

ALPOLIC and ALPOLIC/FR (FIRE RESISTIVE) COMPOSITE WALL PANEL SYSTEMS FOR SMALL MISSILE IMPACT

GENERAL NOTES

- THESE ALPOLIC AND ALPOLIC/FR COMPOSITE PANELS SHALL BE USED FOR WALL CONSTRUCTION, SOFITS, AND OTHER EXTERIOR DETAILS WHOSE REQUIREMENTS FOR POSITIVE AND NEGATIVE PRESSURES ARE WITHIN THEN VALUES STATED IN NOTE 2 OF THIS DRAWING. EACH ACTUAL WALL PROJECT SHALL BE CONSTRUCTED USING THE DETAILS SHOWN ON THESE DRAWINGS AS MINIMUM REQUIRED SPECIFICATIONS
- THE WALL DESIGN ALLOWABLE PRESSURES FOR THESE WALL PANEL SYSTEMS ARE:
 - KISTLER McDOUGALL EXTRUSIONS: + 153 PSF/ -153 PSF
 - SAF METAL FABRICATION EXTRUSIONS: + 70 PSF/ -90 PSF.

- THESE ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS ARE TESTED IN ACCORDANCE WITH THE FOLLOWING PROTOCOLS PER THE CURRENT EDITION OF THE FLORIDA BUILDING CODE:

TAS-201-94, IMPACT TEST, SMALL MISSILE
TAS-202-94, UNIFORM STATIC AIR PRESSURE TEST
TAS-203-94, CYCLIC WIND PRESSURE TEST

AND THEY SHALL BE INSTALLED AS SHOWN IN THESE APPROVED DRAWINGS.

MATERIAL SPECIFICATIONS:

ALUMINUM EXTRUSIONS

- MATERIAL: M2, F2, A2, HS, and HR ARE EXTRUDED ALUMINUM ALLOY 6063 WITH A T6 TEMPER By Kistler McDougall.
- MATERIAL: 37893 (CAY-1009) TEE, 37894 (CAY-1010) FEMALE, 37899 (CAY-1011) MALE, 38500B (CAY-1012) STIFFENER AND 38499A (CAY-1013) RETAINER ARE EXTRUDED ALUMINUM ALLOY 6063 WITH A T6 TEMPER By SAF Metal Fabrication (FORMALLY CAY ARCHITECTURAL PRODUCTS).
- FINISH: MILL FINISH

COMPOSITE PANEL

- ALPOLIC AND ALPOLIC/FR ALUMINUM COMPOSITE METAL PANEL 4MM THICK (0.157") AND 6MM THICK (0.236") AS MANUFACTURED BY MITSUBISHI PLASTICS COMPOSITES AMERICA, INC., CHESAPEAKE, VA
- CORE: THERMOPLASTIC MATERIAL WHICH IN COMPOSITE ASSEMBLY MEETS PERFORMANCE CHARACTERISTICS SPECIFIED.
- FACE SHEET: 0.020" ALUMINUM 3105-H14 ALLOY
- FINISH: FLUROPOLYMER RESIN COATING.
- MAXIMUM DIMENSIONS: 62" WIDE X 288" LONG
- TECHNICAL DATA

FRAMING & ACCESSORIES

- STEEL STUDS AND TRACKS: 16 GA. MIN. GALVANIZED STEEL WITH MIN. PROPERTIES OF 50 KSI YIELD, 65 KSI ULTIMATE.
- STUD & TRACK FASTENERS: #12 x 1-1/2" HEX WASHER HEAD HEAVY DUTY TEKS 4, 4.5, OR 5 BY ITW BUILDEX SCREW OR STUD & TRACK FASTENERS: #12 x 1-1/2" HEX WASHER HEAD TEKS SELECT BY ITW BUILDEX SCREW.
- PANEL FASTENERS: #10 x 1" HEX WASHER HEAD ITW BUILDEX TEK SCREWS SPACED AT 16" O.C.
- STIFFENER FASTENERS: #10 x 1" HEX WASHER HEAD ITW BUILDEX TEK SCREWS.
- JOINT SILICONE: DOW CORNING #795 SILICONE SEALANT.
- STRUCTURAL SILICONE: DOW CORNING #1199 SILICONE SEALANT.
- BACKER ROD: 3/4" DIA. DENVER FOAM OPEN CELL BACKER ROD.
- THE STRUCTURAL ADEQUACY OF THE 16 GA. GALVANIZED STEEL STUDS AND THE REST OF THE STRUCTURAL FRAMING SUPPORTING THE METAL PANELS IS NOT PART OF THIS PRODUCT CONTROL APPROVAL AND IT SHALL BE REVIEWED BY THE STRUCTURAL PLANS EXAMINER OF THE CORRESPONDING BUILDING DEPARTMENT.

DESCRIPTION	TEST	4MM ALPOLIC	4MM ALPOLIC/fr	6MM ALPOLIC
SPECIFIC GRAVITY		1.38	1.90	1.23
WEIGHT		1.12 LB/SQ.FT	1.56 LB/SQ.FT	1.50 LB/SQ.FT
TENSILE STRENGTH	ASTM E-8	7452 PSI	5693 PSI	5399 PSI
YIELD STRENGTH	ASTM E-8	NDY	NDY	NDY
ELONGATION	ASTM E-8	16%	8%	13%
PUNCHING SHEAR RESISTANCE (1"DIA.)	ASTM D-732	4025 PSI	4637 PSI	2816 PSI
PUNCHING SHEAR MAX LOAD	ASTM D-732	1920 PSI	2259 PSI	2121 LBS
BOND INTEGRITY VERTICAL PULL	ASTM C-297	1806 PSI	427 PSI	1664 PSI
DRUM PEEL	ASTM D-1781-76	33.6 IN-LB/IN	27.6 IN-LB/IN	33.6 IN-LB/IN
FLATWISE SHEAR	ASTM C-273	1225 PSI	949 PSI	1195 PSI
RATE OF BURNING	ASTM D-635	CC1	--	--
FLAME SPREAD INDEX	ASTM E-84	00	00	00
SMOKE DEVELOPED INDEX	ASTM E-84	00	10	10
SELF IGNITION TEMPERATURE	ASTM D-1929	752°F	837°F	752°F
FLASH IGNITION TEMPERATURE	ASTM D-1929	716°F	811°F	716°F
SURFACE FLAMMABILITY	ASTM E-108-88	PASSED	PASSED	PASSED
SOUND TRANSMISSION	ASTM E-413	STC-26	--	STC-26

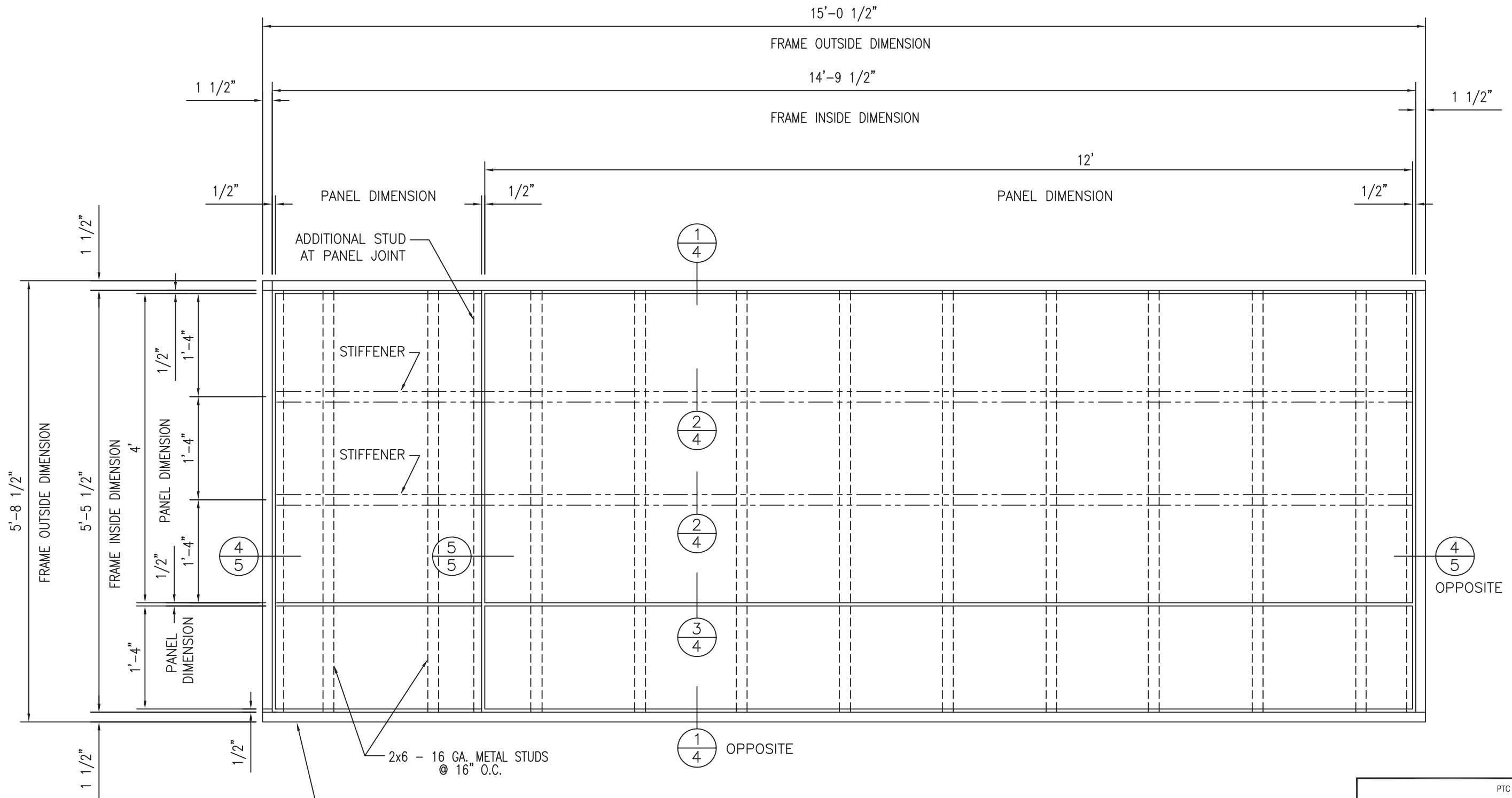
Robert J. Amoruso, P.E.
FL P.E. No. 49752

REV.	BY	DATE	CHANGE
7	RJA	6/13/23	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION
6	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
5	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FBC
4	RJA	6/10/12	UPDATE TO 2008 FBC
3	TH	1/10/12	EXTRUSION AND PANEL NOTE CHANGES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± 1/32 .XX ± .01 ± 1/2 .XXX ± .005			CONTRACT NO.	
MATERIAL			APPROVALS	DATE
FINISH			ENGINEERING	MS
DO NOT SCALE DRAWING			PROJ MGMT	
			PRODUCTION	

PTC PTC PRODUCT DESIGN GROUP, LLC
PO BOX 520775
LONGWOOD, FLORIDA 32752
FBPE C.A. NO. 25935
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Email: info@ptc-corp.com

MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION				
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS				
SIZE	CAGE CODE	DWG NO.	REV	
B		MPCA0002	7	
SCALE SHOWN			SHEET 1 OF 11	



THE WOOD BUCK FRAME DETAILED IN THIS DRAWING IS FOR TEST PURPOSES ONLY AND IS NOT INTENDED AS A RECOMMENDATION FOR ACTUAL CONSTRUCTION.

PANEL ELEVATION

3/4" = 1'-0"

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	.XXX ± .005			
MATERIAL	DRAWN			
FINISH	ENGINEERING MS 11/11/02			
	PROJ MGMT			
	PRODUCTION			
DO NOT SCALE DRAWING				

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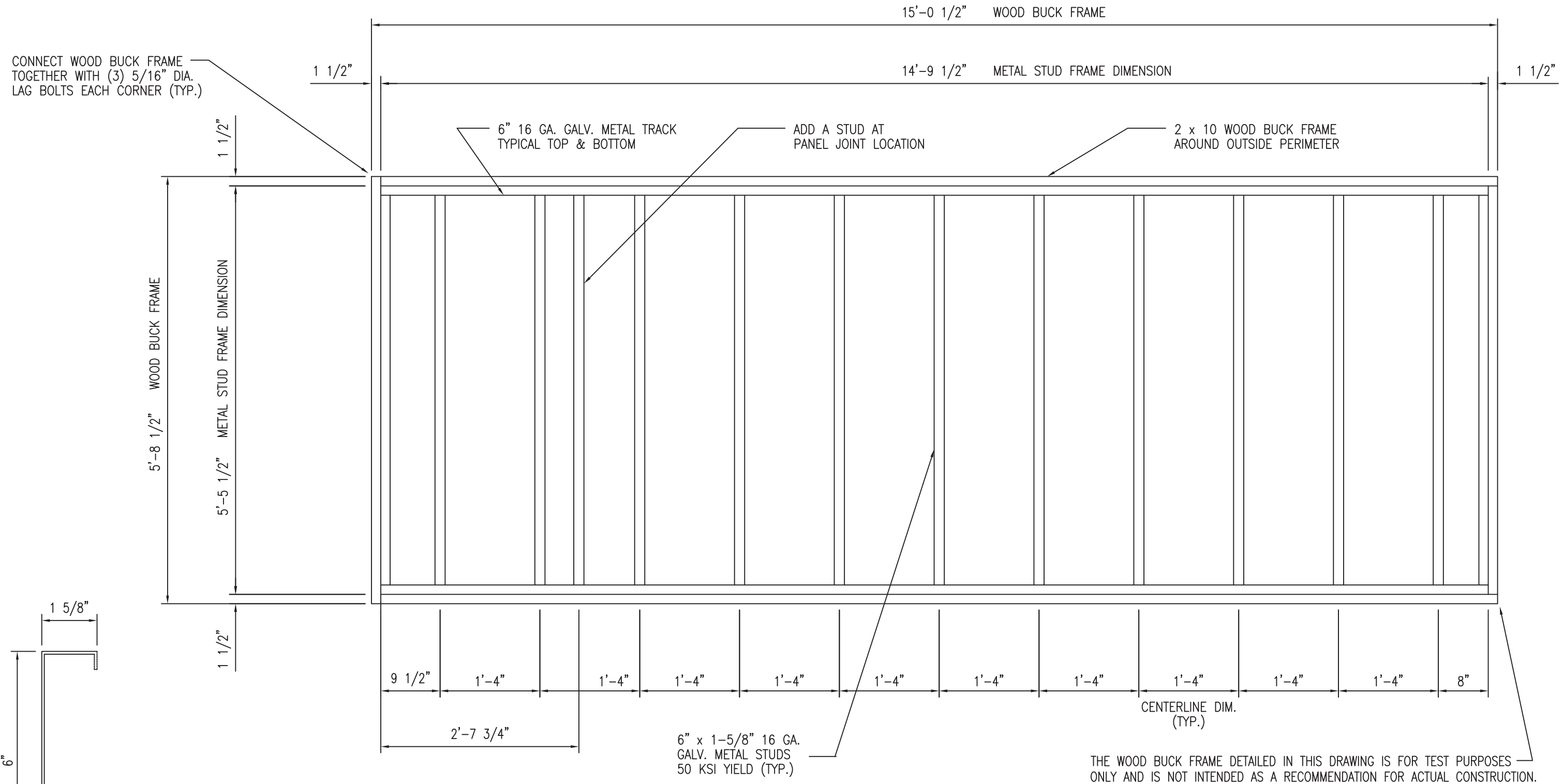
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Kistler McDougall

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ALPOLIC DIVISION**

ALPOLIC and ALPOLIC/fr
COMPOSITE WALL PANEL SYSTEMS

SIZE B	CAGE CODE	DWG NO. MPCA0002	REV 7
SCALE SHOWN		SHEET 2 OF 11	



STUD FRAMING ELEVATION

3/4" = 1'-0"

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MATERIAL	DRAWN			
FINISH	ENGINEERING MS 11/11/02			
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SIZE	CAGE CODE	DWG NO.	REV
B		MPCA0002	7
SCALE	SHOWN	SHEET	3 OF 11

METAL STUD

STEEL TRACK

#12 x 1 1/2" HWH WOOD SCREW
@16" O.C. TO MAIN STRUCTURE

2 X 10 WOOD BUCK FRAME
CONNECT FRAME TOGETHER WITH
(3) 5/16" DIA. LAG BOLTS

DOW CORNING *795 SILICONE
SEALANT & 3/4" DIA. OPEN CELL
BACKER ROD (TYPICAL)

ATTACH EACH STUD TO TRACK
W/ #12 x 1 1/2" HWH
ITW BUILDDEX TEK SCREWS
TWO (2) EA. SIDE

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#10 x 1" HWH TEK SCREW
16" O.C. TYPICAL EACH PANEL

4MM OR 6MM ALPOLIC
OR 4MM ALPOLIC/fr
ALUMINUM COMPOSITE
PANEL

#12 x 1 1/2" HWH TEK SCREW
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

A2 ALUMINUM
EXTRUSION

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

1
4
DETAIL
SCALE: 6" = 1'

#10 x 1" HWH TEK SCREW
16" O.C. TYPICAL EACH PANEL

BACKER ROD
AND SEALANT

F2 ALUMINUM
EXTRUSION

#12 x 1 1/2" HWH TEK SCREW
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

3
4
JOINT DETAIL
SCALE: 6" = 1'

HS EXTRUDED ALUMINUM
PANEL STIFFENER

DOW-CORNING #1199
SILICONE SEALANT

HR EXTRUDED ALUMINUM
PANEL STIFFENER

#12 x 1 1/2" HWH TEK SPACE
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

2
4
STIFFENER DETAIL
SCALE: 6" = 1'

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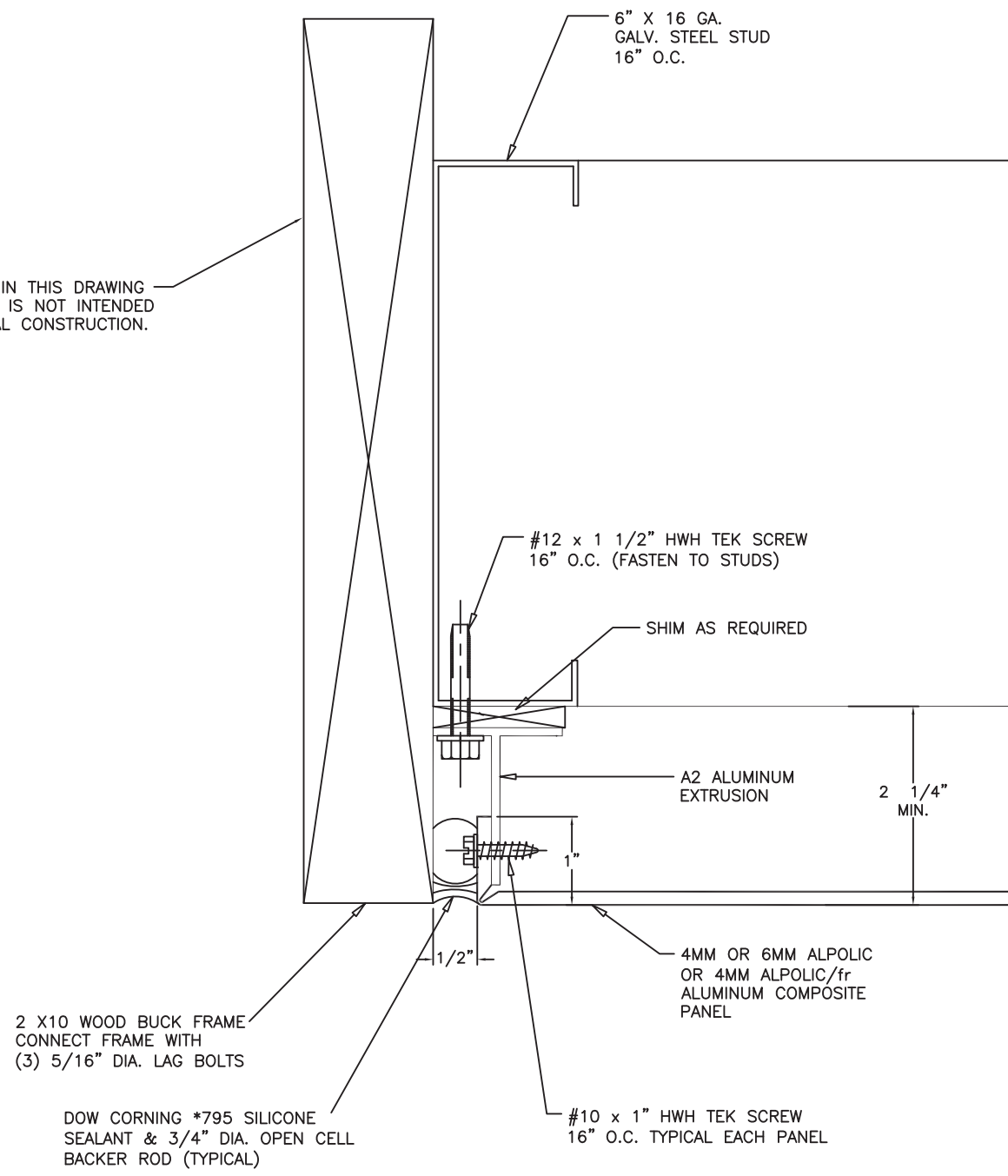
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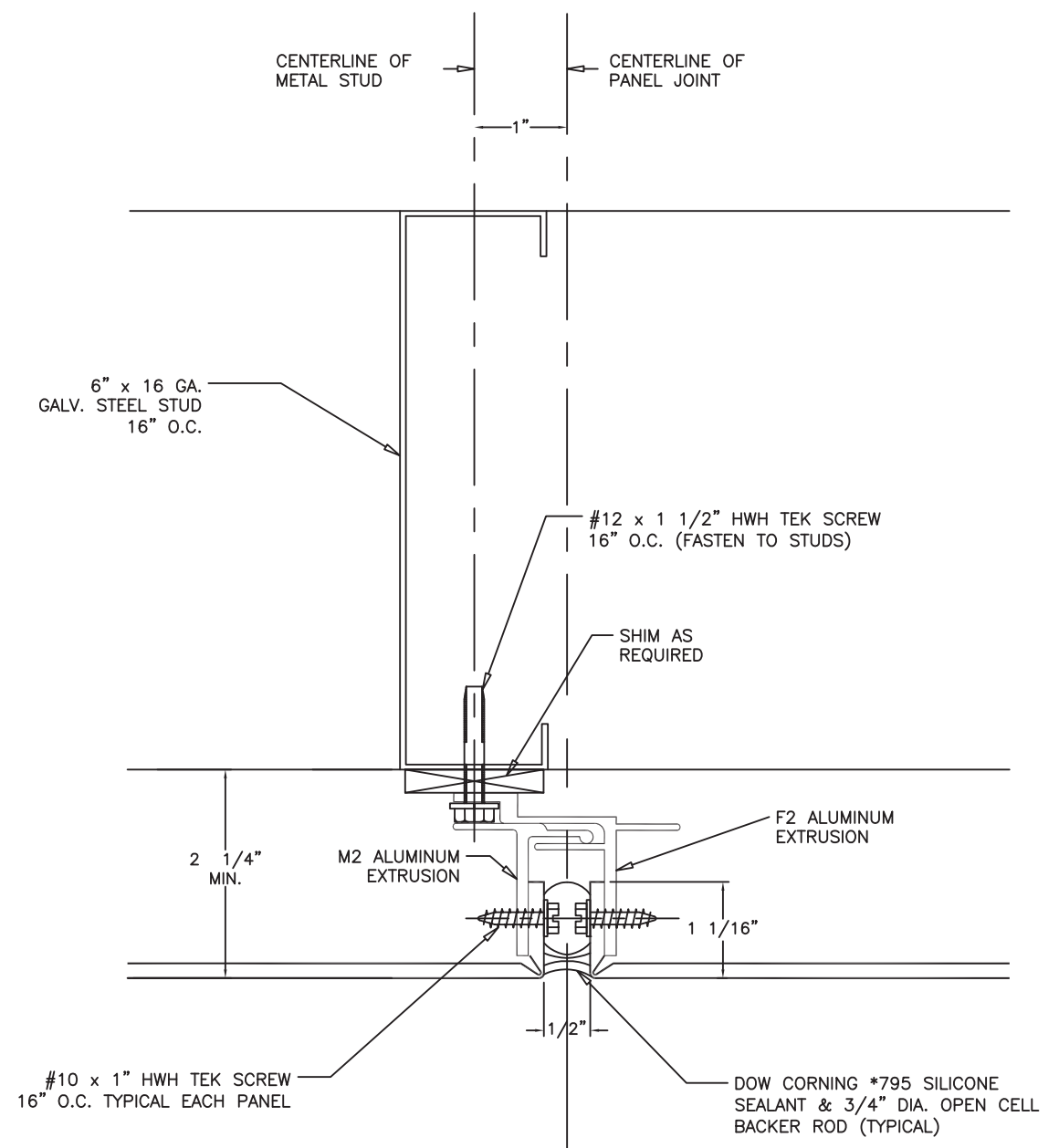
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	.XXX ± .005			
MATERIAL				
FINISH				
DO NOT SCALE DRAWING				

SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0002	7
SCALE SHOWN		SHEET 4 OF 11	

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4 DETAIL
SCALE: 6" = 1'



5 DETAIL
SCALE: 6" = 1'

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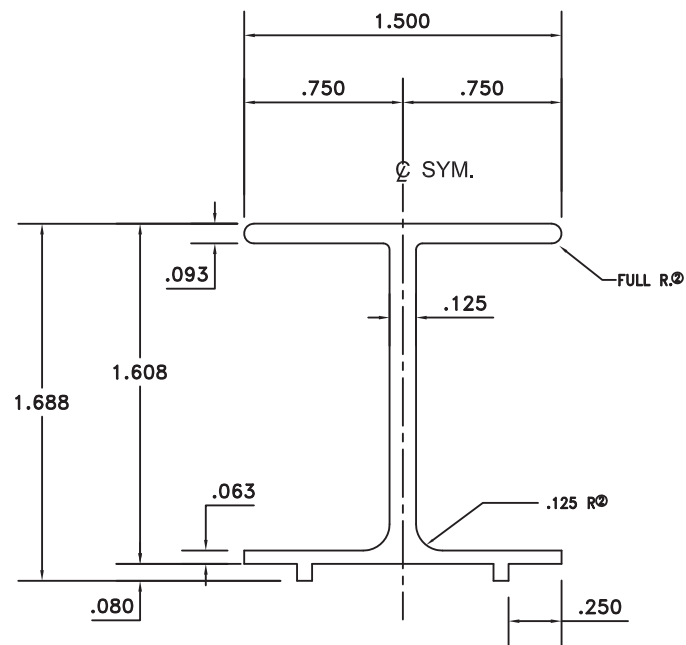
Kistler McDougall

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ALPOLIC DIVISION**

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COMPOSITE WALL PANEL SYSTEMS**

SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0002	7
SCALE SHOWN		SHEET 5 OF 11	

HS



BREAK CORNERS .015 R

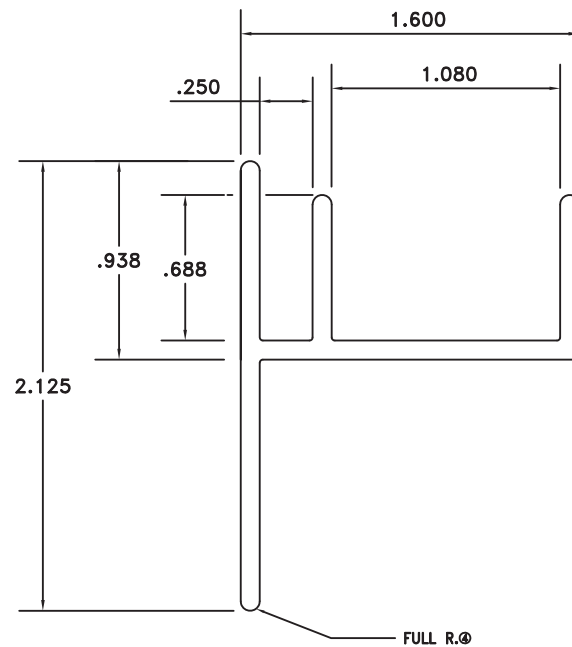
EXCEPT AS NOTED

ACTUAL SIZE

DIE DATA

EST. AREA: .430 DIE SIZE: 6
 EST. WEIGHT: .516 NO. HOLES: 1
 EST. PERI.: EXT. LENGTH: 5 1/8" = 1 @ 35'
 FACTOR: R/R:

HR



BREAK CORNERS .015 R

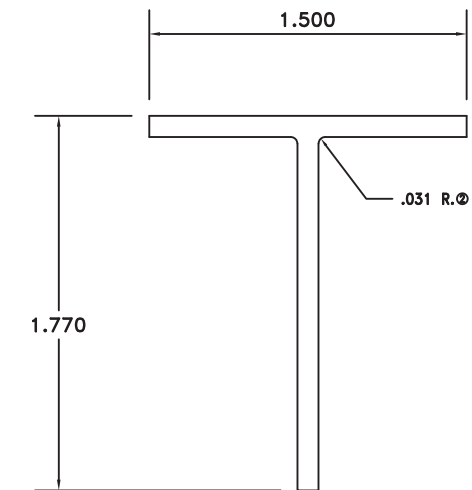
.090 TYPICAL METAL THICKNESS

ACTUAL SIZE

DIE DATA

EST. AREA: .465 DIE SIZE: 6
 EST. WEIGHT: .558 NO. HOLES: 1
 EST. PERI.: EXT. LENGTH: 5 1/8 = 1 @ 36'
 FACTOR: R/R

A2



BREAK CORNERS .010 R

.100 WALL THICK TYPICAL

ACTUAL SIZE

DIE DATA

EST. AREA: .317 DIE SIZE: 6
 EST. WEIGHT: .380 NO. HOLES: 1
 EST. PERI.: 6.54 EXT. LENGTH:
 FACTOR: 17 R/R: 5 1/8 = 1 @ 53'

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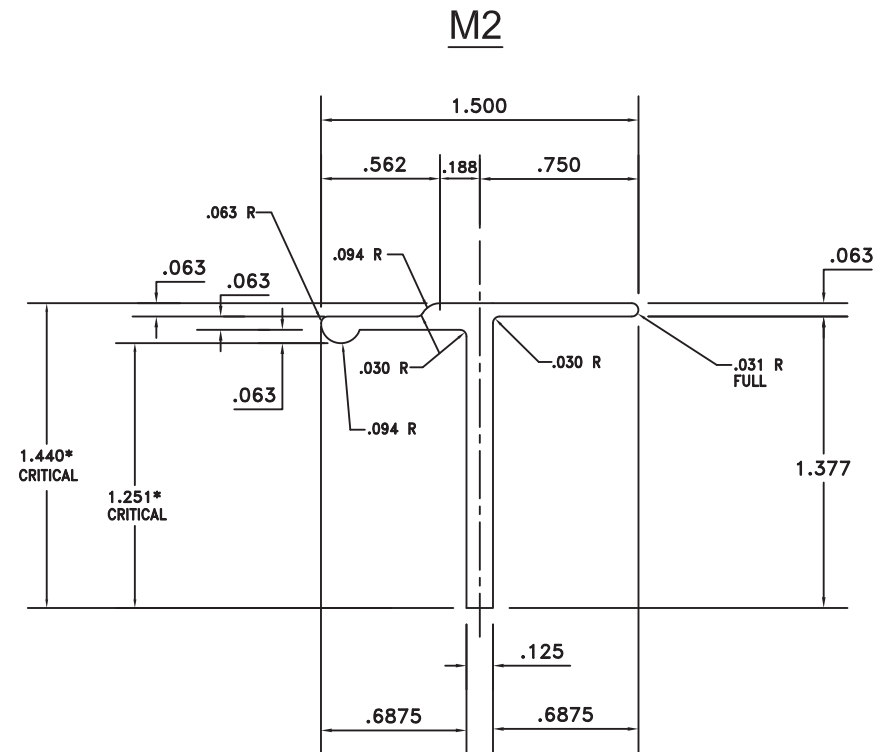
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MATERIAL	APPROVALS	
FINISH	ENGINEERING	DATE
DO NOT SCALE DRAWING	PROJ MGMT	MS 11/11/02
	PRODUCTION	

CONTRACT NO.	
APPROVALS	DATE
DRAWN	
ENGINEERING	MS 11/11/02
PROJ MGMT	
PRODUCTION	

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SCALE SHOWN		SHEET 6 OF 11	

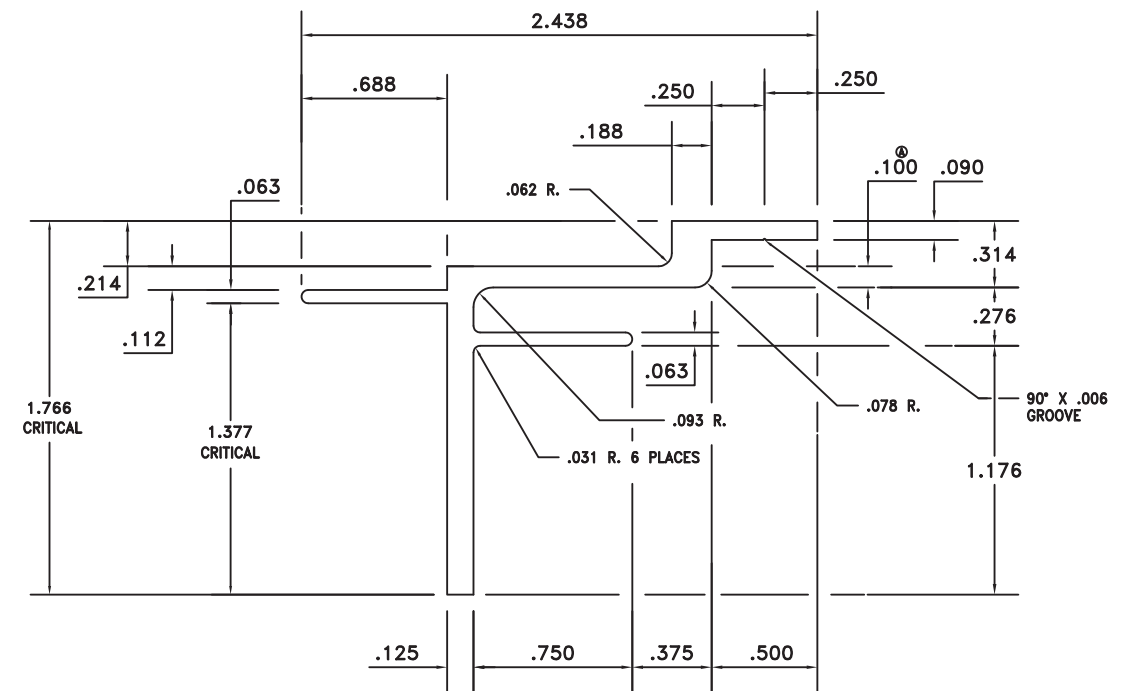


ACTUAL SIZE
BREAK SHARP CORNERS .005 R

DIE DATA

EST. AREA: .275 DIE SIZE: 6
 EST. WEIGHT: .330 NO. HOLES: 1
 EST. PERI.: 5.831 EXT. LENGTH: 4 1/2 = 1- 46'
 FACTOR: 18 R/R: 5 1/8" = 1- 62'

F2



ACTUAL SIZE
BREAK SHARP CORNERS .010R

DIE DATA

EST. AREA: .484 DIE SIZE: 6
 EST. WEIGHT: .581 NO. HOLES: 1
 EST. PERI.: 9.900 EXT. LENGTH: 5 1/8 = 1@34'
 FACTOR: 17 R/R

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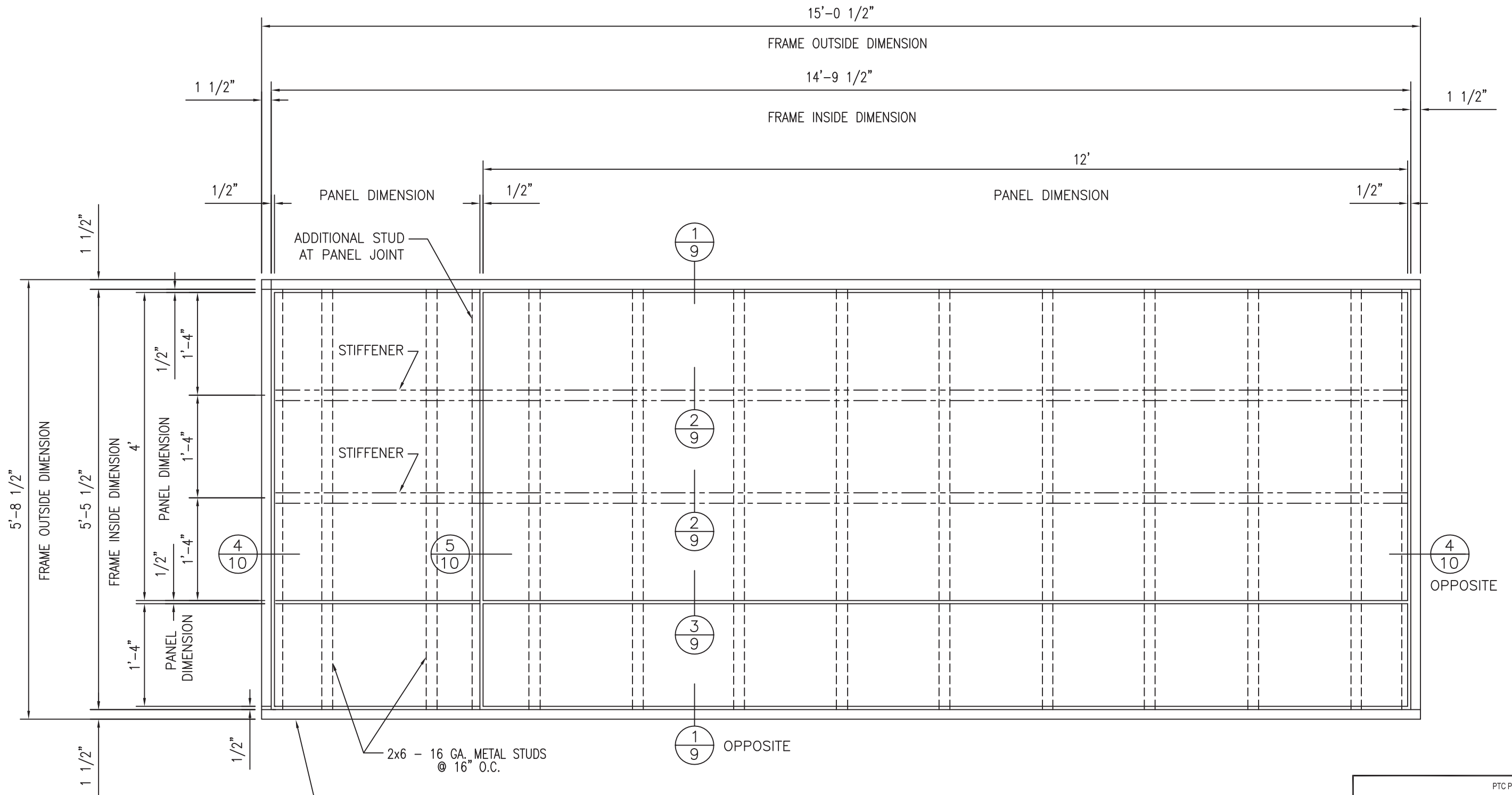
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4	RJA	6/10/12	UPDATE TO 2010 FBC	PRODUCTION	
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REV.	BY	DATE	CHANGE		

SIZE	CAGE CODE	DWG NO.	MPCA0002	REV	7
B					
SCALE SHOWN			SHEET 7 OF 11		



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PANEL ELEVATION

3/4" = 1'-0"

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SAF METAL FABRICATION			
MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION			
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS			
SIZE B	CAGE CODE	DWG NO. MPCA0002	REV 7
SCALE SHOWN		SHEET 8 OF 11	

#12 x 1 1/2" HWH WOOD SCREW
@16" O.C. TO MAIN STRUCTURE

2 X 10 WOOD BUCK FRAME
CONNECT FRAME TOGETHER WITH
(3) 5/16" DIA. LAG BOLTS

DOW CORNING *795 SILICONE
SEALANT & 3/4" DIA. OPEN CELL
BACKER ROD (TYPICAL)

ATTACH EACH STUD TO TRACK
W/ #12 x 1 1/2" HWH
ITW BUILDDEX TEK SCREWS
TWO (2) EA. SIDE

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#10 x 1" HWH TEK SCREW
16" O.C. TYPICAL EACH PANEL

4MM OR 6MM ALPOLIC
OR 4MM ALPOLIC/fr
ALUMINUM COMPOSITE
PANEL

#12 x 1 1/2" HWH TEK SCREW
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

37893 TEE
ALUM. EXTRUSION
SHOP ATTACHED
TO PANEL (TYP.)

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

1
9
DETAIL
SCALE: 6" = 1'

#10 x 1" HWH TEK SCREW
16" O.C. TYPICAL EACH PANEL

BACKER ROD
AND SEALANT

37894 FEMALE
ALUM. EXTRUSION
SHOP ATTACHED
TO PANEL (TYP.)

37899 MALE
ALUM. EXTRUSION
SHOP ATTACHED
TO PANEL (TYP.)

#12 x 1 1/2" HWH TEK SCREW
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

3
9
JOINT DETAIL
SCALE: 6" = 1'

38500B
STIFFENER

ATTACH STIFFENER TO PERIMETER
EXTRUSIONS ON EACH END WITH
#10 x 1" HWH TEK SCREW

DOW-CORNING *1199
SILICONE SEALANT

38499A
RETAINER

#12 x 1 1/2" HWH TEK SPACE
16" O.C. (FASTEN TO STUDS)

PLASTIC SHIM SPACE
(AS REQUIRED)

6" X 16 GA.
GALV. STEEL STUD
16" O.C.

2
9
STIFFENER DETAIL
SCALE: 6" = 1'

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SAF METAL FABRICATION

MITSUBISHI CHEMICAL AMERICA
ALPOLIC DIVISION

ALPOLIC and ALPOLIC/fr
COMPOSITE WALL PANEL SYSTEMS

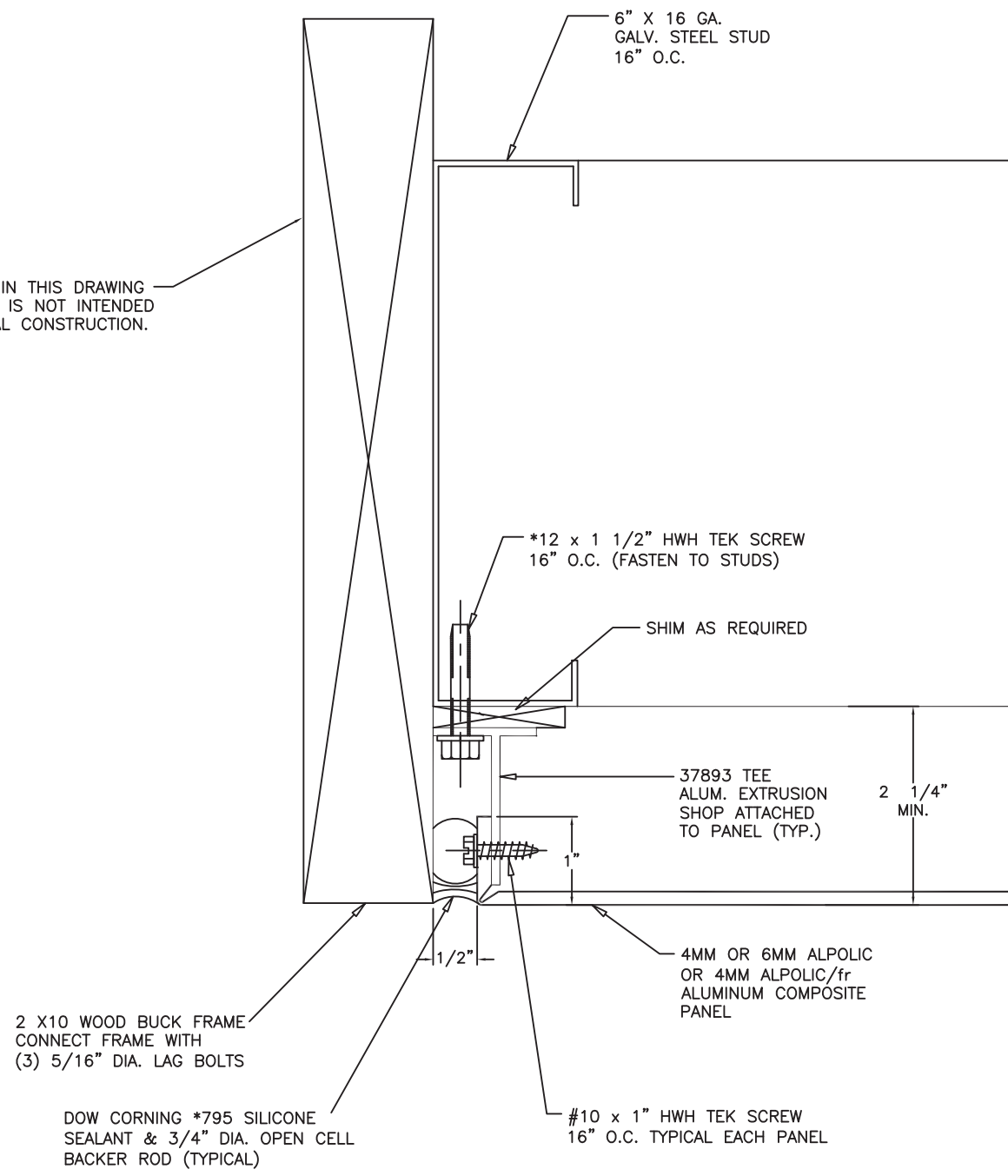
Robert J. Amoruso, P.E.
FL P.E. No. 49752

7	RJA	6/13/23	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION
6	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
5	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FBC
4	RJA	6/10/12	UPDATE TO 2010 FBC
3	TH	1/10/12	EXTRUSION AND PANEL NOTE CHANGES
REV.	BY	DATE	CHANGE

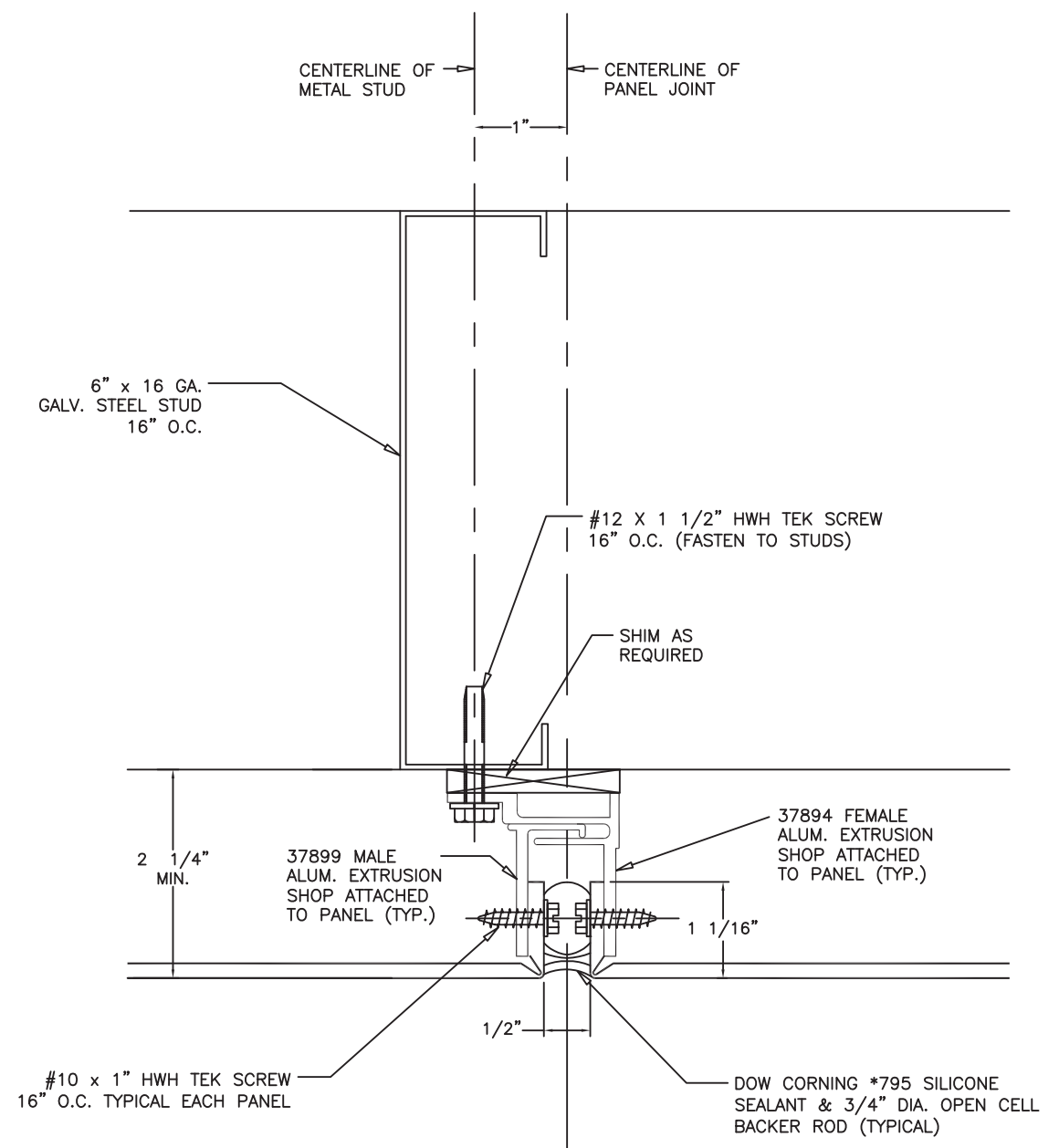
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			CONTRACT NO.	
FRACTIONS ± 1/32	DECIMALS .XX ± .01 .XXX ± .005	ANGLES ± 1/2	APPROVALS	DATE
MATERIAL	FINISH		DRAWN	
			ENGINEERING	MS 11/11/02
			PROJ MGMT	
			PRODUCTION	
DO NOT SCALE DRAWING				

SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0002	7
SCALE SHOWN		SHEET 9 OF 11	

THE WOOD BUCK FRAME DETAILED IN THIS DRAWING IS FOR TEST PURPOSES ONLY AND IS NOT INTENDED AS A RECOMMENDATION FOR ACTUAL CONSTRUCTION.



4 DETAIL
SCALE: 6" = 1'



5 DETAIL
SCALE: 6" = 1'

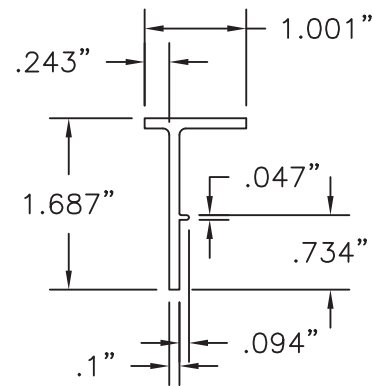
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COMPOSITE WALL PANEL SYSTEMS
SIZE: B CAGE CODE: MPCA0002 DWG. NO.: REV: 7

Robert J. Amoruso, P.E.
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REV.	BY	DATE	CHANGE
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FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
	.XX ± .01	± 1/2		
	.XXX ± .005			
DO NOT SCALE DRAWING			PROJ MGMT	MS 11/11/02
			PRODUCTION	

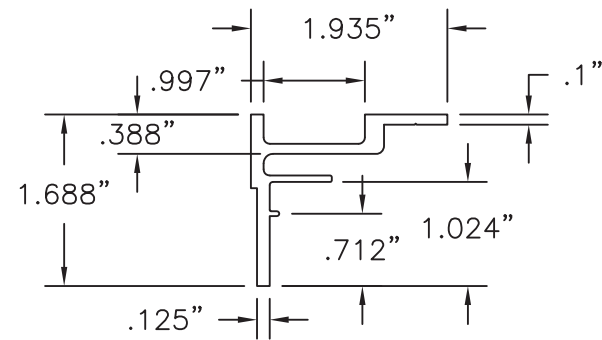


ACM TERMINATOR

EXTRUDED ALUMINUM 6063-T6

Die Data: #SAF-37893

Area = .265
 Wt./Ft. = .318
 Perim. = 5.483
 Circle Size = 0-3
 Ix = .078, Iy = .011
 Sx = .070, Sy = .018
 Cgy = 1.116, Cgx = .628

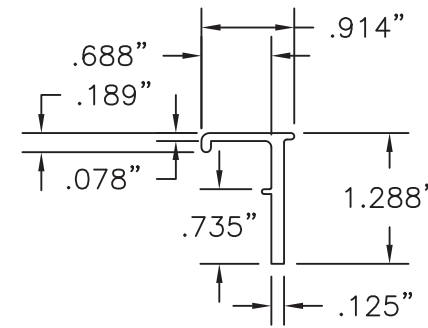


ACM FEMALE

EXTRUDED ALUMINUM 6063-T6

Die Data: #SAF-37894

Area = .499
 Wt./Ft. = .599
 Perim. = 9.154
 Circle Size = 0-3
 Ix = .100, Iy = .161
 Sx = .086, Sy = .120
 Cgy = 1.160, Cgx = 1.348

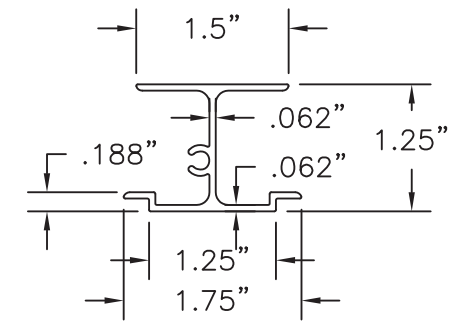


ACM MALE

EXTRUDED ALUMINUM 6063-T6

Die Data: #SAF-37899

Area = .234
 Wt./Ft. = .281
 Perim. = 4.646
 Circle Size = 0-3
 Ix = .039, Iy = .012
 Sx = .048, Sy = .019
 Cgy = .819, Cgx = .633

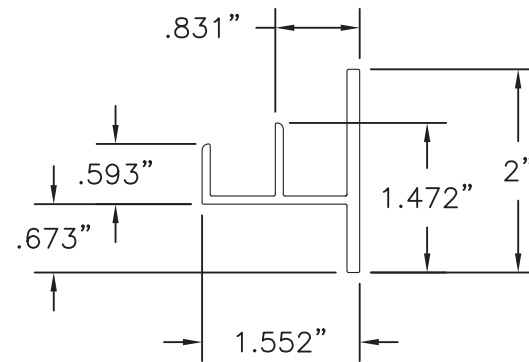


PANEL STIFFENER

EXTRUDED ALUMINUM 6063-T6

Die Data: #SAF-38500B

Area = .325
 Wt./Ft. = .390
 Perim. = 9.749
 Circle Size = 0-3
 Ix = .081, Iy = .049
 Sx = .120, Sy = .056
 Cgy = .676, Cgx = .886



RETAINER

EXTRUDED ALUMINUM 6063-T6

Die Data: #SAF-38499A

Area = .4610
 Wt./Ft. = .542
 Perim. = 9.4387
 Circle Size = 0-3
 Ix = .095, Iy = .1262
 Sx = .09, Sy = .117

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		
FRACTIONS ± 1/32	DECIMALS .XX ± .01 .XXX ± .005	ANGLES ± 1/2
MATERIAL 4MM & 6MM ALPOLIC & 4MM ALPOLIC/fr		
FINISH		
DO NOT SCALE DRAWING		

CONTRACT NO.	
APPROVALS	DATE
DRAWN	
ENGINEERING	MS 11/11/02
PROJ MGMT	
PRODUCTION	

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SIZE B	CAGE CODE	DWG. NO. MPCA0002	REV 7
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