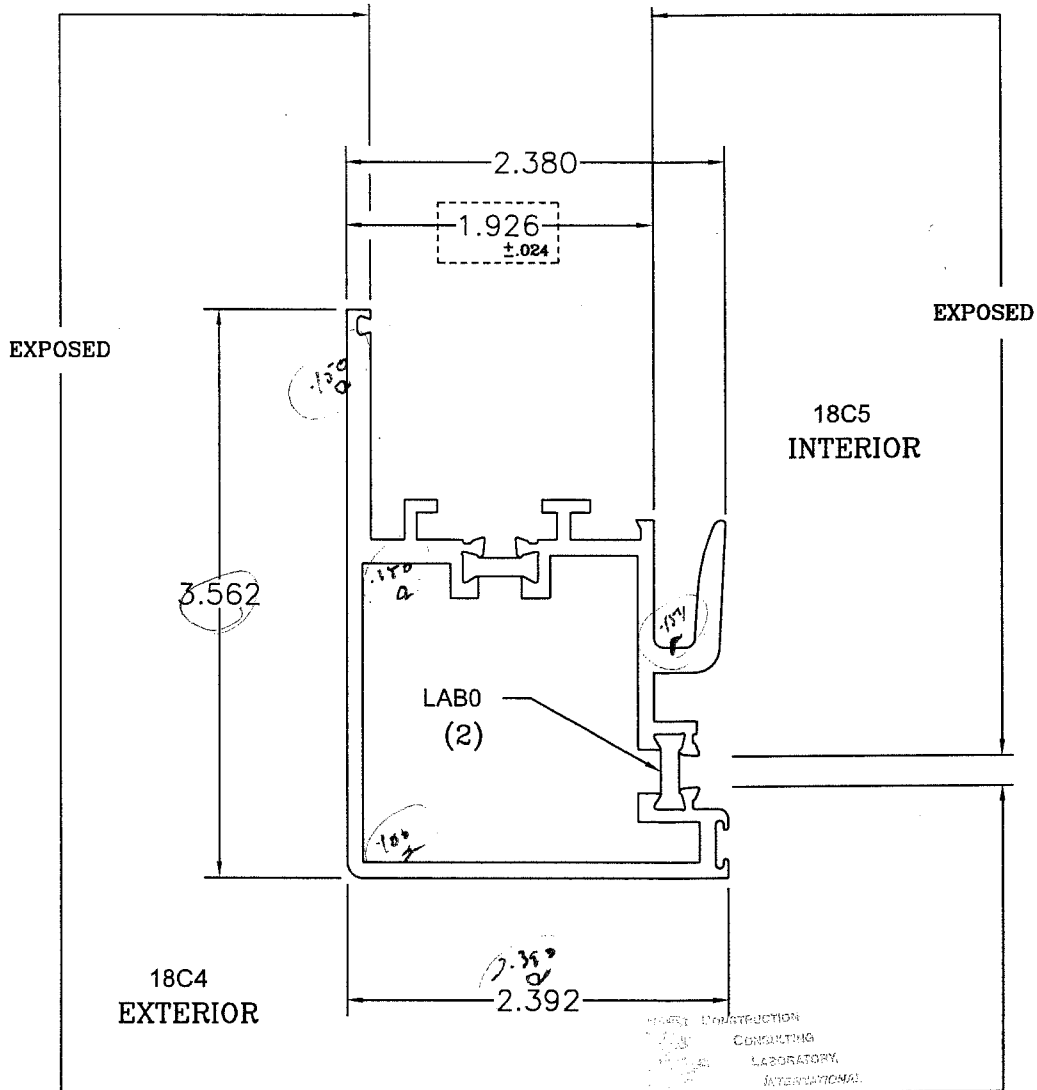
SCC	APPROVED: SCC	SCALE: FULL	TITLE	S-SXPT	NO.
DATE: 5/16/07	DATE: 5/16/07		MEETING RAIL		1D14

[illegible]

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:
WALL THICKNESS: .150 & AS NOTED			DATE: 5/7/07		
TOTAL PERIMETER: 7.940			APPROVED: SCC		
PAINTED PERIMETER: 1.906			DATE: 5/7/07		JOB REF. NO.:
AREA: .473	WT/FT: .568		EFCO CORPORATION 10801 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313		SCALE: AS NOTED DIE CIRCLE: 3"
FACTOR: 14		TITLE: MEETING RAIL (EXT.)		DWG NO. 18D6	

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ACTUAL SIZE

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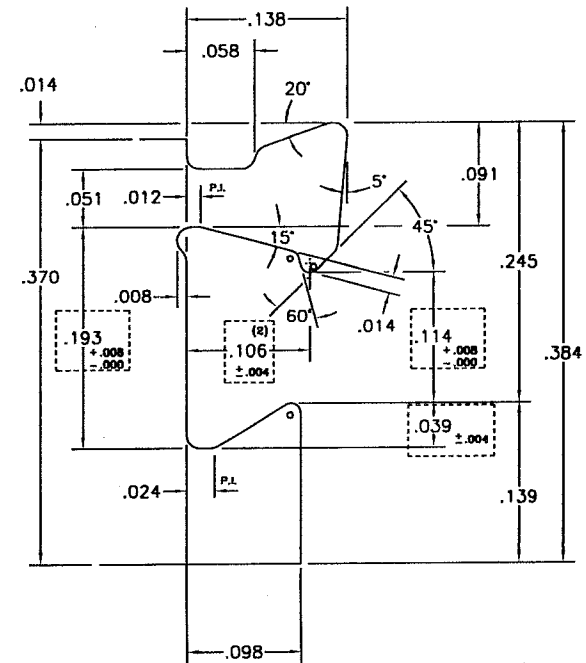
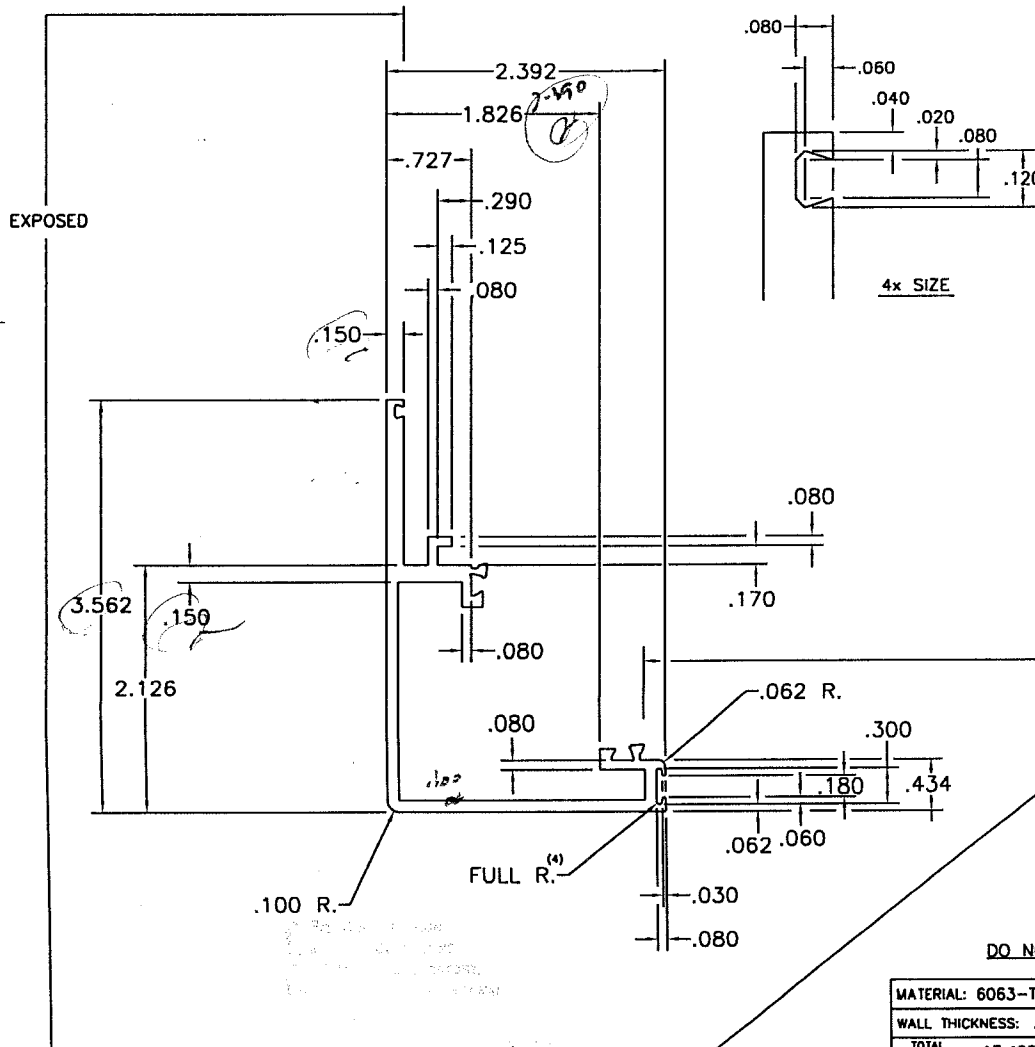
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MONETT, MO. 65708

REVISIONS W/DATES:

Drawn: SCC	APPROVED: SCC	SCALE: FULL	TITLE MEETING RAIL	NO. 1D11
DATE: 3/27/07	DATE: 3/27/07			

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
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STATED. CORNER RADII .015 EXCEPT AS NOTED.



TYP. RAD. = .012 R.
○ = .008 R.
10x SIZE

DO NOT SCALE PRINT

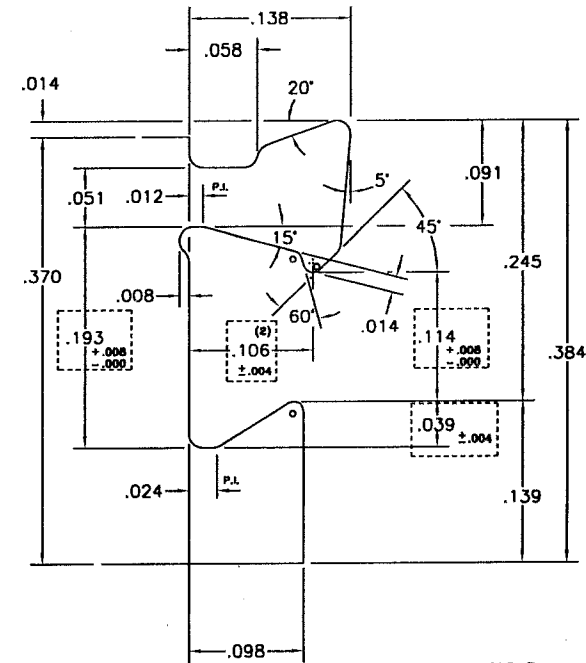
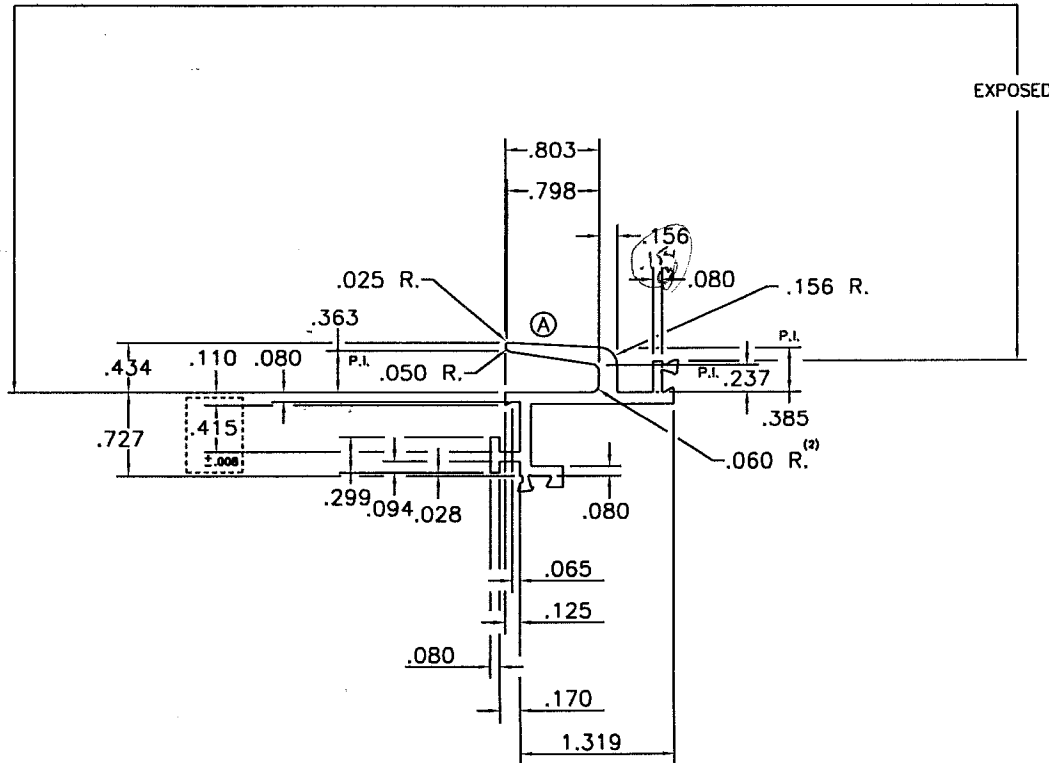
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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .100 & AS NOTED	
TOTAL PERIMETER: 17.428	
PAINTED PERIMETER: 7.175	
AREA: .904	WT/FT: 1.085
FACTOR: 16	

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DRAWN BY: SCC	REVISIONS #/ DATES:	
DATE: 3/27/07		
APPROVED: SCC		
DATE: 3/27/07	JOB REF. NO.:	
SERIES: 6XPT	SCALE: AS NOTED	ONE CIRCLE: 5"
TITLE: MEETING RAIL (EXT.)		DWG NO. 18C4

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
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TYP. RAD. = .012 R.
o = .008 R.
10 x SIZE

DO NOT SCALE PRINT

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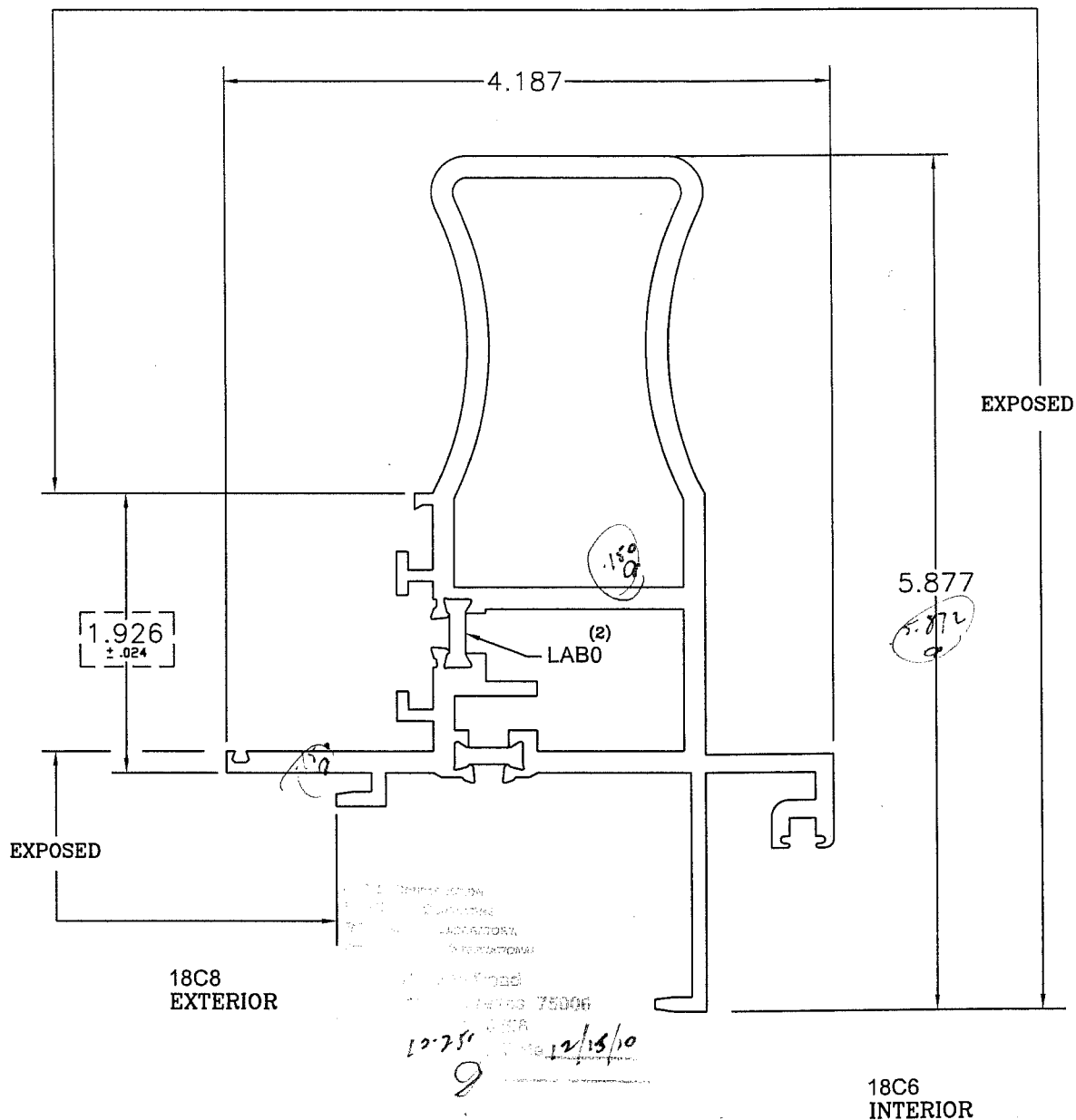
MATERIAL: 6063-T6 ALUM.
WALL THICKNESS: .100 & AS NOTED
TOTAL PERIMETER: 9.564 (B)
PAINTED PERIMETER: 3.789 (B) (B)
AREA: .470 (B) WT/FT: .564
FACTOR: 17 (A)

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DRAWN BY: SCC	REVISIONS W/ DATES:
DATE: 3/27/07	④ REVISED SHAPE OF THE INTERLOCK
APPROVED: SCC	REVISED PROPERTIES 11/2/08 SCC
DATE: 11/4/09	③ CRIMPING HAMMER WAS NOT DRAWN CORRECTLY
SERIES: 5XPT	REVISED PROPERTIES 11/4/08 SCC
TITLE: MEETING RAIL (INT.)	JOB REF. NO.:
SCALE: AS NOTED	DWG NO. 18C5
DIE CIRCLE: 2"	REV. (B)

10/28/07
12/1/10

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REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	OXO MEETING RAIL		1D15

Technical drawing of a mechanical part, likely a valve or fitting, showing a cross-section with dimensions in inches. The drawing includes a 60-degree angle and a section line labeled "EXPOSED". Dimensions include .131, .100, .018, .727, .290, .080, .125, 1.012, .250, .100, 1.437, 2.159, .080, .170, .72, .102, .094, and .433.

Technical drawing of a 4x size connector. The drawing shows a cross-section of a rectangular component with a rounded end. Dimensions are indicated as follows: .080 (top left), .060 (top center), .040 (top right), .020 (middle right), .080 (bottom right), and .120 (bottom center). The text "4x SIZE" is written below the drawing.

ACTUAL SIZE

DO NOT SCALE PRINT

TYP. RAD. = .012 R.
 O = .008 R.
10 x SIZE

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS #/ DATES:	
WALL THICKNESS: .150 & AS NOTED			DATE: 5/8/07			
TOTAL PERIMETER: 8.885			APPROVED: SCC			
PAINTED PERIMETER: 2.851			DATE: 5/8/07	JOB REF. NO.:		
AREA: .520	WT/FT: .624		SERIES: 5XPT	SCALE: AS NOTED	ID# CIRCLE:	3"
FACTOR: 14		TITLE: OXO MEETING RAIL (EXT.)		DWG NO. 18C8		

[illegible]

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MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .150 & AS NOTED	
TOTAL PERIMETER: 33.469	OS = 24.630 IS = 8.839
PAINTED PERIMETER: 14.033	
AREA: 2.239	WT/FT: 2.687
FACTOR: 12	

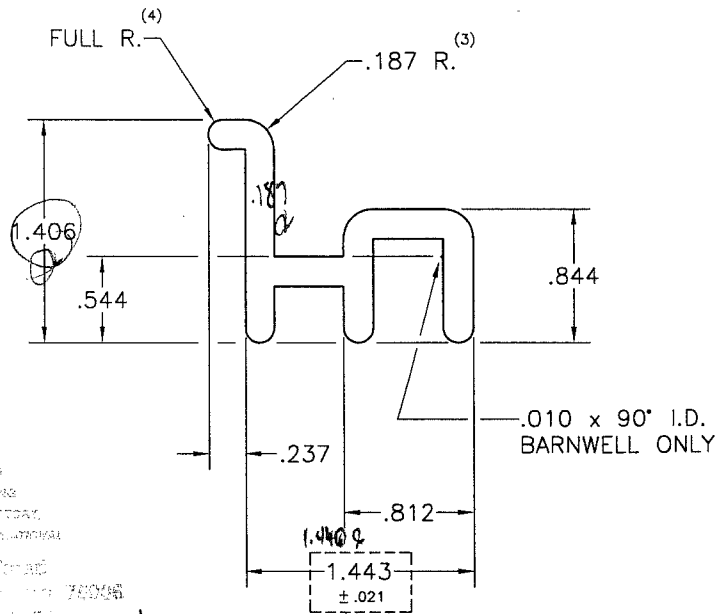


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DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5/8/07			
APPROVED: SCC			
DATE: 5/8/07			
JOB REF. NO.1			
SERIES: 5XPT	SCALE: AS NOTED	OR CIRCLE:	7"
TITLE: OXO MEETING RAIL (INT.)		DWG NO. 18C6	

.010 x 90° I.D. MARK TO BE INCORPORATED INTO DIE @ EFCO BARNWELL ONLY. EFCO MONETT IS NOT TO HAVE I.D. MARK.

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10/25/05 14/15/05

ACTUAL SIZE

NO EXPOSED SURFACES

14B1

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .187 & AS NOTED			DATE: 10/25/05			
TOTAL PERIMETER: 8.238			APPROVED: SCC			
			DATE: 10/25/05	JOB REF. NO.:		
AREA: .750	WT/FT: .900	EFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417 325 7212		SERIES: 5XP	SCALE: AS NOTED	DIE CIRCLE: 3"
FACTOR: 9		TITLE: HEAD SPACER				DWG NO. 14B1

STD. EXTRUSION TOLERANCES AS DEFINED BY THE ALUMINUM ASSOCIATION UNLESS OTHERWISE STATED. CORNER RADII .015 EXCEPT AS NOTED.

EXPOSED

10.251 14.11/11

.125 R.

1.000

15°

.165

.813

.368
± .012

.250

FULL R.

.125

.040 .073

.125 R.

.368

ACTUAL SIZE

14B2

DO NOT SCALE PRINT

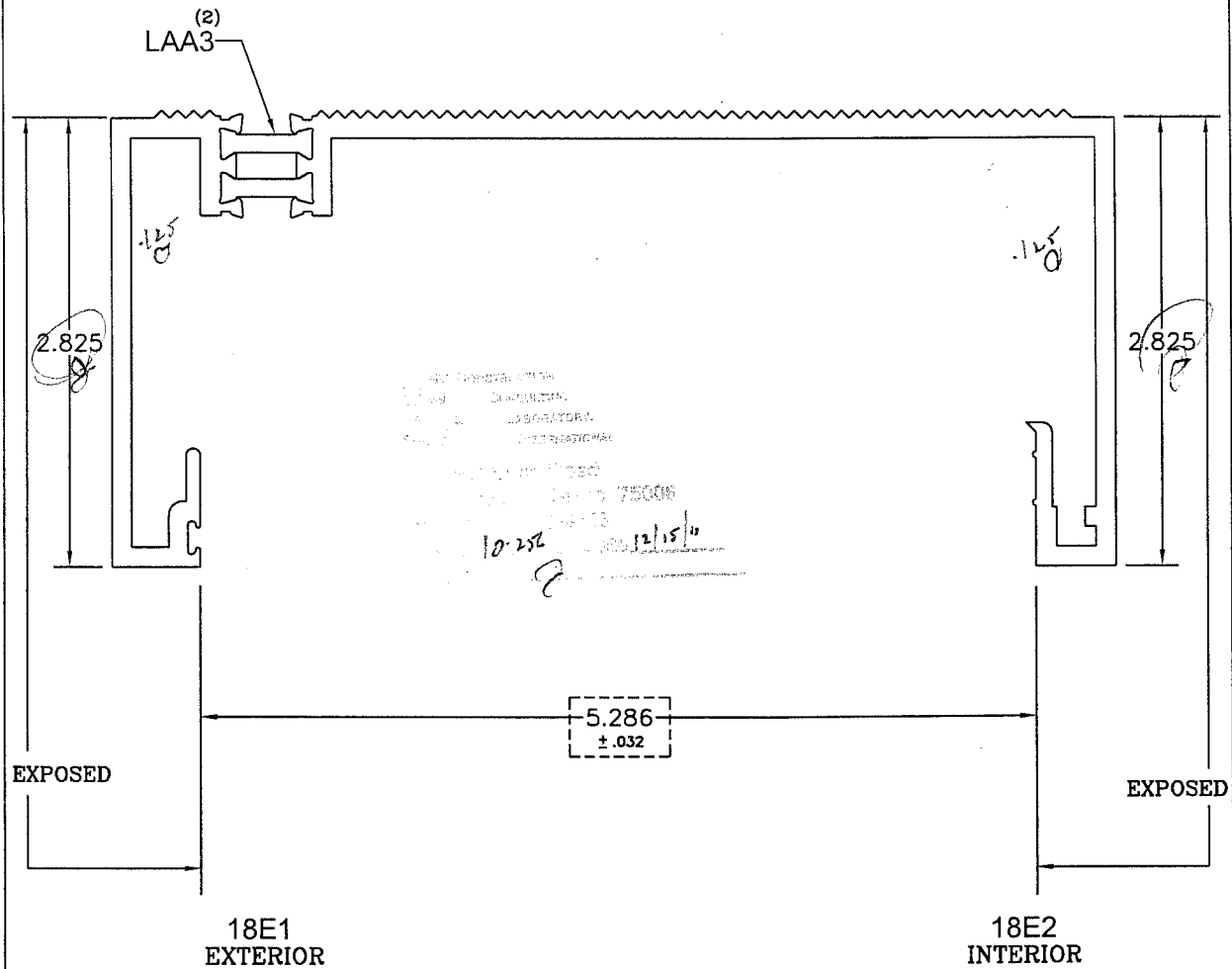
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DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.		 FFCO CORPORATION 1000 County Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-225-7212	DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .250 & AS NOTED			DATE: 10/25/05			
TOTAL PERIMETER: 3.433			APPROVED: SCC			
PAINTED PERIMETER: 2.540			DATE: 10/25/05		JOB REF. NO.:	
AREA: .307	WT/FT: .368		SERIES: 5XP		SCALE: AS NOTED	DIE CIRCLE: 2"
FACTOR: 9		TITLE: PERFORMANCE SILL ADAPTER				DWG NO. 14B2

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REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/17/07	DATE: 5/17/07	FULL	SUBHEAD		3S89

90°

.682

.269

.200

.100

.050

.050

.013

.625

2.825

.090 R.

.090

FULL R. (S)

.750

.211

.043

.080

.125

.117

.030

.050

.553

EXPOSED

10-258

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 08-09-2001 BY SP-6 BTM/KMP

10-238 10/27/01

Technical drawing of a mechanical part, likely a bracket or arm, showing dimensions and tolerances.

Dimensions and Tolerances:

- Overall width: .014
- Central vertical section width: .098
- Base width: .047
- Angles: 45°, 60°, 15°, 65°, 20°
- Tolerances: $\Delta = .012 R$, $\square = .008 R$
- Note: 10X SIZE

MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .125 & AS NOTED	
TOTAL PERIMETER: 11.445	
PAINTED PERIMETER: 3.378	
AREA: .652	WT/FT: .782
FACTOR: 15	



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DRAWN BY: SCC		REVISIONS #/ DATES:	
DATE: 5/17/07			
APPROVED: SCC			
DATE: 5/17/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	DWG. NO. 18E1	DWG. NO. 3"
TITLE: SUBHEAD (EXT.)			

90°

5.082

.269

.200

.100

.050

.050

.013

.625

2.825

.062 R.

.100

.060

.060

.704

.907

.375

.070

.500

.401

.020 R.

(2)

EXPOSED

10-2 R

12/19/10

8

ACTUAL SIZE

MATERIAL: 6
WALL THICKNESS: .013
TOTAL: .625

DO NOT SCALE PRINT

ALUMINUM ASSOCIATION GRESS D
STATED, CORNER RADII .015 EXCEPT

.014

.653

ξ SYM. .024 P.L. ξ

P.L.-P.L. .165

.040 P.L.

.012 P.L. .008 P.L.

P.L.-P.L. .114 ±.008

.193 ±.008

.051 .012

.047

45° 60° 5° 15° 65° 20°

.014 P.L.

.091 P.L.

□ = .008 R
△ = .012 R

10X SIZE



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DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 4/30/07			
APPROVED: SCC			
DATE: 4/30/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	ONE CIRCLE:	6"
TITLE: SUBHEAD (INT.)		DWG NO. 18E2	

Technical drawing of a sill starter assembly. The drawing shows a cross-section of the assembly with various dimensions and labels.

Dimensions:

- Overall width: 5.375 (with a handwritten note 5.372 and a tolerance of $\pm .024$)
- Left exposed height: 1.532
- Right exposed height: 1.706

Labels:

- 18D9 EXTERIOR
- 18E0 INTERIOR
- LAA3 (2)
- EXPOSED (on both ends)

Handwritten notes and stamps:

- 10/28/10
- 12/15/10
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Technical drawing of a mechanical part, likely a bracket or plate, showing dimensions and features. The drawing includes a top view and a side view. Key dimensions include overall width 3.216, overall height 1.981, and various hole diameters (.156 I.D., .280 O.D.). A 90-degree angle is indicated at the top right. A section line A-A is shown. The word "EXPOSED" is written on the left side. Handwritten notes include "10-238" and "2/15/10".

Technical drawing of a mechanical part, likely a bracket or arm, showing dimensions and tolerances. The drawing includes a central vertical section with various horizontal and angled features. Key dimensions and tolerances are as follows:

- Top horizontal dimension: .014
- Horizontal distance from left edge to first vertical section: .098
- Horizontal distance from left edge to second vertical section: .040
- Horizontal distance from left edge to third vertical section: .051
- Horizontal distance from left edge to fourth vertical section: .012
- Horizontal distance from left edge to fifth vertical section: .014
- Horizontal distance from left edge to sixth vertical section: .047
- Horizontal distance from left edge to seventh vertical section: .138
- Horizontal distance from left edge to eighth vertical section: .014
- Horizontal distance from left edge to ninth vertical section: .012
- Horizontal distance from left edge to tenth vertical section: .008
- Horizontal distance from left edge to eleventh vertical section: .012
- Horizontal distance from left edge to twelfth vertical section: .008
- Horizontal distance from left edge to thirteenth vertical section: .012
- Horizontal distance from left edge to fourteenth vertical section: .012
- Horizontal distance from left edge to fifteenth vertical section: .012
- Horizontal distance from left edge to sixteenth vertical section: .012
- Horizontal distance from left edge to seventeenth vertical section: .012
- Horizontal distance from left edge to eighteenth vertical section: .012
- Horizontal distance from left edge to nineteenth vertical section: .012
- Horizontal distance from left edge to twentieth vertical section: .012
- Horizontal distance from left edge to twenty-first vertical section: .012
- Horizontal distance from left edge to twenty-second vertical section: .012
- Horizontal distance from left edge to twenty-third vertical section: .012
- Horizontal distance from left edge to twenty-fourth vertical section: .012
- Horizontal distance from left edge to twenty-fifth vertical section: .012
- Horizontal distance from left edge to twenty-sixth vertical section: .012
- Horizontal distance from left edge to twenty-seventh vertical section: .012
- Horizontal distance from left edge to twenty-eighth vertical section: .012
- Horizontal distance from left edge to twenty-ninth vertical section: .012
- Horizontal distance from left edge to thirtieth vertical section: .012
- Horizontal distance from left edge to thirty-first vertical section: .012
- Horizontal distance from left edge to thirty-second vertical section: .012
- Horizontal distance from left edge to thirty-third vertical section: .012
- Horizontal distance from left edge to thirty-fourth vertical section: .012
- Horizontal distance from left edge to thirty-fifth vertical section: .012
- Horizontal distance from left edge to thirty-sixth vertical section: .012
- Horizontal distance from left edge to thirty-seventh vertical section: .012
- Horizontal distance from left edge to thirty-eighth vertical section: .012
- Horizontal distance from left edge to thirty-ninth vertical section: .012
- Horizontal distance from left edge to fortieth vertical section: .012
- Horizontal distance from left edge to forty-first vertical section: .012
- Horizontal distance from left edge to forty-second vertical section: .012
- Horizontal distance from left edge to forty-third vertical section: .012
- Horizontal distance from left edge to forty-fourth vertical section: .012
- Horizontal distance from left edge to forty-fifth vertical section: .012
- Horizontal distance from left edge to forty-sixth vertical section: .012
- Horizontal distance from left edge to forty-seventh vertical section: .012
- Horizontal distance from left edge to forty-eighth vertical section: .012
- Horizontal distance from left edge to forty-ninth vertical section: .012
- Horizontal distance from left edge to fiftieth vertical section: .012
- Horizontal distance from left edge to fifty-first vertical section: .012
- Horizontal distance from left edge to fifty-second vertical section: .012
- Horizontal distance from left edge to fifty-third vertical section: .012
- Horizontal distance from left edge to fifty-fourth vertical section: .012
- Horizontal distance from left edge to fifty-fifth vertical section: .012
- Horizontal distance from left edge to fifty-sixth vertical section: .012
- Horizontal distance from left edge to fifty-seventh vertical section: .012
- Horizontal distance from left edge to fifty-eighth vertical section: .012
- Horizontal distance from left edge to fifty-ninth vertical section: .012
- Horizontal distance from left edge to sixtieth vertical section: .012
- Horizontal distance from left edge to sixty-first vertical section: .012
- Horizontal distance from left edge to sixty-second vertical section: .012
- Horizontal distance from left edge to sixty-third vertical section: .012
- Horizontal distance from left edge to sixty-fourth vertical section: .012
- Horizontal distance from left edge to sixty-fifth vertical section: .012
- Horizontal distance from left edge to sixty-sixth vertical section: .012
- Horizontal distance from left edge to sixty-seventh vertical section: .012
- Horizontal distance from left edge to sixty-eighth vertical section: .012
- Horizontal distance from left edge to sixty-ninth vertical section: .012
- Horizontal distance from left edge to seventieth vertical section: .012
- Horizontal distance from left edge to seventy-first vertical section: .012
- Horizontal distance from left edge to seventy-second vertical section: .012
- Horizontal distance from left edge to seventy-third vertical section: .012
- Horizontal distance from left edge to seventy-fourth vertical section: .012
- Horizontal distance from left edge to seventy-fifth vertical section: .012
- Horizontal distance from left edge to seventy-sixth vertical section: .012
- Horizontal distance from left edge to seventy-seventh vertical section: .012
- Horizontal distance from left edge to seventy-eighth vertical section: .012
- Horizontal distance from left edge to seventy-ninth vertical section: .012
- Horizontal distance from left edge to eightieth vertical section: .012
- Horizontal distance from left edge to eighty-first vertical section: .012
- Horizontal distance from left edge to eighty-second vertical section: .012
- Horizontal distance from left edge to eighty-third vertical section: .012
- Horizontal distance from left edge to eighty-fourth vertical section: .012
- Horizontal distance from left edge to eighty-fifth vertical section: .012
- Horizontal distance from left edge to eighty-sixth vertical section: .012
- Horizontal distance from left edge to eighty-seventh vertical section: .012
- Horizontal distance from left edge to eighty-eighth vertical section: .012
- Horizontal distance from left edge to eighty-ninth vertical section: .012
- Horizontal distance from left edge to ninetieth vertical section: .012
- Horizontal distance from left edge to one hundred vertical section: .012

Angles shown: 45°, 60°, 5°, 15°, 65°, 20°.

Legend:

- = .008 R
- △ = .012 R

Scale: 10X SIZE

© 2007 EFCO CORPORATION ALL RIGHTS RESERVED

MATERIAL: 6063-T6 ALUM.		 EFCO CORPORATION 1000 Canby Road Monett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313	DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .125 & AS NOTED			DATE: 4/30/07			
TOTAL PERIMETER: 18.259			APPROVED: SCC			
PAINTED PERIMETER: 1.398			DATE: 4/30/07		JOB REF. NO.:	
AREA: 1.083			SERIES: 5XPT		SCALE: AS NOTED	
WT/FT: 1.300				ONE CIRCLE: 4"		
FACTOR: 14				TITLE: SILL STARTER (EXT.)		
				DWG NO. 18D9		

EXPOSED

1.584

.562

.170

.531

.232

.407

1.706

.081

.156 I.D.

.280 O.D.

.050

.050

.100

.200

.375

.750

1.209

30°

90°

FULL R. (2)

R.125 R. (2)

CONSTRUCTION

10-25

ALUMINUM ASSOCIATION UNLESS OTHERWISE SPECIFIED.
STATED. CORNER RADII .015 EXCEPT WHERE SHOWN.

.081

.639 ± .008 C SYM. P.L. .024 C P.L.-P.L. .165

P.L. .040

P.L. .012 P.L. .008

P.L. .014

P.L. .091

.051 .012

.014

.047

.138

45° 60° 5° 15° 65° 20°

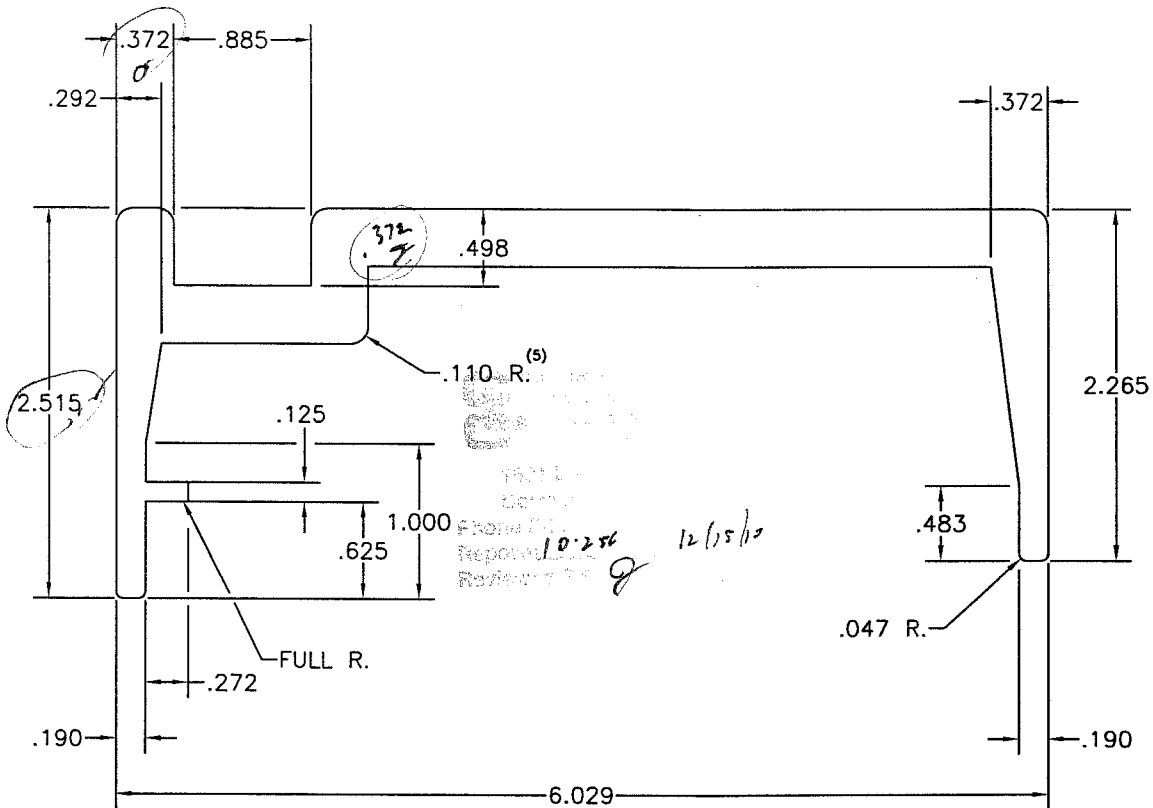
□ = .008 R
△ = .012 R

10X SIZE

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:		
WALL THICKNESS: .125 & AS NOTED			DATE: 4/30/07				
TOTAL PERIMETER: 12.488			APPROVED: SCC				
PAINTED PERIMETER: 2.227			DATE: 4/30/07		JOB REF. NO.:		
AREA: .713			WT/FT: .856				
FACTOR: 15		BFCO CORPORATION 1000 County Road Manett, Missouri 65708 1-800-221-4169 Fax: 417-235-7313		SERIES: 5XPT		SCALE: AS NOTED	ONE CIRCLE: 3"
				TITLE: SILL STARTER (INT.)		DWG NO. 18E0	

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



ACTUAL SIZE

NO EXPOSED SURFACES

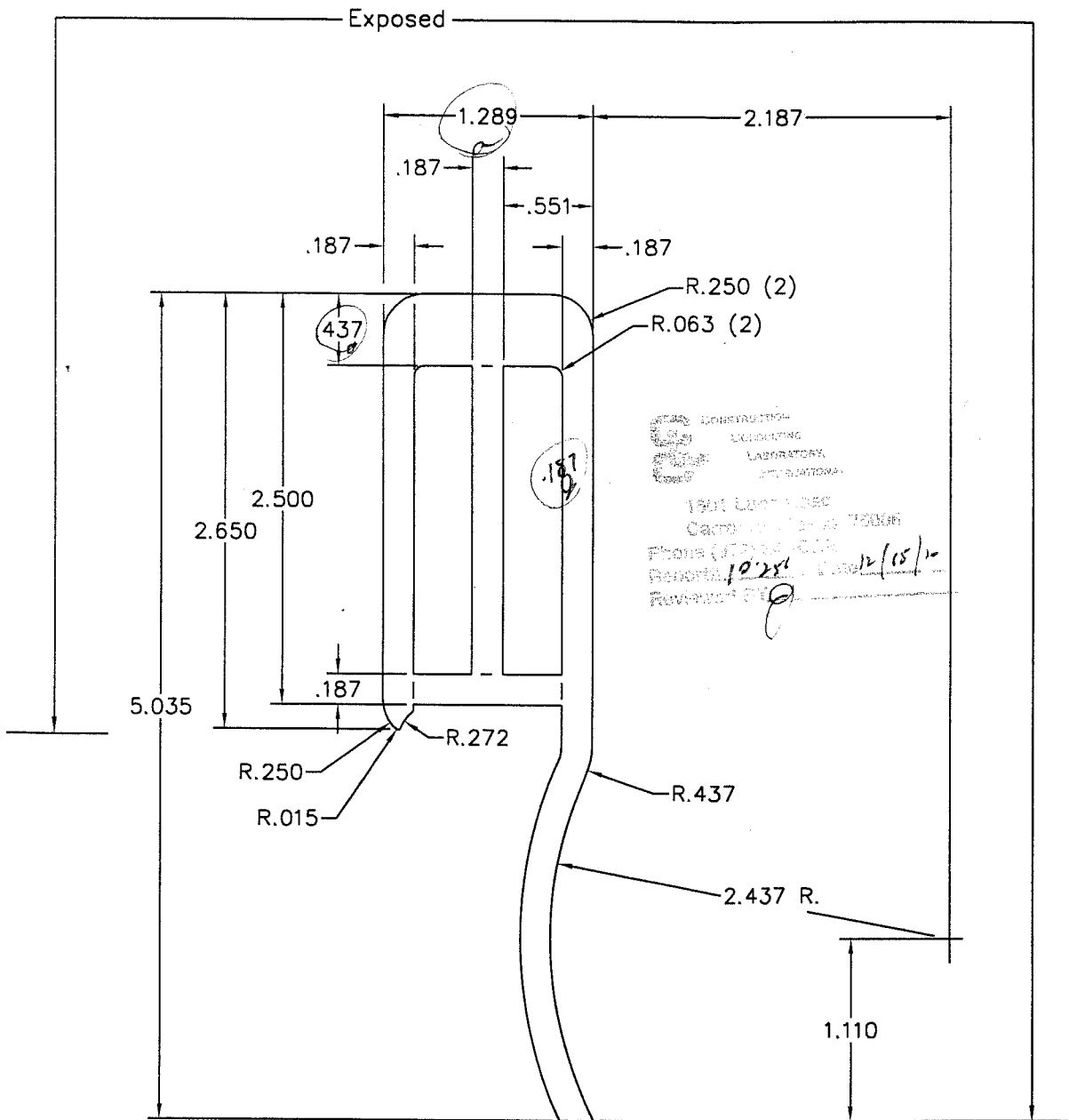
DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.			DRAWN BY: SCC		REVISIONS W/ DATES:	
WALL THICKNESS: .372 & AS NOTED			DATE: 5/8/07			
TOTAL PERIMETER: 21.833			APPROVED: SCC			
PAINTED PERIMETER: N/A			DATE: 5/8/07		JOB REF. NO.:	
AREA: 3.466			WT/FT: 4.159	SERIES: 5XPT	SCALE: AS NOTED	DIE CIRCLE: 4"
FACTOR: 5			TITLE: SUBHEAD STIFFENER		DWG NO. 18E5	

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Monett, Missouri 65708
1-800-221-4169
Fax 417 235 7212

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



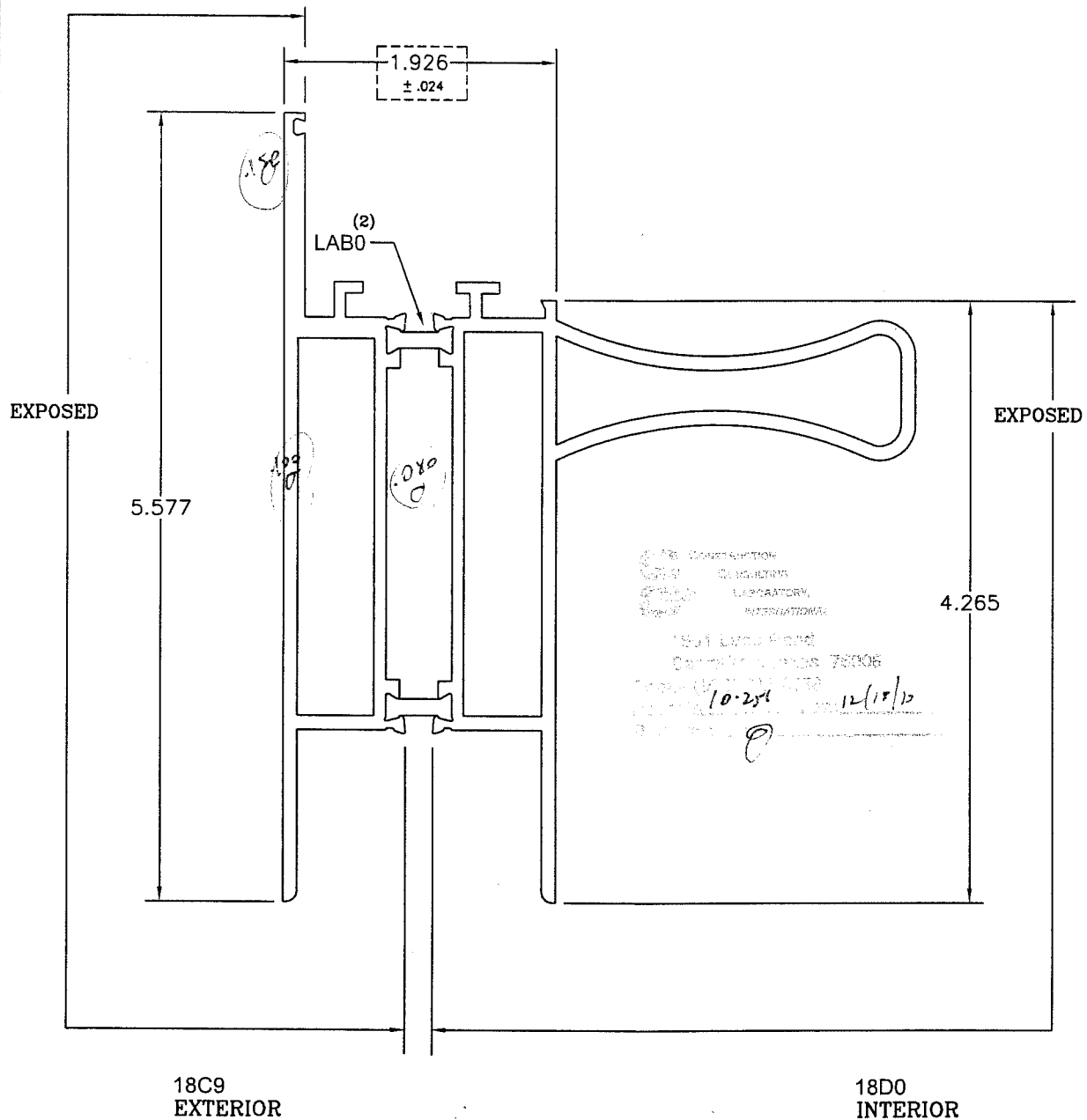
ACTUAL SIZE

DO NOT SCALE PRINT

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MATERIAL: 6063-T6 ALUM.		 a Pella Company 1000 County Road Monett, Missouri 65708 1-800-221-4169 FAX: 417-235-7313 www.efco.com	DRAWN BY: trh		REVISIONS W/ DATES:	
WALL THICKNESS: .187 & AS NOTED			DATE: 6-28-10			
TOTAL PERIMETER: 21.698 O.S.=12.792 PAINTED PERIMETER: 8.943 I.S.=8.906			APPROVED:			
DATE:			JOB REF. NO.: B351002-M1			
AREA: 2.338	WT/FT: 2.806		SERIES: 5XPT		SCALE: AS NOTED	DIE CIRCLE: 6"
FACTOR: 8			TITLE: Door Rail Stiffener		DWG NO. 22R5	REV

STD. EXTRUSION TOLERANCES AS DEFINED BY
THE ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



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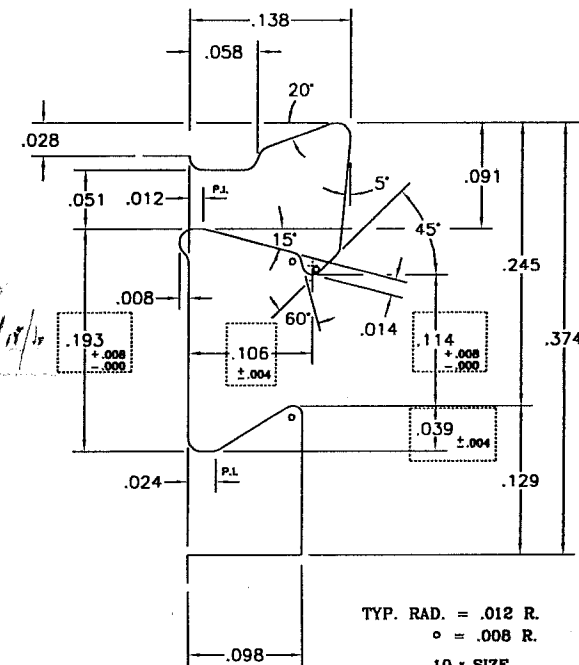
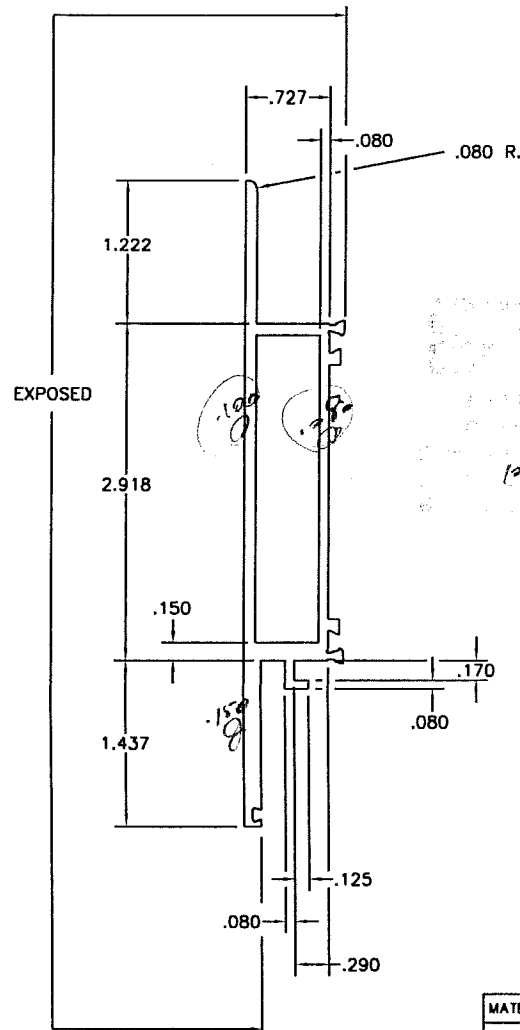
EFCO CORP.

1000 COUNTY ROAD
MONETT, MO. 65708

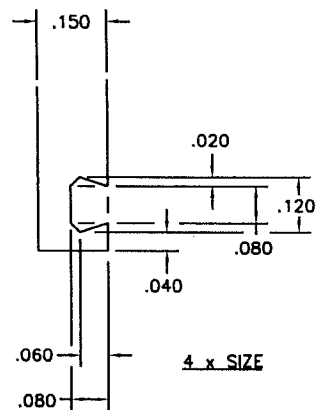
REVISIONS W/DATES:

SCC	APPROVED: SCC	SCALE:	TITLE	S-5XPT	NO.
DATE: 5/16/07	DATE: 5/16/07	FULL	OXXO MEETING RAIL		1D17

STD. EXTRUSION TOLERANCES AS DEFINED BY THE
ALUMINUM ASSOCIATION UNLESS OTHERWISE
STATED. CORNER RADII .015 EXCEPT AS NOTED.



TYP. RAD. = .012 R.
O = .008 R.
10 x SIZE



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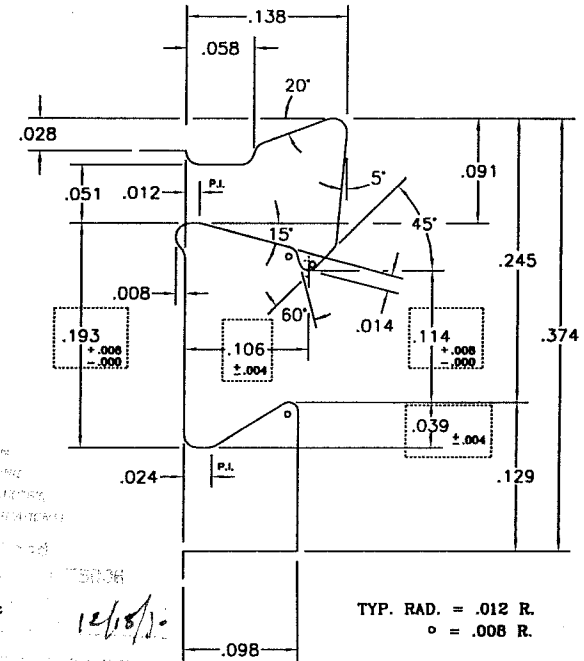
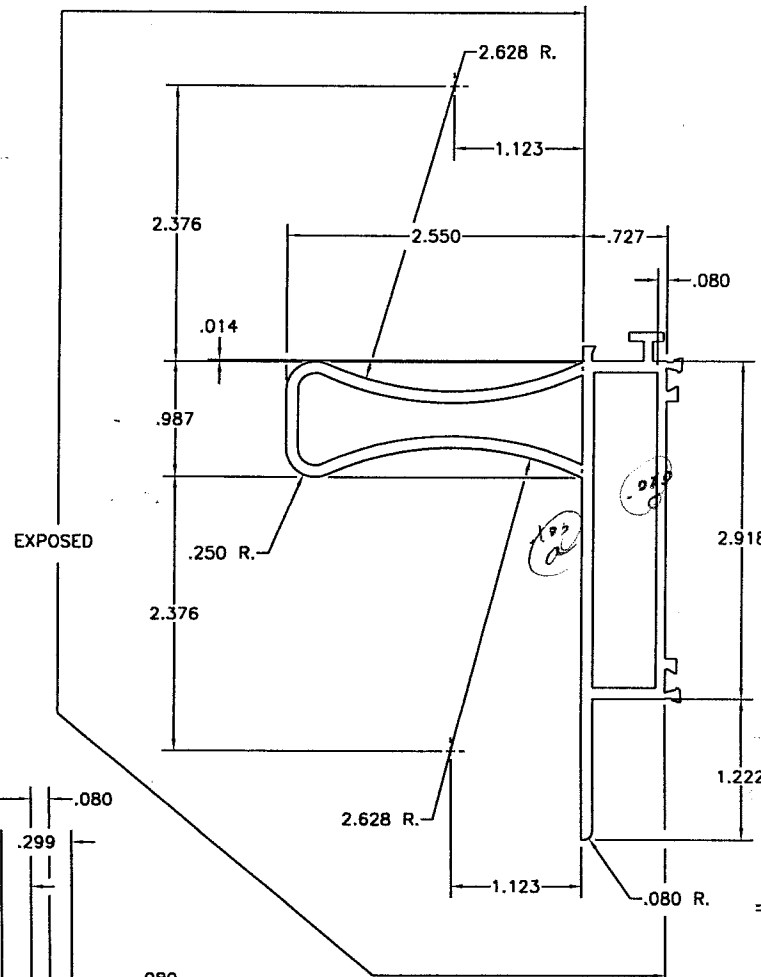
MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .100 & AS NOTED	
TOTAL PERIMETER: 21.127	OS = 14.667
PAINTED PERIMETER: 7.821	IS = 6.430
AREA: 1.066	WT/FT: 1.279
FACTOR: 17	



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Fax: 417-235-7313

DRAWN BY: SCC	REVISIONS W/ DATES:	
DATE: 5/7/07		
APPROVED: SCC		
DATE: 5/2/07	JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	DE. CIRCLE: 6"
TITLE: OXXO HARDWARE SIDE RAIL	(EXT.)	DWG NO. 18C9

STD. EXTRUSION TOLERANCES AS DEFINED BY THE ALUMINUM ASSOCIATION UNLESS OTHERWISE STATED. CORNER RADII .015 EXCEPT AS NOTED.



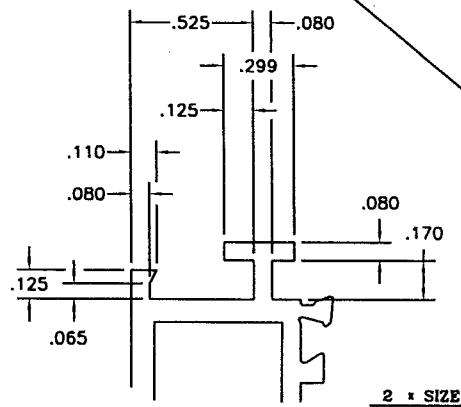
TYP. RAD. = .012 R.
O = .008 R.

10 x SIZE

ACTUAL SIZE

DO NOT SCALE PRINT

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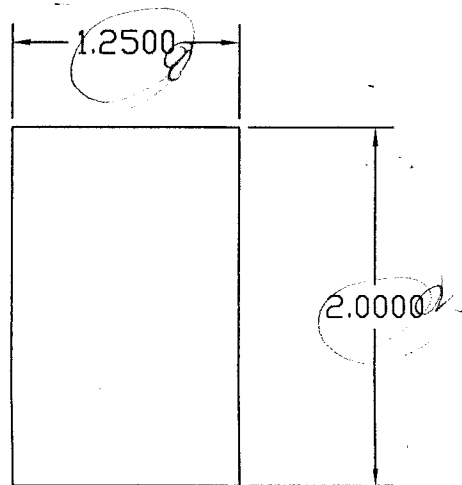


MATERIAL: 6063-T6 ALUM.	
WALL THICKNESS: .100 & AS NOTED	
TOTAL PERIMETER: 30.140	OS = 17.146
PAINTED PERIMETER: 11.390	IS = 12.994
AREA: 1.432	WT/FT: 1.718
FACTOR: 18	



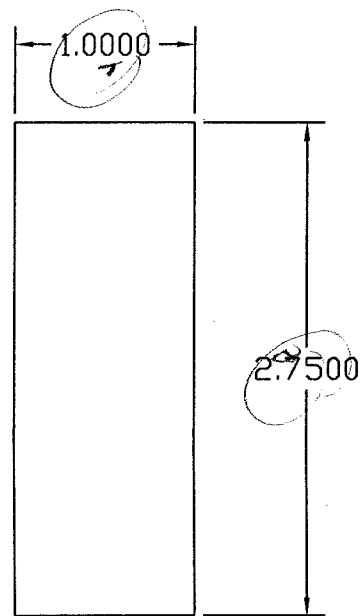
EFCO CORPORATION
1000 County Road
Monett, Missouri 65708
1-800-221-4169
Fax: 417-235-7313

DRAWN BY: SCC		REVISIONS W/ DATES:	
DATE: 5/7/07			
APPROVED: SCC			
DATE: 5/7/07		JOB REF. NO.:	
SERIES: 5XPT	SCALE: AS NOTED	IDE CIRCLE: 5"	
TITLE: (INT.)		DWG NO.	18D0
OXOXO HARDWARE SIDE RAIL			



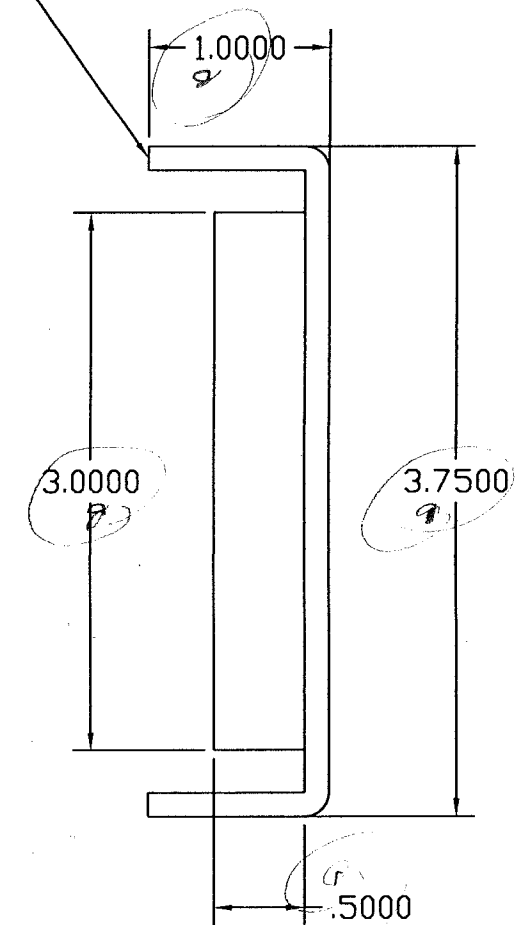
Alum.

10-286
g
12/18/14



Steel

10 Gage Steel



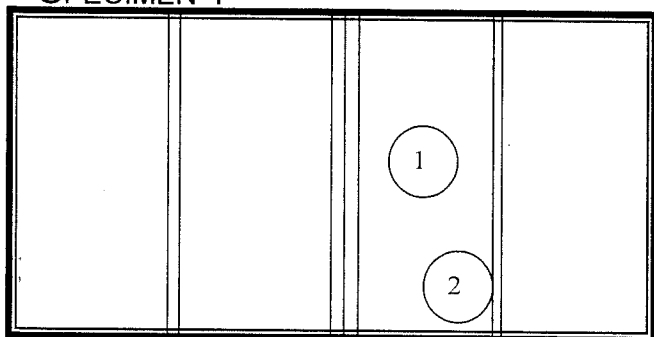
Steel



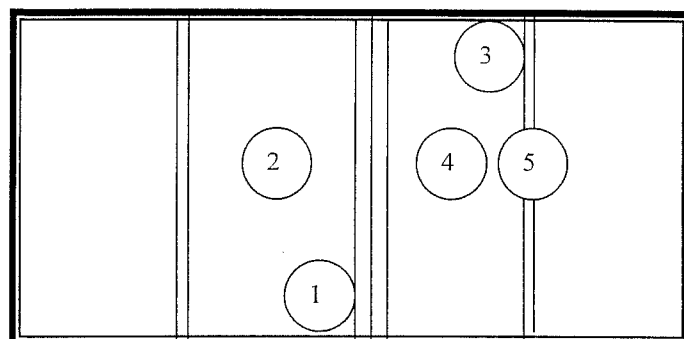
APPENDIX B

OXXO IMPACT DIAGRAM

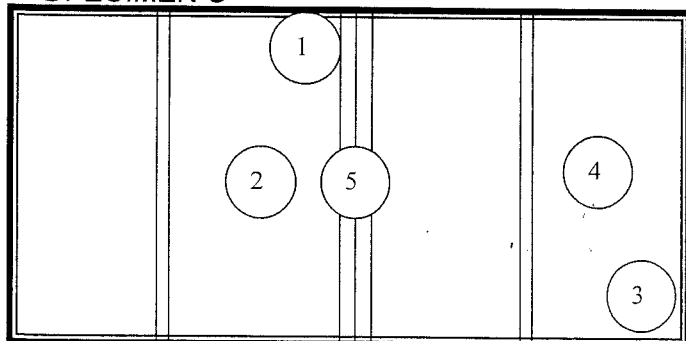
SPECIMEN 1



SPECIMEN 2



SPECIMEN 3

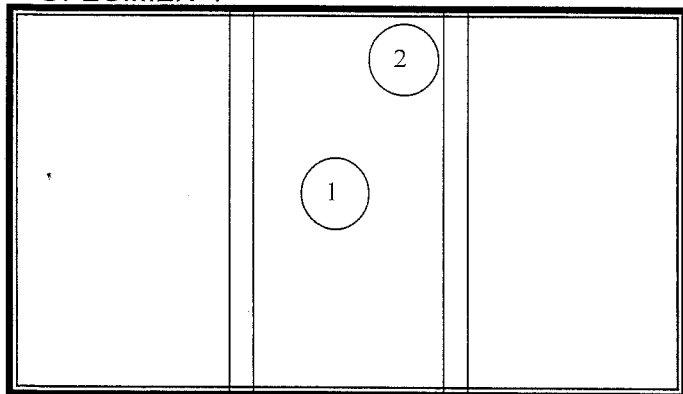




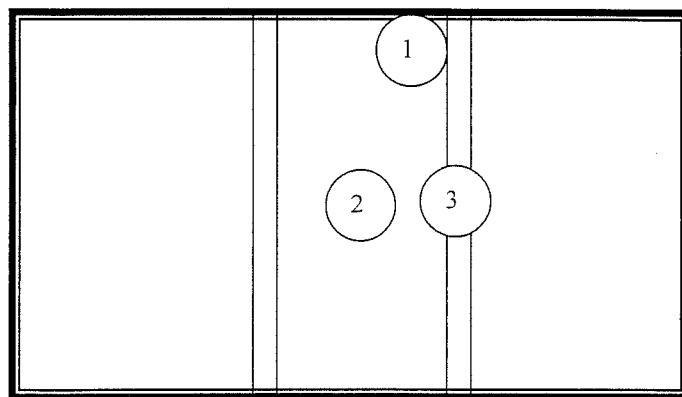
January 19, 2011

OXO IMPACT DIAGRAM

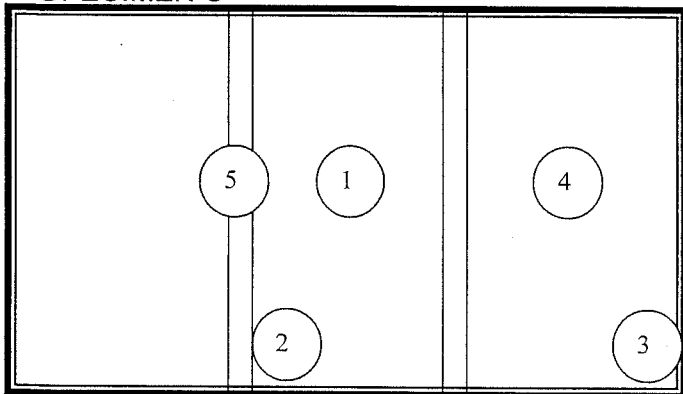
SPECIMEN 1



SPECIMEN 2



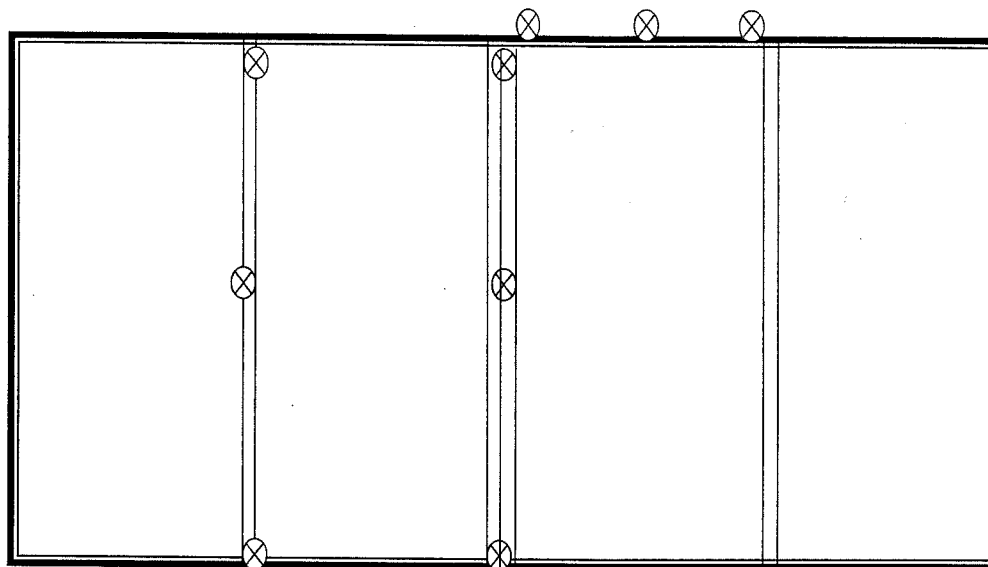
SPECIMEN 3



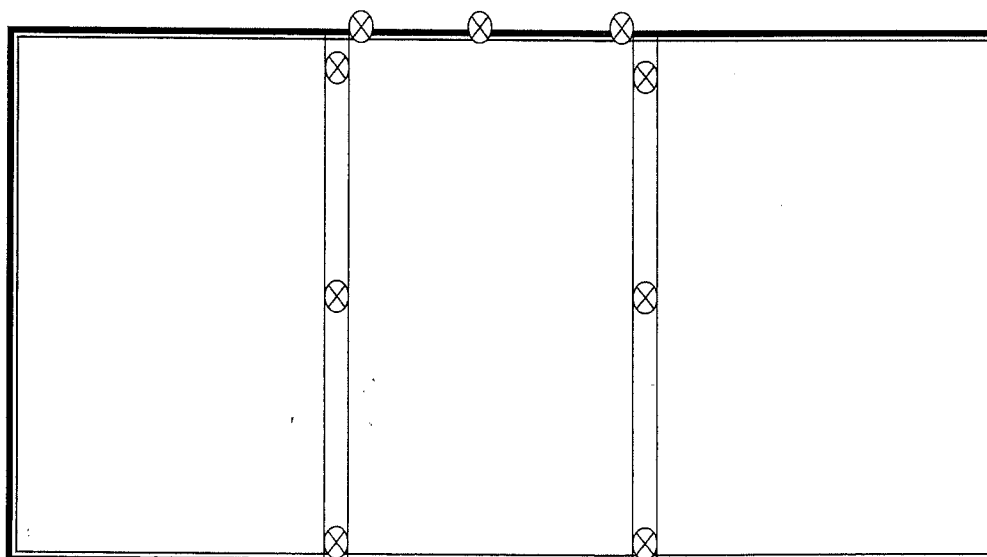


APPENDIX C

OXXO DEFLECTION DIAGRAM



OXO DEFLECTION DIAGRAM





- END OF REPORT -