

# ALPOLIC and ALPOLIC/FR (FIRE RESISTIVE) COMPOSITE WALL PANEL SYSTEMS LARGE AND SMALL MISSILE IMPACT

## GENERAL NOTES

1. 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
2. THE WALL DESIGN ALLOWABLE PRESSURES FOR THESE WALL PANEL SYSTEMS ARE + 70 PSF/ -90 PSF.

3. 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, LARGE MISSILE  
TAS-202-94, UNIFORM STATIC AIR PRESSURE TEST  
TAS-203-94, CYCLIC WIND PRESSURE TEST

AND THEY SHALL BE INSTALLED ON FRONT OF A 5/8" (5 PLY) PLYWOOD SUBSTRATE SUPPORTED BY STUDS AT 16" O.C. AS SHOWN IN THESE APPROVED DRAWINGS.

## MATERIAL SPECIFICATIONS:

### ALUMINUM EXTRUSIONS

1. MATERIAL: M2, F2, A2, HS, and HR ARE EXTRUDED ALUMINUM ALLOY 6063 WITH A T6 TEMPER By Kistler McDougall.
2. 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).
3. FINISH: MILL FINISH

### FRAMING & ACCESSORIES

1. STEEL STUDS AND TRACKS: 16 GA. MIN. GALVANIZED STEEL WITH MIN. PROPERTIES OF 50 KSI YIELD, 65 KSI ULTIMATE.
2. 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.
3. PLYWOOD: 5/8" THICK, (5 PLY) EXTERIOR GRADE SECURED WITH #8 x 1 5/8" ITW BUILDEX TEK SCREWS AT 16" O.C. AROUND PERIMETER AND IN THE MIDDLE OF PLYWOOD.
4. PANEL FASTENERS: #10 x 1" HEX WASHER HEAD ITW BUILDEX TEK SCREWS SPACED AT 16" O.C.
5. STIFFENER FASTENERS: #10 x 1" HEX WASHER HEAD ITW BUILDEX TEK SCREWS.
6. JOINT SILICONE: DOW CORNING #795 SILICONE SEALANT.
7. STRUCTURAL SILICONE: DOW CORNING #1199 SILICONE SEALANT.
8. BACKER ROD: 3/4" DIA. DENVER FOAM OPEN CELL BACKER ROD.
9. 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 APPROVAL DOCUMENT AND IT SHALL BE REVIEWED BY THE PLANS EXAMINER OF THE CORRESPONDING BUILDING DEPARTMENT.

### COMPOSITE PANEL

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

DESCRIPTION	TEST	4MM ALPOLIC RESULTS	4MM ALPOLIC/fr RESULTS	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

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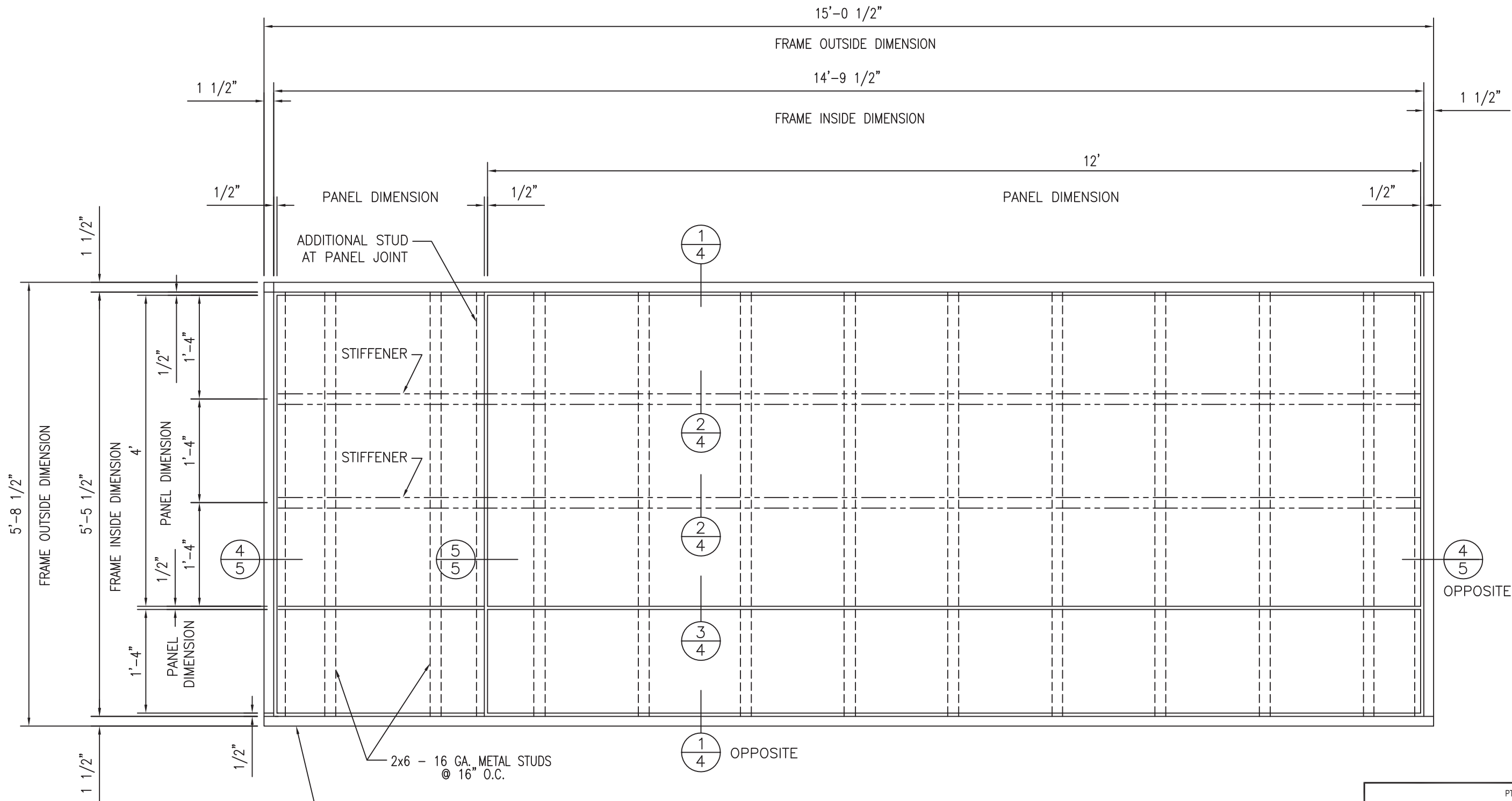
REV.	BY	DATE	CHANGE
8	RJA	6/13/23	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION
7	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
6	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FBC
5	RJA	6/10/12	UPDATE TO 2009 FBC
4	TH	1/09/12	MITSUBISHI PLASTICS COMPOSITES WAS MITSUBISHI CHEMICAL

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 4MM & 6MM ALPOLIC & 4MM ALPOLIC/fr			DRAWN	
FINISH			ENGINEERING	MS 11/11/02
DO NOT SCALE DRAWING			PROJ MGMT	
			PRODUCTION	
SIZE B	CAGE CODE	DWG NO. MPCA0001	REV 7	
SCALE SHOWN			SHEET 1 OF 11	

**PTC** PTC PRODUCT DESIGN GROUP, LLC  
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**MITSUBISHI CHEMICAL AMERICA  
ALPOLIC DIVISION**

**ALPOLIC and ALPOLIC/fr  
COMPOSITE WALL PANEL SYSTEMS**



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"

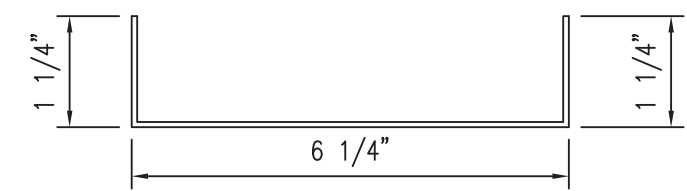
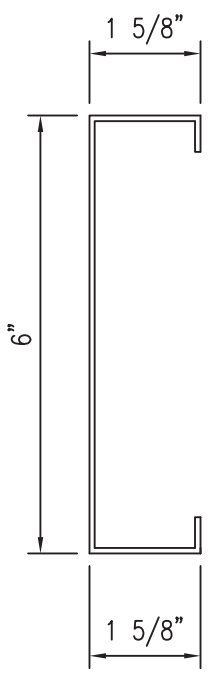
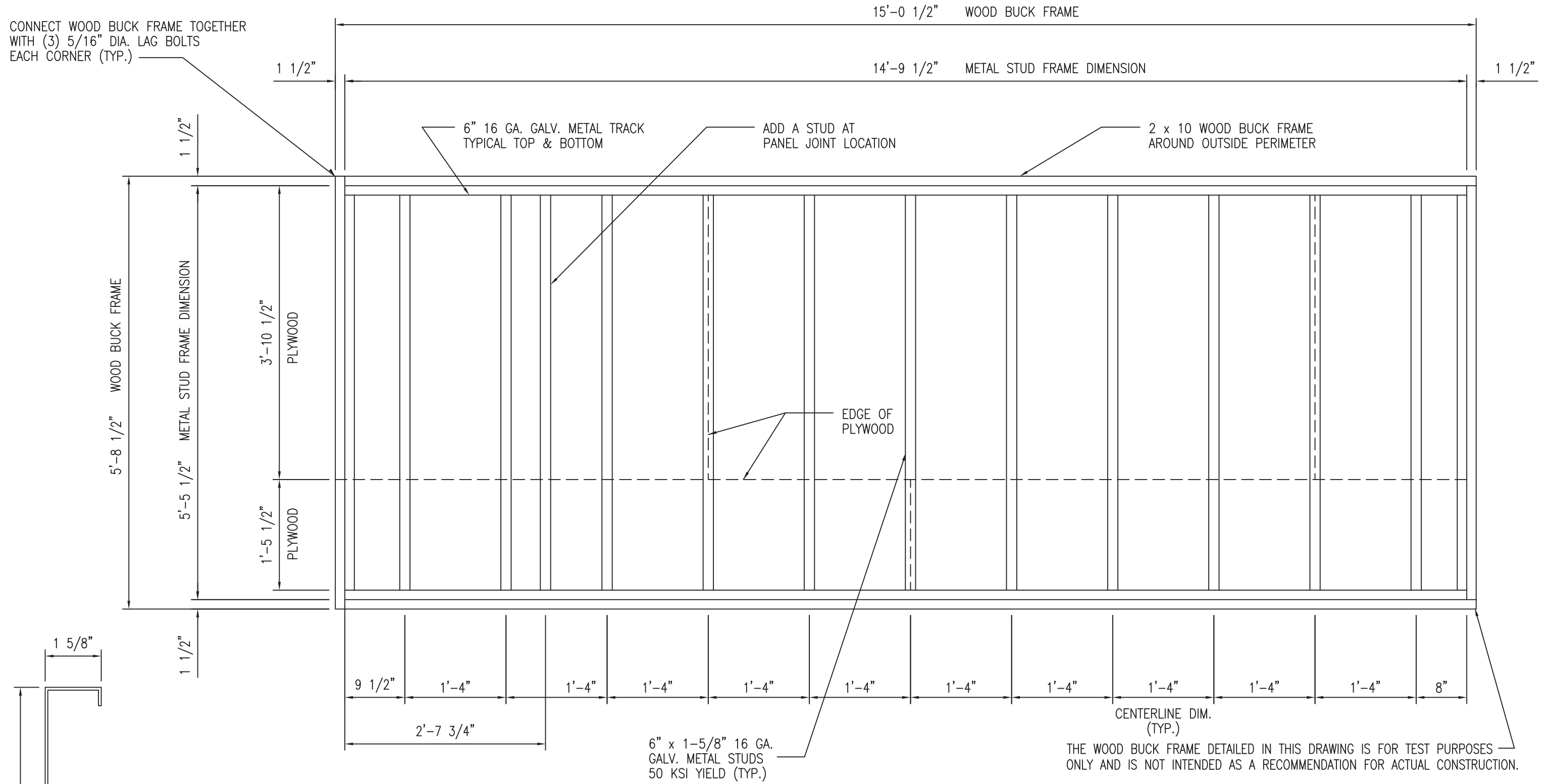
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			PRODUCTION	

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Kistler McDougall	
<b>MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION</b>	
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS	
SIZE <b>B</b>	CAGE CODE MPCA0001
DWG NO. MPCA0001	REV 8
SCALE SHOWN	SHEET 2 OF 11



# STUD FRAMING ELEVATION

3/4" = 1'-0"

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	.XXX ± .005			
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FINISH			PROJ MGMT	
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ALPOLIC and ALPOLIC/fr  
COMPOSITE WALL PANEL SYSTEMS

SIZE	CAGE CODE	DWG NO.	REV
B		MPCA0001	8

SCALE SHOWN SHEET 3 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)

A2 ALUMINUM  
EXTRUSION

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

**1** DETAIL  
**4** SCALE: 6" = 1'

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

BACKER ROD  
AND SEALANT

F2 ALUMINUM  
EXTRUSION

5/8" - (5 PLY) PLYWOOD FASTENED  
TO STUDS  
W/ 8" x 1 5/8" BUILDDEX  
SCREWS @ 16" O.C.

M2 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** JOINT DETAIL  
**4** SCALE: 6" = 1'

HS EXTRUDED ALUMINUM  
PANEL STIFFENER

5/8" - (5 PLY) PLYWOOD FASTENED  
TO STUDS  
W/ #8" x 1 5/8" BUILDDEX  
SCREWS @ 16" O.C.

#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** STIFFENER DETAIL  
**4** SCALE: 6" = 1'

DOW-CORNING #1199  
SILICONE SEALANT

HR EXTRUDED ALUMINUM  
PANEL STIFFENER

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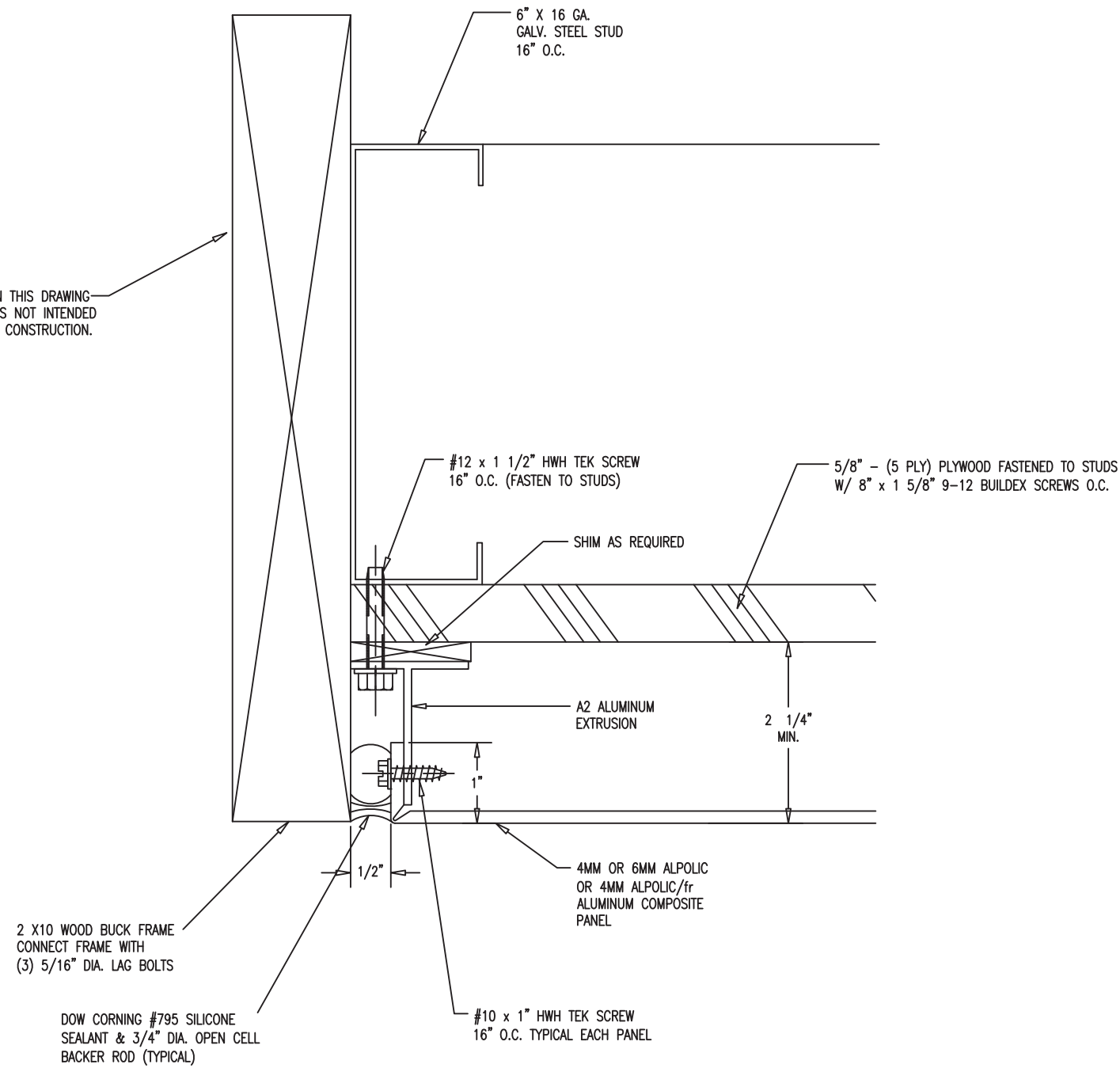
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	.XXX ± .005	
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FINISH		
DO NOT SCALE DRAWING		

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PROJ MGMT	
PRODUCTION	

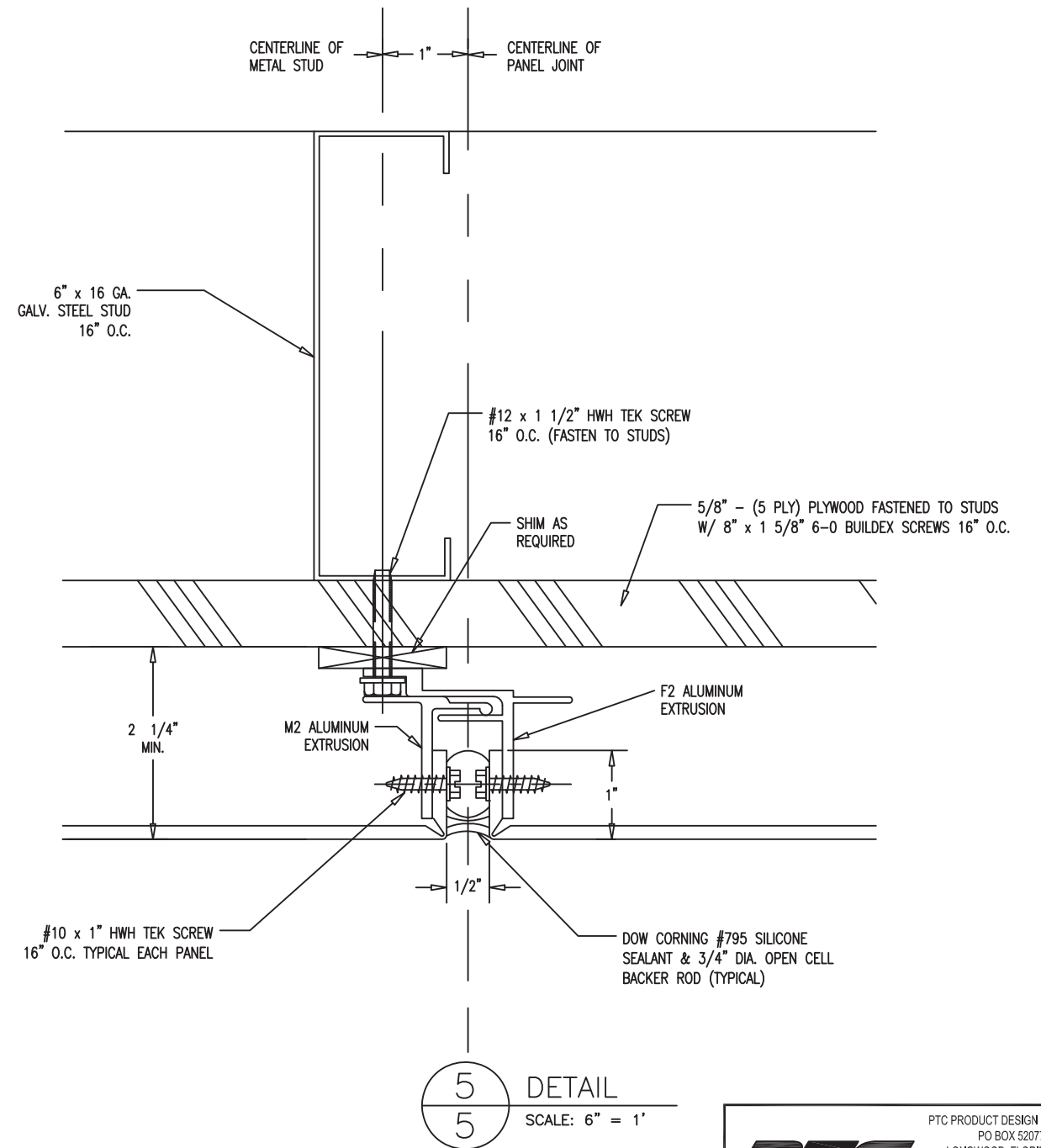
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MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION			
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS			
SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0001	8
SCALE SHOWN		SHEET 4 OF 11	

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4  
5  
DETAIL  
SCALE: 6" = 1'



5  
5  
DETAIL  
SCALE: 6" = 1'

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7	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA
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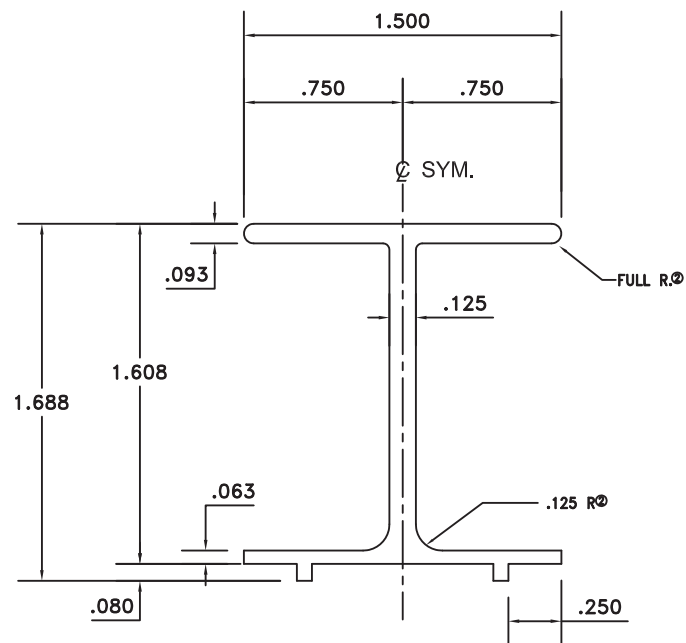
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	± .XXX ± .005	
MATERIAL	4MM & 6MM ALPOLIC & 4MM ALPOLIC/fr	
FINISH		

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B		MPCA0001	8
SCALE SHOWN			SHEET 5 OF 11

HS



BREAK CORNERS .015 R

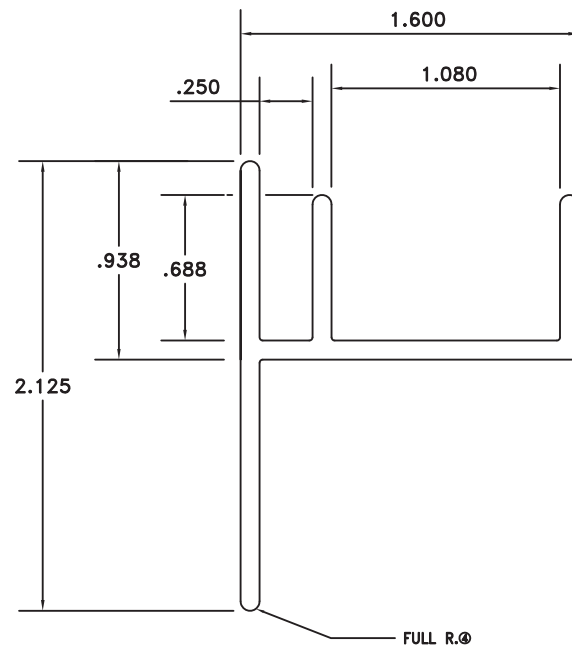
EXCEPT AS NOTED

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

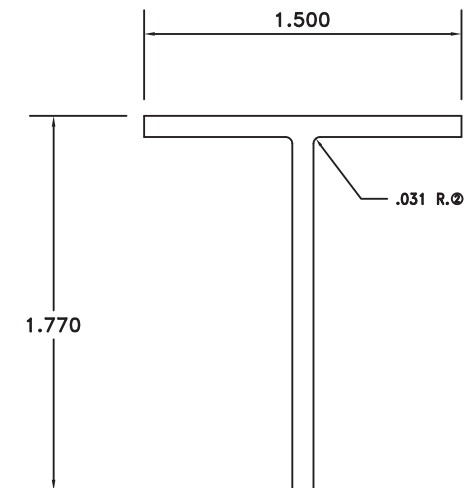
.090 TYPICAL METAL THICKNESS

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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6	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FRC
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DO NOT SCALE DRAWING		

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PROJ MGMT	
PRODUCTION	

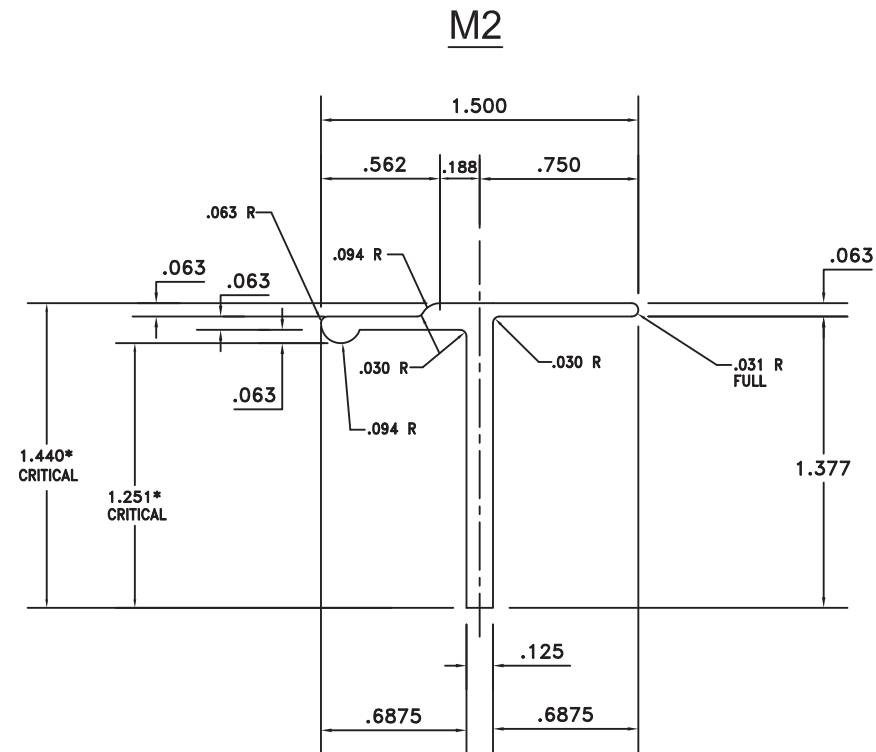
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SIZE	CAGE CODE	DWG NO.	MPCA0001	REV	8
B					
SCALE SHOWN		SHEET 6 OF 11			

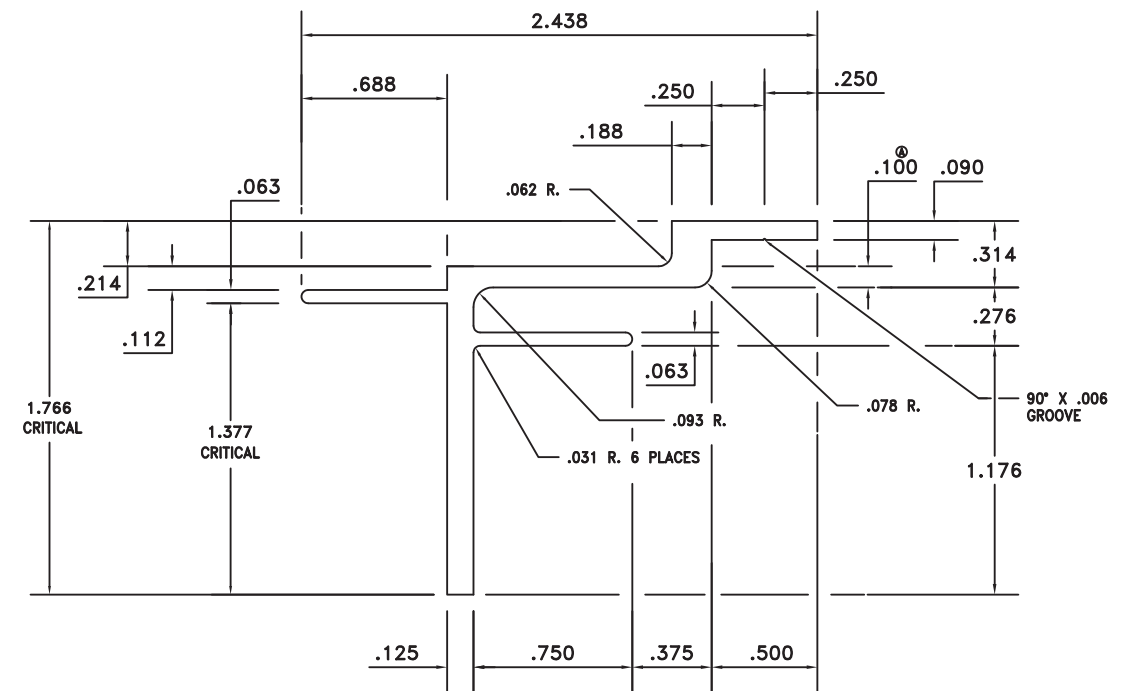


ACTUAL SIZE  
BREAK SHARP CORNERS. 005 R.

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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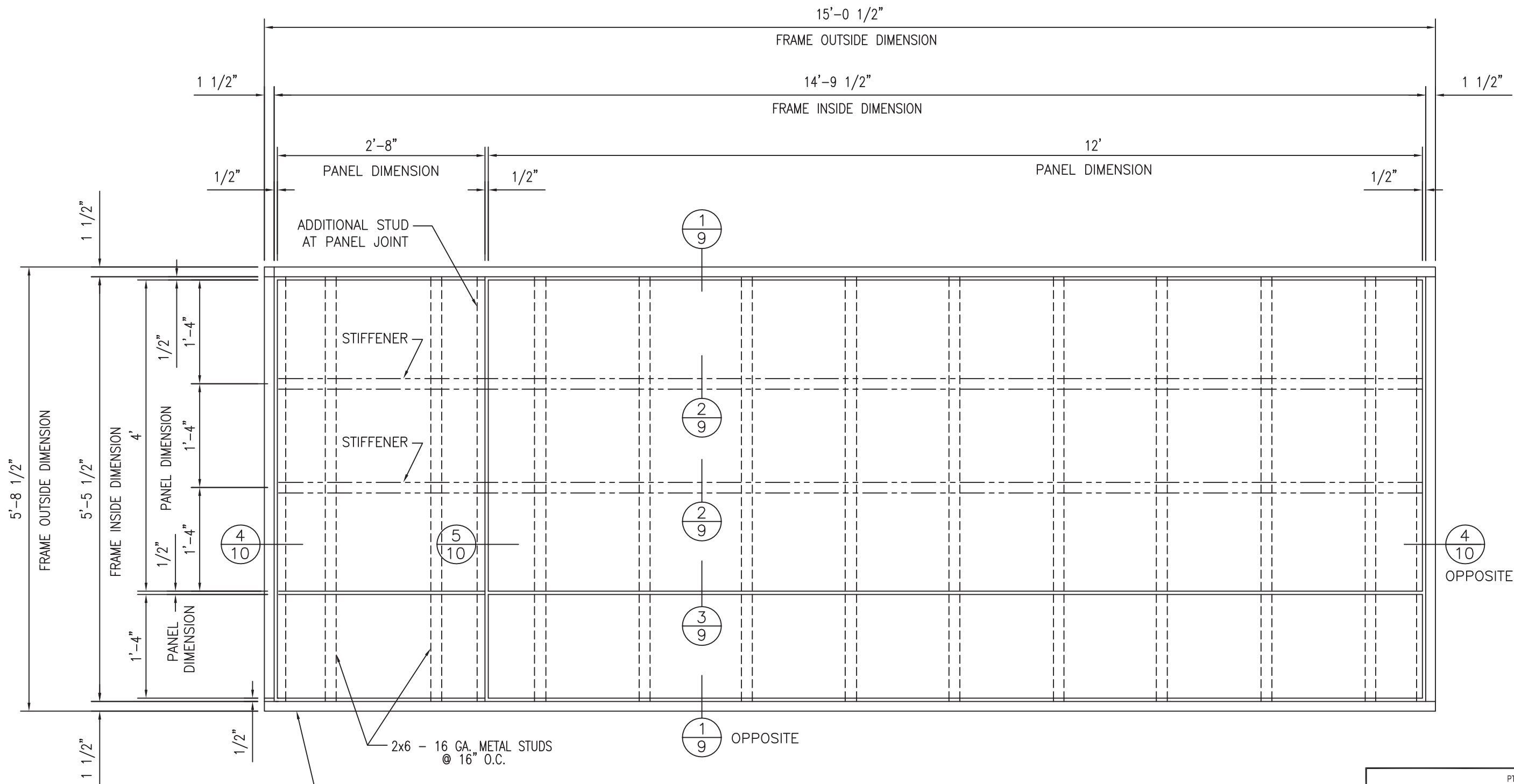
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**COMPOSITE WALL PANEL SYSTEMS**

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SCALE SHOWN		SHEET 7 OF 11	



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**PANEL ELEVATION**  
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	.XXX ± .005	

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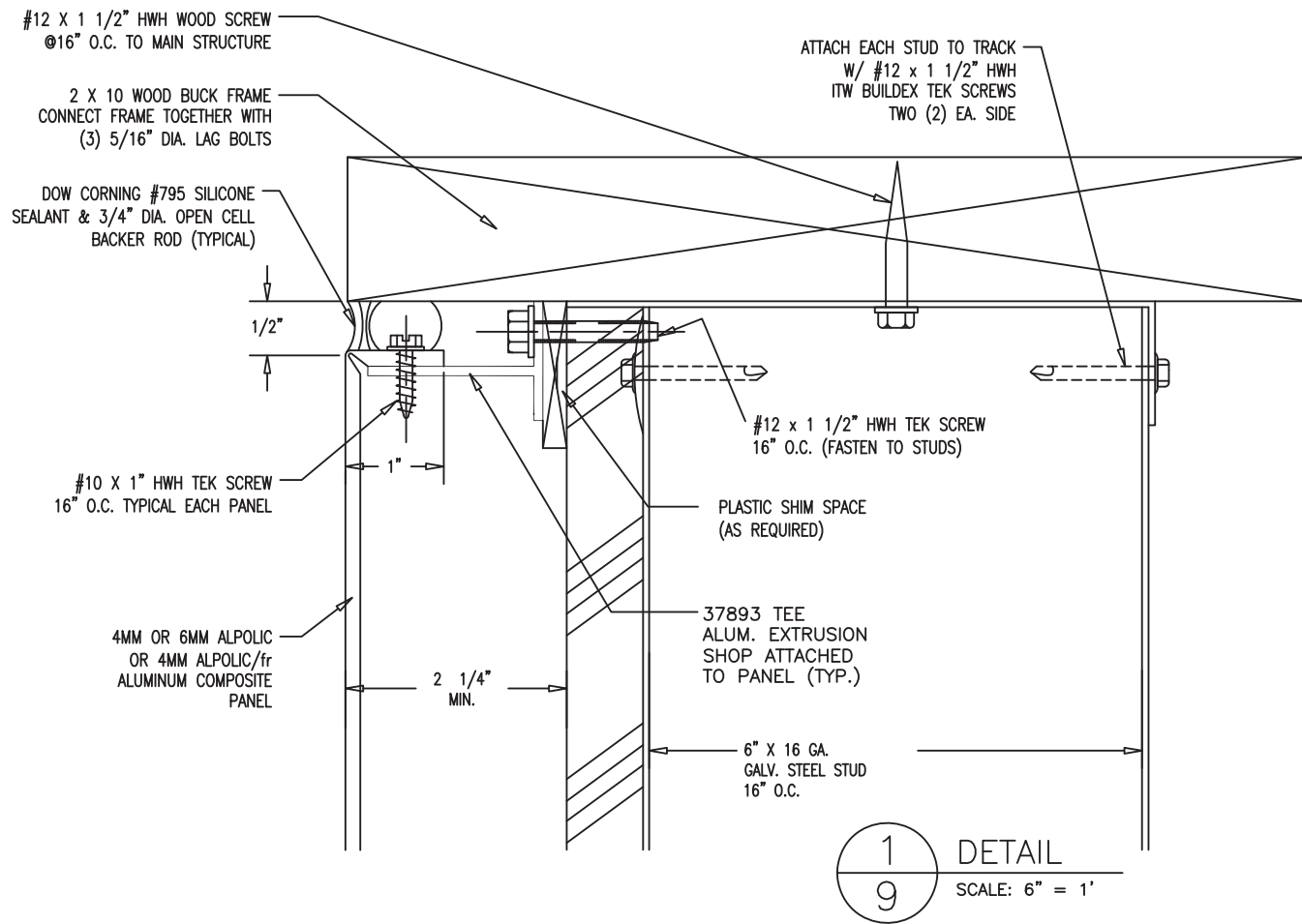
SAF METAL FABRICATION

**MITSUBISHI CHEMICAL AMERICA  
 ALPOLIC DIVISION**

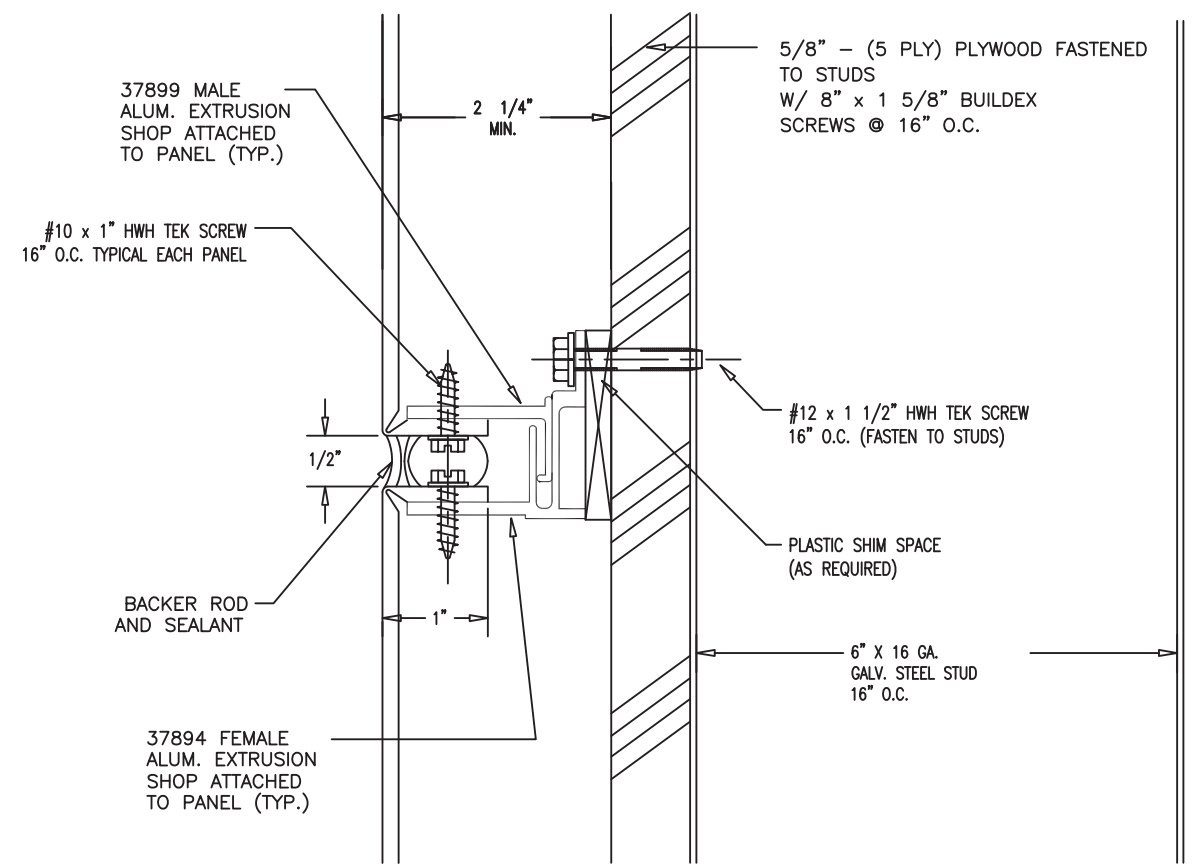
ALPOLIC and ALPOLIC/fr  
**COMPOSITE WALL PANEL SYSTEMS**

SIZE	CAGE CODE	DWG NO.	REV
B		MPCA0001	8
SCALE	SHOWN	SHEET	8 OF 11

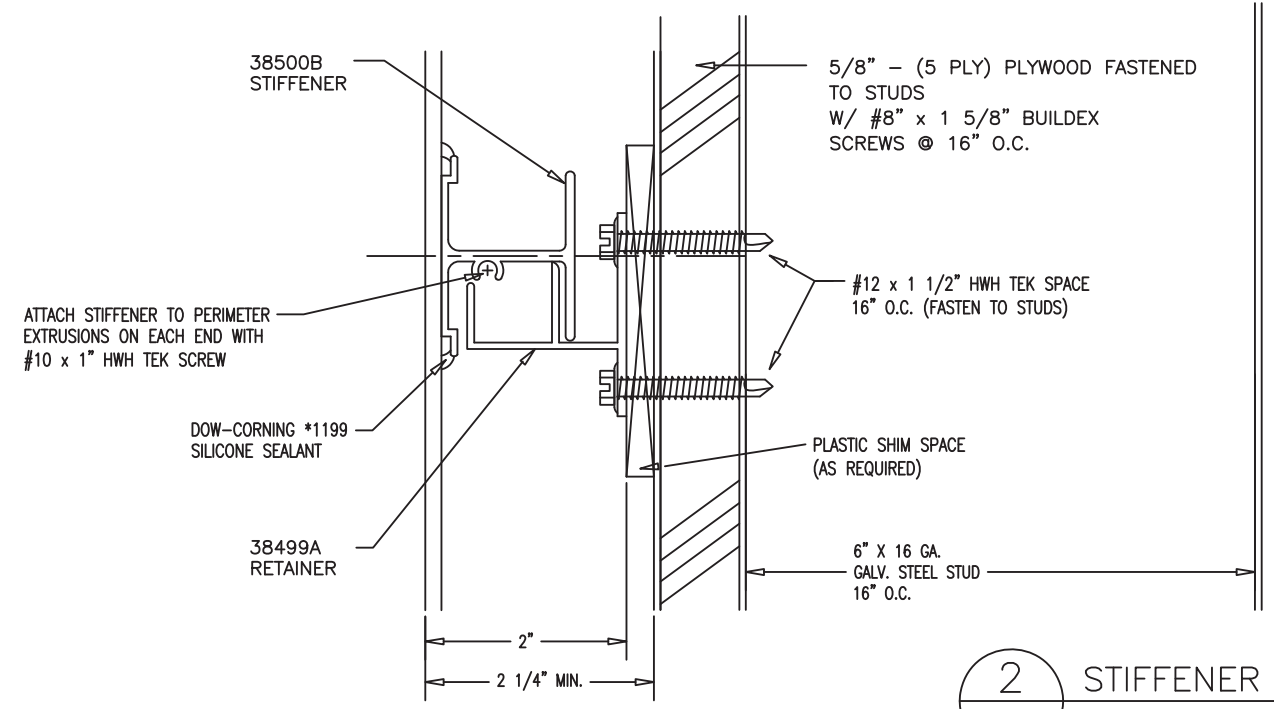




**1** DETAIL  
SCALE: 6" = 1'



**3** JOINT DETAIL  
SCALE: 6" = 1'



**2** STIFFENER DETAIL  
SCALE: 6" = 1'

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

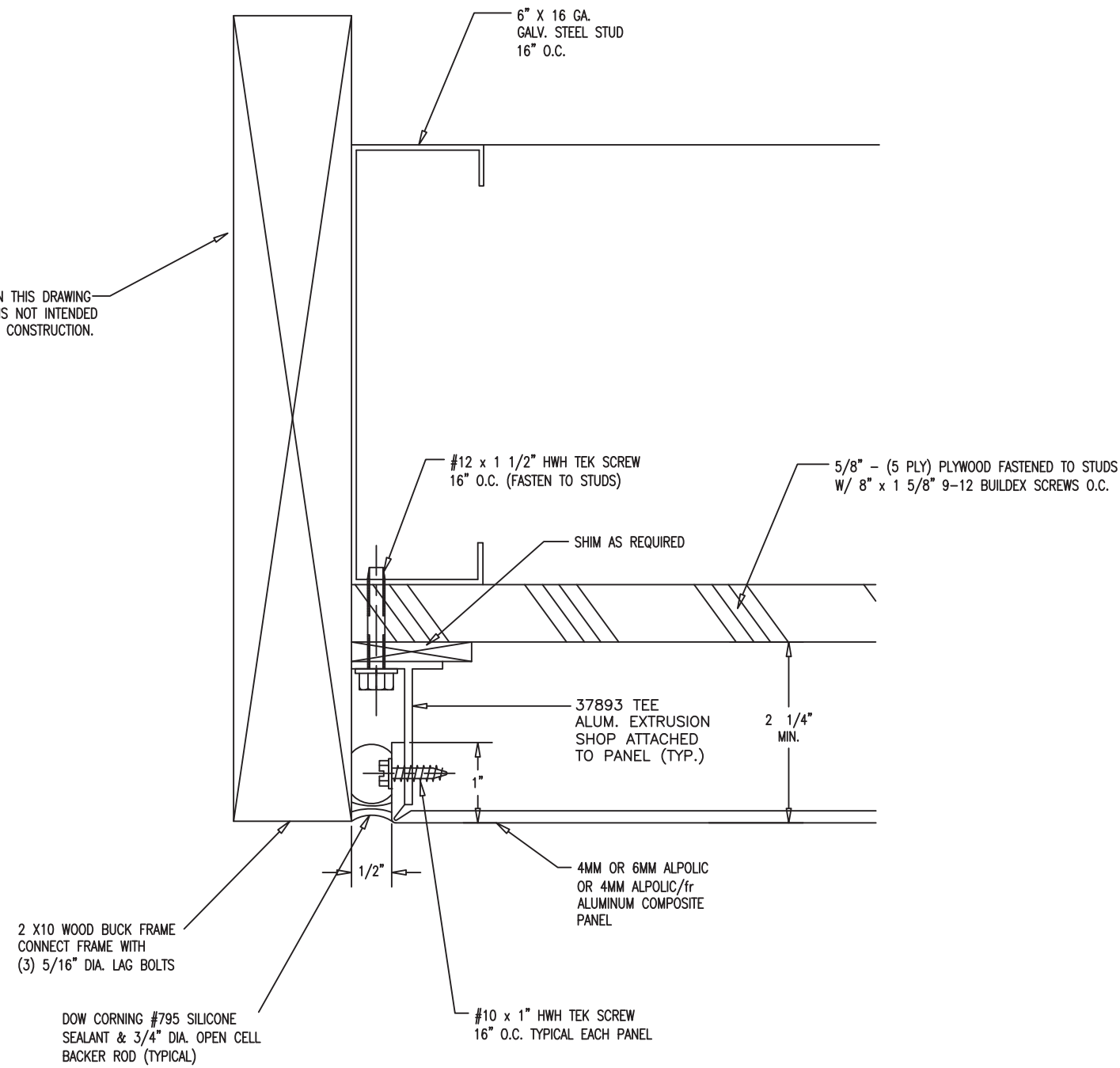
REV.	BY	DATE	CHANGE
8	RJA	6/13/23	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA, ALPOLIC DIVISION
7	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
6	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FIC
5	RJA	6/10/12	UPDATE TO 2010 FIC
4	TH	1/09/12	MITSUBISHI PLASTICS COMPOSITES W/ MITSUBISHI CHEMICAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			CONTRACT NO.	
FRACTIONS	DECIMALS	ANGLES	APPROVALS	DATE
± 1/32	.XX ± .01	± 1/2		
	.XXX ± .005			
MATERIAL: 4MM & 6MM ALPOLIC & 4MM ALPOLIC/fr			DRAWN	
FINISH			ENGINEERING MS 11/11/02	
DO NOT SCALE DRAWING			PROJ MGMT	
			PRODUCTION	

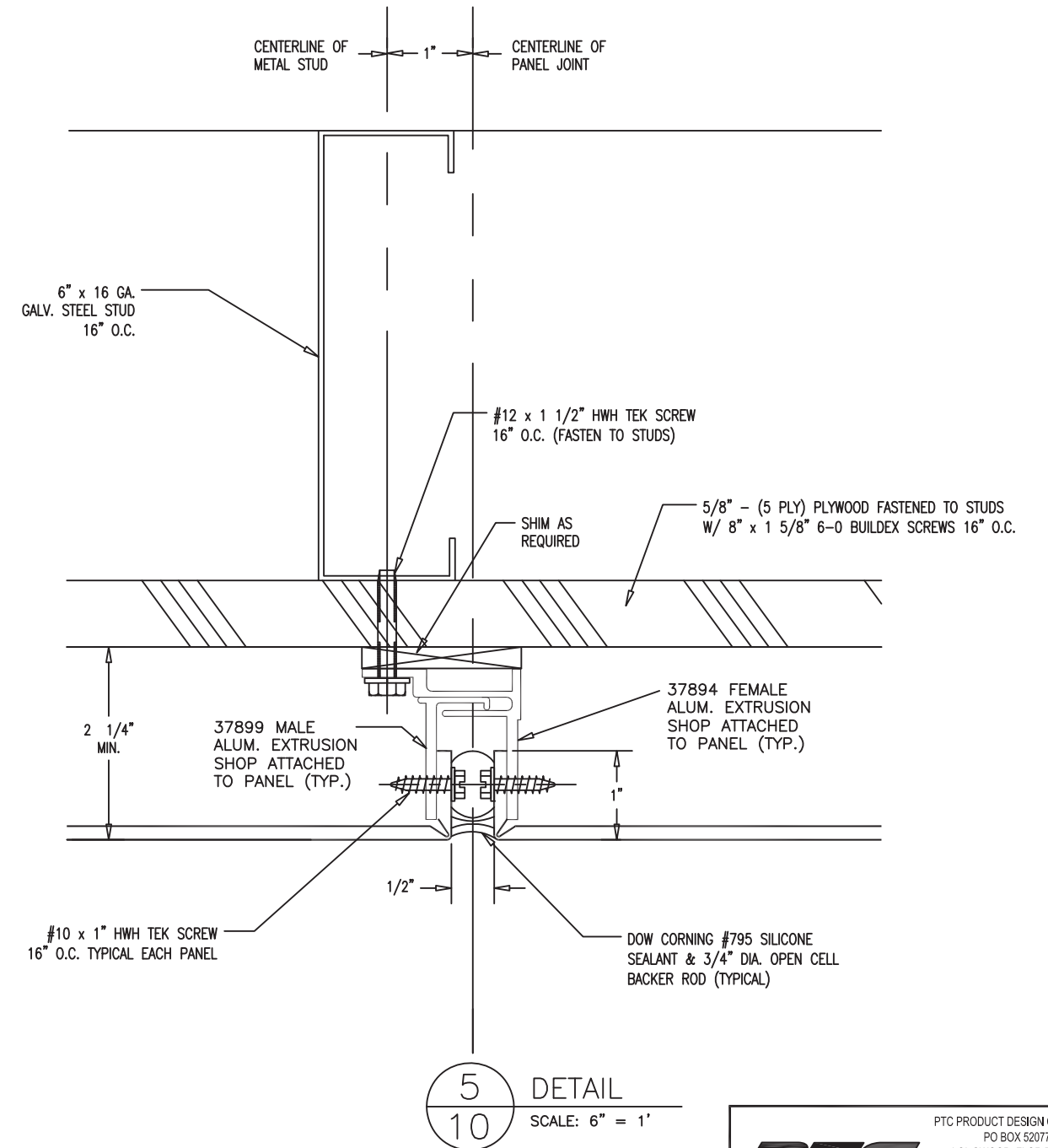
PTC PRODUCT DESIGN GROUP, LLC  
PO BOX 520775  
LONGWOOD, FLORIDA 32752  
FBPE C.A. NO. 25935  
Phone: 321.690.1788; Fax: 321.690.1789  
Email: info@pto-corp.com

SAF METAL FABRICATION			
MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION			
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS			
SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0001	8
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  
10  
DETAIL  
SCALE: 6" = 1'



5  
10  
DETAIL  
SCALE: 6" = 1'

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

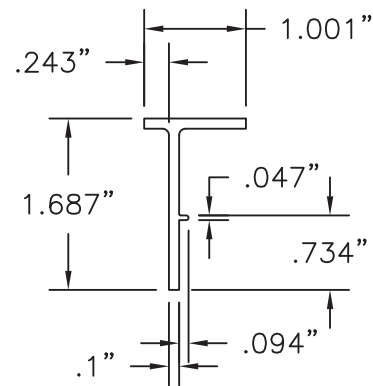
REV.	BY	DATE	CHANGE
8	RJA	6/13/23	ISSUE CHANGE TO MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION
7	RJA	4/14/17	ISSUE CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
6	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE SPEC
5	RJA	6/10/12	UPDATE TO SDRS FILE
4	TH	1/09/12	MITSUBISHI PLASTICS COMPOSITES DIV MITSUBISHI CHEMICAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		
FRACTIONS	DECIMALS	ANGLES
± 1/32	.XX ± .01	± 1/2
	.XXX ± .005	
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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SAF METAL FABRICATION			
MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION			
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS			
SIZE	CAGE CODE	DWG. NO.	REV
B		MPCA0001	8
SCALE SHOWN			SHEET 10 OF 11

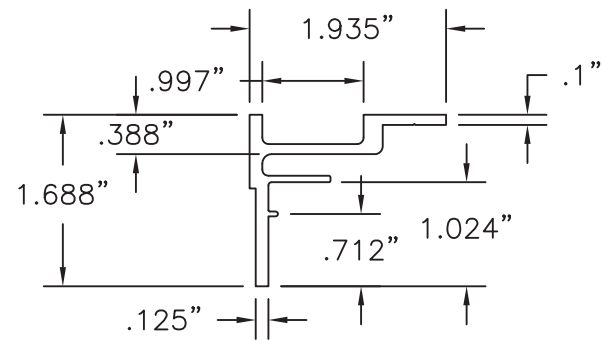


**ACM TERMINATOR**

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

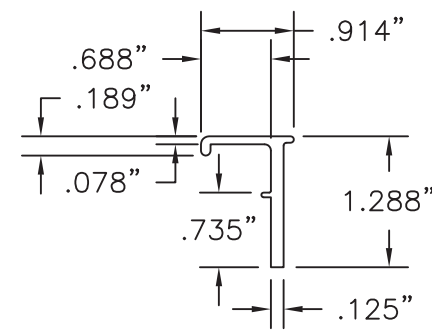


**ACM FEMALE**

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

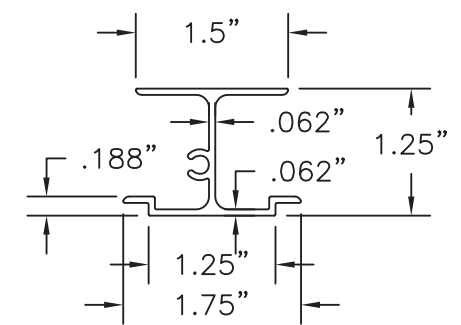


**ACM MALE**

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

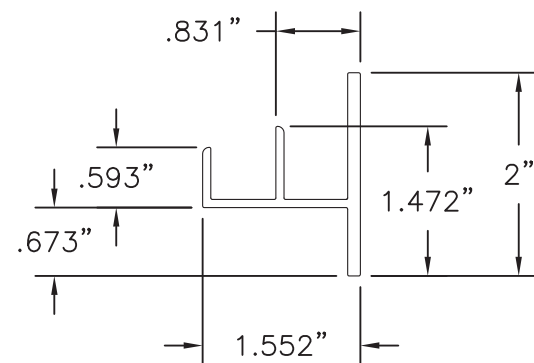


**PANEL STIFFENER**

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

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

8	RJA	6/13/23	NAME CHANGE TO MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION
7	RJA	4/14/17	NAME CHANGE TO MITSUBISHI CHEMICAL COMPOSITES AMERICA
6	RJA	4/24/14	UPDATE TO CURRENT EDITION OF THE FBC
5	RJA	6/10/12	UPDATE TO 2010 FBC SHEET ADDED FOR SHF EXTRUSION
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 4MM & 6MM ALPOLIC & 4MM ALPOLIC/fr			DRAWN	
FINISH			ENGINEERING MS	11/11/02
DO NOT SCALE DRAWING			PROJ MGMT	
			PRODUCTION	
SAF METAL FABRICATION		MITSUBISHI CHEMICAL AMERICA ALPOLIC DIVISION		
ALPOLIC and ALPOLIC/fr COMPOSITE WALL PANEL SYSTEMS				
SIZE B	CAGE CODE	DWG NO. MPCA0001	REV 8	
SCALE SHOWN		SHEET 11 OF 11		

**PTC** PTC PRODUCT DESIGN GROUP, LLC  
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