SUPPLEMENTAL INFORMATION

4/30/2024

PROJECT:	Merced College Greenhouse Complex	**OWNER:**	Merced College 3600 M Street Merced CA, 95348
ENGINEER:	Blair, Church & Flynn Attention: Zachary Hockett Kyle Lawson	**BCF PROJECT NO.**	222-0314

It will be the responsibility of the General Contractor to submit the information contained in this addendum to all its subcontractors and suppliers. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification. The following additions, deletions, and revisions to the Drawings and Project Manual are hereby made and do become a part of these Contract Documents.

TABLE OF CONTENTS

ATTACHMENTS

Small Greenhouse Specifications
Large Greenhouse Specifications.

SUPPLEMENTAL INFORMATION

SI-01: Small Greenhouse Specifications

- Pages 24-49 Green House Manufacturer or https://www.greenhousemegastore.com/products/1200-series-gothic-arch-package?variant=42703411806407

SI-02: Large Greenhouse Specifications

- Stamped Calculations
- Stamped Drawings
- Bill of Lading (BOL)
- Equipment Layout
- Merced Calculations

checked for invoice 11/19/24 Luis Olivier

November 13, .
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GM\NICHOL.FRANKLIN

Warehouse Activity Header: Type: Pick. No.: PK0584182..PK0584182

Location Code SA-CA
No. PK0584182
Assigned User ID
Sorting Method Shelf or Bin

Ship To: C003129
Merced Comm College Dist
Andrew Codd
3600 M St
PO 0050858
Merced, CA 95348
USA

Sales Order: SO00080563
Assembly Order: A088300

Due Date	Item No.	Parent Item	Description	Zone Code	Bin Code	Qty. (Base)	Qty. Handled
10/12/23	PC-CL-C	CF-246P-S448	Corrugated Foam Closures	PICK	A01-1A	50	50
10/05/23	EV-QF	EV-SS6-01	Quietaire Evap System Filter	PICK	B01-1A	2	2
10/12/23	PCP-AC-10	CF-246P-S448	Top Sealing Aluminum Tape 1" x 150'	PICK	B01-3D	2	2
10/12/23	PCP-AC-10		Top Sealing Aluminum Tape 1" x 150'	PICK	B01-3D	1	1
10/12/23	PCP-AC-20	CF-246P-S448	Vent Tape 1.5" x 108'	PICK	B01-3E	2	2
10/12/23	PCP-AC-20		Vent Tape 1.5" x 108'	PICK	B01-3E	1	1
10/05/23	EV-QP	EV-SS6-01	Quietaire Evap System Pump	PICK	B01-4F	2	2
10/05/23	SN-TMA-15	EV-SS6-01	PVC Threaded Male Adapter for 1-1/2" pipe (schedule 40)	PICK	B02-2D	6	6
10/05/23	EV-TMB-4	EV-SS6-01	Evap System Trough Mounting Bracket for 4" & 6" pads	PICK	B02-2E	6	6
10/05/23	EV-TMB-4	EV-SS6-05	Evap System Trough Mounting Bracket for 4" & 6" pads	PICK	B02-2E	2	2
10/12/23	EV-GC1-636		Evaporative Cooling Pads, Coated 1 Side 6" x 36"	PICK	C10-1A	11	11
10/12/23	EV-GC1-636		Evaporative Cooling Pads, Coated 1 Side 6" x 36"	PICK	D11-3A	19	19
10/12/23	CF-SD	CF-246P-S448	Storm Door White 36" x 80-81"	PICK	F04-1A	2	2
10/12/23	CT-VC109	CF-246P-S448	VC109 Two Stage Thermostat	PICK	G01-2K	2	2
10/12/23	FA-VK-12	CF-246P-S448	Schaefer HAF Fan VK12, 12" diameter, 115v	PICK	G03-1A	4	4
10/12/23	FA-SFSH-36	CF-246P-S448	Schaefer Aluminum Shutter 36" diameter	PICK	G05-1B	5	5
10/12/23	FA-SFSH-36		Schaefer Aluminum Shutter 36" diameter	PICK	G05-1B	4	4

Warehouse Activity Header: Type: Pick. No.: PK0584182..PK0584182

10/12/23	GF-9002-PVC	CF-246P-S448	Spring Top Lock-Wiggle Wire 6' 4-1/2" Coated Galvanized Spring-Wiggle Wire	PICK	H01-2	56	56
10/12/23	GF-9002-PVC	CF-246P-S448	Spring Top Lock-Wiggle Wire 6' 4-1/2" Coated Galvanized Spring-Wiggle Wire	PICK	H01-2	32	32
10/12/23	GF-6AC-50100	CF-246P-S448	Thermal AC Greenhouse Film, 6 mil 50' x 100'	PICK	H09-4	2	2
10/12/23	CPC-MAX-513	CF-246P-S448	Dynaglas Solarsoft Max Corrugated Polycarbonate 49.6" x 13'	PICK	K02-3	8	8
10/12/23	CPC-MAX-514	CF-246P-S448	Dynaglas Solarsoft Max Corrugated Polycarbonate 49.6" x 14'	PICK	K02-4	12	12
10/12/23	CF-GA298	CF-246P-S448	Alum Arch End Combo 290" R 24' 1200 Series A0000167	PICK	K02-6	8	8
10/12/23	CF-GA180	CF-246P-S448	Purlin 5" x 12'4" 1200 series 20, 24, 30'w ridge P0000850	PICK	K03-1	8	8
10/12/23	CPC-MAX-510	CF-246P-S448	Dynaglas Solarsoft Max Corrugated Polycarbonate 49.6" x 10'	PICK	K03-2	8	8
10/12/23	CG-CON-KC12W	CF-246P-S448	Kool Cell Girt K0000786 12' long	PICK	K03-5	8	8
10/12/23	CF-GA091	CF-246P-S448	1200 Series Arch 24' (1/2 arch) C0055357	PICK	K04-1	36	36
10/12/23	CF-GA342	CF-246P-S448	Jamb Door Sliding, 12' J0000111	PICK	K04-2	4	4
10/12/23	CF-GA420	CF-246P-S448	Column Tube T-22, 1-5/8" x 14' C0000504	PICK	K04-6	8	8
10/12/23	CF-GA190	CF-246P-S448	Purlin 5" x 12'4" 1200 series 20, 24, 30'w sides P0000860	PICK	K06-1	16	16
10/12/23	CF-GA125	CF-246P-S448	Shutter Fan Support 5" Girt	PICK	K06-1A	8	8
10/12/23	CF-GA861	CF-246P-S448	Cross Tube C0055358 24' 1200 1 pc	PICK	K06-2	14	14
10/12/23	CF-HH-3010	CF-246P-S448	Heater Hanger Tube 2x2x11GA H0030100	PICK	K06-3	4	4
10/12/23	CF-GA700	CF-246P-S448	Eve Girt 12' for 1200 series cold frame	PICK	K07-3	4	4
10/12/23	CF-GA312	CF-246P-S448	Girt 5" x 12' 4" (endwall girt) G0000312	PICK	K08-1	28	28
11/07/23	FA-VRS-1260		Motorized Shutter Kit for 12-60" shutters, #1260 Motor	PICK	L02-1C	33 6	6
10/12/23	FA-IB	CF-246P-S448	Inflation Blower, 60 CFM	PICK	L02-2D	2	2
10/12/23	CF-GA045	CF-246P-S448	Bolt/HH 3/8 x 1-3/4	PICK	L03-0A	14	14
10/12/23	CF-GA170	CF-246P-S448	Nut Hex Coarse 1/2" 1/2-13 Zinc	PICK	L03-0B	36	36
10/12/23	CF-GA060	CF-246P-S448	Bolt/HH 1/2 x 2-1/2 A-307 Zinc	PICK	L03-0E	36	36
10/12/23	CF-GA155	CF-246P-S448	Nut Hex Pltd Coarse 5/16" 5/16-18 Zinc1	PICK	L03-1D	72	72
10/12/23	GA-1005		EPDM Spacer, 100/Bag W9970300	PICK	L03-1E	2	2

Warehouse Activity Header: Type: Pick. No.: PK0584182..PK0584182

10/12/23	CF-GA250	CF-246P-S448	Turnbuckle T0000132	PICK	L03-1F	4	4
10/12/23	GA-1006A		Glazing Cap Screws #10 x 1/2" 100/bag	PICK	L03-1G	3	3
10/12/23	GA-B3814	CF-246P-S448	Bolt/HH 3/8 x 1-1/4 B9970450	PICK	L03-2B	16	16
10/12/23	GA-B3827	CF-246P-S448	Bolt/HH 3/8 x 2-3/4 B9970510 extra bag?	PICK	L03-2D	8	8
10/12/23	CF-GA460	CF-246P-S448	Tab End Girt T0030890	PICK	L03-2F	16	16
10/12/23	CT-VC15-HRDW	CF-246P-S448	J&D Single Stage Thermostat VC115: hardwired	PICK	L03-3A	2	2
10/12/23	CF-HH-3013	CF-246P-S448	Heater Hanger Threaded Rod 3/8" x 12" H0030130	PICK	L04-0A	8	8
10/12/23	CF-HH-3011	CF-246P-S448	Heater Hanger Angel H0030110	PICK	L04-0B	16	16
10/12/23	CF-HH-1451	CF-246P-S448	Heater Hanger Flat Bar Washer H0021451	PICK	L04-0C	8	8
10/12/23	GA-1010		Tek Screw, #10-16 x 1-1/2 100/bag, with Washer	PICK	L04-0E	3	3
10/12/23	GA-1001	CF-246P-S448	Tek Screw #10-16 x 1-1/4 MAG LIFE	PICK	L04-1A	32	32
10/12/23	CF-GA230	CF-246P-S448	Tek Screw, 10-16 x 3/4" #10 Zinc, HWH w/o washer S9970010	PICK	L04-1B	172	172
10/12/23	CF-GA030	CF-246P-S448	Bolt/HH - 1/4" x 3/4" 1/4-20 Zinc gr5	PICK	L04-1C	72	72
10/12/23	CF-GA034	CF-246P-S448	Carriage Bolt 5/16" x 3-1/2" B9971530	PICK	L04-1D	72	72
10/12/23	CF-GA040	CF-246P-S448	Bolt/HH 3/8 x 1 3/8-16 Zinc gr 5	PICK	L04-1E	72	72
10/12/23	CF-GA050	CF-246P-S448	Bolt/HH 3/8 x 2-1/4 A-307 Zinc	PICK	L04-1F	126	126
10/12/23	CF-GA150	CF-246P-S448	Nut Hex Coarse 1/4" Zinc 43834	PICK	L04-1G	108	108
10/12/23	CF-GA160	CF-246P-S448	Nut Hex Pltd Coarse 3/8" 3/8-16 Zinc	PICK	L04-1H	276	276
10/12/23	CF-GA140	CF-246P-S448	Cable Clamps Galv 3/16" C9970230	PICK	L04-2C	16	16
10/12/23	CF-GA260	CF-246P-S448	Eyebolt welded 3/8" x (3" shank) T0000330	PICK	L04-2D	4	4
10/12/23	CF-GA270	CF-246P-S448	Tab Turnbuckle w/ bend (2) 9/16" hole 1200 Series T0035920	PICK	L04-2E	4	4
10/12/23	CF-GA330	CF-246P-S448	Splice Gable End Connector S0001100	PICK	L04-2F	4	4
10/12/23	CF-GA240	CF-246P-S448	Tek Screw HWH w/o washer 14-14, 1" Galv	PICK	L04-2G	220	220
10/12/23	CF-GA913	CF-246P-S448	Bolt/HH 1/4" x 3/4" Grade 5 Cad Pltd B9970030	PICK	L04-2J	16	16
10/12/23	CF-GA1016	CF-246P-S448	Nut Hex Plasted Coarse 1/4"	PICK	L04-2K	16	16

Warehouse Activity Header: Type: Pick, No.: PK0584182..PK0584182

10/12/23	FA-SFSH-36	CF-246P-S448	Schaefer Aluminum Shutter 36" diameter	PICK	M04-1A	1	
10/12/23	CF-GA473	CF-246P-S448	Tab Side Girt Wood, 2-7/8" Column T0030700	PICK	N01-1-2	36	
10/12/23	CF-GA871	CF-246P-S448	Chord Support Tube C0055359 for 24' 1200 1 pc 34"	PICK	N01-3-11	14	
10/12/23	CF-HH-3012	CF-246P-S448	Heater Hanger Mounting U H0030120	PICK	N01-3-9	8	
10/12/23	CF-GA135	CF-246P-S448	Conn Column to ArchClamp 2-7/8 1200 Series 1100 6' C0155501	PICK	P01-1A	36	
10/12/23	CF-GA136	CF-246P-S448	Conn Column To Arch 1200 Series C0155490	PICK	P01-1A	0	
10/12/23	CF-GA472	CF-246P-S448	Base to Wood Clamp (2-7/8") C0101700	PICK	P01-1B	36	
10/12/23	GA-BC001	CF-246P-S448	Brace Cable 3/16" x 1' Vinyl Coated Galvanized Cable	PICK	P01-2A	80	
10/12/23	GA-BC001	CF-246P-S448	Brace Cable 3/16" x 1' Vinyl Coated Galvanized Cable	PICK	P01-2A	80	
10/12/23	CF-GA295	CF-246P-S448	Alum Combo Straight 7' A0000254	PICK	R02-1	8	
10/12/23	CF-HH-0450	CF-246P-S448	Heater Hanger Support Tube 1/2" (3ft) H0020450	PICK	R05-1A	4	
10/17/23	PCP-EX-GB-16		Aluminum Glazing Bar 16' A0070389 16' section	PICK	R06-1	16	
10/17/23	PCP-EX-GC816		Aluminum Glazing Cap A0070379 16' section	PICK	R06-1	16	
10/12/23	CF-HH-1450	CF-246P-S448	Heater Hanger Adj Flat Bar To Arch 8' H0021450	PICK	R06-5	8	
10/05/23	EV-TR6-01	EV-SS6-01	Stainless Steel Trough for 6" pads 10' starter system	PICK	S01-1	2	
10/05/23	EV-TR6-05	EV-SS6-05	Stainless Steel Trough for 6" pads 5' extension	PICK	S02-1	2	
10/12/23	CG-CON-KC12W	CF-246P-S448	Kool Cell Girt K0000786 12' long	PICK	S05-5	0	
10/12/23	GF-9002-PVC	CF-246P-S448	Spring Top Lock-Wiggle Wire 6' 4-1/2" Coated Galvanized Spring-Wiggle Wire	PICK	T05-1	0	
10/12/23	GF-9002-PVC	CF-246P-S448	Spring Top Lock-Wiggle Wire 6' 4-1/2" Coated Galvanized Spring-Wiggle Wire	PICK	T05-1	0	
10/12/23	CF-GA180	CF-246P-S448	Purlin 5" x 12'4" 1200 series 20, 24, 30'w ridge P0000850	PICK	U01-1	0	
10/12/23	CF-GA190	CF-246P-S448	Purlin 5" x 12'4" 1200 series 20, 24, 30'w sides P0000860	PICK	U02-1	0	
10/12/23	GF-9001D-12	CF-246P-S448	Spring Lock Deep Base 12' section, aluminum	PICK	U04-1	16	
10/12/23	CF-GA085	CF-246P-S448	1200 Series Column Tube, 2-7/8 x 8' (6' sidewalls) 1200 Series 4' and 6' walls & 1100 series 6' walls	PICK	V08-1A	36	
10/12/23	CF-GA700	CF-246P-S448	Eve Girt 12' for 1200 series cold frame	PICK	V09-2	0	

Warehouse Activity Header: Type: Pick. No.: PK0584182..PK0584182

10/12/23	CF-GA125	CF-246P-S448	Shutter Fan Support 5" Girt	PICK	V11-2	0
10/12/23	CF-GA091	CF-246P-S448	1200 Series Arch 24' (1/2 arch) C0055357	PICK	V13-7	0
10/12/23	CF-GA136	CF-246P-S448	Conn Column To Arch 1200 Series C0155490	PICK	W05-1A	36
10/12/23	CF-GA220	CF-246P-S448	Splice Chevron ASMB, 9-1/2" 1200 Series S0000995	PICK	WH2-FLR1-3	18

Warehouse Activity Header: Type: Pick, No.: PK0582983..PK0582983

Location Code	DA-IL	**Ship To:**	C003129	**Sales Order:**	SO00080563
No.	PK0582983		Merced Comm College Dist	**Assembly Order:**	
			Andrew Codd		
Assigned User ID	GM\DEANA.FORD		3600 M St		
Sorting Method	Shelf or Bin		PO 0050858		
			Merced, CA 95348		
			USA		

Due Date	Item No.	Parent Item	Description	Zone Code	Bin Code	Qty. (Base)	Qty. Handled
10/17/23	GF-9008		3-1/8" Hose Clamp	PICK	BRC510A	2	
10/17/23	GF-9012		PV Plug for Inflation Kit	PICK	BRC510A	2	
10/17/23	GF-9016		1/4"- 20 x 1" Phillips Pan Head Machine Screw	PICK	BRC510B	6	
10/17/23	GF-9017		1/4"- 20 Nylon Insert Lock Nut	PICK	BRC510B	6	
10/17/23	GF-9010		Air Transfer Gasket	PICK	BRC510C	4	
10/17/23	GF-9011		Inflation Blower Mounting Bracket	PICK	BRC510D	2	
10/17/23	FA-VSF-30300		Commercial Shutter Fan VES30, 30" diameter	PICK	D146	2	MB

luis 11-15-23

48" x 40" x 41"
149Lbs

250

Bill of Lading

Shipment ID / BOL Number	Pickup Carrier Name
SM01602106	**Estes Express Lines**
	Phone: 309-862-3311 Fax No: 309-862-3332

Ready Date: 11/7/2023

Shipper Name:	Greenhouse Megastore / BFG Supply						
Address:	70 East Gate Dr						
City:	Danville	**State/Province:**	IL	**Postal Code:**	61834	**Country:**	USA
Contact:	Bryan Hobbs	**Phone:**	(217)709-1837	**Fax:**			

Destination Name:	MERCED COMM COLLEGE DIST						
Address:	3600 M ST PO0050858						
City:	Merced	**State/Province:**	CA	**Postal Code:**	95348	**Country:**	USA
Contact:	ANDREW CODD	**Phone:**	(209)386-6778	**Fax:**			

Pieces	Container	HM	Description	Item Reference	Dimensions (in)	CL	NMFC #	Cubic Feet	Weight (lbs)
1	Pallets		FANS, NOI, IN BOXES, CRATES OR DRUMS		48 x 40 x 41	250	64580	45.6	149
1	**Total**							**45.6**	**149**

SPECIAL INSTRUCTIONS: DO NOT DOUBLE STACK CALL 24 HOURS BEFORE

REFERENCE NUMBERS:
Order #: SO80563

ADDITIONAL SERVICES:
- Limited Access Dropoff
- CALIFORNIA COMPL. SURCHARGE
- Liftgate

luis
11-15-23

Liability Limitation for loss or damage on this shipment may be applicable. See 49 U.S.C. s 14706(c)(1)(A) and (B).

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classification and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations. **This is to certify that the herein-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the department of transportation.**

Freight Charges Terms: PRE-PAID
Bill freight charges to:

BFG SUPPLY CO
C/O AFS
PO BOX 18170
SHREVEPORT, LA 71138

Phone: (318)798-2111
Fax: (318)798-2111

11-7-23

Shipper **Date** **Carrier - Received in Good Order** **Date**

Printed on Tuesday, November 7, 2023

Entered By: Bryan Hobbs

Picking List
IGCUSA

November 7, 2023
7:21:09 AM

GM\BRYAN.HOBBS

Warehouse Activity Header: Type: Pick, No.: PK0582983..PK0582983

Location Code DA-IL
No. PK0582983

Assigned User ID GM\DEANA.FORD
Sorting Method Shelf or Bin

Ship To: C003129
Merced Comm College Dist
Andrew Codd
3600 M St
PO 0050858
Merced, CA 95348
USA

Sales Order: SO00080563
Assembly Order:

Due Date	Item No.	Parent Item	Description	Zone Code	Bin Code	Qty. (Base)	Qty. Handled
10/17/23	GF-9008		3-1/8" Hose Clamp	PICK	BRC510A	2	
10/17/23	GF-9012		PV Plug for Inflation Kit	PICK	BRC510A	2	
10/17/23	GF-9016		1/4"- 20 x 1" Phillips Pan Head Machine Screw	PICK	BRC510B	6	
10/17/23	GF-9017		1/4"- 20 Nylon Insert Lock Nut	PICK	BRC510B	6	
10/17/23	GF-9010		Air Transfer Gasket	PICK	BRC510C	4	
10/17/23	GF-9011		Inflation Blower Mounting Bracket	PICK	BRC510D	2	
10/17/23	FA-VSF-30300		Commercial Shutter Fan VES30, 30" diameter	PICK	D146	2	MB

luis 11-15-23

48" x 40" x 41"
149 Lbs

Warehouse Activity Header: Type: Pick. No.: PK0585808..PK0585808

Location Code	DA-IL	**Ship To:**	C003129	**Sales Order:**	SO00080563
No.	PK0585808		Merced Comm College Dist	**Assembly Order:**	
			Andrew Codd		
Assigned User ID	GM\DEANA.FORD		3600 M St		
Sorting Method	Shelf or Bin		PO 0050858		
			Merced, CA 95348		
			USA		

Due Date	Item No.	Parent Item	Description	Zone Code	Bin Code	Qty. (Base)	Qty. Handled
10/17/23	GF-9003		Inflation Fan Jumper Kit	PICK	L248C	2	

505 North Hutcheson, Houston, Texas 77003-1399, Phone: 713 228-9421, Fax: 713 228-9425

INSTALLATION INSTRUCTIONS FOR QUIETAIRE
STAINLESS STEEL COOLING SYSTEM

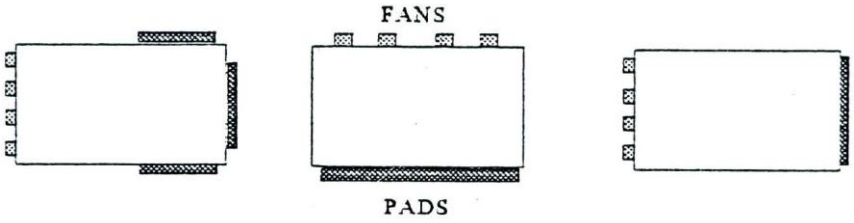
COMPONENTS

1. Cooling pads- pads come 4" thick and 12" wide X 24", 36", 48", 60", and 72" high. Pads may be stacked for higher system.
2. Trough, pump, piping and top cover are furnished with kit.
3. Customers must furnish framing material.

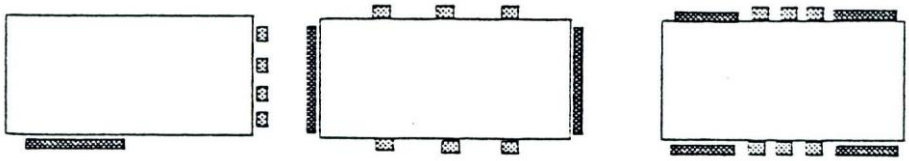
LOCATION OF THE FAN AND PAD SYSTEM

The cooling pads should be placed in the opposite wall from the fans and should be no more than 250 feet apart to avoid excessive temperature rise and air velocity. The top of the pads should be located near the top of the items to be cooled.

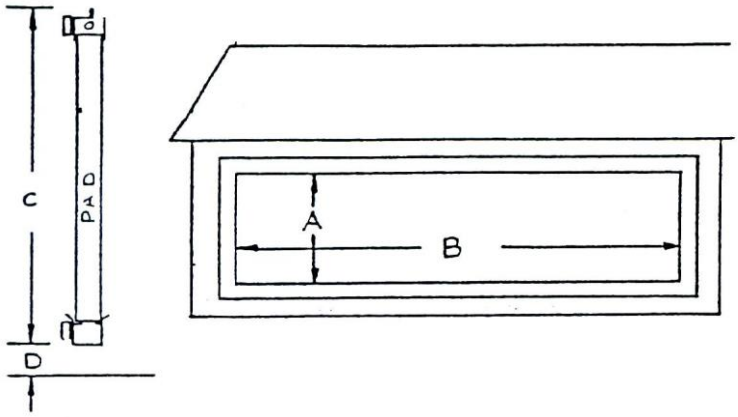
TYPICAL LAYOUT WHEN PAD TO FAN DISTANCE IS 250' OR LESS



TYPICAL LAYOUTS WHEN PAD TO FAN DISTANCE EXCESS 250'



FRAME OPENING



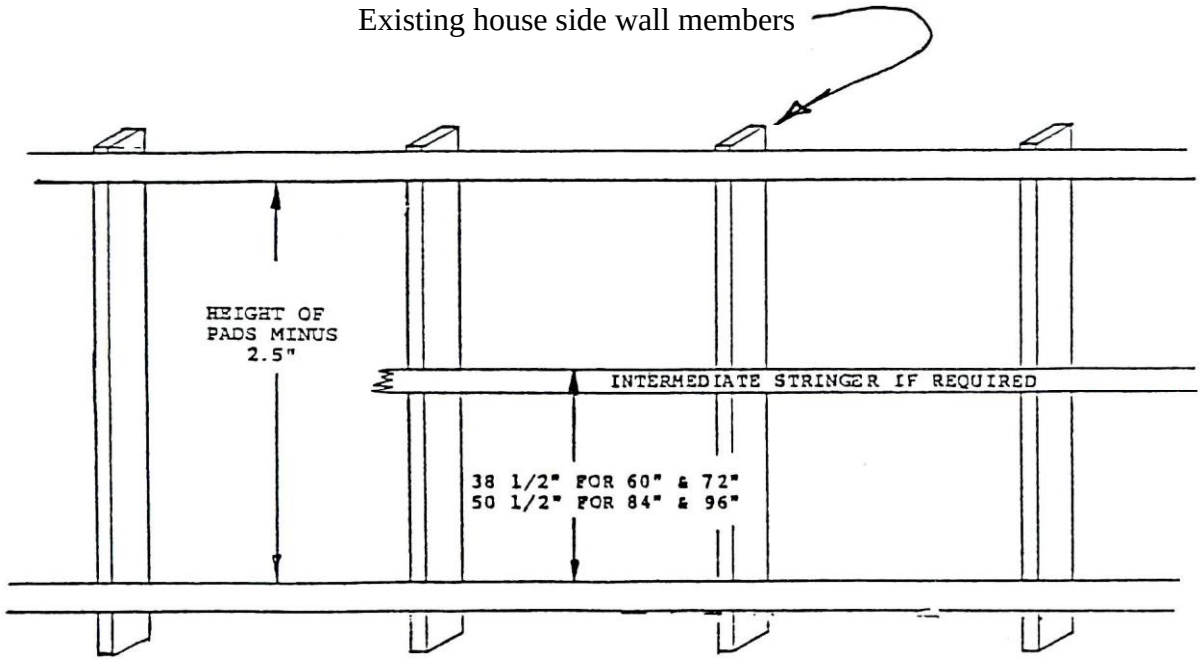
A= Height of the pad minus 2.5”
B= Length of the system
C= Pad height plus 7”
D= Clearance for pump suction

DO NOT REMOVE THE
SIDE WALL
STRUCTURAL MEMBERS

SUPPORT STRINGERS

The support stringers can be metal or wood and should provide a flat surface for mounting support brackets. The lower stringer should be strong enough to support 2 ¾ pounds per square foot of pad if the trough is to be hung on a stringer with brackets. The trough can also be set on blocks. The rough must be installed level.

When pads over 48” tall or two pieces are used an intermediate stringer ¾” thick must be installed to prevent pads from blowing out. See drawing below



SUMP TANK

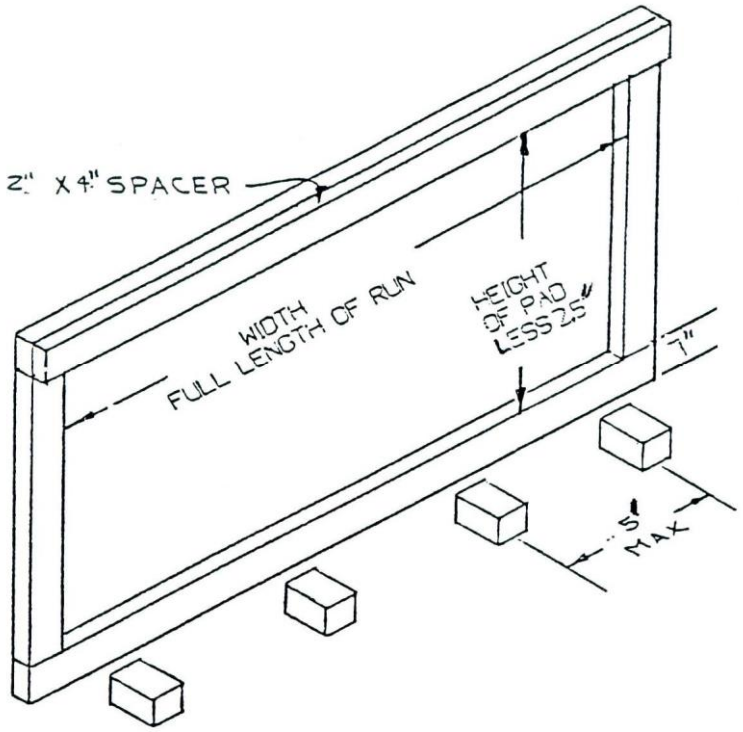
There is no need for a water collecting sump or reservoir as the trough ahs sufficient capacity to act as such.

INSTALLING THE SYSTEM

After all the framing has been installed and dimension shave been checked the system components can be installed. Locate all of the packages of the system and sort out the basic package that contains the fittings, end caps, the trough with pump suction hole etc. start with this package.

INSTALLING THE TROUGH SUPPORT

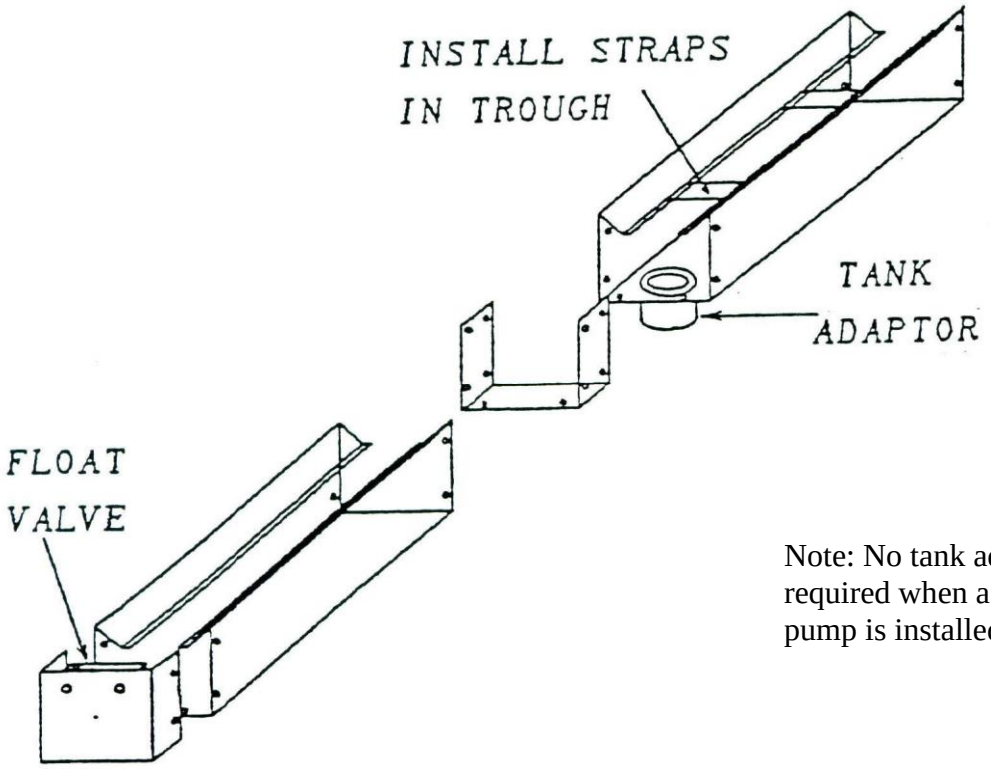
Set support blocks on a level line and place trough on the blocks



To top of blocks of bracket

See typical drawing page 7 **INSTALLING THE TROUGH**

Install the end caps in the two sections of trough you have selected for the end sections with the mastic strips as shown. Install the end cap that will have the float valve mounted in it where you wish to bring in the water supply. Install the tank adaptor as shown. The tank adaptor may be installed at the end of short runs (up to 40') but should be in the center of longer runs.



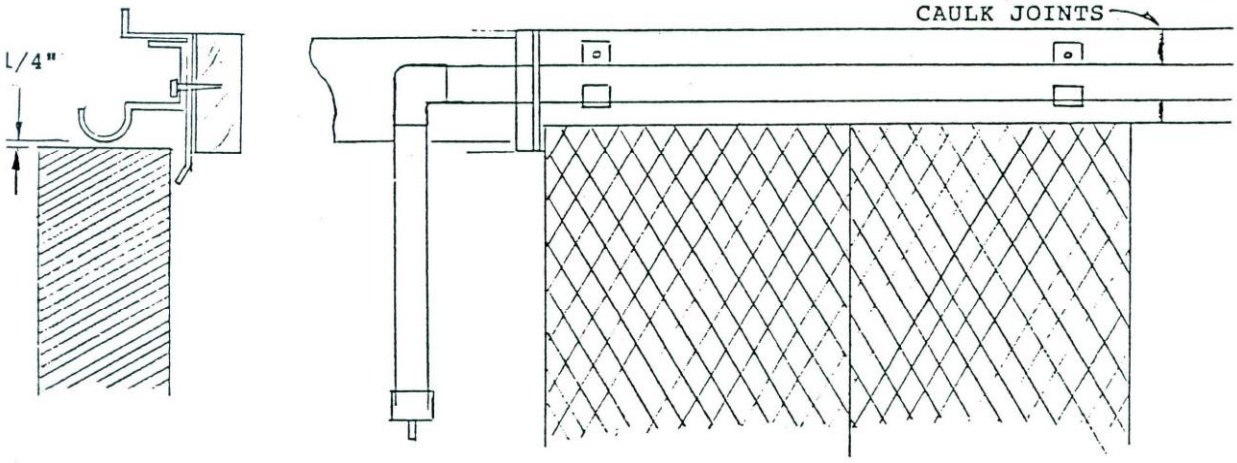
Note: No tank adaptor required when a sump pump is installed in trough.

Place the mastic strips inside of the u connector and bolt together with the trough.

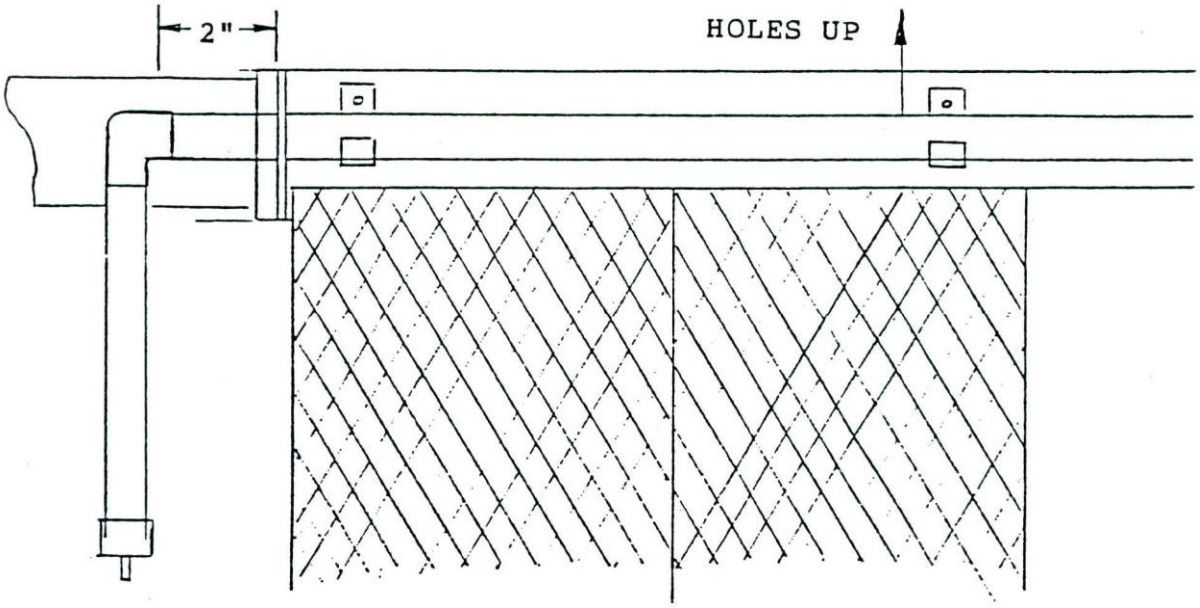
NOTE: The trough, trough ends and u connectors must be cleaned of the oil film or the mastic strips will not stick and seal. Acetone works best and leaves no oily residue.

INSTALLING THE TOP OF THE SYSTEM

Place a pad (2 if double stacked) at each end and in the idle of the trough. Next using a top cover back and pipe support mark the location of the mounting hole at each end and the middle of the system and run a chalk line through these marks. Use this line to line up the top cover back and pipe supports and install with ¼ X 1 ¼ screws. Caulk the top cover back joints as shown.

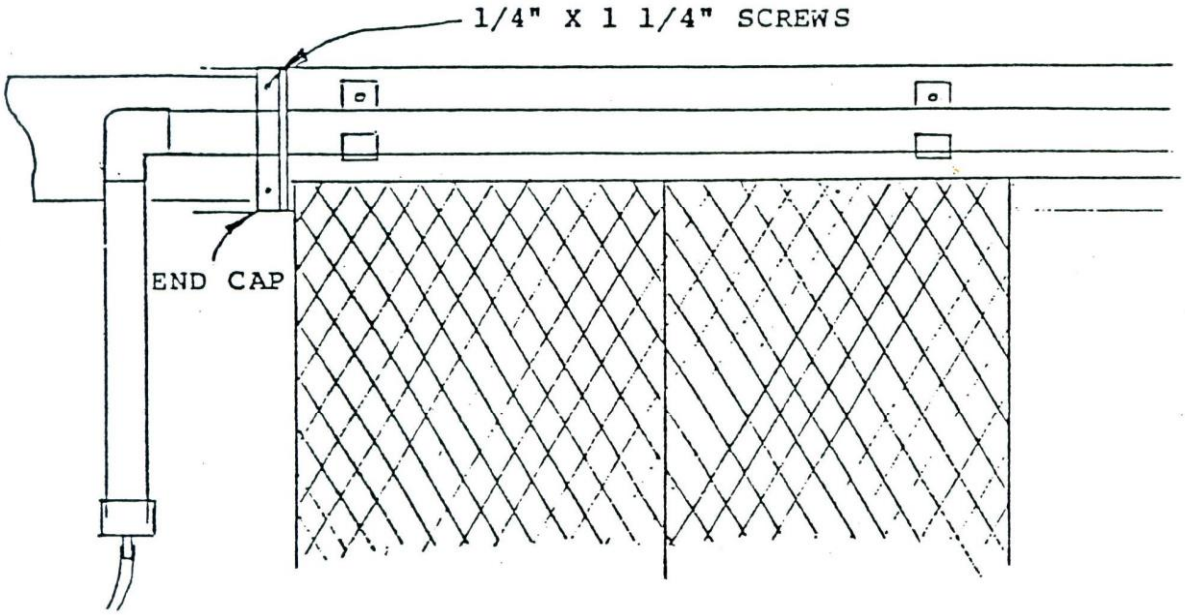


INSTALLING THE DISTRIBUTION PIPE



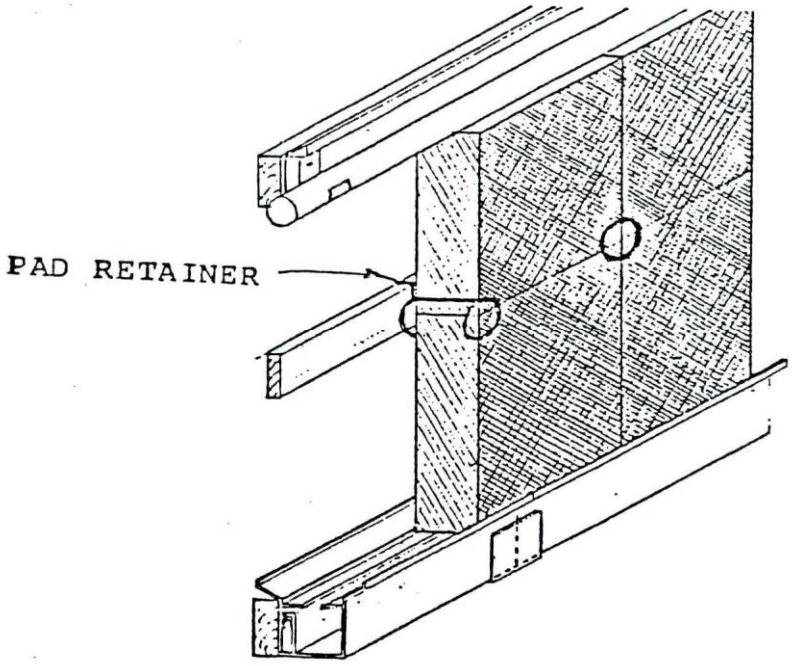
INSTALLING THE DISTRIBUTION PIPE Con't

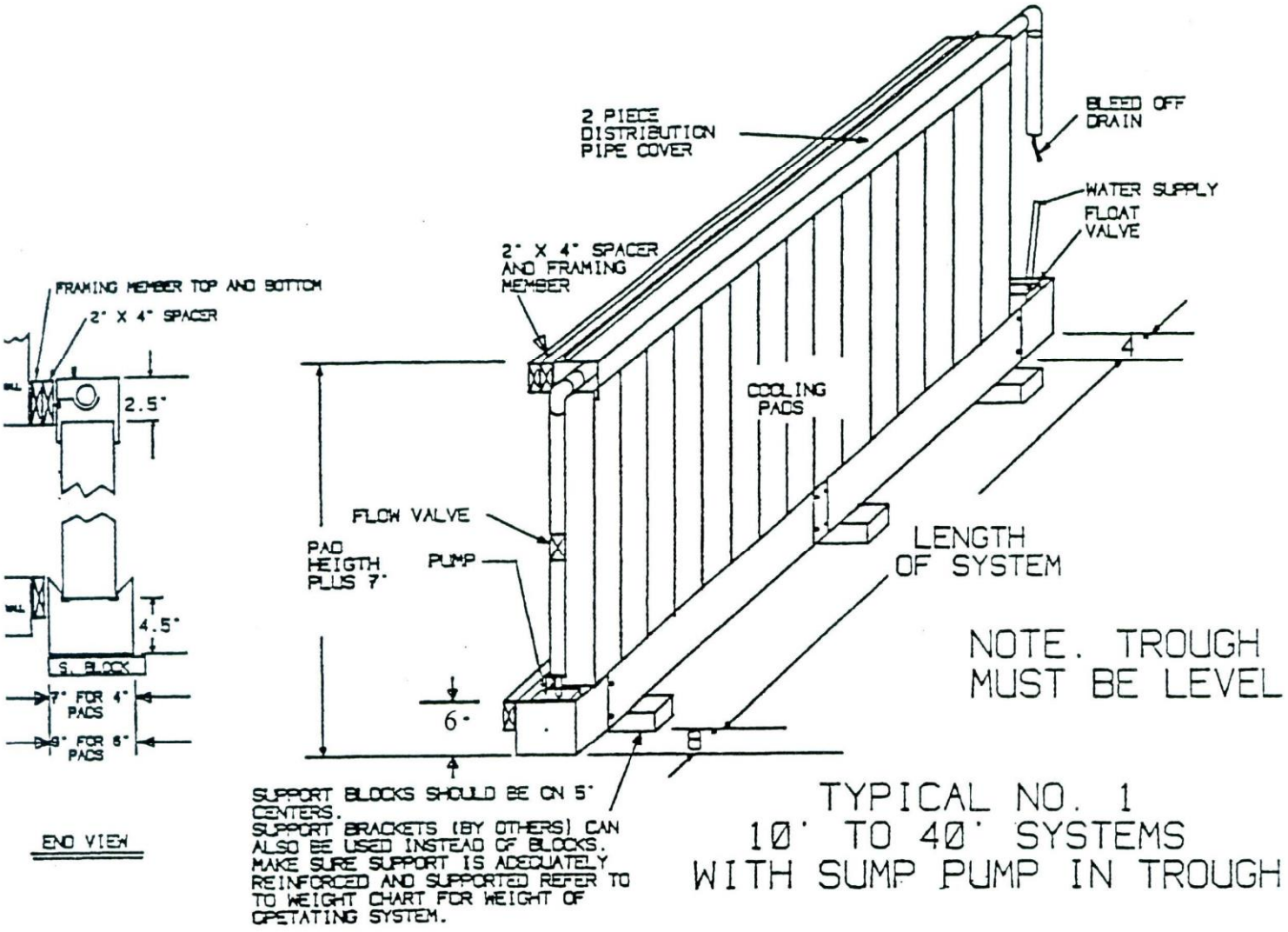
Install the end cap over the distribution pipe and secure with 2-1/4 X 1 ¼ screws as shown. Next cement an elbow, 2' piece of pipe and the treaded adapter to the distribution pipe as shown. Screw the bleed off fitting into the threaded adapter and attach the bleed off tubing as show, the bleed off tubing should run to the out side of the housed or to a drain.



INSTALLING THE PADS

Place the pads in the trough so that they sit on the support lip. If 5’ or taller one piece or two piece pads are used pad retainers are required. Install the retainers as shown on the drawing. To install or remove the pads, simply rotate the retainers 90 degrees.



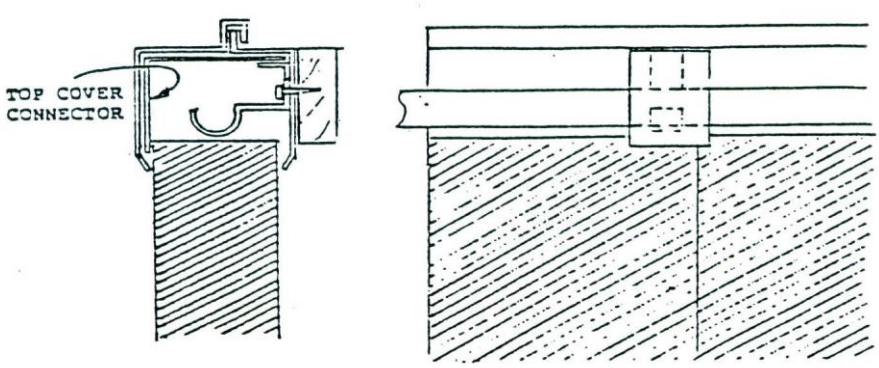


Wet pads and trough system
weight per foot in pounds

Height	4” pads	6” pads
3’	21	28
4’	24	32
5’	27	36
6’	30	40

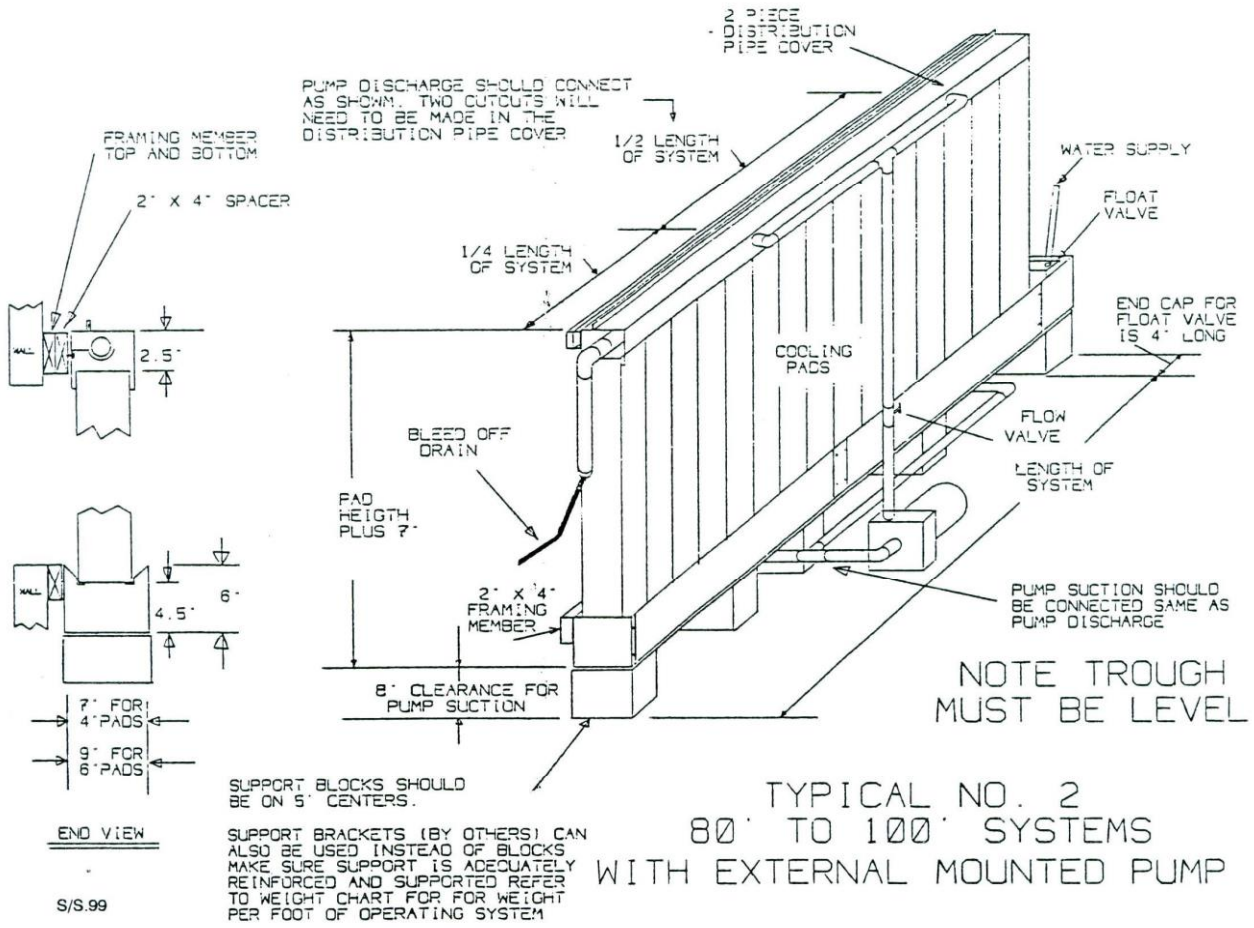
INSTALLING THE FRONT OF THE TOP COVER

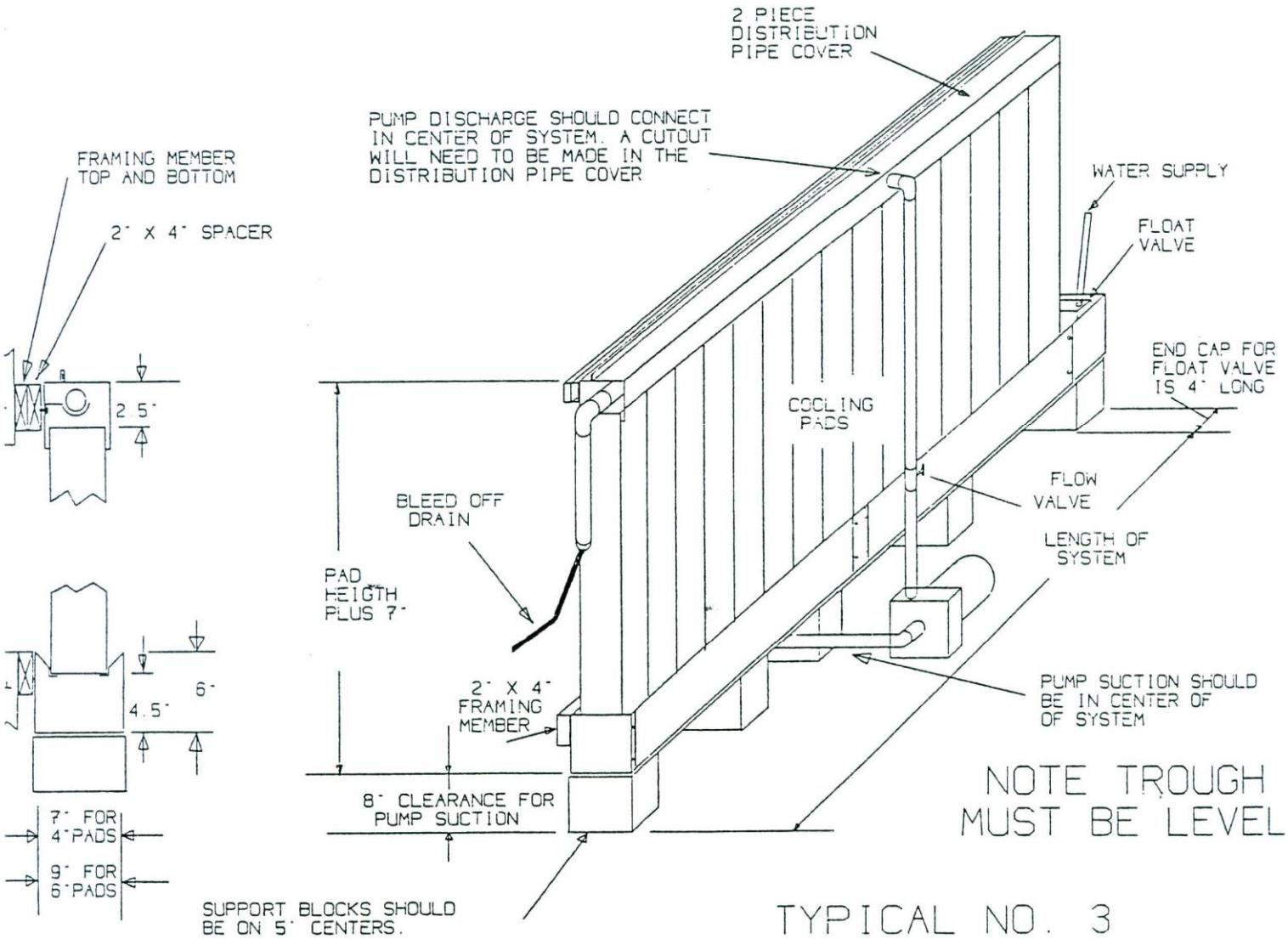
Install the first top cover section, the insert a top connector leaving half of it sticking out. The half sticking out will be covered with the nest top cover. Continue this process until all of the top cover is installed.



PLUMBING INSTALLATION

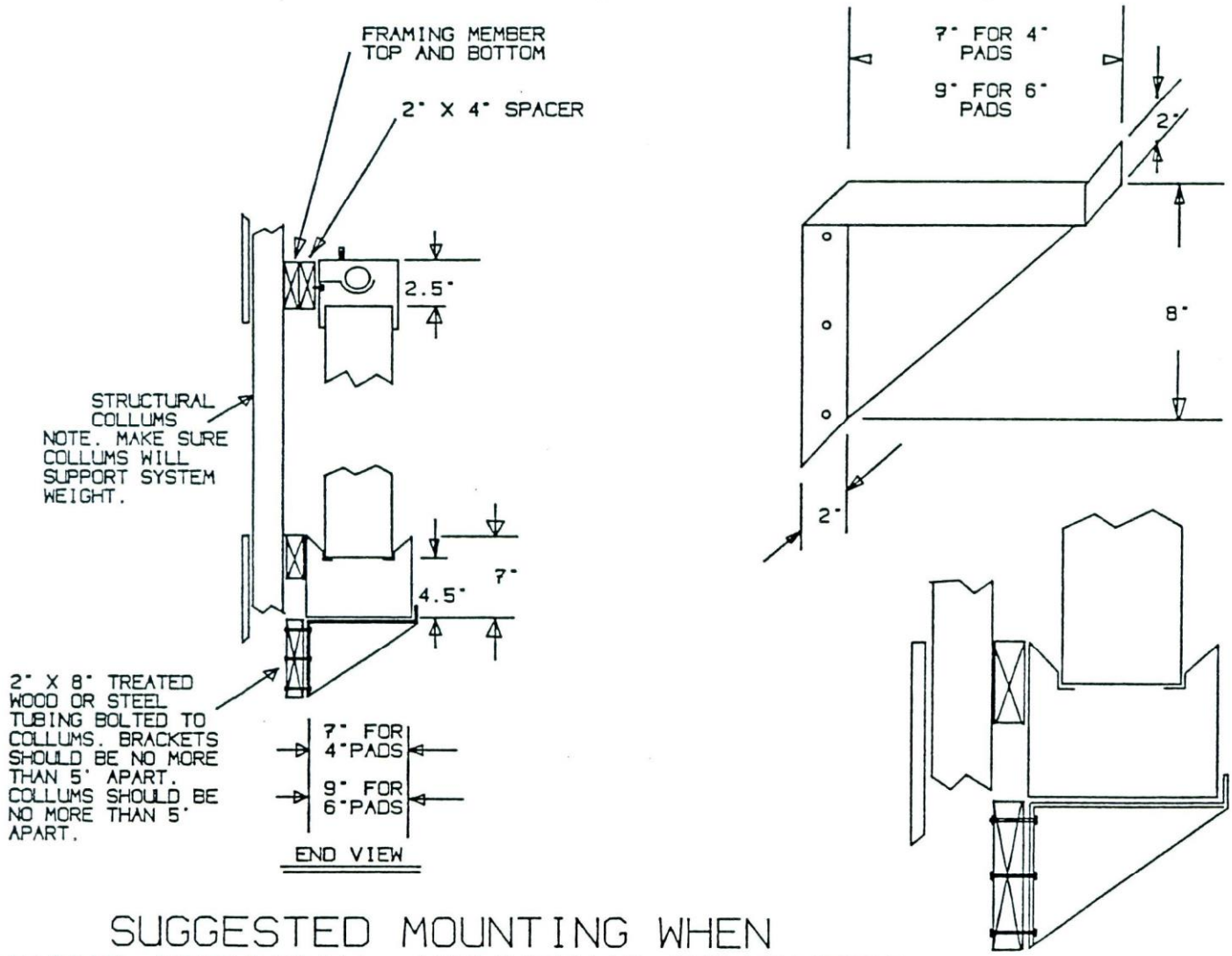
All items installing the plumbing are included with the system. Refer to the drawing for assembly.


2 PIECE DISTRIBUTION PIPE COVER
PUMP DISCHARGE SHOULD CONNECT AS SHOWN. TWO CUTOUTS WILL NEED TO BE MADE IN THE DISTRIBUTION PIPE COVER
1/2 LENGTH OF SYSTEM
WATER SUPPLY
FLOAT VALVE
FRAMING MEMBER TOP AND BOTTOM
2" X 4" SPACER
1/4 LENGTH OF SYSTEM
END CAP FOR FLOAT VALVE IS 4" LONG
COOLING PADS
2.5"
BLEED OFF DRAIN
FLOW VALVE
LENGTH OF SYSTEM
PAD HEIGTH PLUS 7"
6"
4.5"
2" X 4" FRAMING MEMBER
PUMP SUCTION SHOULD BE CONNECTED SAME AS PUMP DISCHARGE
8" CLEARANCE FOR PUMP SUCTION
NOTE TROUGH MUST BE LEVEL
7" FOR 4" PADS
9" FOR 6" PADS
SUPPORT BLOCKS SHOULD BE ON 5' CENTERS.
END VIEW
SUPPORT BRACKETS (BY OTHERS) CAN ALSO BE USED INSTEAD OF BLOCKS MAKE SURE SUPPORT IS ADEQUATELY REINFORCED AND SUPPORTED REFER TO WEIGHT CHART FOR FOR WEIGHT PER FOOT OF OPERATING SYSTEM
TYPICAL NO. 2
80' TO 100' SYSTEMS
WITH EXTERNAL MOUNTED PUMP
S/S.99



TYPICAL NO. 3
40' TO 80' SYSTEMS
WITH EXTERNAL MOUNTED PUMP

OPTIONAL MOUNTING BRACKETS



SUGGESTED MOUNTING WHEN USING OPTIONAL MOUNTING BRACKETS NOT INCLUDED WITH TROUGH SYSTEMS ORDER PART NO. TRMB1-4" OR TRMB1-6"

Page

STARTING UP THE SYSTEM

1. Turn on the water supply and let the trough fill up through the float valve. Set the float valve so the water level is 1" to 2' below the pad support lip in the trough. Refer to the instructions packed with the float valve.

2. Prime the pump.

3. Run the system with the end plugs of the distribution pipe removed to flush out the system. Turn off the pump and replace the plugs.

4. Turn the pump back on and make sure all the distribution holes are open. Turn the pump off and install the distribution pipe front cover.

5. Turn the pump back on and adjust the flow valve so all the pads are wet.

6. If the flow valve is open too much water will leak out at the point where the top cover contact the pads.

MAINTENANCE

1. Drain the trough and system as required to remove sediment.

2. Make sure all parts of the system are working properly. Flow valve, pump, float valve, etc.

3. Check pads for algae growth. To prevent algae growths follow these suggestions.

    A. Use chlorinated make up water or well water. Do not use water form stock ponds.
    B. Run fans until pads are dry after turning off system.
    C. Keep the pads shaded to prevent sunlight from promotion algae growth.
    D. An algaecide may be added if necessary.

4. Maintain PH of the water between 6 and 9 to prevent damage to the pads.

5. Keep the sodium chloride concentrate (salt) below 40,000 ppm to prevent build up on the pads.

6. if pads are within reach of livestock or poultry a guard should be installed.

SUPERIOR ROLLFORM STRENGTH
CONLEY'S
GREENHOUSE MANUFACTURING & SALES
EST. 1946

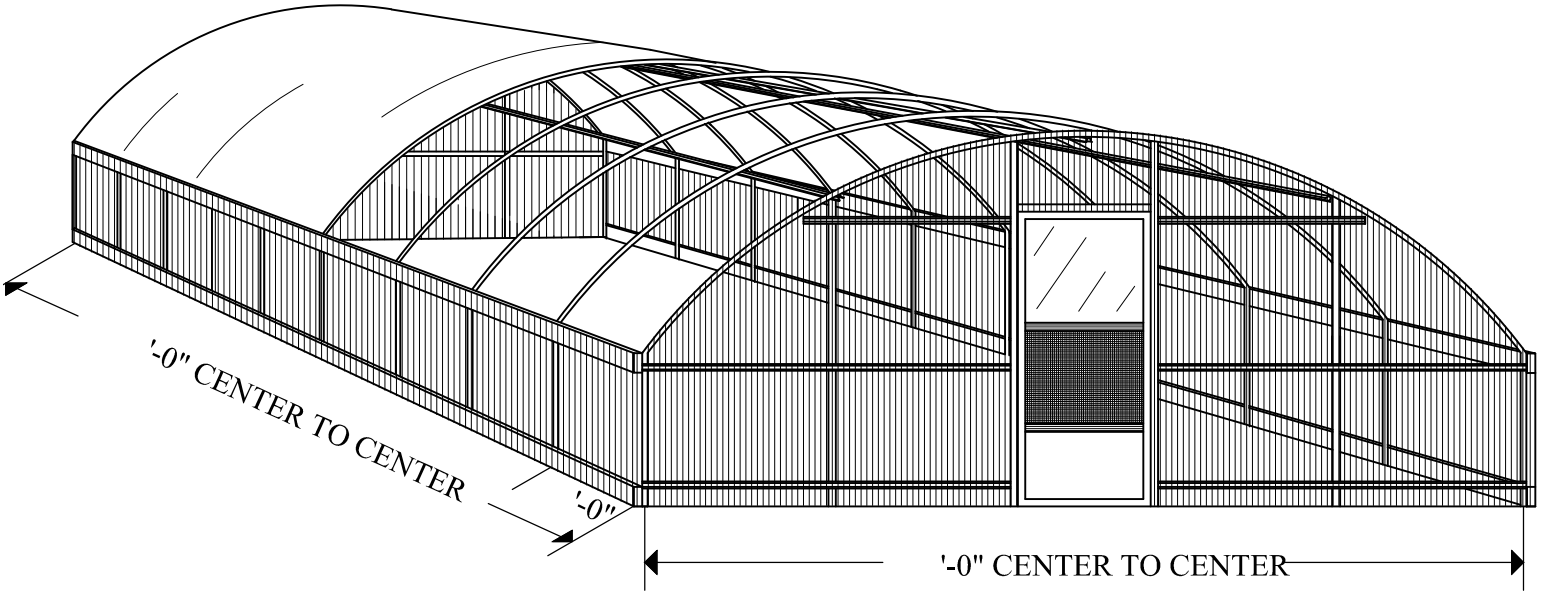
4344 MISSION BLVD. MONTCLAIR, CA. 91763
(909) 627-0981 (800) 377-8441
FAX (909) 628-3774

SERVING AGRICULTURE SINCE 1946 A DIVISION OF JOHN L. CONLEY, INC.

GENERAL CONTRACTORS LICENSE NO. 323391-B

COLD FRAME 1200
GREEN HOUSE SYSTEM

IMPORTANT!!!!!
NON - CODE COLD FRAMES REPRESENT A NON - CODE- NON ENGINEERED DESIGN WITH CERTIFICATION UNAVAILABLE. IT IS NOT RECOMMENDED THAT THIS HOUSE BE UTILIZED IN REGIONAL AREAS REPRESENTING SNOW OR HIGH WIND FACTORS.



20'-0" or 24'-0" WIDE WITH LEGS

INSTRUCTION MANUAL

INTRODUCTION

SHOULD YOU HAVE ANY QUESTIONS CONCERNING THESE INSTRUCTION, COMPONENTS ETC..., PLEASE CONTACT US DIRECTLY. WE WELL BE GLAD TO ANSWER ANY QUESTIONS CONCERNING OUR MANUFACTURED PRODUCT.

INCLUDED IN THIS PACKAGE ARE INSTRUCTIONS AND DETAILED DRAWINGS PERTAINING TO YOUR CONLEY'S GREENHOUSE SYSTEM. STUDY THE INSTRUCTIONS BEFORE BEGINNING CONSTRUCTION TO BECOME FAMILIAR WITH OUR PRODUCT AND HOW IT IS ASSEMBLED.

STORE ALL MATERIALS OFF THE GROUND ON WOOD BLOCKS. PROTECT ALL YOUR MATERIALS FROM THEFT AND/OR DAMAGE. YOU MAY WISH TO DISCUSS BUILDERS RISK INSURANCE WITH YOUR INSURANCE AGENT.

DISCLAIMER

THE FOLLOWING INSTRUCTIONS ARE GIVEN AS SUGGESTED GUIDELINES FOR GENERAL INSTRUCTIONS. CONLEY'S MANUFACTURING AND SALES OR ANY OF THEIR EMPLOYEES SHALL NOT BE RESPONSIBLE RESULTING FROM PURCHASERS IMPLEMENTATION OF THESE INSTRUCTIONS. PURCHASERS ALONE SHALL RESPONSIBLE FOR CONFORMANCE WITH ALL APPLICABLE LAWS, ORDINANCES, AND SAFETY STANDARDS IN CONSTRUCTING THIS GREENHOUSE AND ALL EQUIPMENT INSTALLED THEREIN.

NOTICE TO CONLEY'S CUSTOMERS PROTECT YOURSELF FROM ADDED COSTS

ALL PRODUCTS ARE SOLD F.O.B. SHIPPING POINT, AND THE ATTACHED MEMORANDUM COPY OF BILL OF LADING THAT INDICATES THAT MATERIAL SHIPPED HAS NOW, BY LAW, BECOME YOUR PROPERTY AND IS AN ACKNOWLEDGMENT BY THE TRANSPORTATION COMPANY OF THE RECEIPT OF THE MATERIALS IN GOOD CONDITION.

SAFE DELIVERY OF THIS SHIPMENT IS NOW THE RESPONSIBILITY OF THE CARRIER WHO ACTS AS YOUR AGENT. WE WILL BE GLAD TO RENDER ASSISTANCE TO TRACE AND RECOVER LOST GOODS.

EXAMINE THE SHIPMENT CAREFULLY BEFORE SIGNING THE FREIGHT BILL. IF ANY DAMAGE IS NOTED, OR OF THE NUMBER OF PIECES DOES NOT AGREE WITH THE BILL OF LADING, INSIST THAT SHORTAGE OR DAMAGE BE NOTED ON THE FREIGHT BILL BY THE CARRIERS AGENT. FAILURE TO DO SO MAY JEOPARDIZE YOUR RECOVERY.

DO NOT REFUSE SHIPMENT AS THIS IS YOUR PROPERTY AND REFUSAL CAUSES UNNECESSARY DELAYS AND SHORTAGE EXPENSES. ARRANGE WITH CARRIER WITHIN 15 DAYS TO INSPECT AND MAKE REFERENCE THERE TO ON THE FREIGHT BILL. CONSULT YOUR CARRIER FOR DISPOSITION OF DAMAGED ARTICLES.

MAKE YOUR CLAIM PROMPTLY, THE TRANSPORTATION COMPANY WILL NOT CONSIDER A CLAIM UNLESS IT IS PRESENTED WITHIN (9) MONTHS FROM THE DATE OF SHIPMENT. CARRIERS AGENT WILL ASSIST YOU IN PREPARING A CLAIM.

CLAIMS FOR LOSS OR DAMAGE AND TRANSPORTATION CHARGES RESULTING FROM SHIPPING, MUST NOT BE DEDUCTED FROM THE INVOICE, NOR PATENT INVOICES WITH HELD AWAITING ADJUSTMENT OF SUCH CLAIMS, SINCE IT IS THE FUNCTION OF THE CARRIER TO GUARANTEE SAFE DELIVERY.

CHECK THE ITEMS RECEIVED WITH THE INVOICE. OF THERE IS ANY DISCREPANCY CONTACT US IMMEDIATELY GIVING FULL PARTICULARS. CLAIMS FOR SHORTAGE ATTRIBUTED TO OUR COUNT IN PACKAGE MUST BE MADE WITHIN 10 DATES FORM THE SHIPMENT IS RECEIVED.

NO MERCHANDISE MAY BE RETURNED FOR CREDIT WITHOUT A RETURN GOODS TAG AND SHIPPING INSTRUCTIONS FROM THE FACTORY.

WARRANTY

CONLEY'S MANUFACTURING AND SALES, THEIR EMPLOYEES OR REPRESENTATIVES, WILL NOT BE RESPONSIBLE FOR ANY DAMAGES TO GREENHOUSE COVERINGS, STRUCTURES, CROPS OR EQUIPMENT WHEN USED IN CONDUCTION WITH OUR TUBE - LOCK, OR ANY OTHER LOCKING DEVICE MANUFACTURED BY CONLEY'S MANUFACTURING AND SALES OR OTHERS.

GRADE AND PREPARE THE BUILDING SITE

1. REMOVE THE GRASS AND DEBRIS DOWN TO SOLID SOIL.

2. LOCATE THE BUILDING CORNERS AND SET THE GRADING STAKES 5' BEYOND THE CORNERS.

3. A TRANSIT LEVEL IS NEEDED TO SURVEY THE AREA OF THE BUILDING. IN ORDER TO INSURE PROPER DRAINAGE AND EVEN HEATING, THE WIDTH SHOULD BE SET LEVEL AND THE LENGTH SHOULD BE SET LEVEL WITHIN APPROXIMATELY 1%.

4. CUT AND FILL THE SITE UNTIL IT IS AT THE RECOMMENDED GRADE.

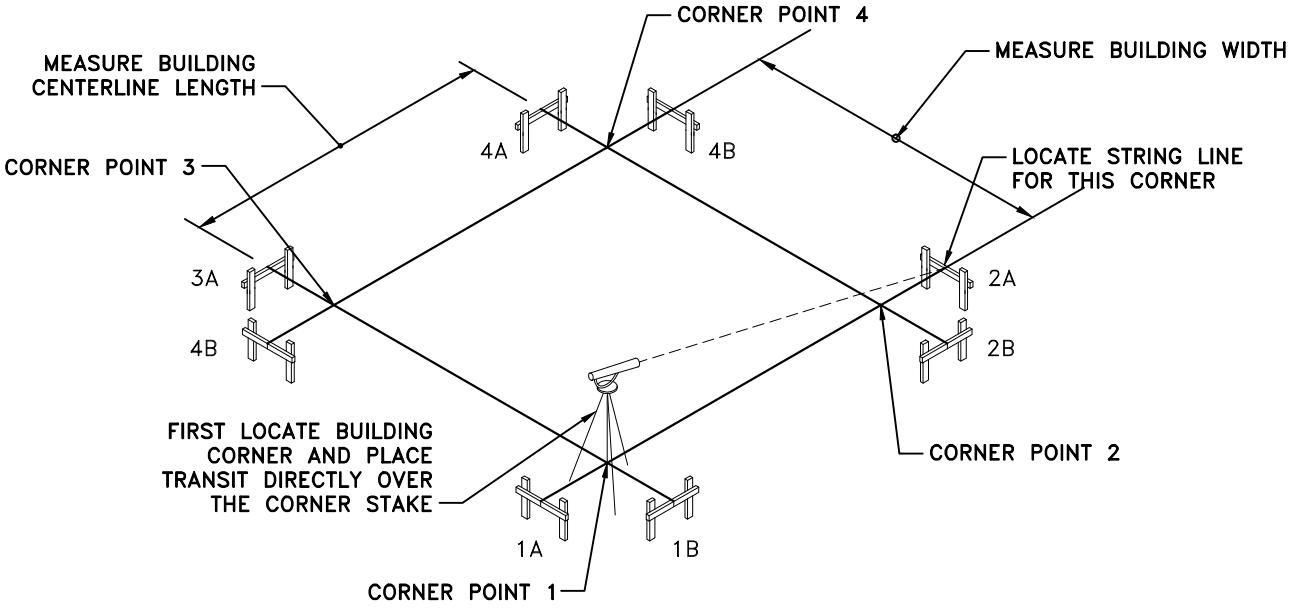
LAYOUT AND SQUARE THE FOUNDATION

1. ROUGHLY LOCATE THE CORNERS OF THE BUILDING AND DRIVE IN THE CORNER STAKES.

2. SET BATTER BOARDS APPROXIMATELY 6' (OR ADEQUATE DISTANCE FROM AUGER CLEARANCE) BACK FROM THE CORNERS IN EACH DIRECTION. SET INTERMEDIATE BATTER BOARDS OF THE BUILDING IS LONGER THAN 50 FEET TO KEEP THE LINES FROM SAGGING OR BLOWING IN THE WIND.

3. LOCATE THE FIRST BUILDING CORNER POINT AND MARK IT WITH A STAKE OR NAIL HEAD.

4. MEASURE FROM CORNER POINT 1, THE SPECIFIED DIMENSION OF THE BUILDING, TO LOCATE CORNER POINT 2. PULL A TIGHT LINE BETWEEN BATTER BOARD "1A" AND BATTER BOARD "2A", MAKING SURE THE LINE PASSES OVER CORNER POINT 1 AND CORNER POINT 2. FASTEN THE LINE THE BATTER BOARDS AND CHECK IT WITH TRANSIT. MAKE SURE THE BATTER BOARDS AND LINES ARE LEVEL (SEE FIG. 1). VARIATIONS IN THIS WILL ULTIMATELY AFFECT THE EAVE HEIGHT.



SEE PAGE 7 FOR GUTTER CONNECTED HOUSES

FIGURE 1 - LOCATING CORNER POINT 2

5. TO LOCATE THE THIRD CORNER POINT (FIG 2), YOU MAY USE ONE OF TWO METHODS, THE DIAGONAL METHOD OR THE TRIANGLE METHOD.

THE DIAGONAL METHOD - RUN A LINE DIAGONALLY ACROSS FROM CORNER TO CORNER AND ADJUST THE LINES UNTIL THE DIAGONAL DIMENSIONS ARE EQUAL. (SEE FIGURE 3).

THE TRIANGLE METHOD - CREATE A 90 ∅ ANGLE FROM THE FIRST LINE USING CORNER POINT 1 AS A VERTEX. THIS ANGLE MAY BE ACCOMPLISHED BY USING TWO TAPE MEASURES AND THE CHART LISTED BELOW (SEE FIGURE 4) (USE THIS METHOD FRO LARGER BUILDINGS WHERE THE LENGTH OF THE DIAGONAL EXCEEDS THE 100 FOOT TAPE MEASURE). WHEN YOU'VE LOCATED CORNER POINT 3, PULL YOUR SECOND LINE BETWEEN BATTER BOARD "1B" AND BATTER BOARD "3B" MAKING SURE IT PASSES OVER CORNER POINT 1 AND CORNER POINT 3. CHECK WITH TRANSIT MAKING SURE THAT BATTER BOARDS AND LINES ARE LEVEL (SEE FIG. 2.)

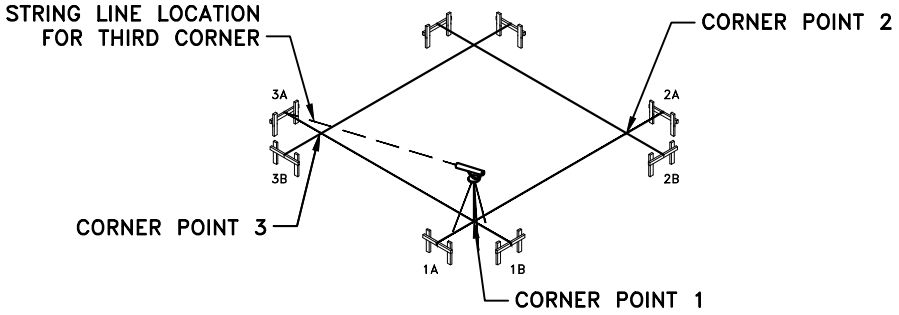


FIGURE 2 - LOCATING CORNER POINT 3

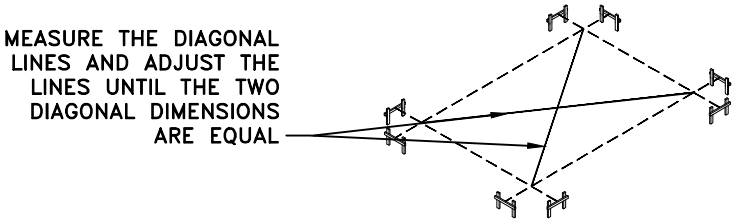


FIGURE 3 - DIAGONAL METHOD

$\sqrt{\text{DIMENSION A}^2 + \text{DIMENSION B}^2 + \text{DIMENSION C}^2}$		
20'	15'	25'
24'	18'	30'
28'	21'	35'
32'	24'	40'
36'	27'	45'
40'	30'	50'

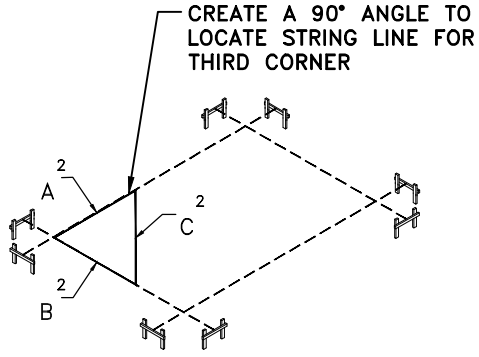


FIGURE 4 - TRIANGLE METHOD

6. TO LOCATE THE FOURTH CORNER POINT (FIGURE 5), USING TWO TAPE MEASURES, FROM CORNER POINT 3 AND CORNER POINT 2, THE SPECIFIED LENGTH AND WIDTH. THE POINT AT WHICH THESE LINES INTERSECT WILL BE CORNER POINT 4.

7. NOW YOU MAY PULL YOUR LAST TWO LINES AND FASTEN THEM TO THE APPROPRIATE BATTER BOARDS. BE SURE TO CHECK THE LEVEL OF YOUR LINES (FIGURE 5).

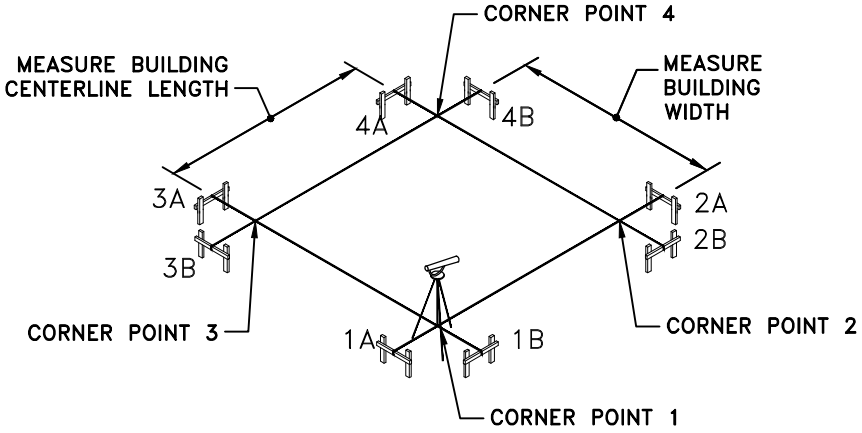


FIGURE 5 - LOCATING CORNER POINT 4

FIND COLUMN CENTERS

1. MARK THE CORNER POINTS ON THE LINES, AND USE A 100 FOOT TAPE MEASURE TO MARK THE INTERMEDIATE HOLE CENTERS ON THE LINES.

2. USING A LEVEL FOR VERTICAL ACCURACY, MARK THE HOLE CENTERS ON THE GROUND WITH NAILS. PAINT THE NAIL HEADS WITH FLUORESCENT PAINT.

3. MEASURE DOWN THE WIDTH OF THE LINES AND MARK THE END WALL UPRIGHT CENTERS IN THE SAME MANNER.

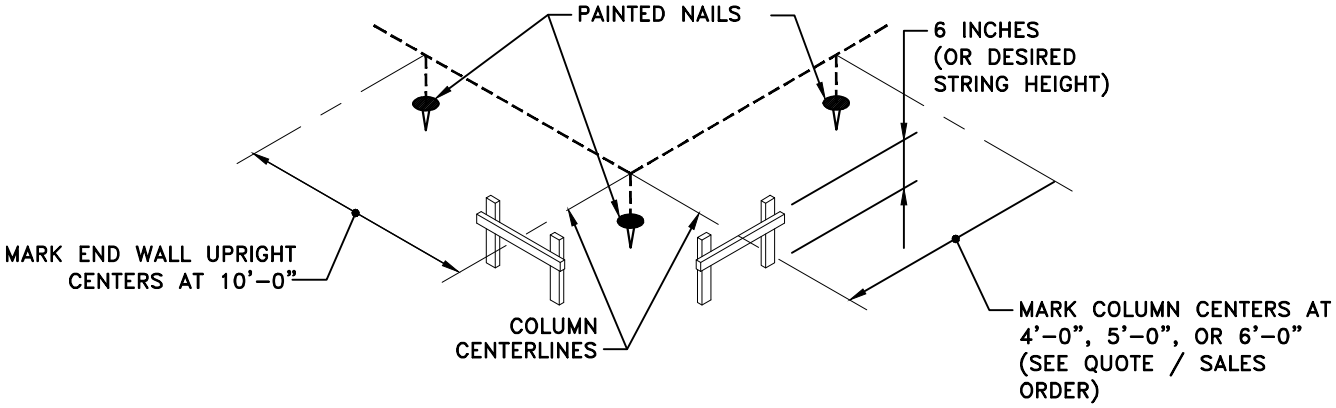


FIGURE 6 - LOCATING COLUMN CENTERS

AUGER COLUMN HOLES

1. AT THE POINT THAT THE LINES MEET THE BATTER BOARDS, CLEARLY AND ACCURATELY MARK THE PLACEMENT OF THE LINES. MAKE SURE ALL THE BATTER BOARDS ARE MARKED.

2. REMOVE THE LINES.

3. AUGER HOLES TO REQUIRED DIMENSIONS.

4. AFTER DIGGING THE HOLES FOR END WALL UP RIGHTS, REFILL LOOSELY WITH DIRT, UNTIL READY FOR USE, (SEE FIGURE 9-PAGE 7).

CAUTION

BE SURE THERE ARE NO UNDERGROUND OR OVERHEAD ELECTRICAL WIRES, WATER PIPES, GAS LINES, ETC...ON OR NEAR THE JOB SITE.

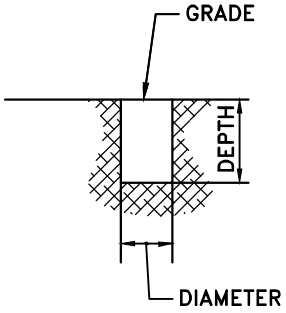


FIGURE 7 - AUGER HOLE

OFFSETTING THE LINES

1. OFFSETTING OF THE LINES SHOULD BE DONE THE DAY THE CONCRETE IS POURED AND NOT LEFT OVERNIGHT TO PREVENT STRETCHING OR KNOCKING DOWN LINES.

2. TO FIND THE COLUMN SET LINES, YOU MUST RESTRING THE FOUNDATION LAYOUT. FROM THE CENTER LINE MARKS ON THE BATTER BOARDS, MEASURE 1/2 THE SIZE OF THE COLUMN AND MOVE THE LINES TO THAT MARK. (ALWAYS MOVE THE LINES IN THE SAME DIRECTION TO PREVENT CONFUSION AND MISPLACEMENT OF COLUMNS (SEE FIGURE 8) THESE OFFSET STRINGS WILL HELP AS GUIDES WHEN ALIGNING IN THE COLUMNS DURING THE CEMENTING PROCESS.

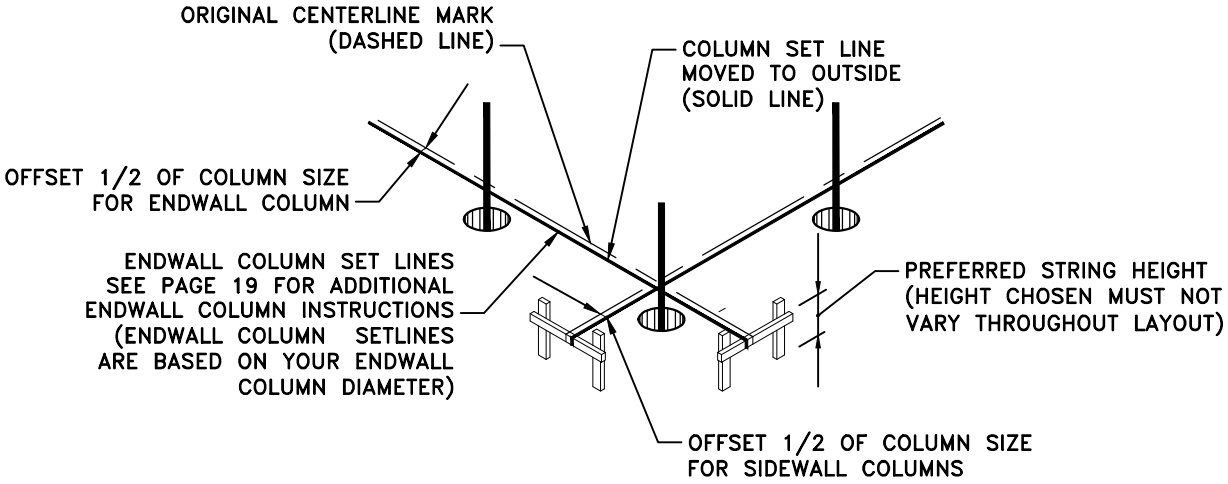
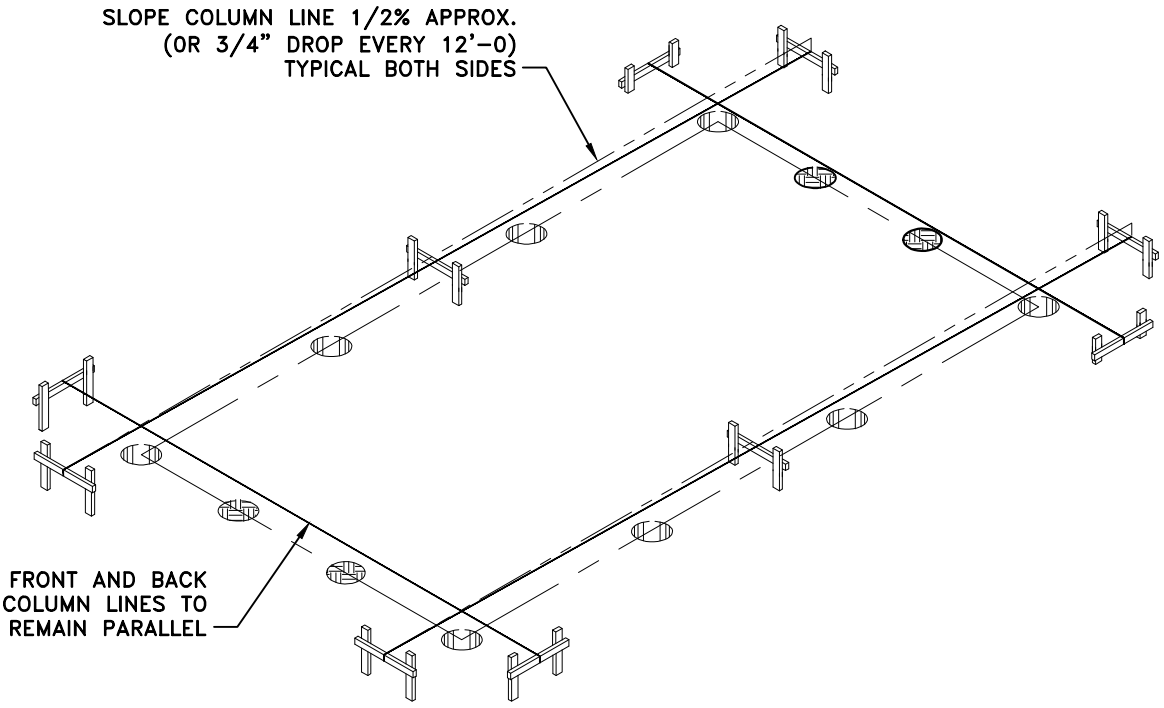


FIGURE 8 - OFFSETTING OF THE COLUMN SET LINES

SLOPE LINES (GUTTER BUILDINGS ONLY)

1. SLOPE THE COLUMN LINES ALONG THE LENGTH OF THE FOUNDATION KEEPING THE FRONT AND BACK COLUMN LINES PARALLEL. THIS WILL INSURE PROPER DRAINAGE 9.



NOTE: THIS TECHNIQUE TO BE USED WITH GUTTER HOUSES ONLY

FIGURE 9 - SLOPING COLUMN LINES

MARK CENTERS ON COLUMNS

1. FROM THE CENTER LINE, MARK ON THE BATTER BOARDS (NOT THE COLUMN SET MARK) THE LENGTH OF LINES, AND MARK THE INTERMEDIATE CENTERS.

2. MARK THE END WALL UPRIGHTS IN THE SAME MANNER. PLEASE NOTE THAT THE OFFSETS FOR END WALL INTERMEDIATE COLUMNS MAY BE DIFFERENT THAN THE OFFSET OF THE SIDE WALL COLUMNS DUE TO THE DIFFERENCE IN COLUMN SIZE. THE CENTER LINES OF COLUMNS MUST BE THE CENTER LINE END WALL COLUMNS.

MARK COLUMNS

1. TO FIND THE ABOVE GROUND COLUMN HEIGHT, MEASURE FROM THE TOP OF THE COLUMN, THIS DISTANCE, AND SUBTRACT THE STRING HEIGHT. MARK THE COLUMN AT THIS POINT WITH A FELT TIP MARKER. CONTINUE WITH REMAINING COLUMNS. (SEE FIGURE 10).

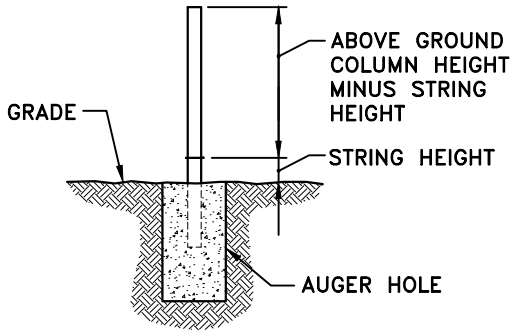


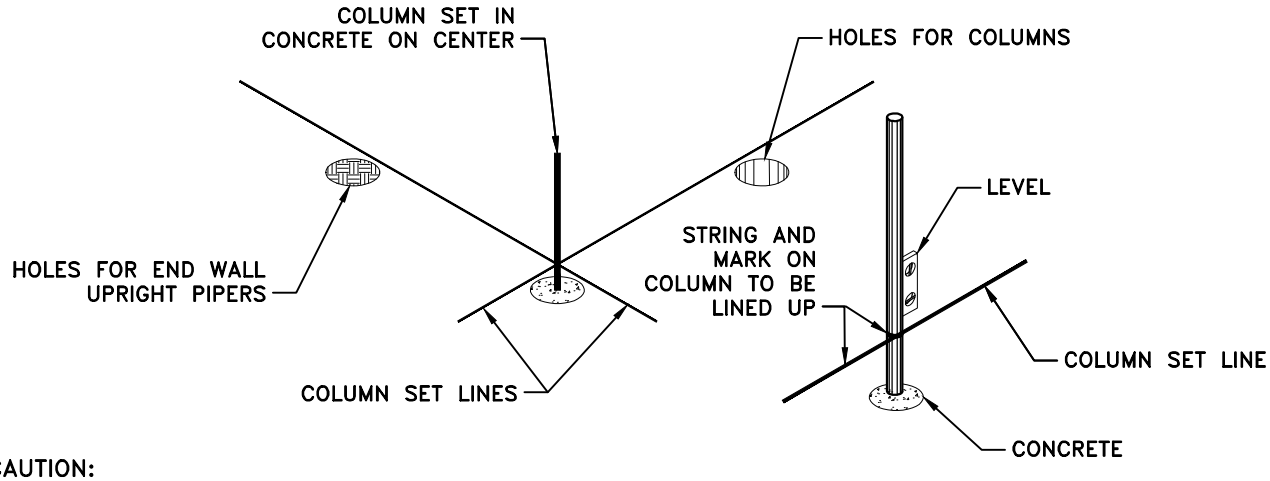
FIGURE 10 - MARKING COLUMNS

SET COLUMNS

1. POUR CONCRETE INTO THE FIRST HOLE. (2) 1/2" SLUMP IS THE MOST POPULAR MIX TO SUPPORT COLUMNS.

2. PUSH THE COLUMN INTO THE CONCRETE AT THE CENTER MARK ON THE STRING (BE SURE THE COLUMN ISN'T ACTUALLY TOUCHING STRING) UNTIL THE MARK ON COLUMN LINES UP WITH THE STRING. THE COLUMN MUST BE PLUMB IN BOTH DIRECTIONS BEFORE MOVING ON TO THE NEXT COLUMN.

3. MOVE ON TO THE NEXT COLUMN, POUR CONCRETE THEN SET THE COLUMN. NEVER POUR ALL THE CONCRETE FIRST THEN GO BACK AND SET COLUMNS, AS THE CONCRETE SETS UP TOO FAST.



CAUTION:

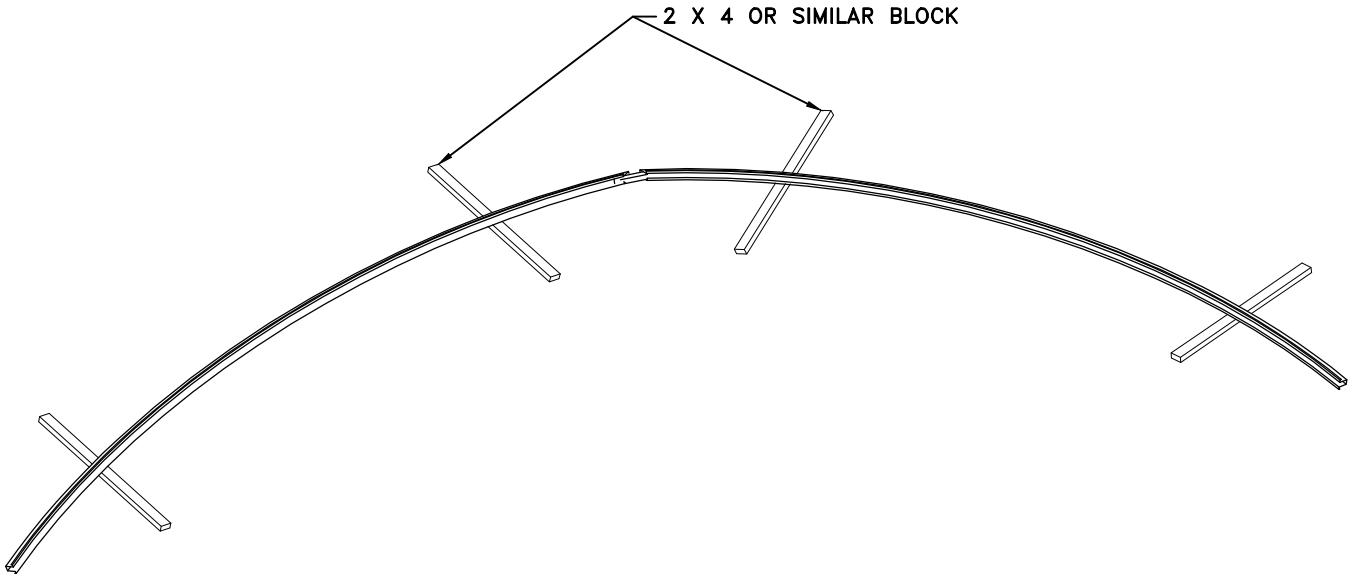
1. PLACE THE FIRST THREE ARCHES INTO THE FIRST THREE AUGURED HOLES. (SEE PAGE 6 FOR HOLE AUGURING).

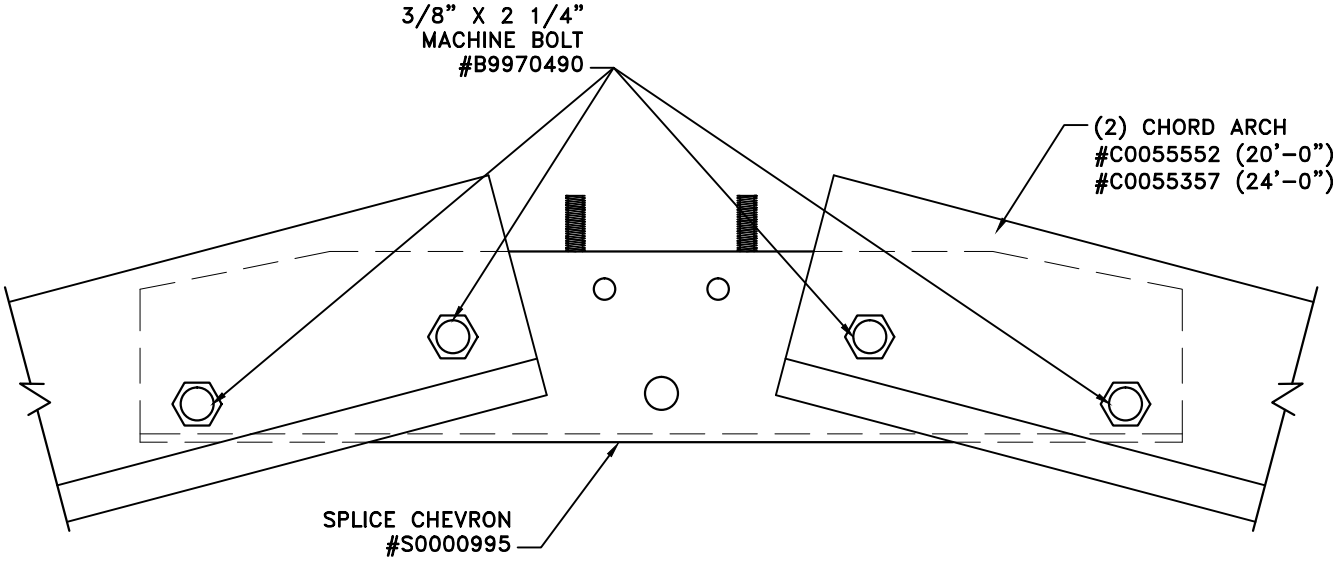
FIGURE 11 - SETTING THE COLUMNS

ARCH ASSEMBLY

1. ASSEMBLE THE ARCHES USING (4) 2 X 4 BLOCKS TO LIFT THE ARCHES OFF THE GROUND FOR ASSEMBLY.

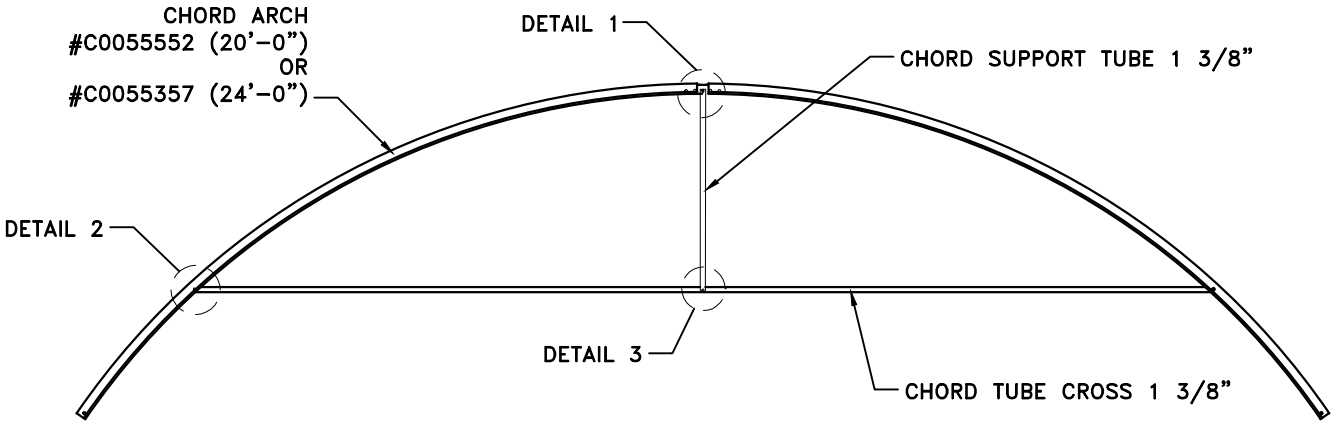
2. ATTACH THE ARCH HALVES TO THE CHEVRON SPLICE WITH (4) 3/8" X 2 1/4" MACHINE BOLTS.



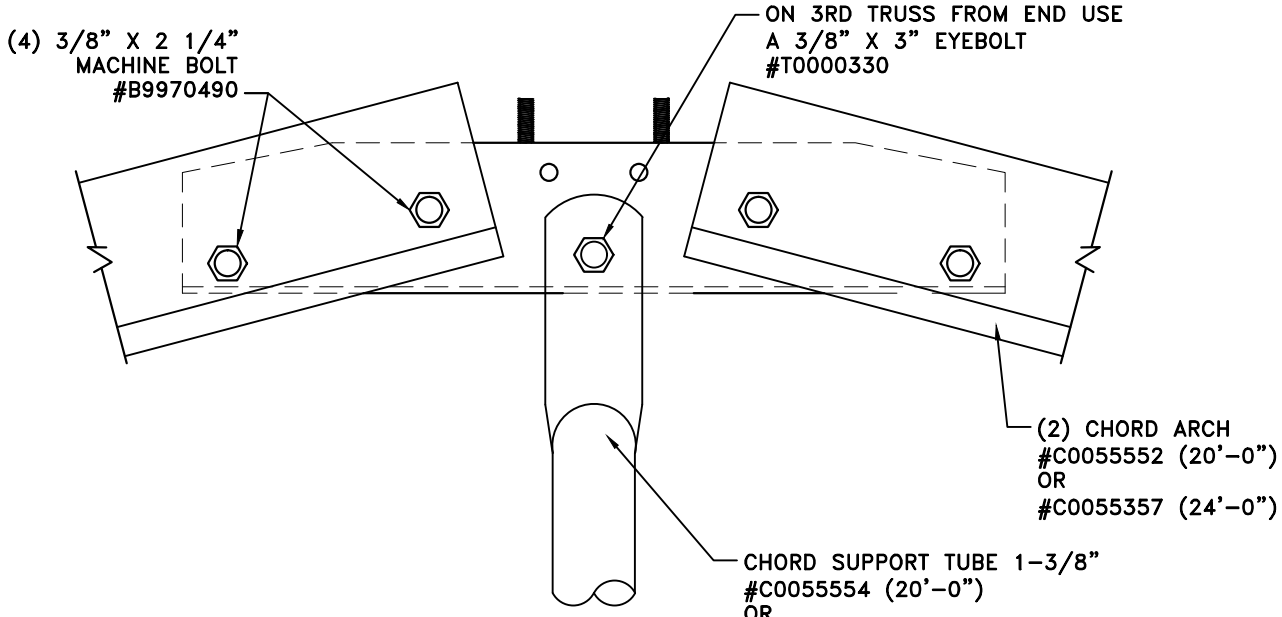


OPTIONAL STRUCTURAL UPGRADE I

(NOT USED ON ENDWALLS)

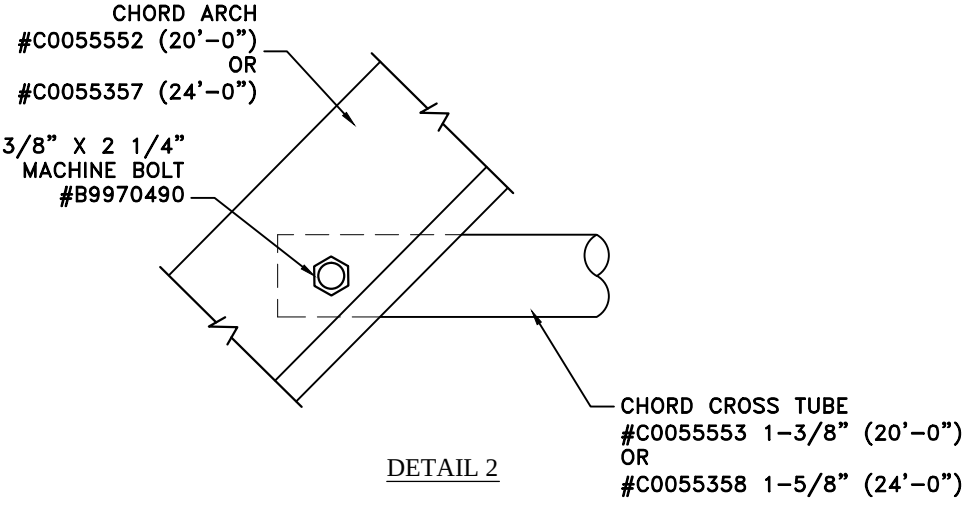


1. ATTACH THE CHORD SUPPORT TUBES TO THE CHEVRON SPLICE WITH (4) 3/8 X 2 1/4" MACHINE BOLT. PLACE 1 SUPPORT TUBE ON EACH SIDE OF THE CHEVRON SPLICE.



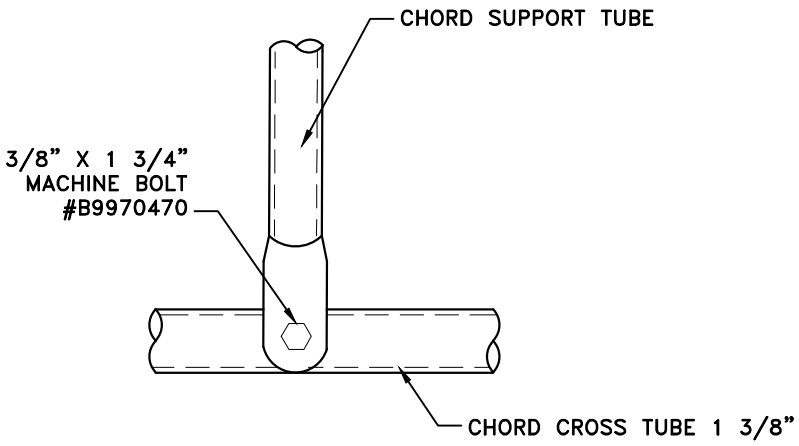
DETAIL 1

2. ATTACH EACH END OF THE CROSS BRACE TO THE CHORD ARCH WITH A 3/8" X 2 1/4" MACHINE BOLTS.

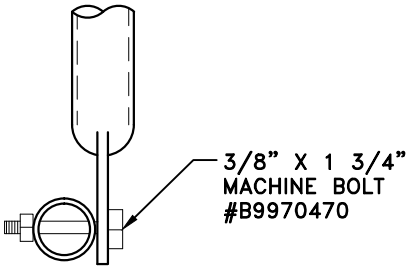


DETAIL 2

3. ATTACH THE CHORD SUPPORT TUBES TO THE CHORD CROSS TUBE WITH A 3/8" X 1 3/4" MACHINE BOLT PER CHORD SUPPORT.



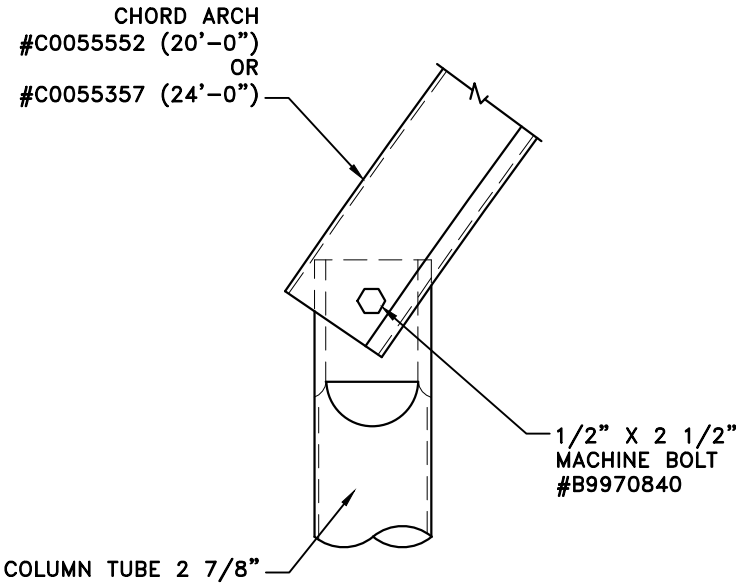
FRONT VIEW



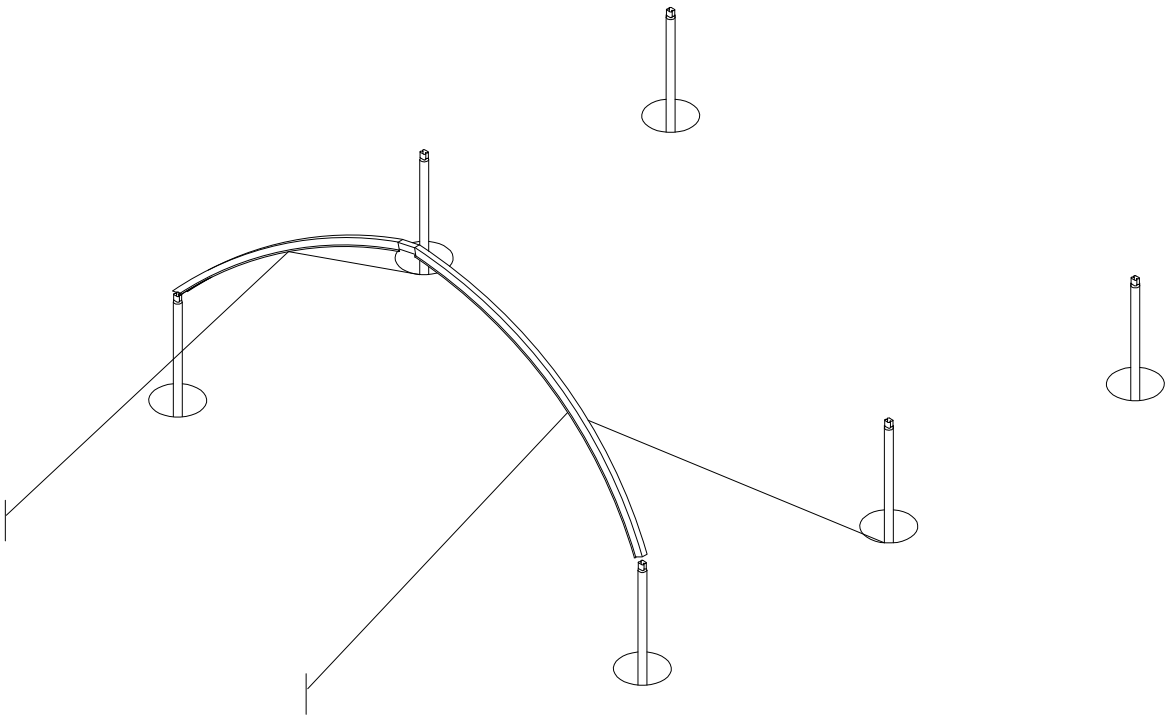
SIDE VIEW

ARCH INSTALLATION

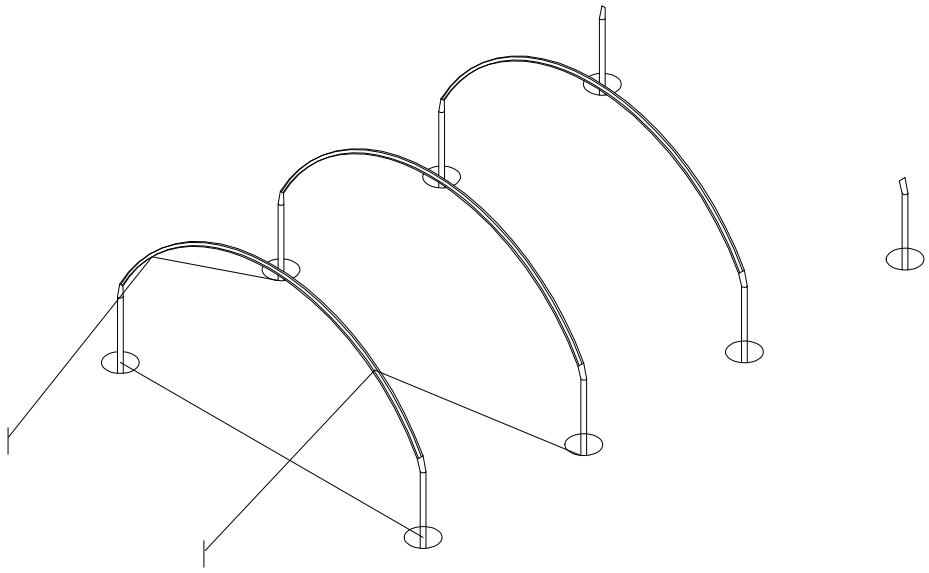
1. SLIDE THE CHORD ARCH OVER THE FORMED END OF THE 2 7/8" COLUMN AND SECURE IT WITH A 1/2" X 2 1/2" MACHINE BOLT. (TYPICAL FOR ALL ARCH COLUMN TO CONNECTIONS).



2. TIE OFF THE ARCH USING ROPES OR CABLES TO MAKE THE ATTACH PLUMB AND SQUARE. (MATERIALS FOR SECURING COLUMNS ARE NOT SUPPLIED BY CONLEY'S MANUFACTURING AND SALES.)

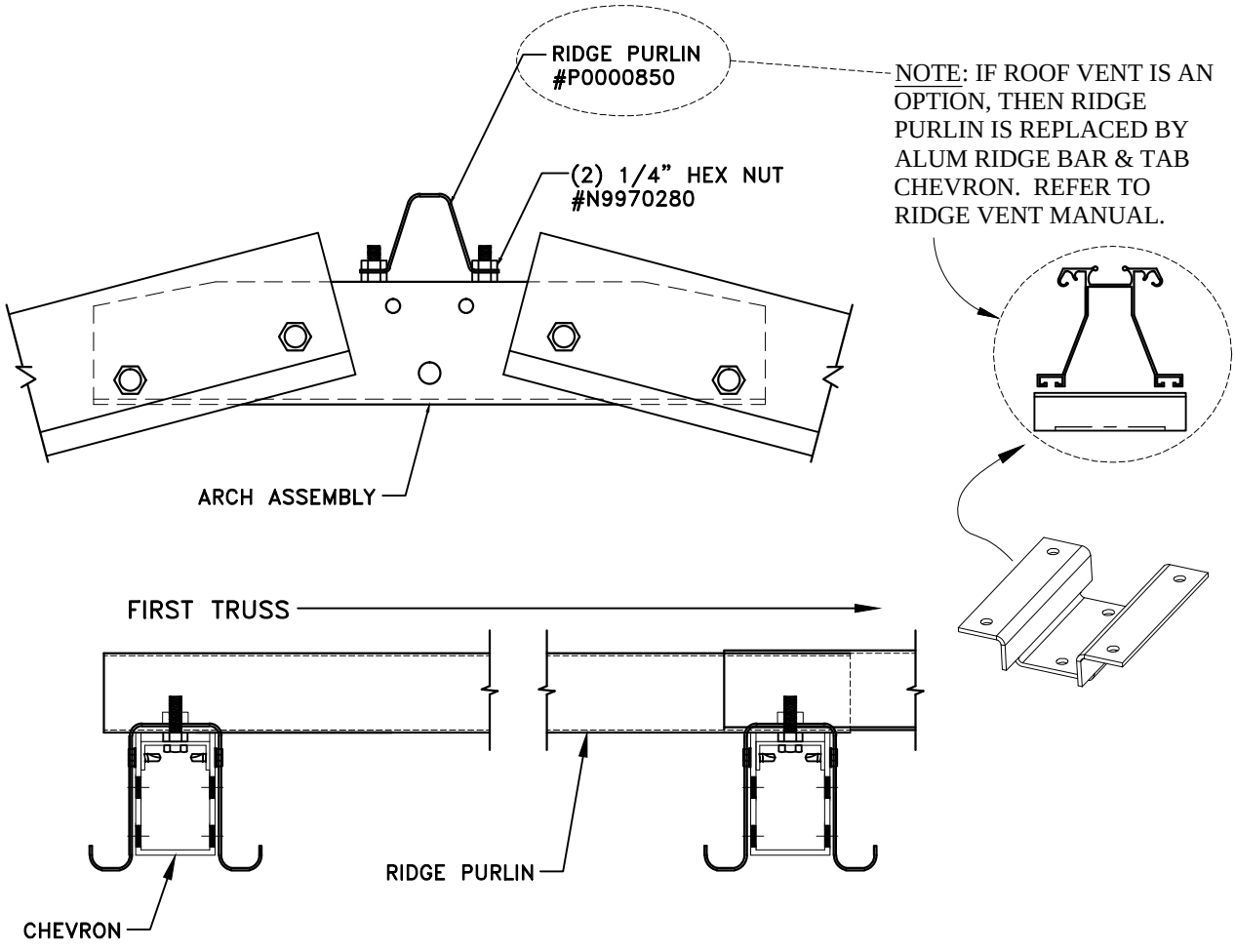


3. BOLT TWO OR MORE ARCHES TO THE LEGS USING (2) 1/2" X 2 1/2" MACHINE BOLT PER ARCH.



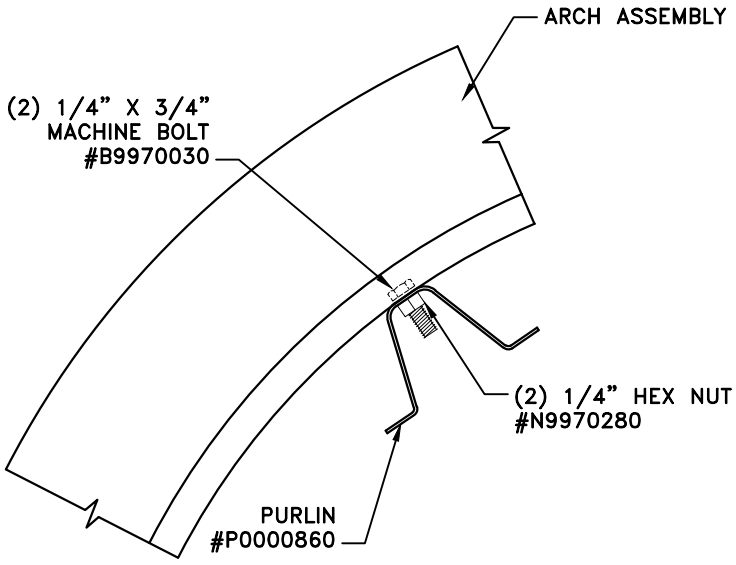
RIDGE PURLIN INSTALLATION

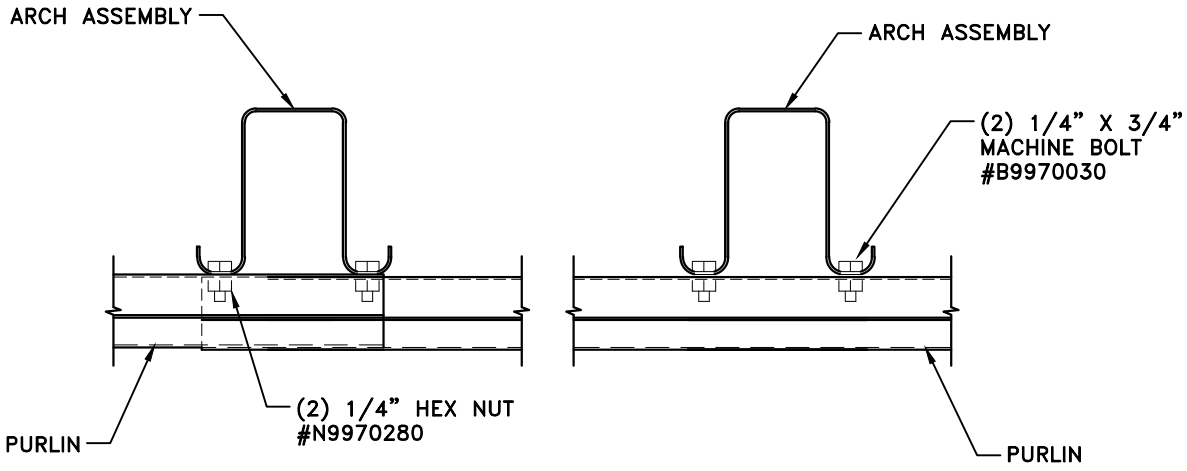
1. ATTACH THE RIDGE PURLIN TO THE TOP PLATE ON THE CHEVRON SPLICE USING (2) 1/4" NUTS.



ARCH AND PURLIN INSTALLATION

1. ATTACH THE PURLINS TO THE FIRST AND SECOND ARCHES WITH (2) 1/4" X 3/4" MACHINE BOLTS.





2. ATTACH TWO MORE ARCHES. OVERLAP THE RIDGE PURLIN AT THE THIRD ARCH AND BOLT IT TO THE THIRD AND FOURTH ARCHES WITH (2) 1/4" X 3/4" MACHINE BOLTS PER ARCH.

3. OVERLAP THE QUARTER POINT PURLINS AT THE THIRD ARCH AND BOLT THEM TO THE THIRD AND FOURTH ARCHES. (SEE NOTE 1 FOR BOLT INFORMATION.)

INSTALLATION REMAINING ARCHES AND PURLINS

1. INSTALL THE REMAINING ARCHES, TWO AT A TIME, AND THE PURLINS UNTIL THE FULL LENGTH OF THE BUILDING IS COMPLETE.

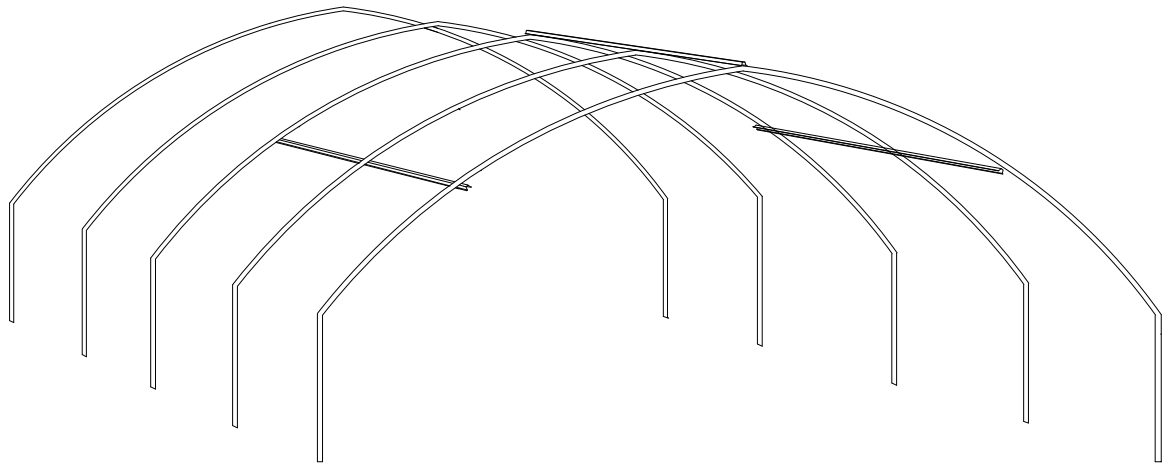


FIGURE 12 - 3 PURLIN OPTION

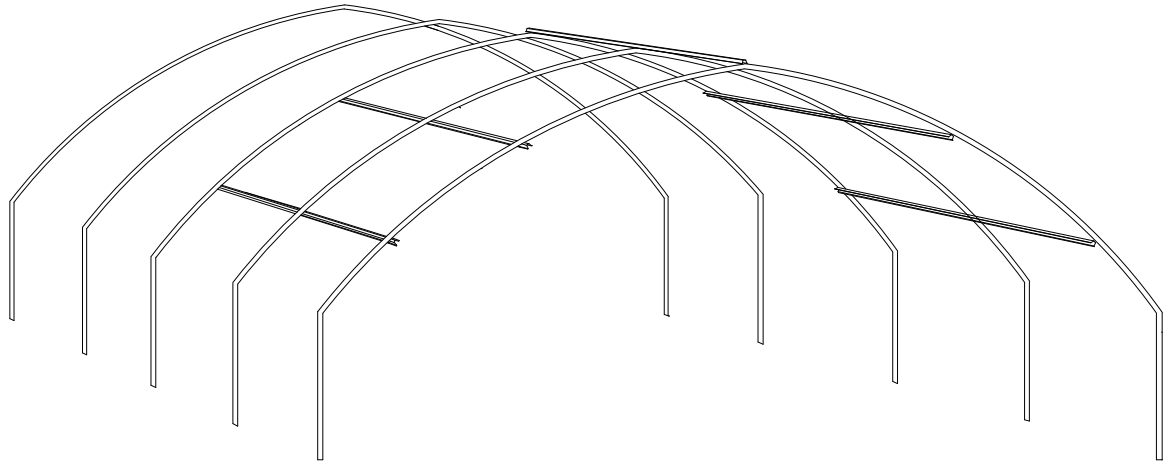
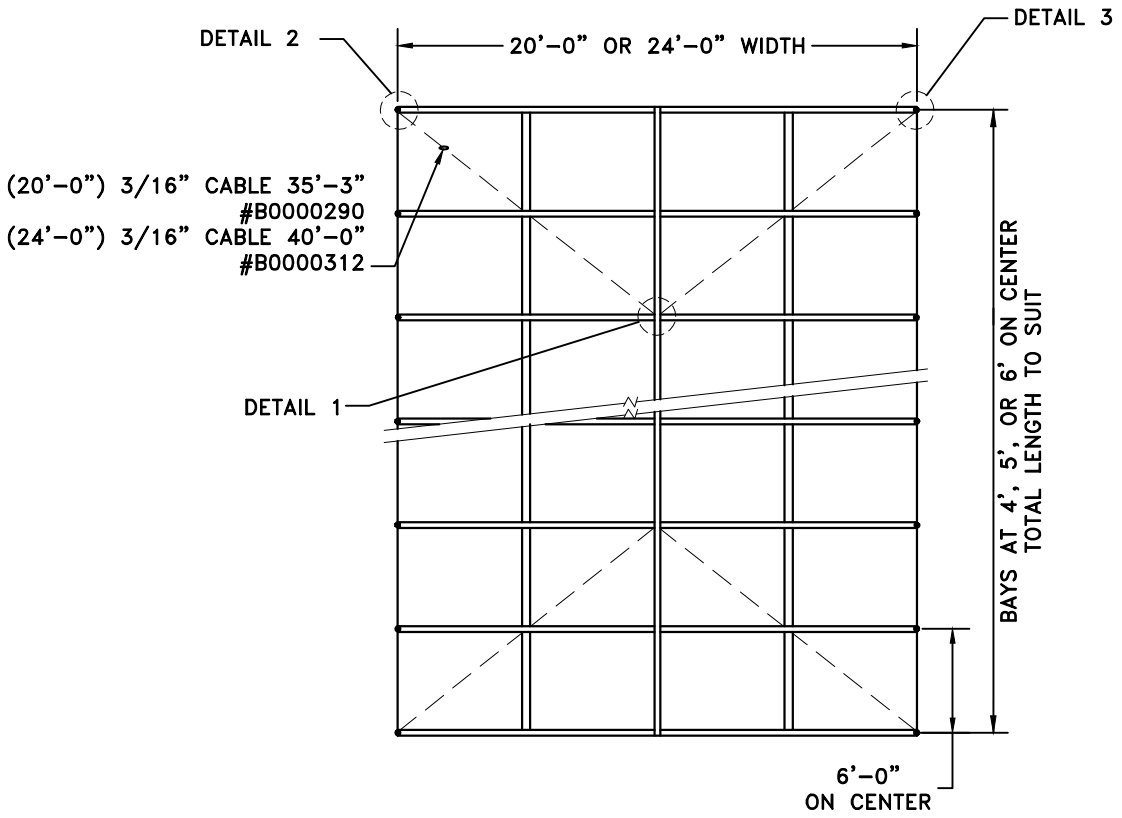
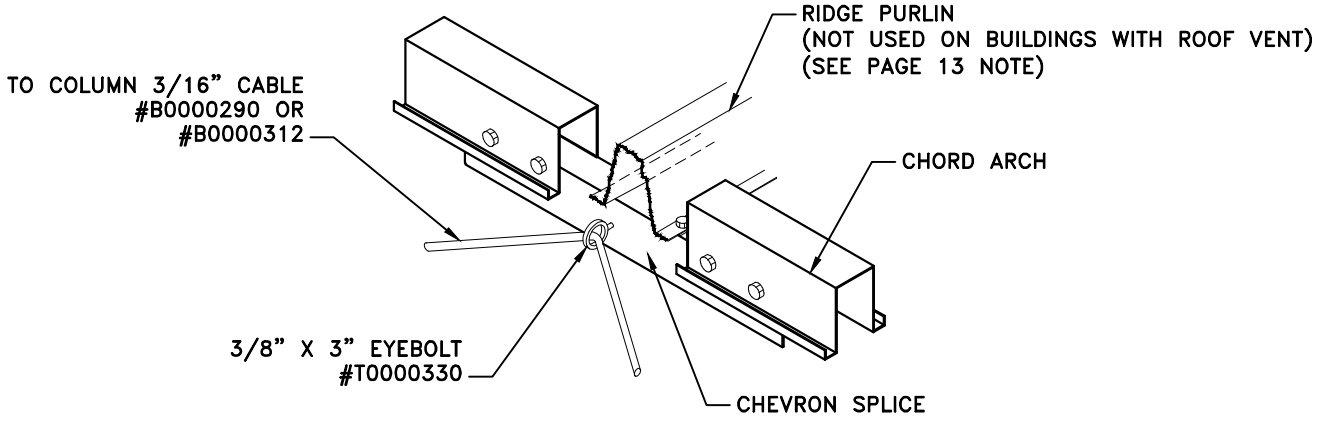


FIGURE 13 - 5 PURLIN OPTION

INSTALLATION OF CABLE BRACING



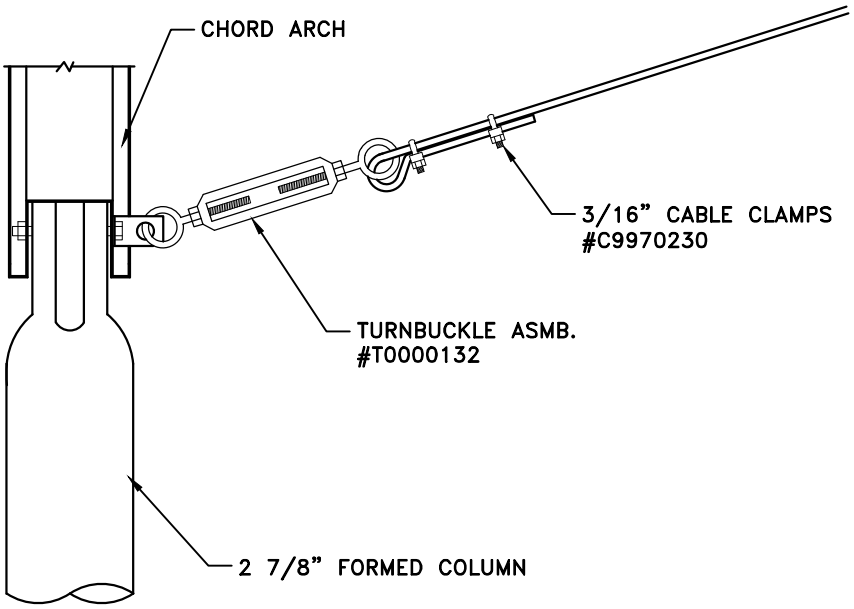
1. 12'-0" IN FROM THE END OF THE BUILDING, RAP THE MIDDLE OF THE 1/4" BRACE CABLE THROUGH EYE BOLT, AND BACK OVER THE CHEVRON SPLICE.



DETAIL 1

2. ATTACH THE 3/8" TURNBUCKLE TO ONE SIDE OF THE ARCH AT THE COLUMN TO ARCH CONNECTIONS.

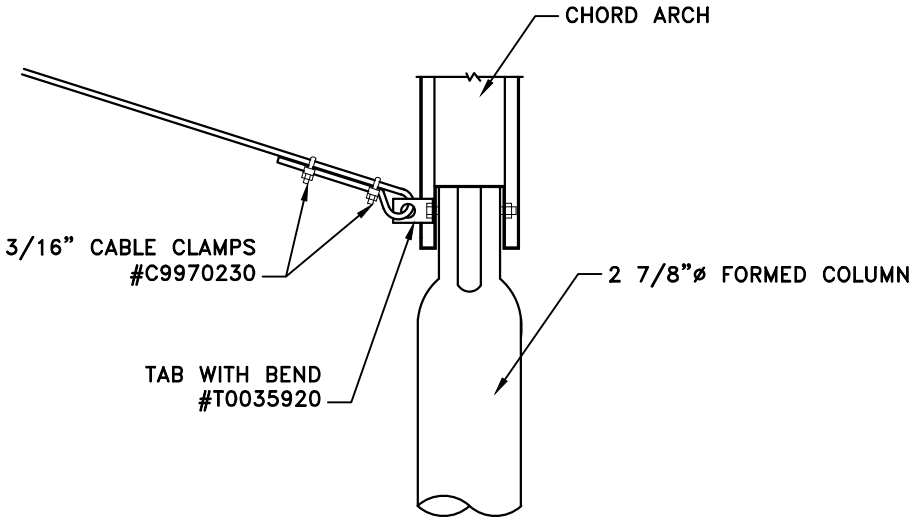
3. ATTACH THE 3/16" CABLE TO THE TURNBUCKLE WITH (2) 3/16" CABLE CLAMPS.



DETAIL 2

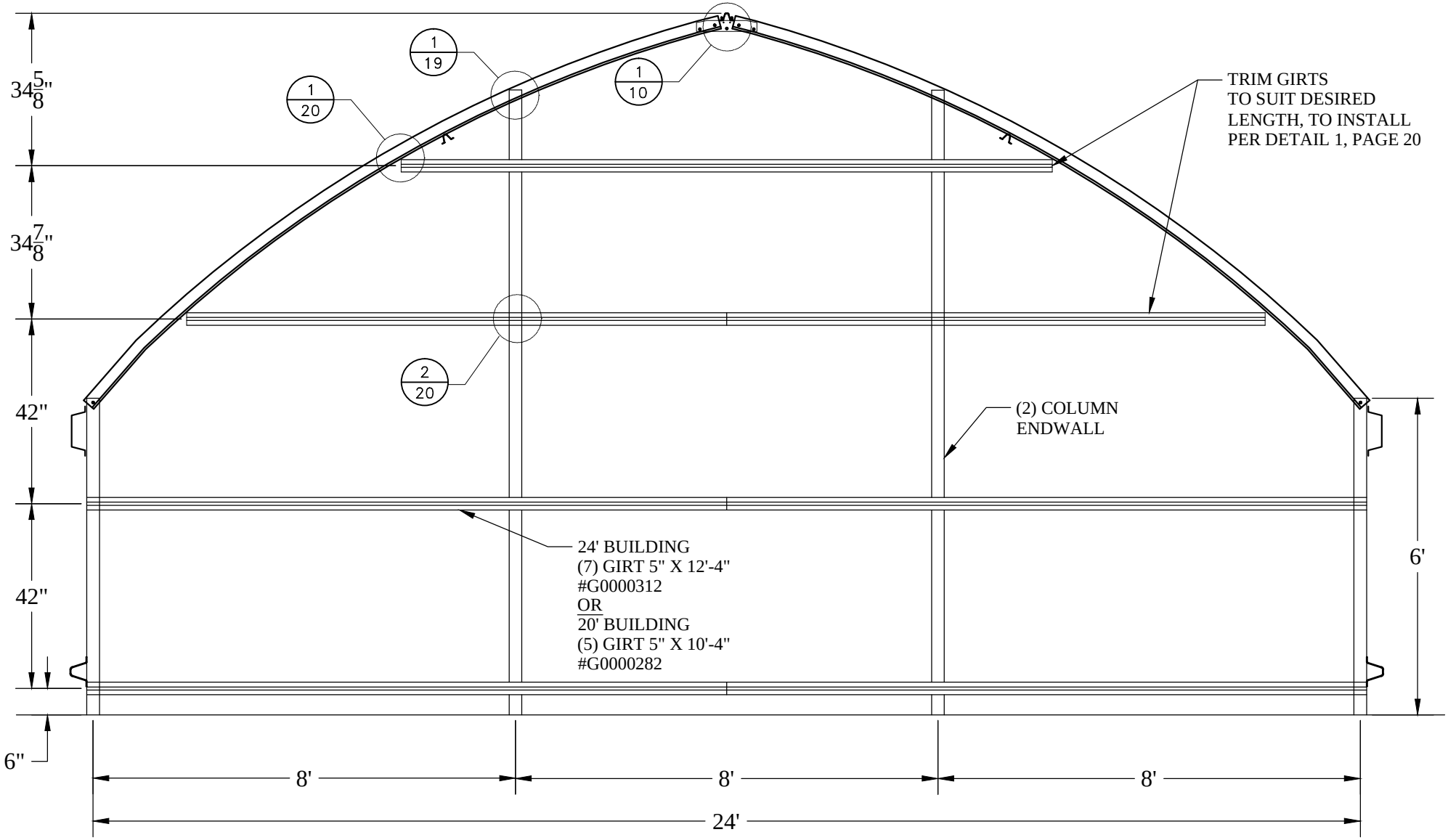
4. ATTACH THE BENT TAB TO THE OPPOSITION SIDE FROM THE TURNBUCKLE AT THE COLUMN TO CHORD ARCH CONNECTION.

5. ATTACH THE 3/16" CABLE TO THE BENT TAB WITH (2) 3/16" CABLE CLAMPS.



DETAIL 2

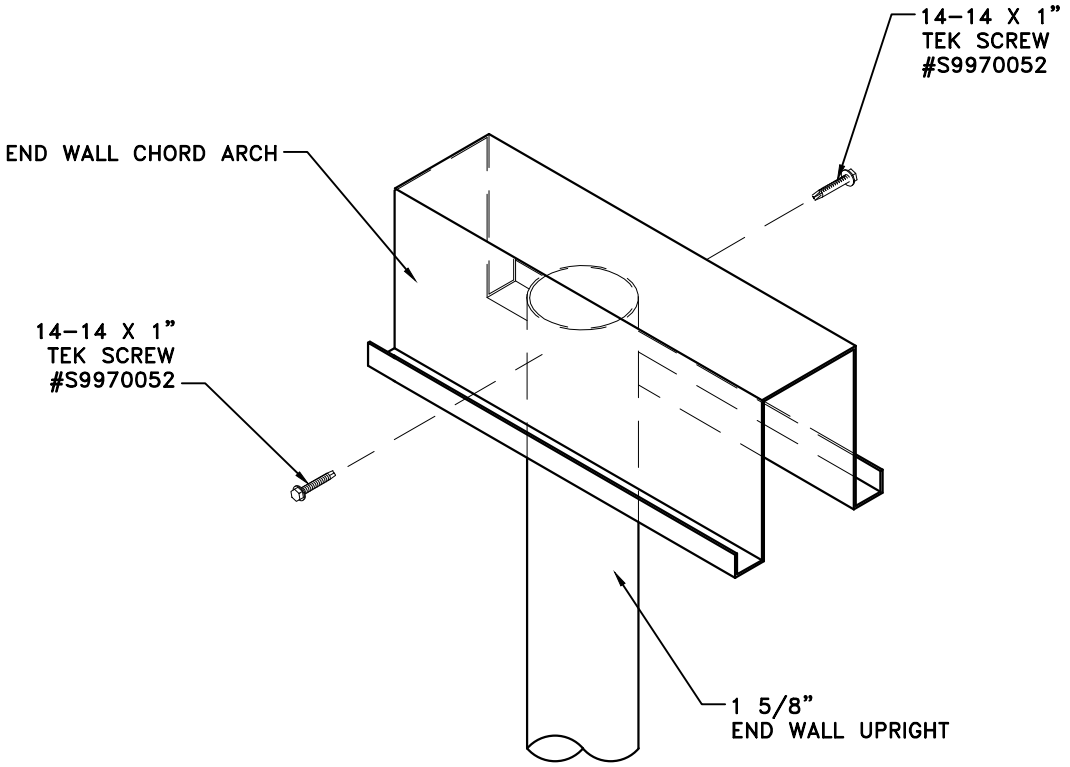
END WALL LAYOUT 24'-0" BUILDING WITH 6' SIDE WALL HEIGHT



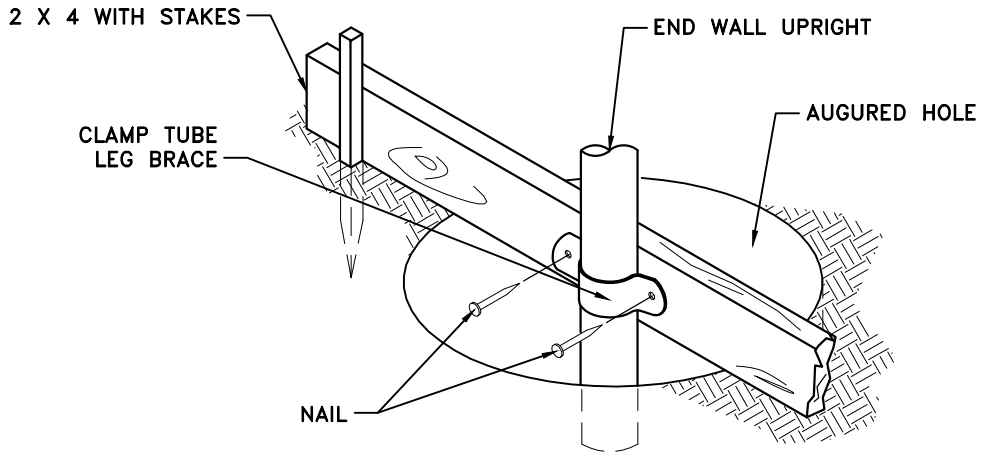
END WALL UPRIGHT INSTALLATION

1. PUT THE BOTTOM OF THE END WALL UPRIGHT INTO THE AUGURED FOOTING HOLE.

2. SLIP THE OPPOSITE END OF THE END WALL UPRIGHT INSIDE OF THE END WALL CHORD ARCH AND SECURE WITH (2) 14-14 X 1" TEK SCREW AT EACH SIDE OF THE CHORD.



3. BEFORE POURING THE CEMENT, SLIP (1) CLAMP TUBE LEG BRACE ON EACH END WALL COLUMN TUBE. STAKE 2 X 4'S IN PLACE KEEPING THE COLUMNS PLUMB IN BOTH DIRECTIONS AND TEMPORARILY NAIL THE CLAMP TUBE LEG BRACES TO THE 2 X 4'S (SEE DETAIL 2 BELOW). THIS IS DONE TO HELP SUPPORT THE WEIGHT OF THE BUILDING WHILE THE CEMENT IS CURING. WAIT A MINIMUM OF 24 HOURS BEFORE REMOVING 2 X 4'S. USE THE OFFSETTING LINES TO PROPERLY ALIGN THE COLUMN INTO THE AUGUR HOLE (SEE PAGE 6).

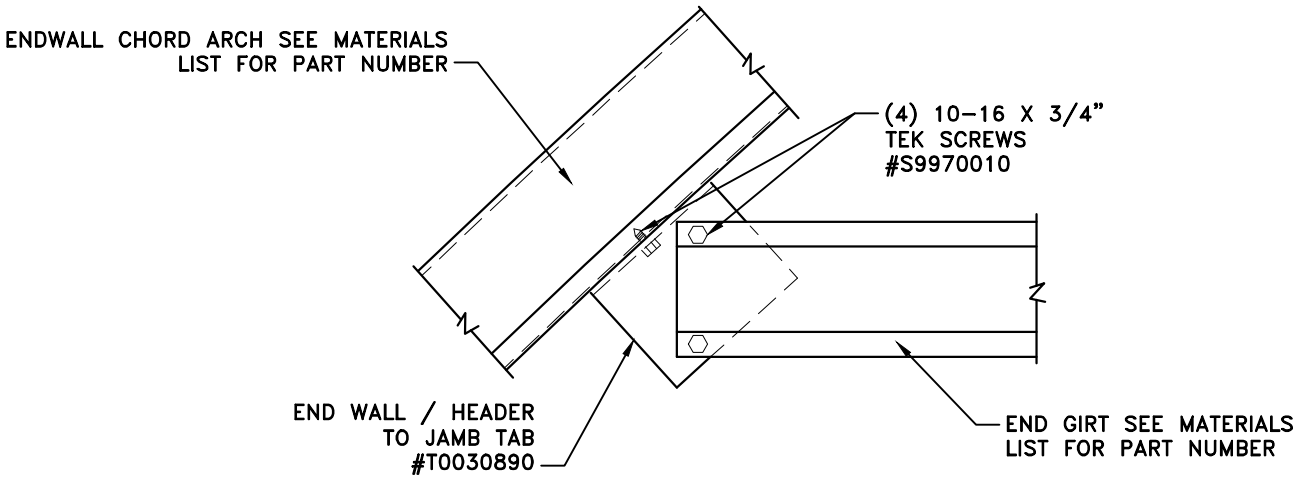


DETAIL 2

END WALL GIRT CONNECTIONS

1. DRILL SCREW THE END WALL / HEADER TO JAMB TAB TO THE END WALL ARCH, THE END WALL AND THE UPRIGHTS WITH (2) 10-16 X 3/4" TEK SCREWS.

2. LEVEL AND DRILL SCREW THE END GIRTS TO THE TABS WITH (2) 10-16 X 3/4" TEK SCREWS.

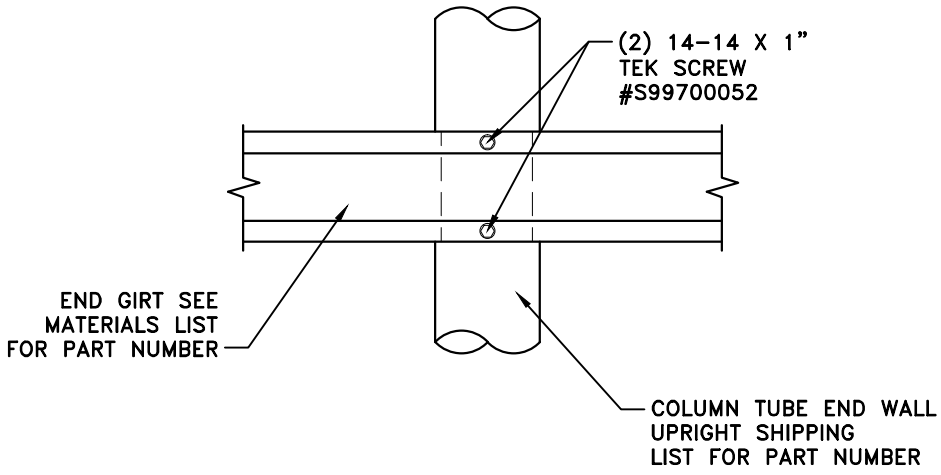


DETAIL 1

3. LEVEL AND DRILL SCREW THE END GIRT TO THE TABS WITH (2) 10-16 X 3/4" TEK SCREWS AT EACH TAB.

4. SECURE THE END GIRTS TO THE END WALL UPRIGHTS WITH (2) 10-16 X 3/4" TEK SCREWS. (SEE DETAIL 2 BELOW).

5. END WALL GIRTS ARE TYPICALLY SPACED OUT EVENLY, TO SUPPORT THE END WALL COVERING. GIRTS CAN BE SPACED OUT AS FAR AS 48" IF NEEDED.



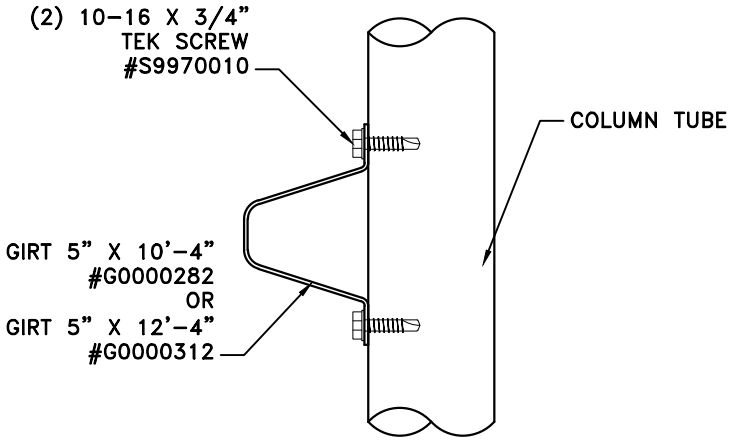
DETAIL 2

END WALL UPRIGHT INSTALLATION

1. MARK THE COLUMNS WITH THE GIRT LOCATIONS.

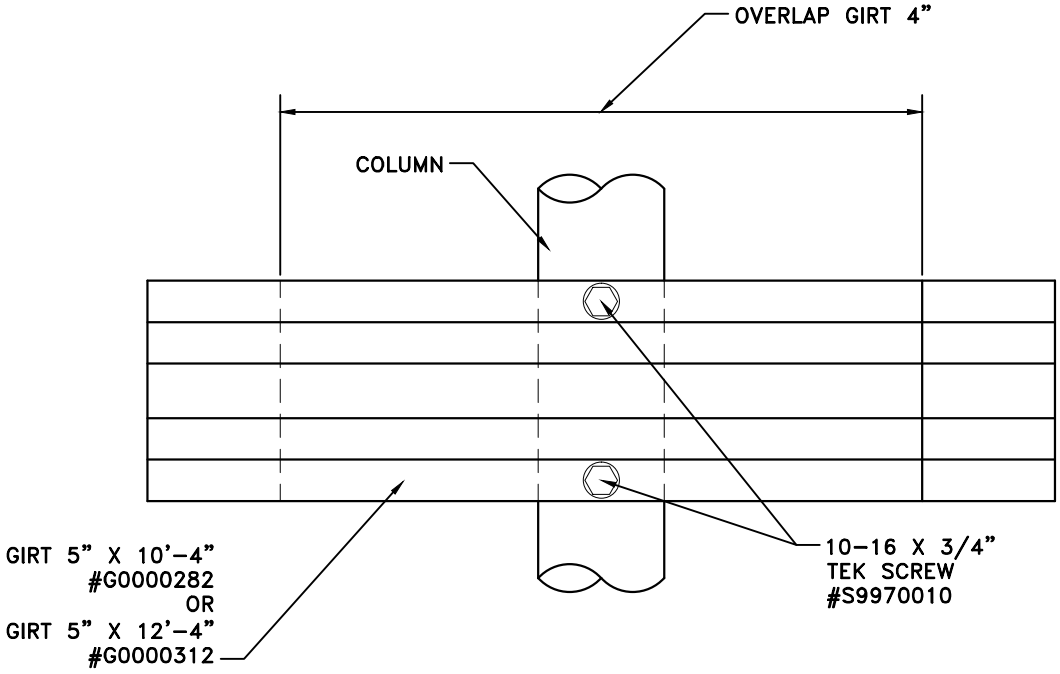
2. CLAMP THE GIRTS TO THE COLUMN AND ADJUST TO MAKE THEM LEVEL.

3. SECURE THE GIRTS TO THE COLUMNS WITH (2) 10-16 X 3/4" TEK SCREWS PER COLUMN.



DETAIL 1

4. SPICE THE GIRTS BY OVERLAPPING THEM AND SECURING BOTH GIRTS TO THE COLUMN WITH (2) 10-16 X 3/4" TEK SCREW PER COLUMN.



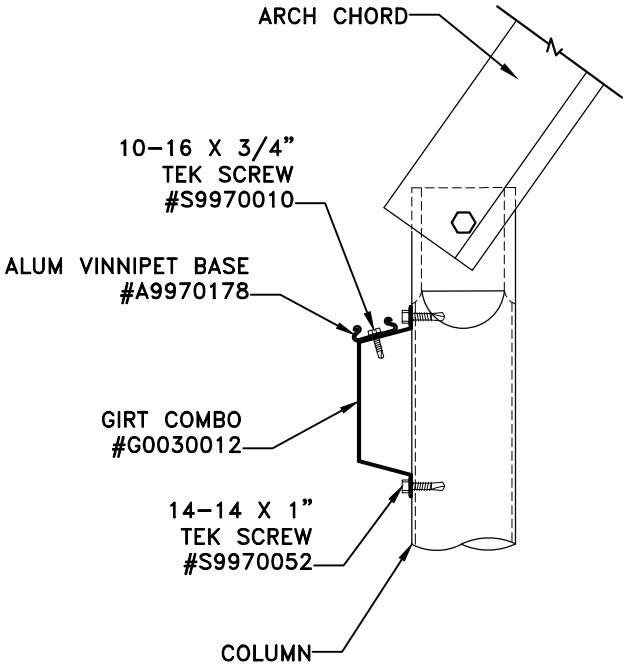
DETAIL 2

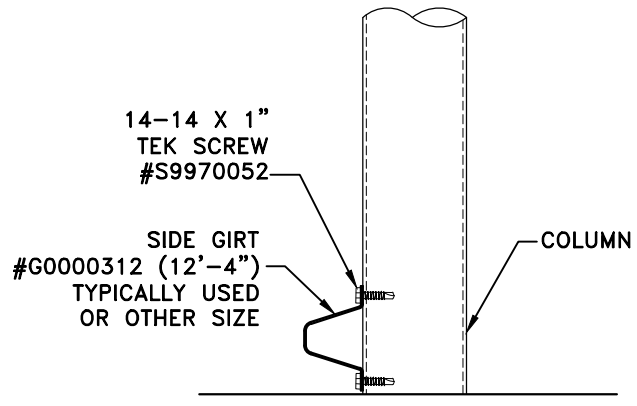
COVERING TRIM INSTALLATION
SIDE WALL / ROOF CONNECTION

1. **GIRT COMBO PROVIDED [DETAIL 1] (PART#: G0030012)**
   ATTACH THE GIRT COMBO TO EACH COLUMN WITH (2) #14 TEK SCREWS, NEAR THE TOP OF THE COLUMNS. AT SPICE, OVERLAP BY GIRT BY 4". ATTACH THE ALUM VINNIPET BASE TO THE TOP OF THE GIRT COMBO WITH A 10-16 X 3/4" TEK SCREW AT 12" ON CENTER.

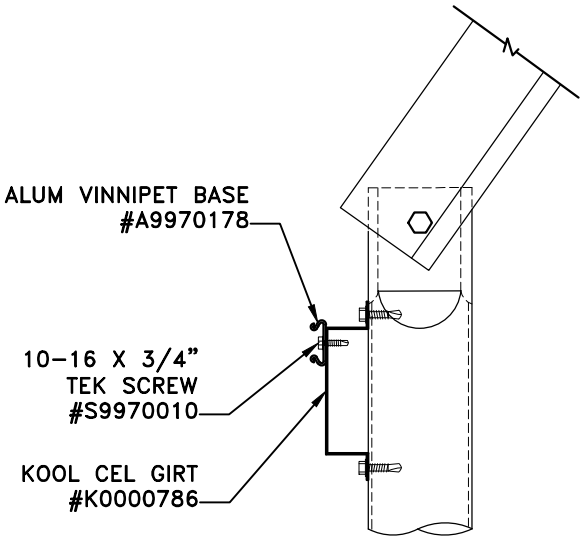
2. **KOOL CEL GIRT PROVIDED [DETAIL 2] (PART#: K0000786)**
   ATTACH THE KOOL CEL SPLICE PLATE (S0000950) TO EACH COLUMN, NEAR THE TOP OF THE COLUMNS WITH (2) #14 TEK SCREWS. ATTACH THE KOOL CEL GIRT TO THE KOOL CEL SPLICE PLATES WITH (2) #14 TEK SCREWS, APPROXIMATELY AS SHOWN IN DETAIL 2 BELOW. ATTACH THE ALUM VINNIPET BASE TO THE UPPER PORTION OF THE GIRT WITH A 10-16 X 3/4" TEK SCREW AT 12" ON CENTER.

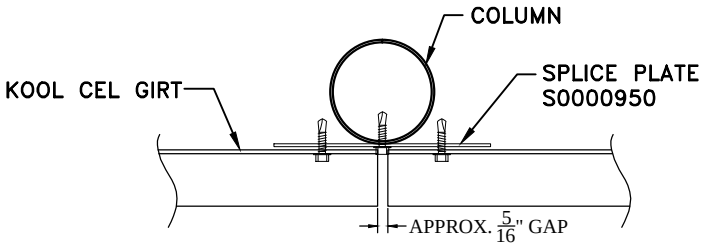
3. ATTACH THE 5" GIRT WITH (2) 14-14 X 1" TEK SCREWS AT EACH COLUMN.



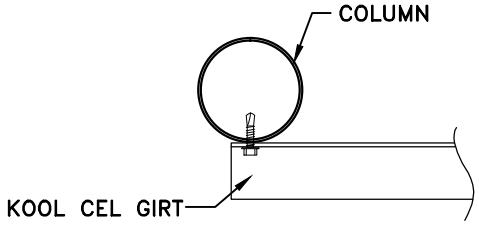


DETAIL 1





TOP VIEW SPLICE

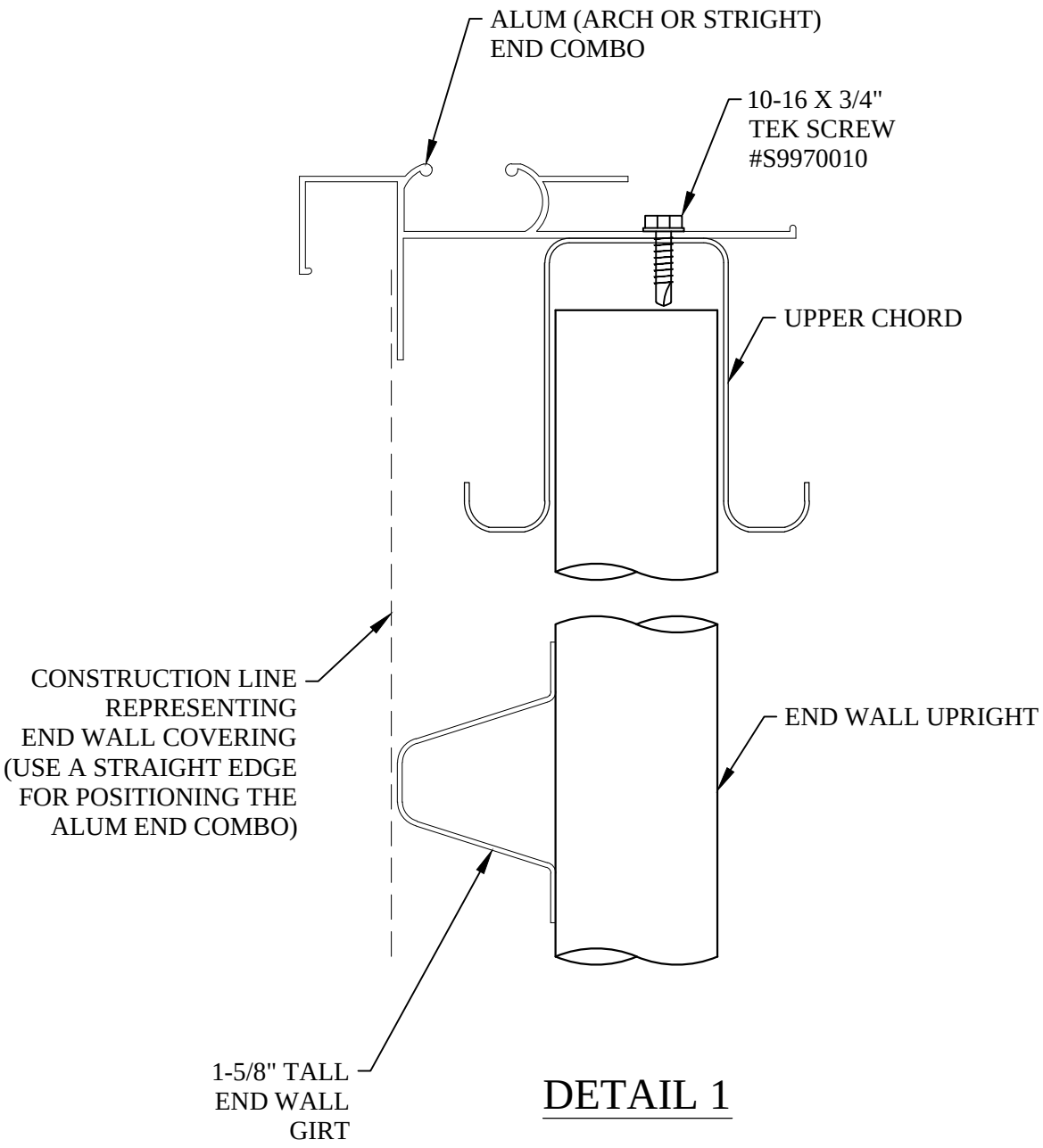


TOP VIEW SPLICE @ CORNERS

DETAIL 2

COVERING TRIM INSTALLATION
END BAR COMBO (CORRUGATED)

1. FOR FIBERGLASS END WALL COVERING, USE AN ALUMINUM ARCH END COMBO. ATTACH IT TO THE END WALL ARCH WITH 10-16 X 3/4" TEK SCREWS AT 16" ON CENTER.



DETAIL 1

INSTALLATION OF POLY COVERING ON ARCHED BUILDINGS

1. ON SINGLE BUILDINGS, ROLL OUT THE POLY LENGTHWISE NEXT TO BUILDING.

2. WAD UP THE POLY (APPROX. EVERY 20') AND TIE IT WITH ROPES ON THE SIDE OF THE POLY FURTHEST FROM THE BUILDING.

3. THROW ROPES OVER THE BUILDING AND PULL THE POLY ONTO THE BUILDING. REPEAT THIS PROCEDURE FOR MULTIPLE LAYERS OF POLY.

4. INSTALLING POLY REQUIRES A MINIMUM OF FOUR PEOPLE, TWO PEOPLE TO HOLD THE POLY IN PLACE AT THE END OF THE BUILDING, ONE ON EACH SIDE. THE OTHER TWO PEOPLE STARTING AT THE OPPOSITE END OF BUILDING TO INSTALL THE TUBE LOCK CAP SIMULTANEOUSLY, ON EACH SIDE OF BUILDING. SEE PAGE 30 FOR POLY LOCKING INSTRUCTIONS.

5. SECURE THE TUBE LOCK CAP WITH TEK SCREWS AT EACH END.

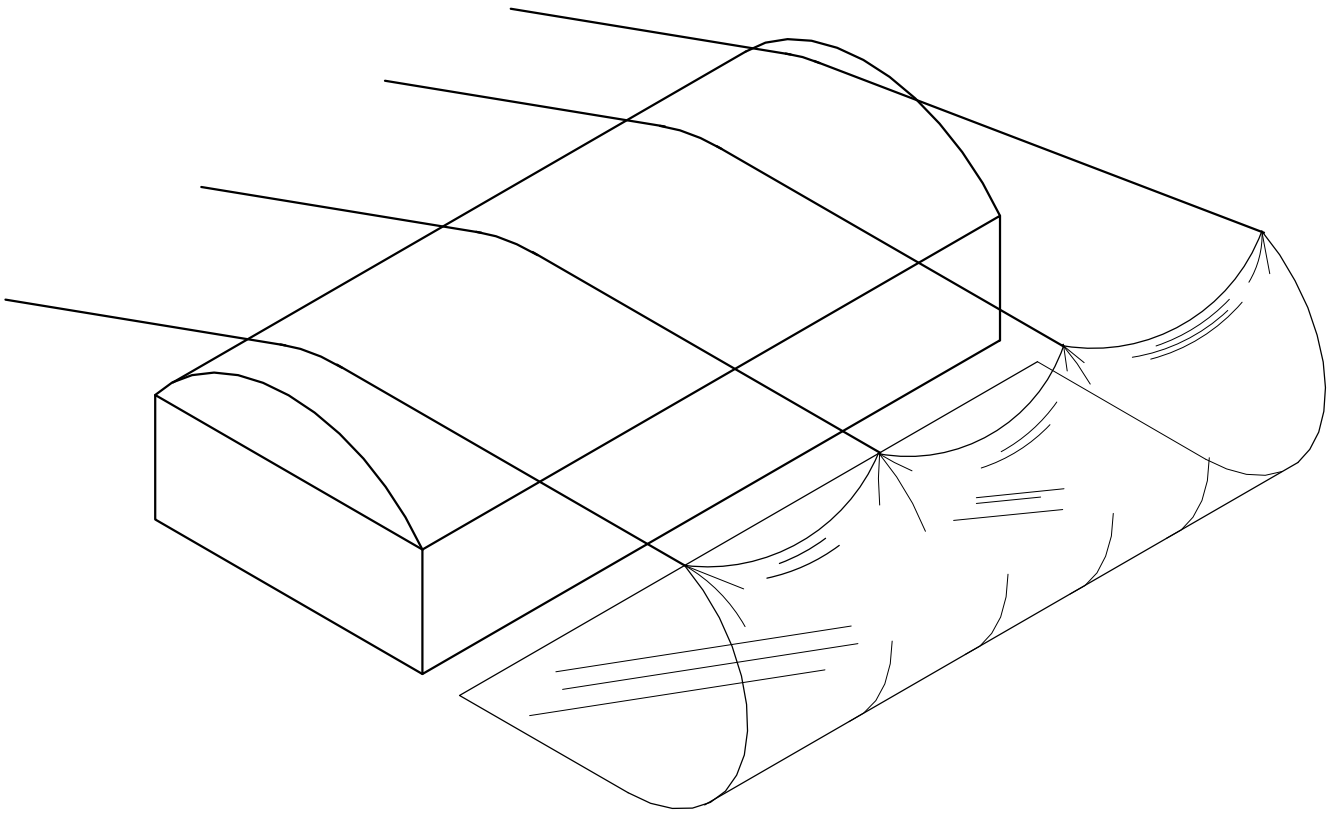
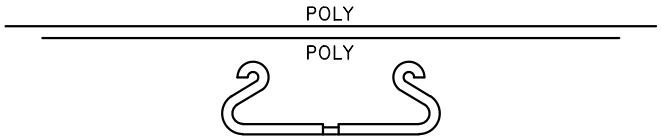


FIGURE 14 - POLY INSTALLATION

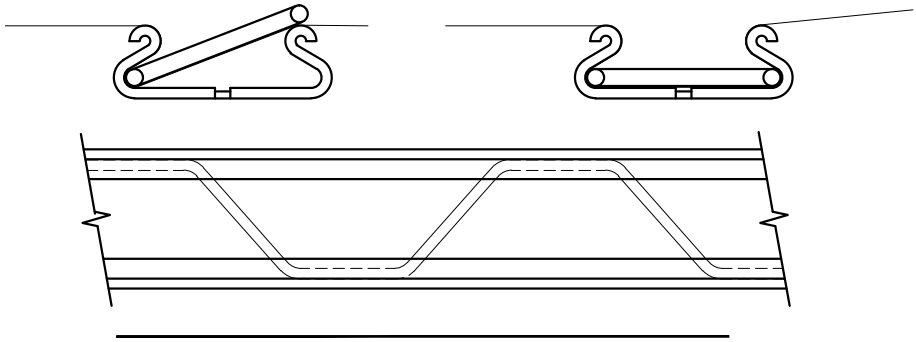
INSTALLATION OF POLY COVERING WITH VINNIPET SPRING

NOTE: TEK SCREW ALL VINNIPET BASE AT A MINIMUM OF 12" ON CENTER

1. APPLY POLY FILM (ONE OR MORE LAYERS) OVER PREVIOUSLY INSTALLED VINNIPET BASE.

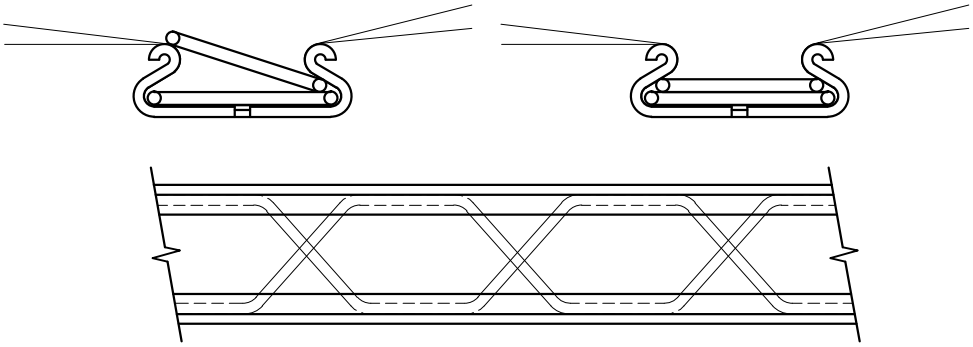


2. INSERT ONE EDGE OF THE VINNIPET SPRING INTO THE VINNIPET BASE. KEEPING POLY TIGHT WEAVE THE VINNIPET SPRING INTO THE BASE SECURING THE POLY.

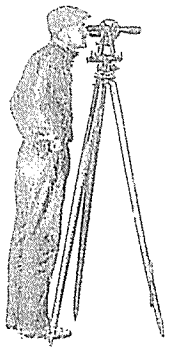


USE DOUBLE CLIPS WHEN INSTALLING 32' OR WIDER POLY, DOUBLE POLY, AND/OR BUILDING IS LOCATED IN HIGH WIND AREA.

3. INSERT ONE EDGE OF THE SECOND VINNIPET SPRING INTO THE VINNIPET BASE. KEEPING POLY TIGHT WEAVE THE SECOND VINNIPET SPRING INTO THE BASE SECURING THE POLY.



WARRANTY CONLEY'S MFG. AND SALES, THEIR EMPLOYEES OR REPRESENTATIVES, WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO GREENHOUSE COVERING, STRUCTURES, CROPS OR EQUIPMENT WHEN USED IN CONJUNCTION WITH OUR TUBE - LOCK, OR ANY OTHER LOCKING DEVICE MFG,D BY C.M.S. OR OTHERS.



SERVICE SPEED SATISFACTION

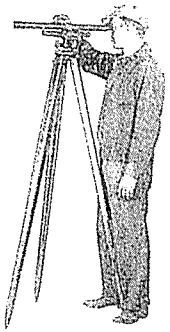
WINANDY GREENHOUSE COMPANY, INC.

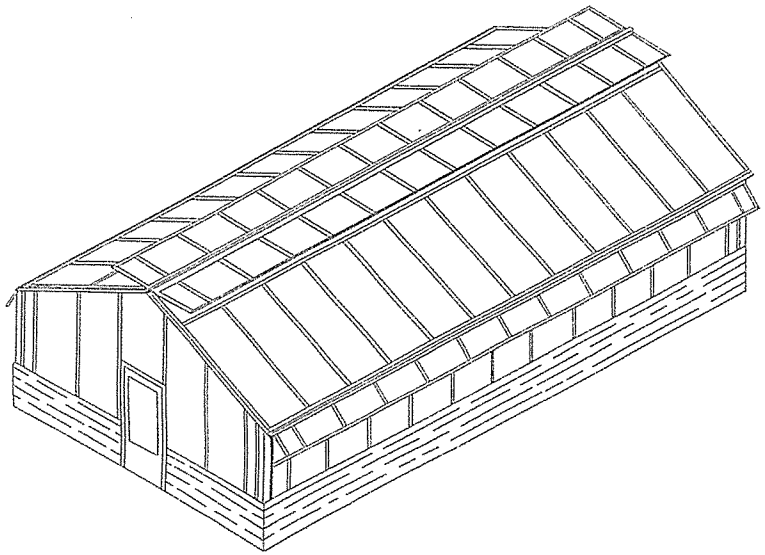
Greenhouse Manufacturers, Builders and Heating Engineers

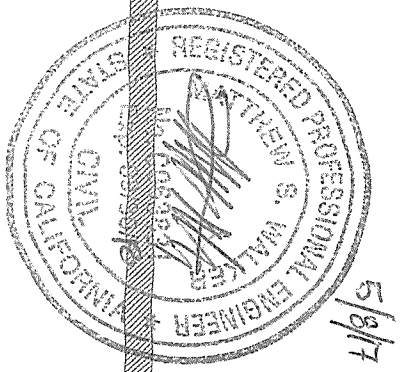
New "SUN-MATE" ReNew

RICHMOND, INDIANA 47374
2211 PEACOCK ROAD
SINCE 1919

Phone (765) 935-2111 Fax (765) 935-2110







5/8/17

MERCED COLLEGE GREENHOUSE CALCULATIONS

PAGES: 1 - 70

MERCED College Greenhouse

Table of Contents

Merced College
Merced, CA.

Greenhouse has been designed in accordance with the specifications.
CBC/UBC/IBC Code Base
15 PSF Live Load
6 PSF Dead Load
Seismic Category D
85MPH Exp. C Wind Load

1] All aluminum extrusions are from 6061-T6 alloy or equivalent. Fy = 35ksi.

2] All Steel Tube is Hot Dipped Galvanized Coated

3] All Steel and Fittings are Hot Dipped Galvanized

4] All Steel Tubing is manufactured from 50 KSI min yield point steel, 55 KSI min yield point steel

5] All bolts are Hot Dipped Galvanized for corrosion resistance.

6] All bolts are Grade 5 equal to A-325 in strength rating.

7] All connections have been examined and judged to have sufficient fasteners.

8] Greenhouse has been designed in accordance with the specifications.

9] Greenhouse is to be installed onto foundation designed and installed by others. No floor load is imparted to the greenhouse structure.

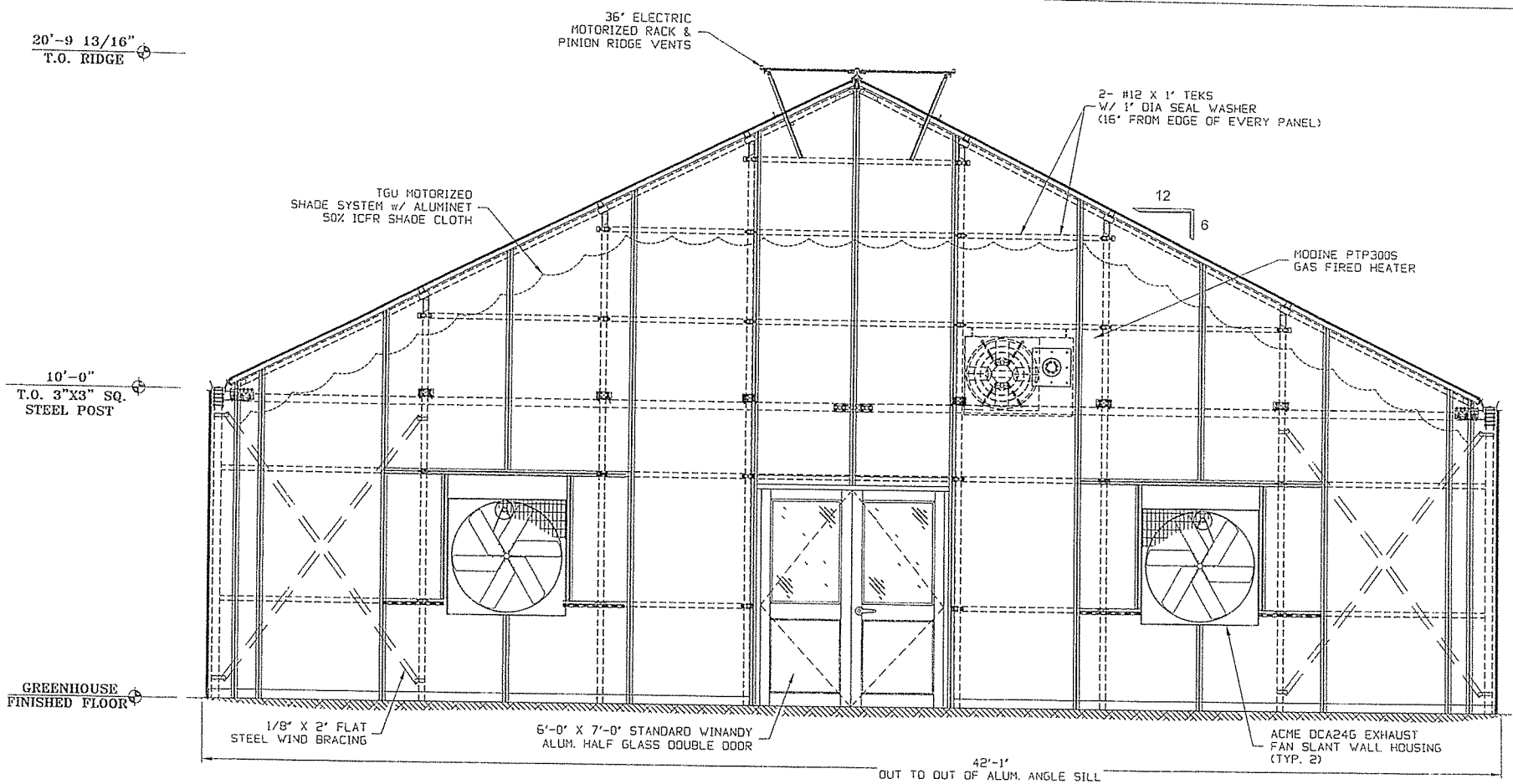
10] The wind load is greater than the seismic load.

11] This greenhouse has a sloped slippery roof covered structure.

12] All extrusions and fittings are designed to inter-lock as much as possible to minimize fasteners and have been specially designed for structural as well as specific greenhouse functions.

13] All greenhouse members have been checked for ability to withstand prescribed loads.

14] The main greenhouse is included in this design only No foundation designs have been included



1 Elevation A

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17 | REV: 4/14/17

ELEVATIONS

DRAWN BY: BAW

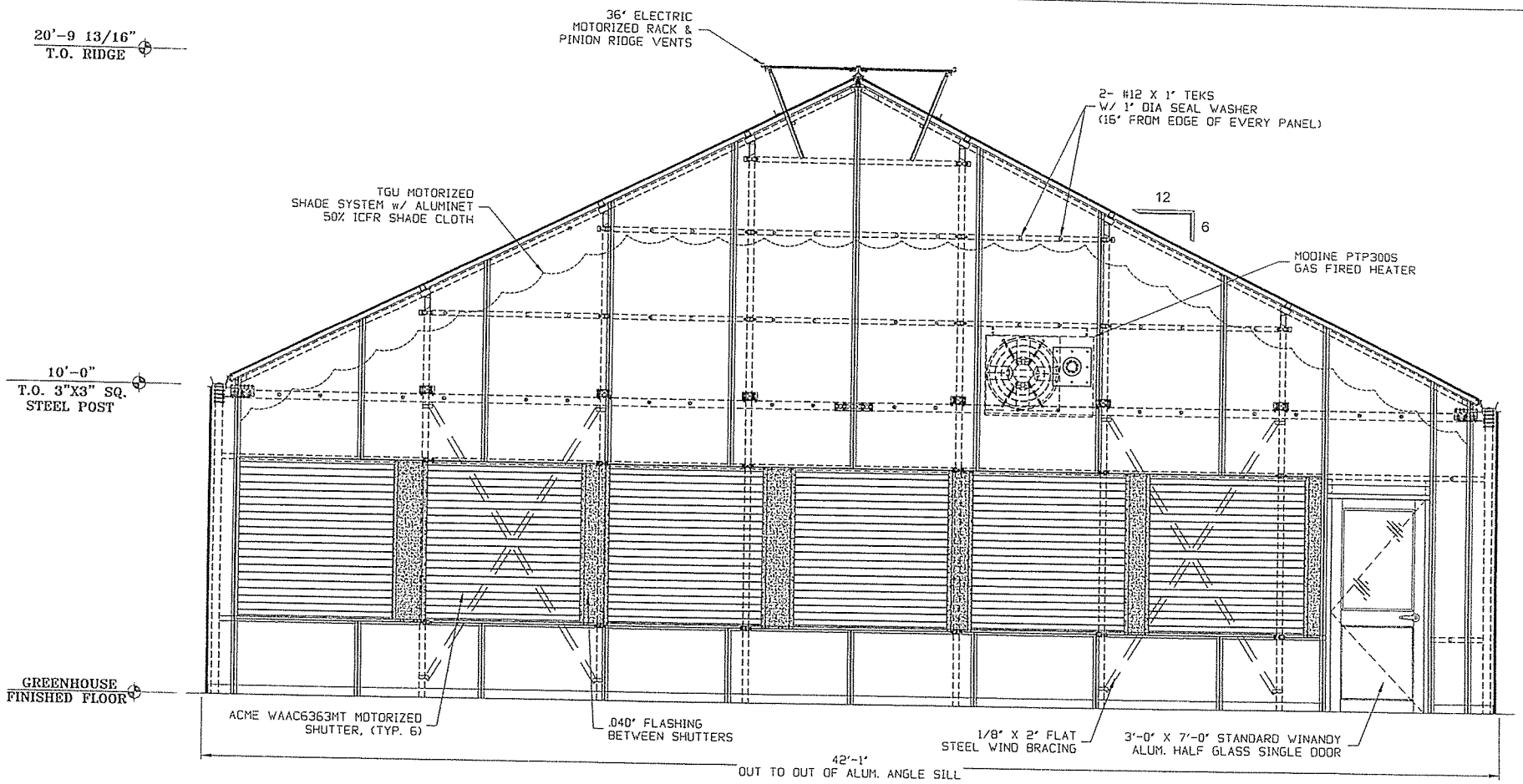
CHECKED BY:

MERCED COLLEGE

MERCED, CA

PAGE# 1

GLAZING= POLYCARBONATE | FINISH= MILL



3 Elevation C

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

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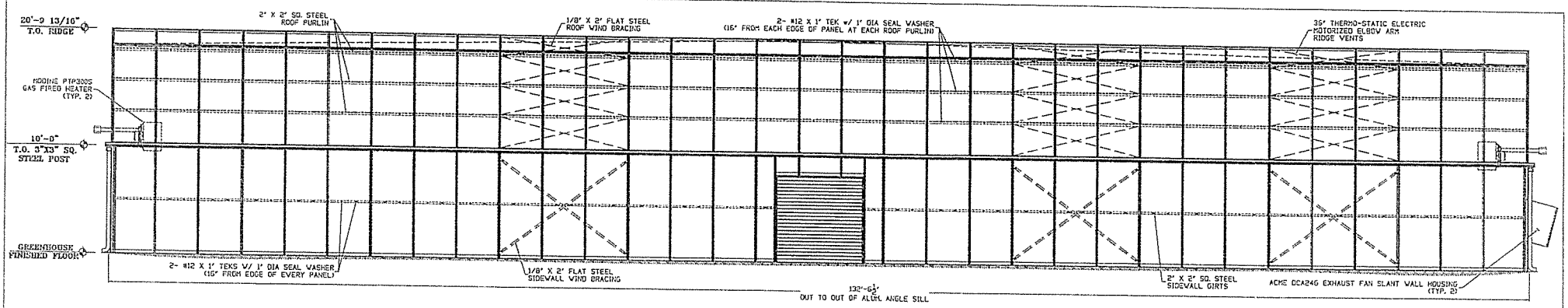
ELEVATIONS

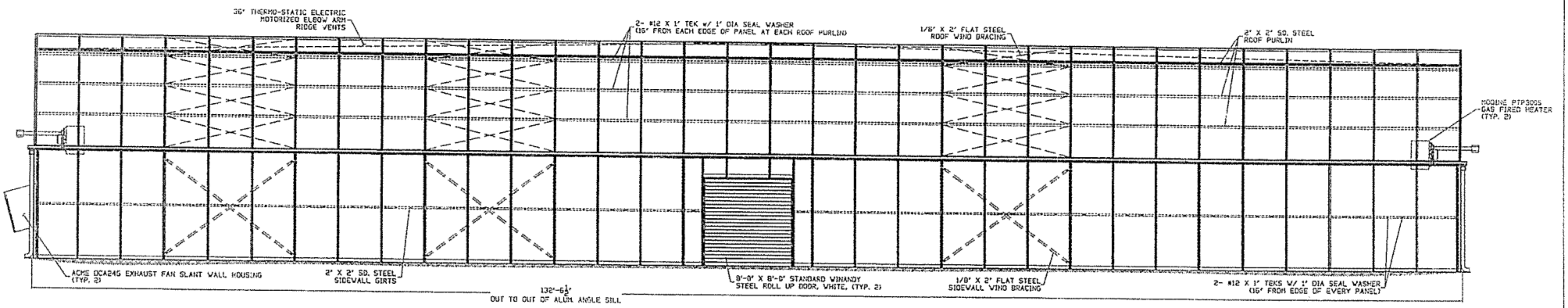
MERCED COLLEGE
MERCED, CA

DRAWN BY: BAW
CHECKED BY:
PAGE# 2

GLAZING=POLYCARBONATE | FINISH=MILL



2 Elevation B



4 Elevation D

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

4/14/17

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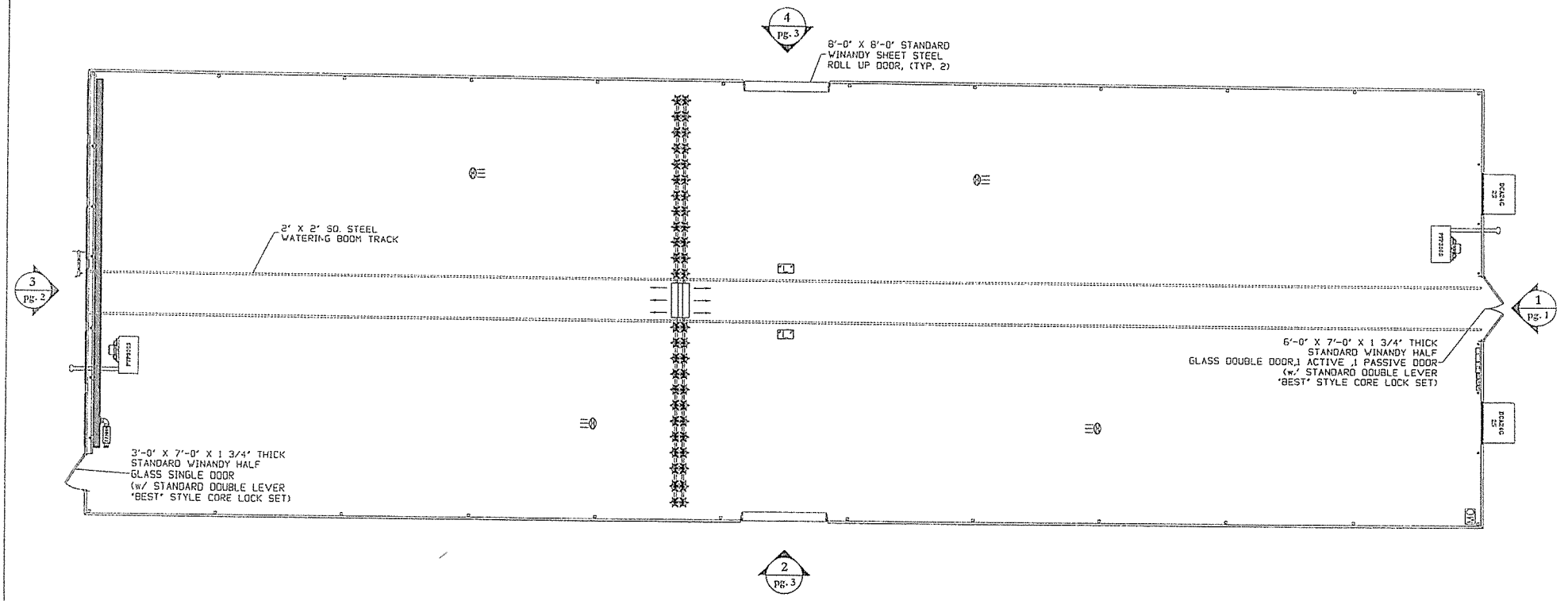
REV: 4/13/17
DATE: 3/27/17

ELEVATIONS

DRAWN BY: BAW
CHECKED BY:
PAGE# 3

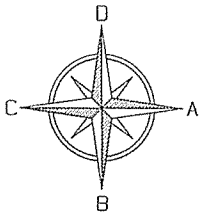
MERCED COLLEGE
MERCED, CA

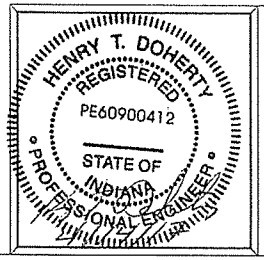
GLAZING=POLYCARBONATE | FINISH=MILL



GREENHOUSE EQUIPMENT

	CHERRY CREEK WATERING BOOM w/ BALDOR DC MOTOR w/ CHAIN DRIVE - 1/4 HP, 2.5 AMPS, (2 ROWS) SINGLE WATER BAR SETUP w/ TEEJET SPRAYS (0.8 gpm) EVERY 18" . WHIP HOSE WATERING ASSEMBLY, COMPASS CAPTURE CONTROLLER w/ AREA CAPTURE PROGRAM		
"L"	EWA10 900m LOCK DRIVE ELECTRIC MOTORIZED ROOF VENT MACH FOR RACK & PINION OPERATION, 13AW, 120V, 2.6 AMPS, (TYP. 2)	VC	"LOCK" VENT MACHINE CONTROL PANEL, (TYP. 2)
	SCHAEFER VS12 12" HAF FAN 115V, 1/10 HP, .9 AMPS, (TYP. 4)	MC	TGU ROOF SHADE SYSTEM DRIVE MOTOR, 1/5 HP, 2.5 AMPS, w/ 50% FLAME RETARDANT SHADE CLOTH (TYP. 1)
	MODINE NATURAL GAS FIRED UNIT HEATER, PTP300S w/ TUBULAR S.S. PRIMARY HEAT EXCHANGER & S.S. SECONDARY HEAT EXCHANGER, 1/2 HP, 115V, 8.11 AMPS	SC	MOTORIZED SHADE SYSTEM CONTROL PANEL, (TYP. 1)
FAN	ACME EXHAUST FAN, (2) DCA42J, 1 HP, WAVS, W/GS, W/ SLANT WALL HOUSING, w/ INLET & OUTLET GUARD, WITH SHUTTER, 115 V	E	WADSWORTH ENVIROSTEP GREENHOUSE CONTROLLER w/ STEP SAVER SOFTWARE, WIRED ALARM MANAGER, 115V, 2 AMPS (TYP. 1)
	ACME CAEG KOOL-CEL PAD SYSTEM (1) 35' LG ,4" THICK PADS X 60" TALL, SUBMERSIBLE PUMP MODEL #20S, 1/3 HP, 115 V., 2.9 AMPS, w/ 16 X 18 MESH SCREENS	C	WADSWORTH ENVIROSTEP CONTACTOR PANEL, 115V, 2 AMPS (TYP. 1)
	ACME WAAC636MT MOTORIZED PAD INLET SHUTTER, 115V, 0.1 AMPS, (TYP. 6)		WADSWORTH ENVIROSTEP WEATHER STATION WITH MAST, **(MOUNTING, PLACEMENT, & CONTROL WIRING BY OTHERS)**





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DATE: 3/21/17 | REV: 4/13/17

EQUIPMENT LAYOUT

DRAWN BY: BAW

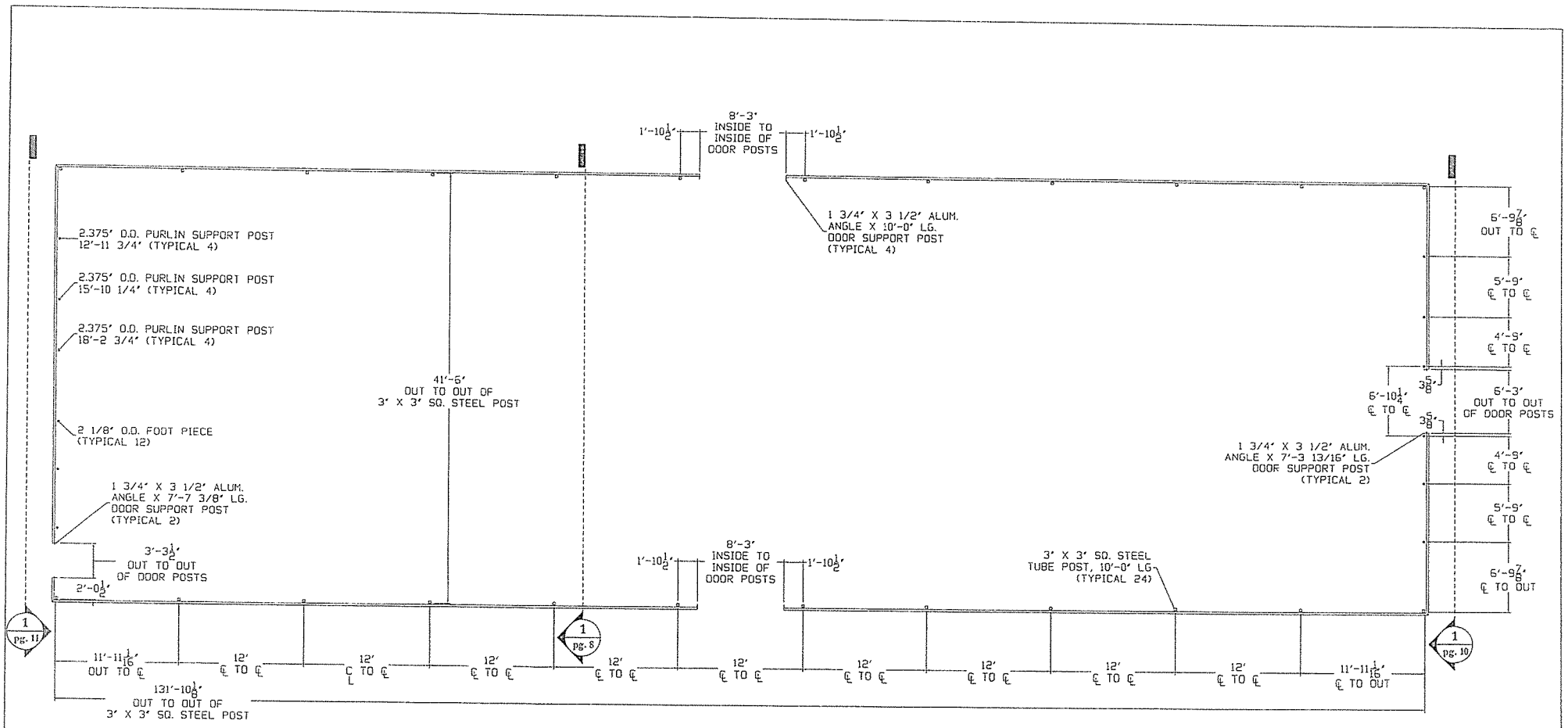
CHECKED BY:

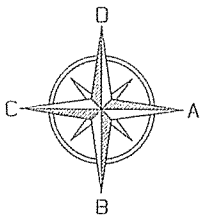
MERCED COLLEGE

MERCED, CA

PAGE# 4

GLAZING= | FINISH=





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DATE: 3/20/17 | REV: 4/13/17

POST LAYOUT

MERCED COLLEGE

MERCED, CA

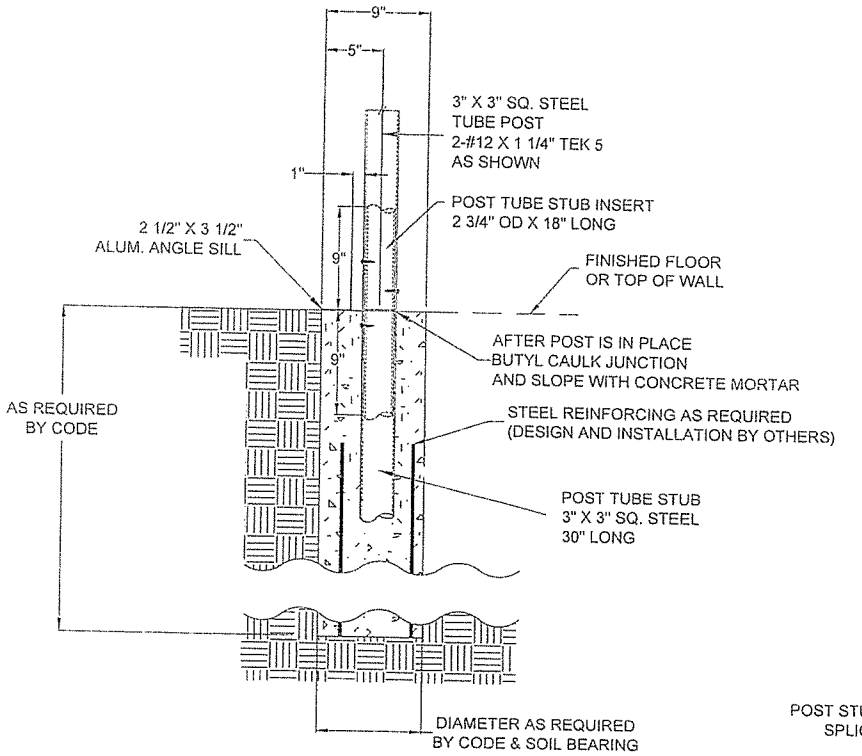
DRAWN BY: BAW

CHECKED BY:

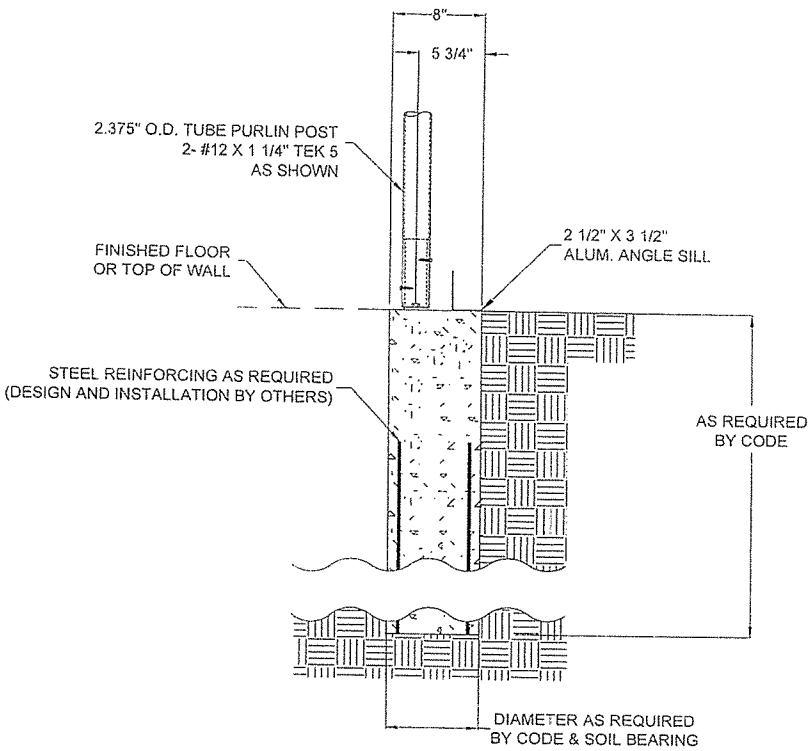
PAGE# 5

GLAZING=

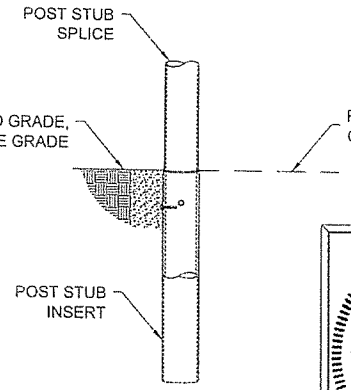
FINISH=



SIDEWALL SECTION



GABLE WALL SECTION



INSERTION DETAIL

HENRY T. DOHERTY
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RICHMOND, INDIANA 47374
(765) 935-2111

DATE:03/16/16 | REV:

STANDARD DETAIL #IU-0458

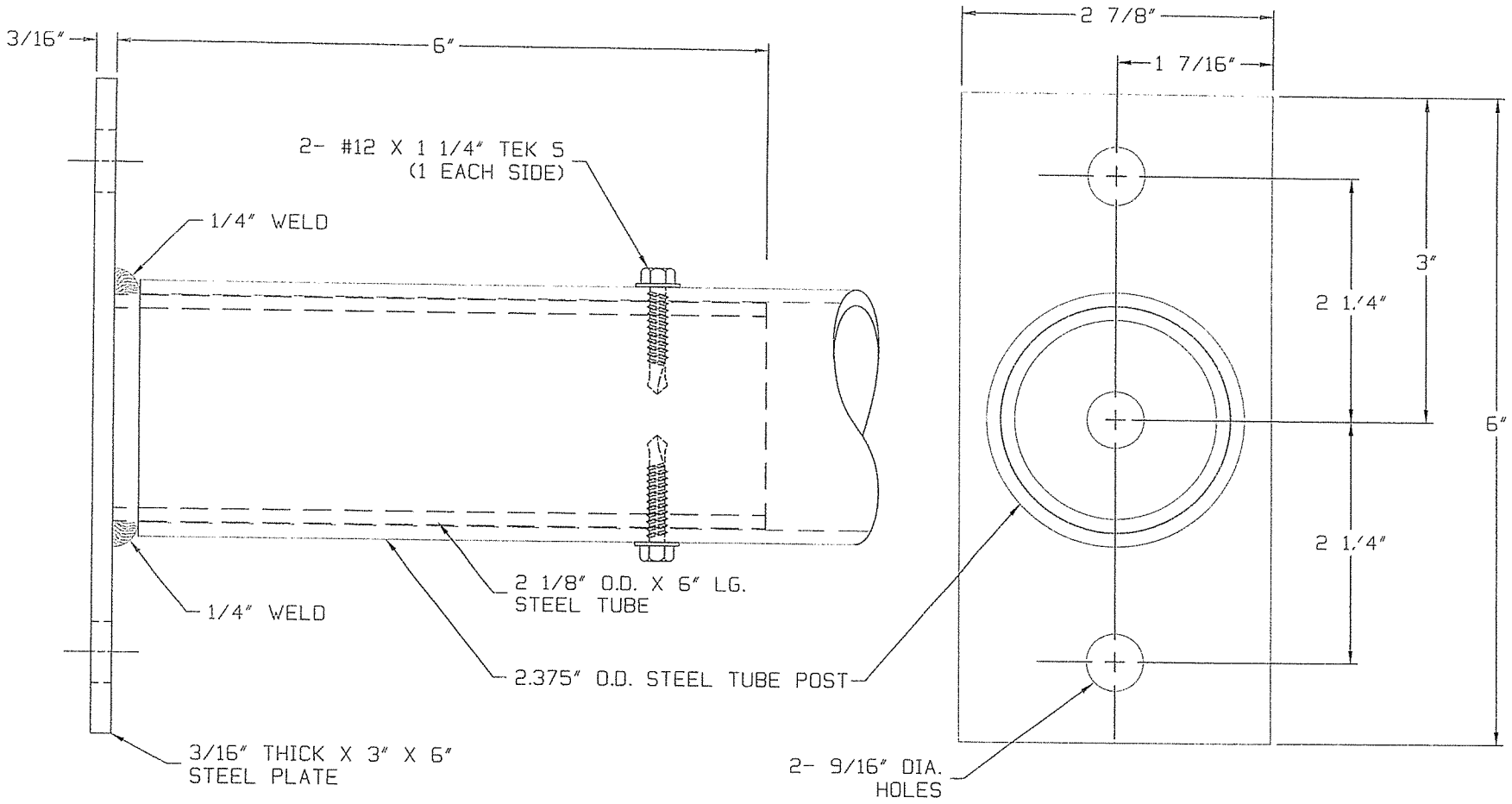
DRAWN BY: SRP

CHECKED BY:

INSTALLATION DETAILS UNIVERSAL
POST TUBE STUB SETTING
WITH 18" POST TUBE STUB
GUTTER HOUSE

PAGE# 6

GLAZING= | FINISH=



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DATE: 04/10/08 | REV: 12/08/10

STANDARD DETAIL # IU-0260

DRAWN BY: BAW

CHECKED BY:

INSTALLATION DETAILS UNIVERSAL, 2.375 O.D. ROUND TUBE POST ANCHOR

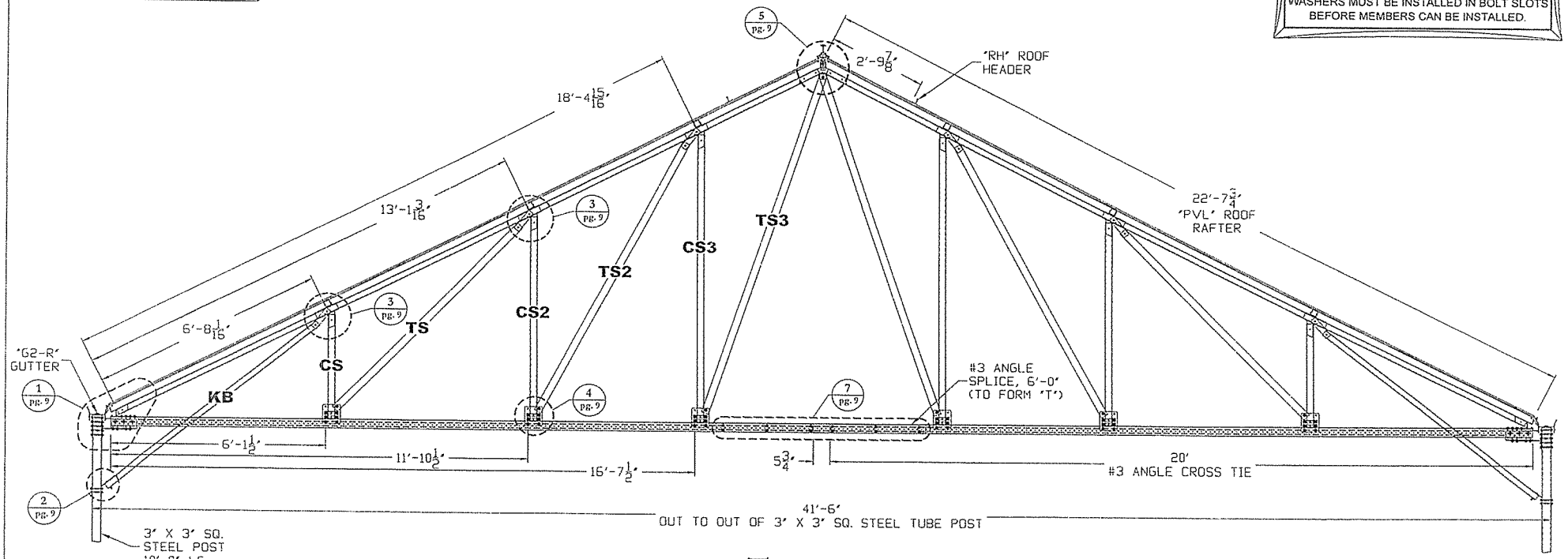
PAGE# 7

GLAZING=

FINISH=

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

"IMPORTANT"
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.



1 Truss Frame

NOTE: FOR CONNECTION DETAILS SEE TRUSS FRAMEWORK DETAIL

#3 ANGLE - 1 5/8" X 3 1/8"

KB	KNEE BRACE	2" X 2" SQ. STEEL TUBE X 7'-7 11/16"
CS	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 3'-0 3/8"
CS2	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 5'-10 7/8"
CS3	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 8'-3 3/8"
TS	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 7'-5 5/8"
TS2	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 8'-9 5/8"
TS3	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 10'-3 7/16"

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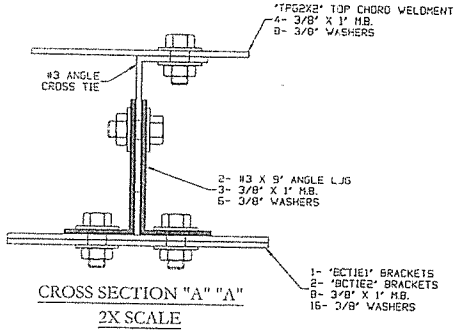
DATE: 3/8/17
REV: 4/14/17

TRUSS

DRAWN BY: BAW
CHECKED BY:
PAGE#: 8

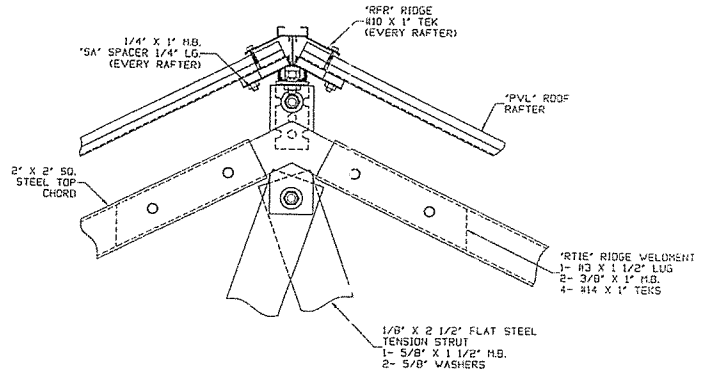
MERCED COLLEGE
MERCED, CA

GLAZING=
FINISH=

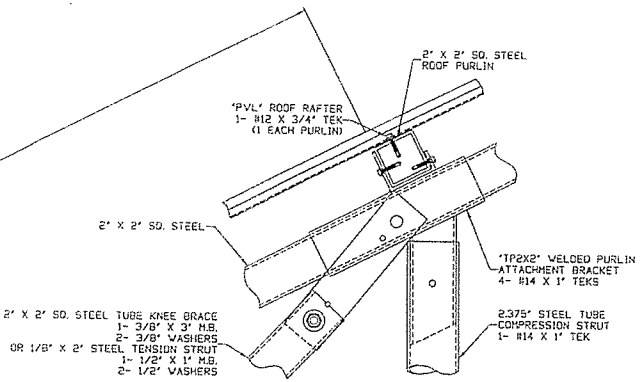


CROSS SECTION "A" "A"

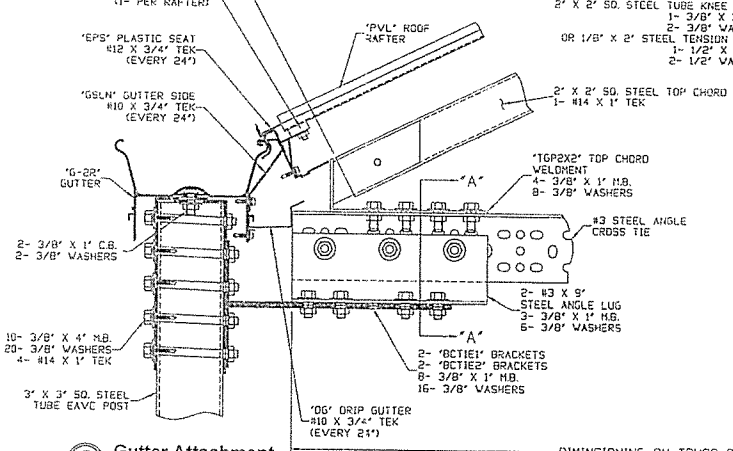
2X SCALE



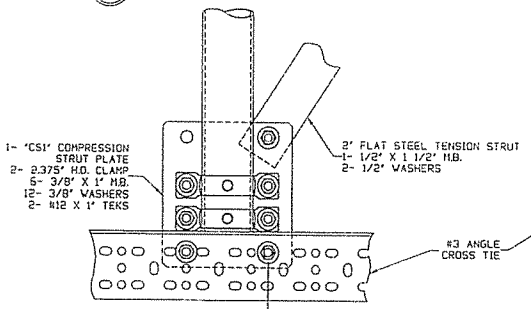
5 Ridge Attachment



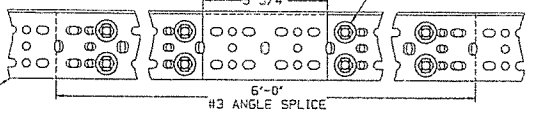
3 Purlin Attachment



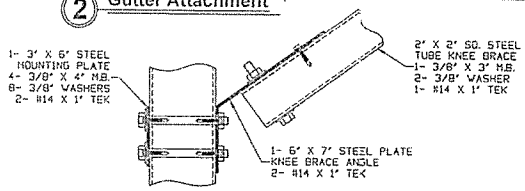
2 Gutter Attachment



4 Purlin Strut Attachment



7 Cross Tie Splice Attachment



1 Knee Brace Attachment

#1 ANGLE - 1 5/8" X 1 5/8"
#3 ANGLE - 1 5/8" X 3 1/8"

"IMPORTANT"
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

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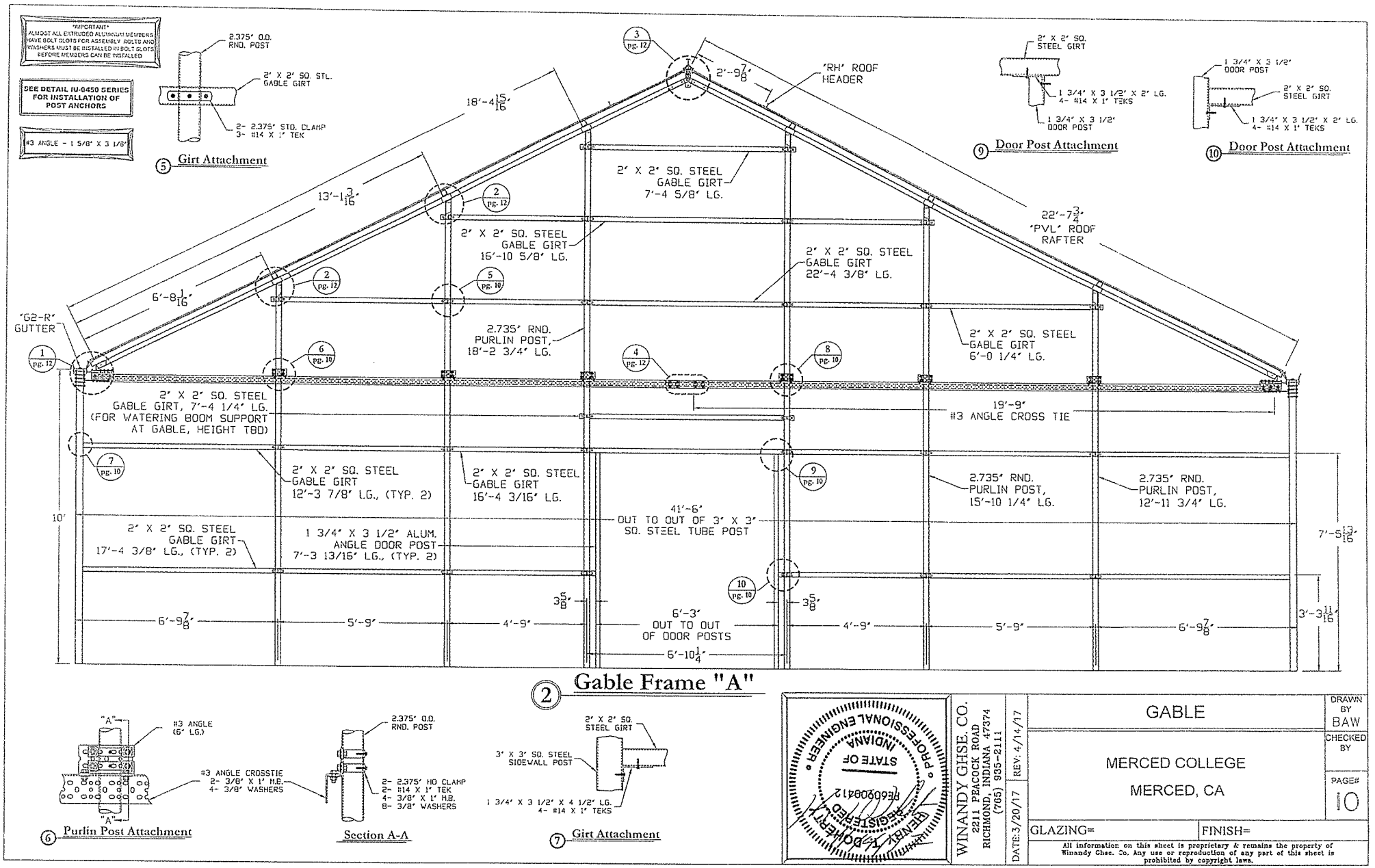
DATE: 01/10/07 | REV:

STANDARD DETAIL # STP-1137

GALV. STEEL TUBE TRUSS
TOP CHORD ATTACHMENT
& CONNECTION DETAILS

DRAWN BY: BAW
CHECKED BY:
PAGE# 9

GLAZING= | FINISH=



2 Gable Frame "A"

6 Purlin Post Attachment

Section A-A

7 Girt Attachment

WINANDY GHSE. CO.
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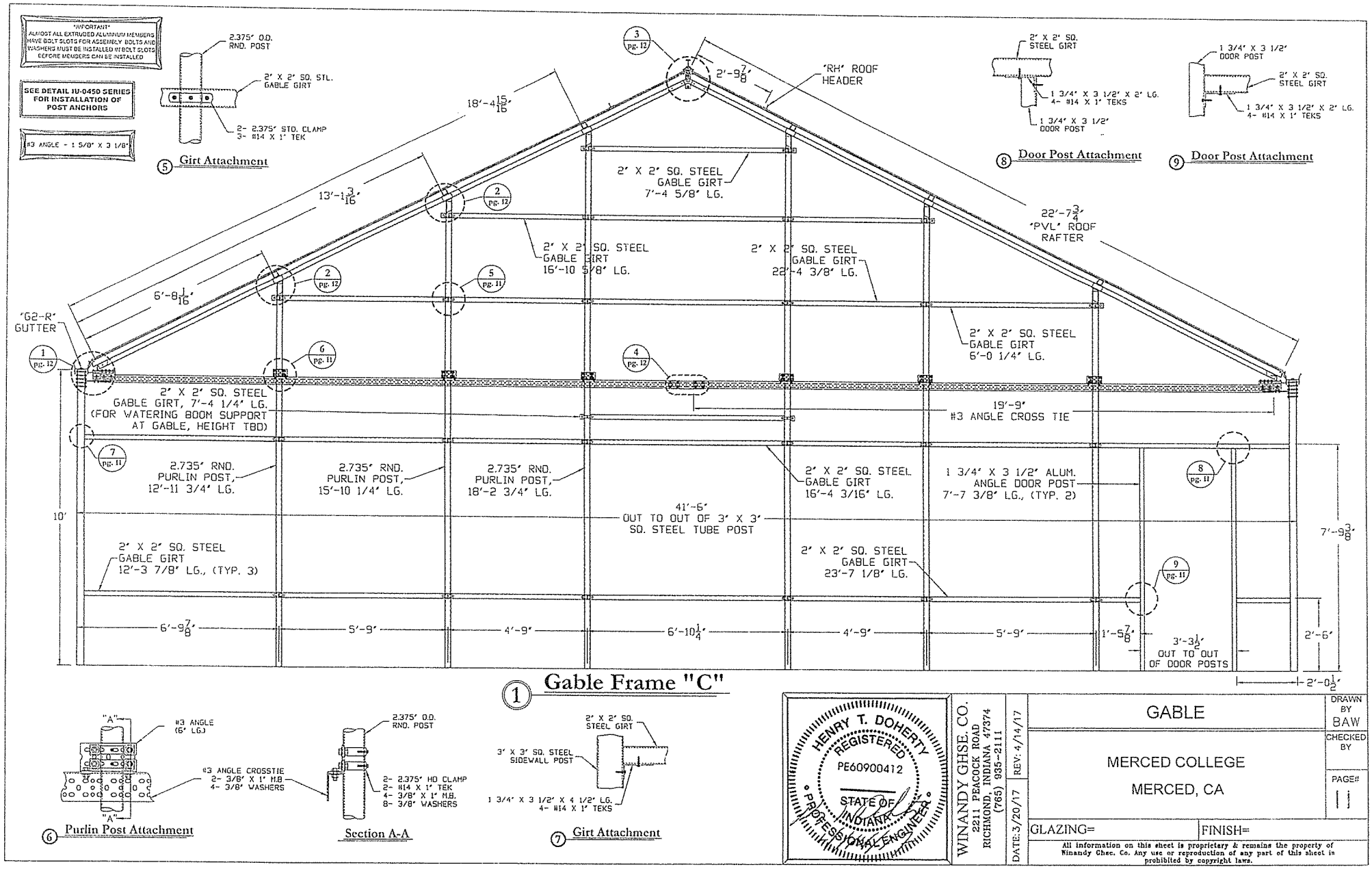
STATE OF INDIANA PROFESSIONAL ENGINEER REGISTERED GENERAL PROJECT ENGINEER PE60900412

DATE: 3/20/17	REV: 4/14/17
GABLE	DRAWN BY: BAW
MERCED COLLEGE MERCED, CA	CHECKED BY:
	PAGE# 10
GLAZING=	FINISH=



1 Gable Frame "C"

6 Purlin Post Attachment

Section A-A

7 Girt Attachment

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
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REV: 4/14/17

DATE: 3/20/17

GABLE

DRAWN BY BAW

CHECKED BY

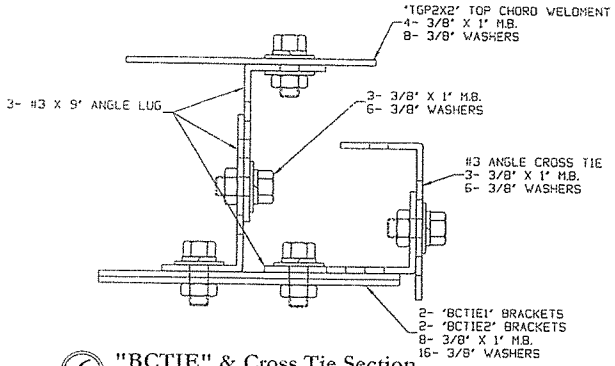
MERCED COLLEGE

MERCED, CA

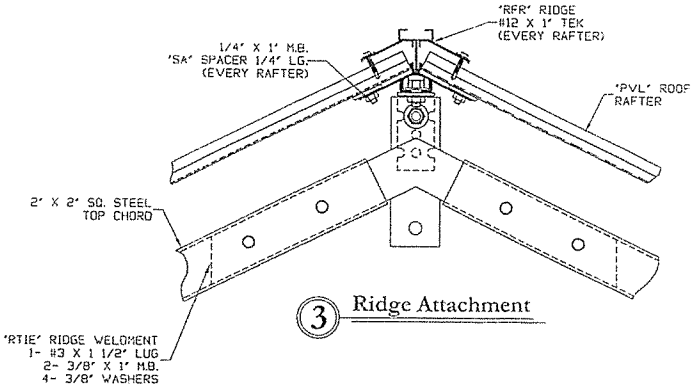
PAGE# 11

GLAZING=

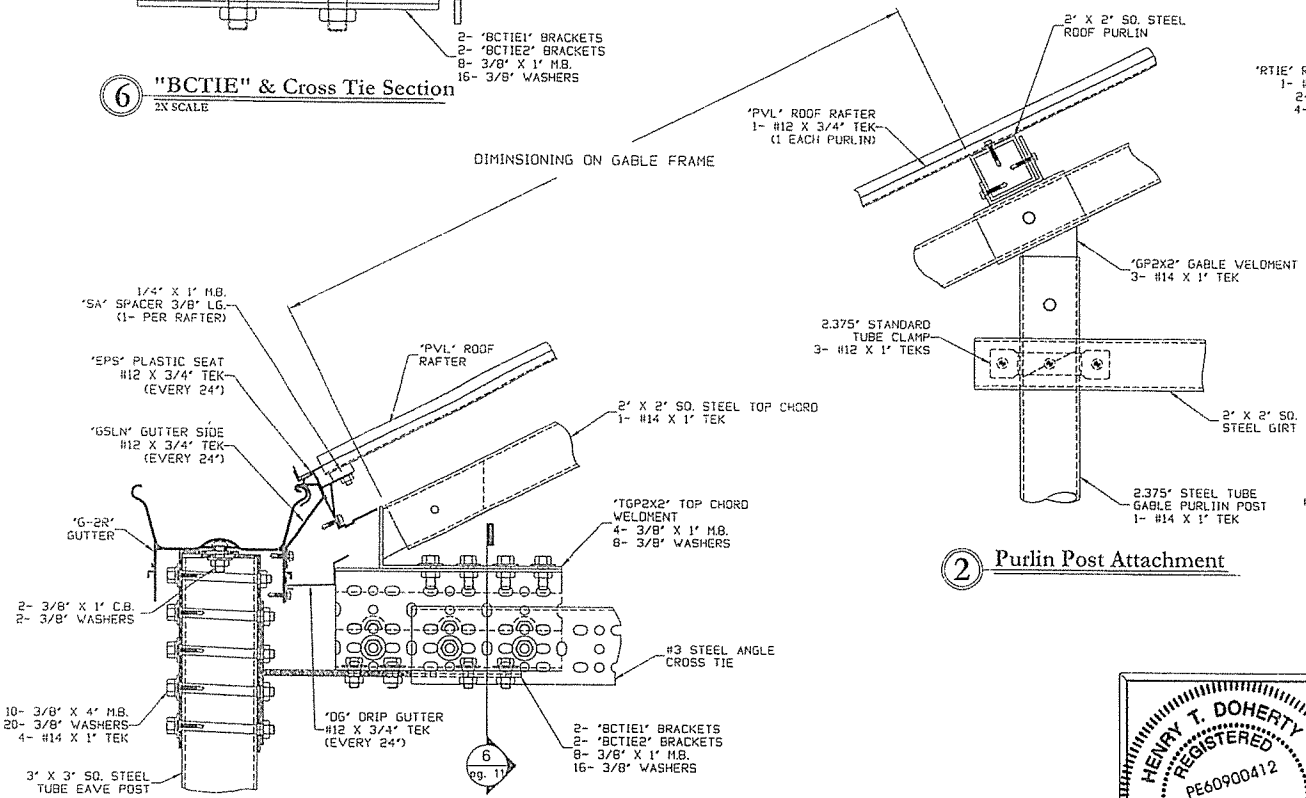
FINISH=



6 "BCTIE" & Cross Tie Section
2X SCALE

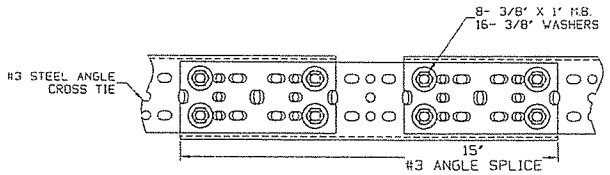


3 Ridge Attachment



2 Purlin Post Attachment

1 Gutter Attachment



4 Cross Tie Splice

#1 ANGLE - 1 5/8' X 1 5/8'
#3 ANGLE - 1 5/8' X 3 1/8'

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

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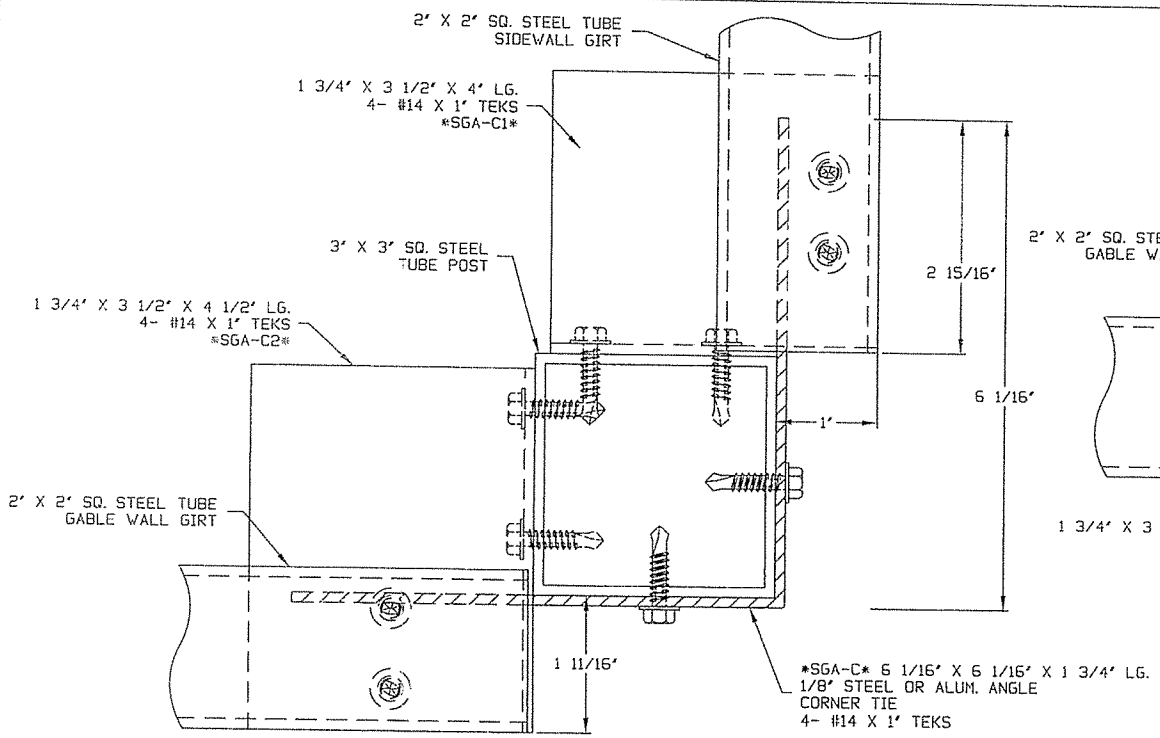
DATE: 01/10/07 | REV: 4/14/17

STANDARD DETAIL # STP-1138

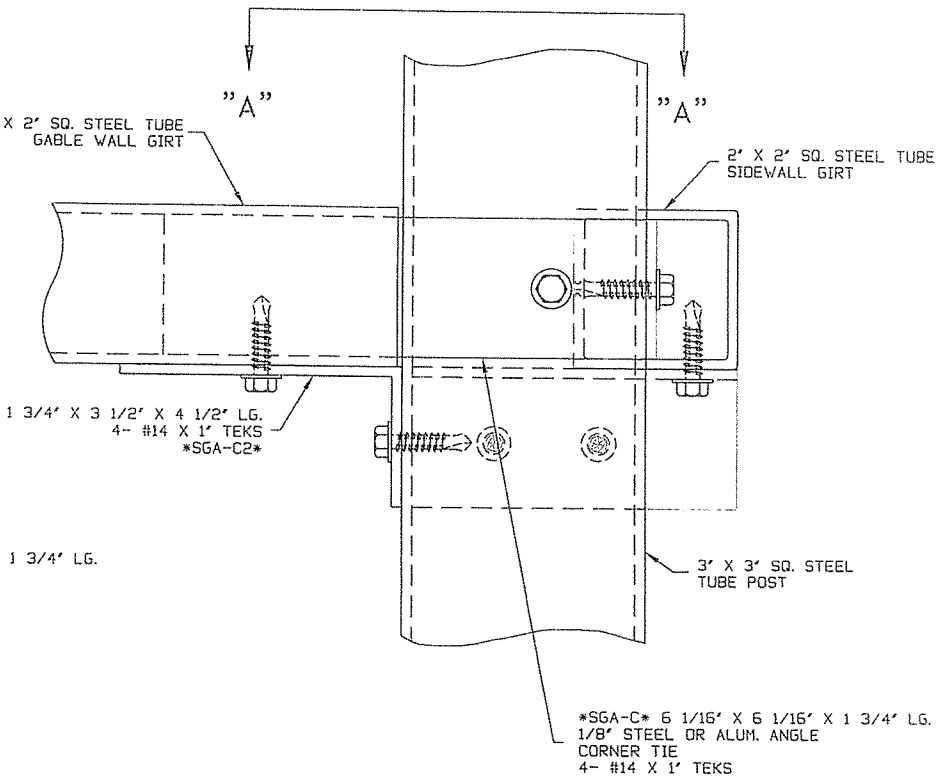
GALV. STEEL TUBE GABLE
TOP CHORD ATTACHMENT
& CONNECTION DETAILS

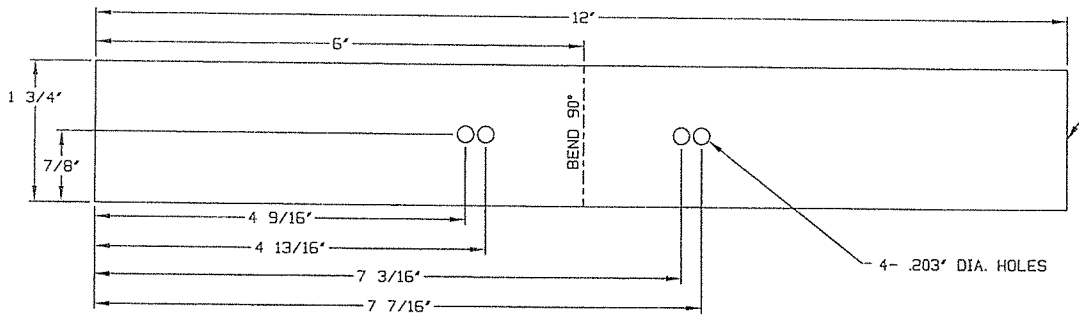
DRAWN BY: BAW
CHECKED BY:
PAGE# 12

GLAZING=
FINISH=



VIEW "A" "A"





SGA-C 6 1/16" X 6 1/16" X 1 3/4" LG.
1/8" STEEL OR ALUM. ANGLE
CORNER TIE

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE: 6/11/08

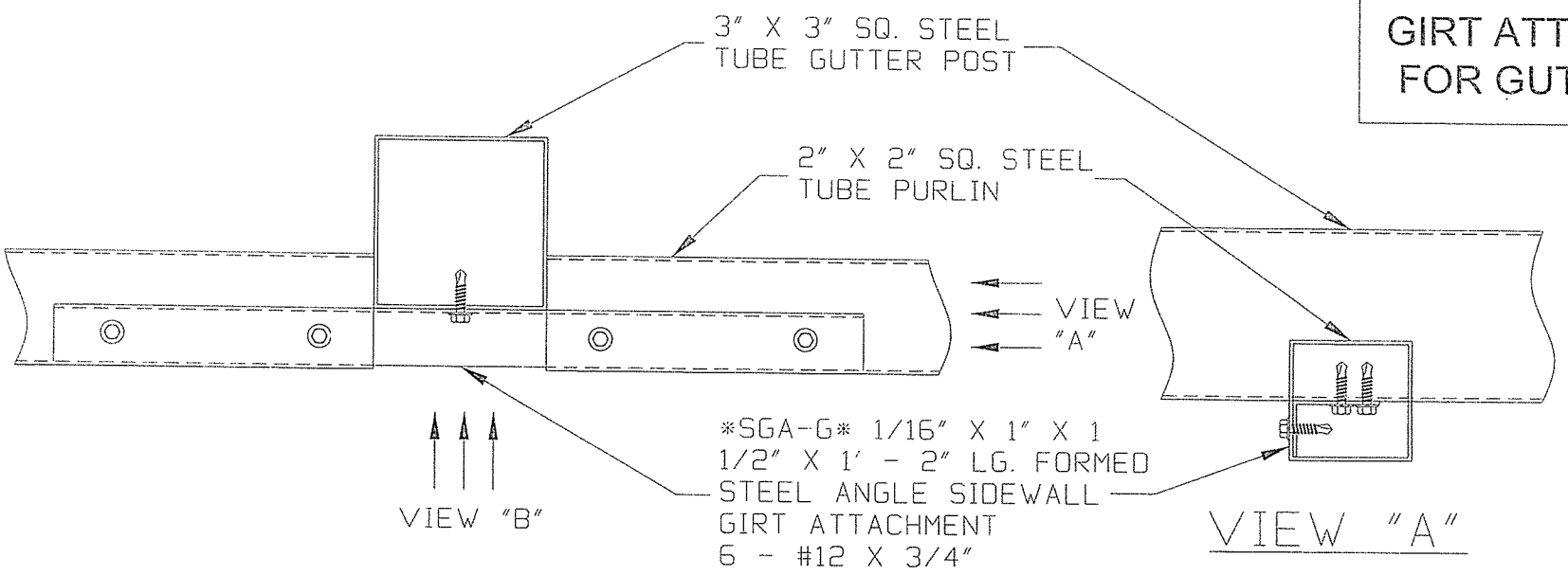
STANDARD DETAIL #STP-0053

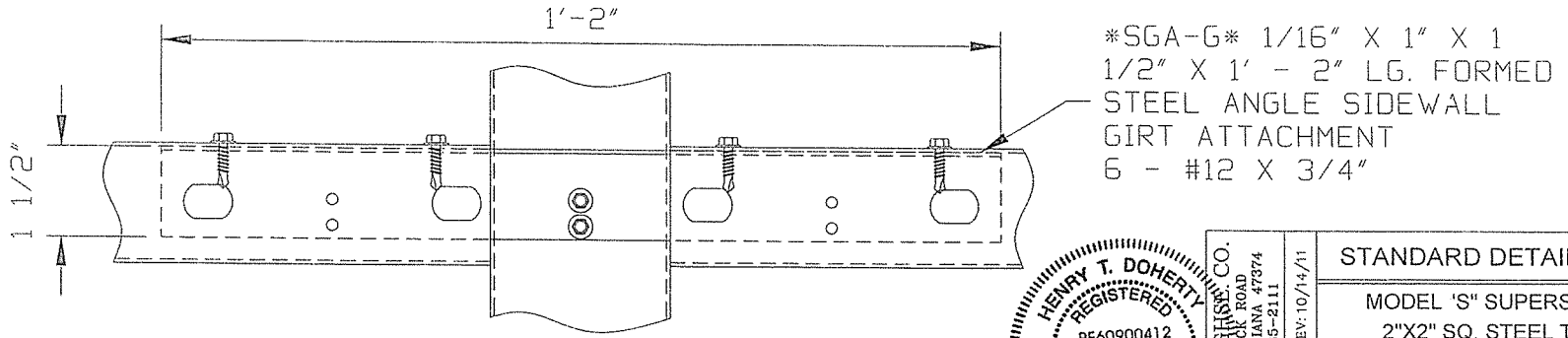
"STP" SUPER STRUCTURE
OUT SIDE CORNER "GUTTER" WITH
2" X 2" SQ. STEEL TUBE GIRTS AND
3" X 3" SQ. STEEL TUBE POST

DRAWN BY: BAW
CHECKED BY:
PAGE#: 13

GLAZING=
FINISH=

SIDEWALL GIRT ATTATCHMENT FOR GUTTER POST





HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

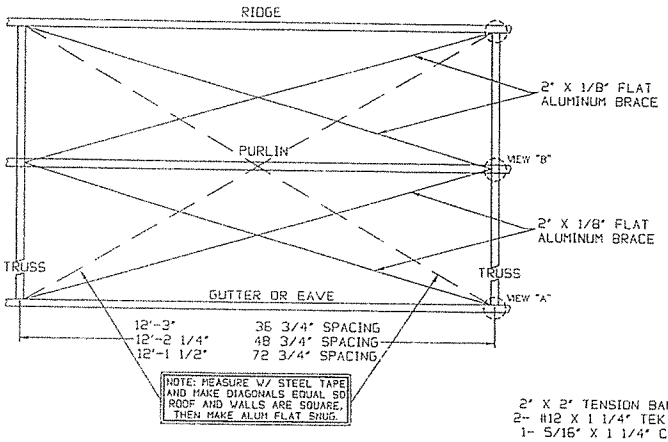
DATE:11/13/09 | REV: 10/14/11

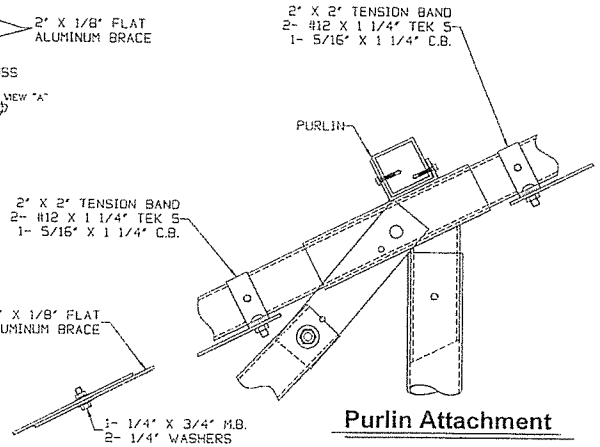
STANDARD DETAIL #STP-1155

MODEL 'S" SUPERSTRUCTURE
2"X2" SQ. STEEL TUBE GIRT
W/ 3" X 3" SQ. STEEL TUBE
GUTTER POST ATTACHMENT SGA-G

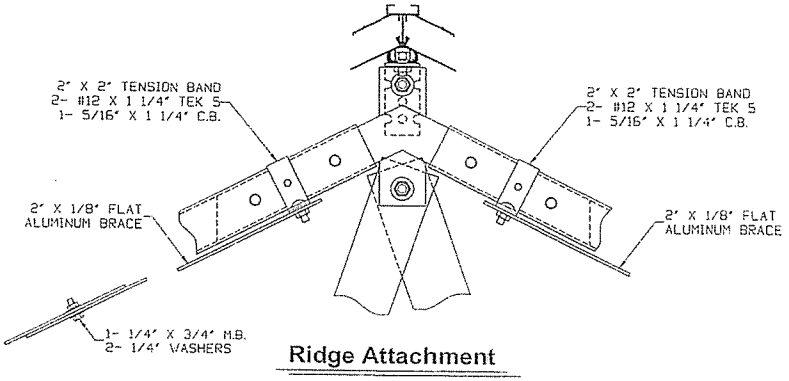
DRAWN BY: SRP
CHECKED BY:
PAGE#: 14

GLAZING=
FINISH=

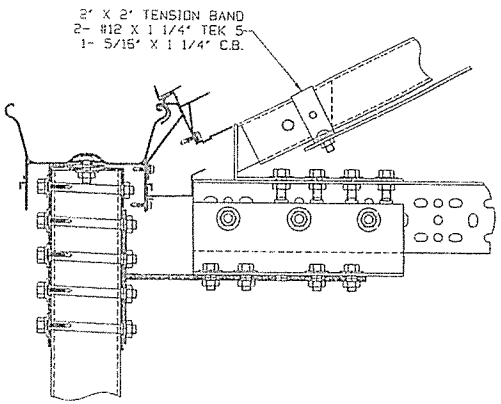




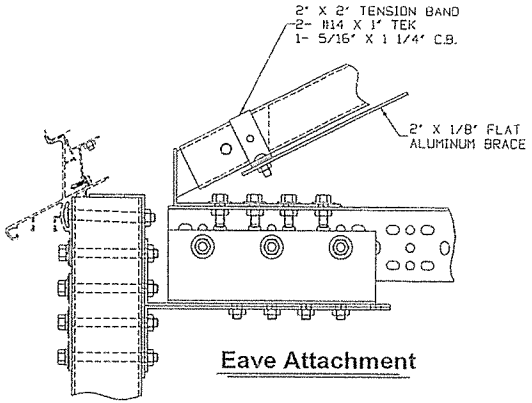
Purlin Attachment



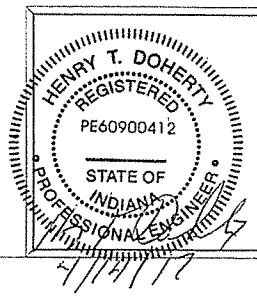
Ridge Attachment



Gutter Attachment



Eave Attachment



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE: 04/17/17

STANDARD DETAIL # QW-0152

DRAWN BY: BAW

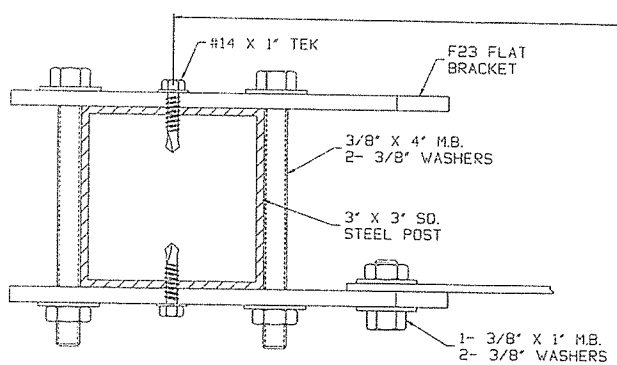
CHECKED BY:

ACCESSORIES WIND BRACES
ROOF "X" FLAT BRACING WITH
2" X 2" OR 3" X 3" SQ. STEEL
TUBE PURLINS

PAGE# 14A

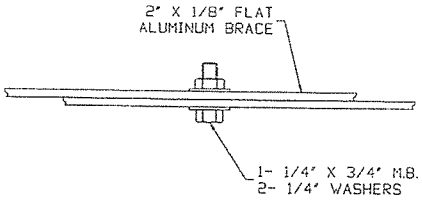
GLAZING=

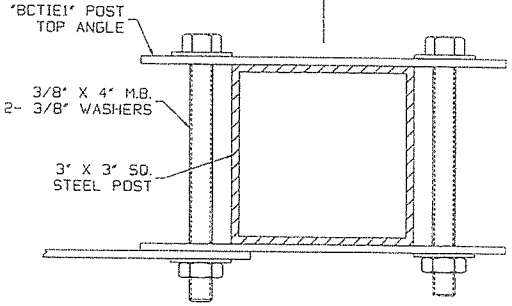
FINISH=



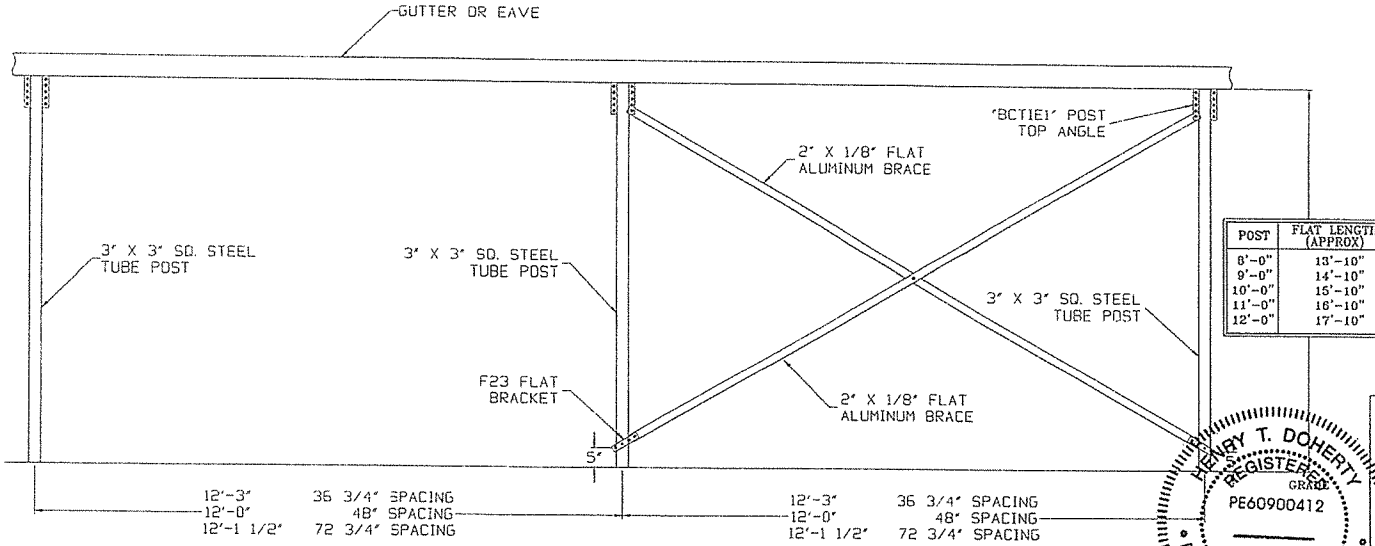
Flat Brace Attachment at Post Foot

12'-3" 36 3/4" SPACING
12'-0" 48" SPACING
12'-1 1/2" 72 3/4" SPACING





Flat Brace Attachment at Post Top



POST	FLAT LENGTH (APPROX)
8'-0"	13'-10"
9'-0"	14'-10"
10'-0"	15'-10"
11'-0"	16'-10"
12'-0"	17'-10"

NOTE:
1) INSTALL CABLES SEMI-TIGHT
2) MEASURE WITH STEEL TAPE AND MAKE DIAGONALS EQUAL SO WALLS ARE SQUARE
3) MAKE ALUM FLAT SNUG

NOTE: WIND BRACING TO BE LOCATED IN APPROX CENTER OF GREENHOUSE

HENRY T. DOHERTY REGISTERED GRAD PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 1/29/08 REV:

STANDARD DETAIL # QW-0138

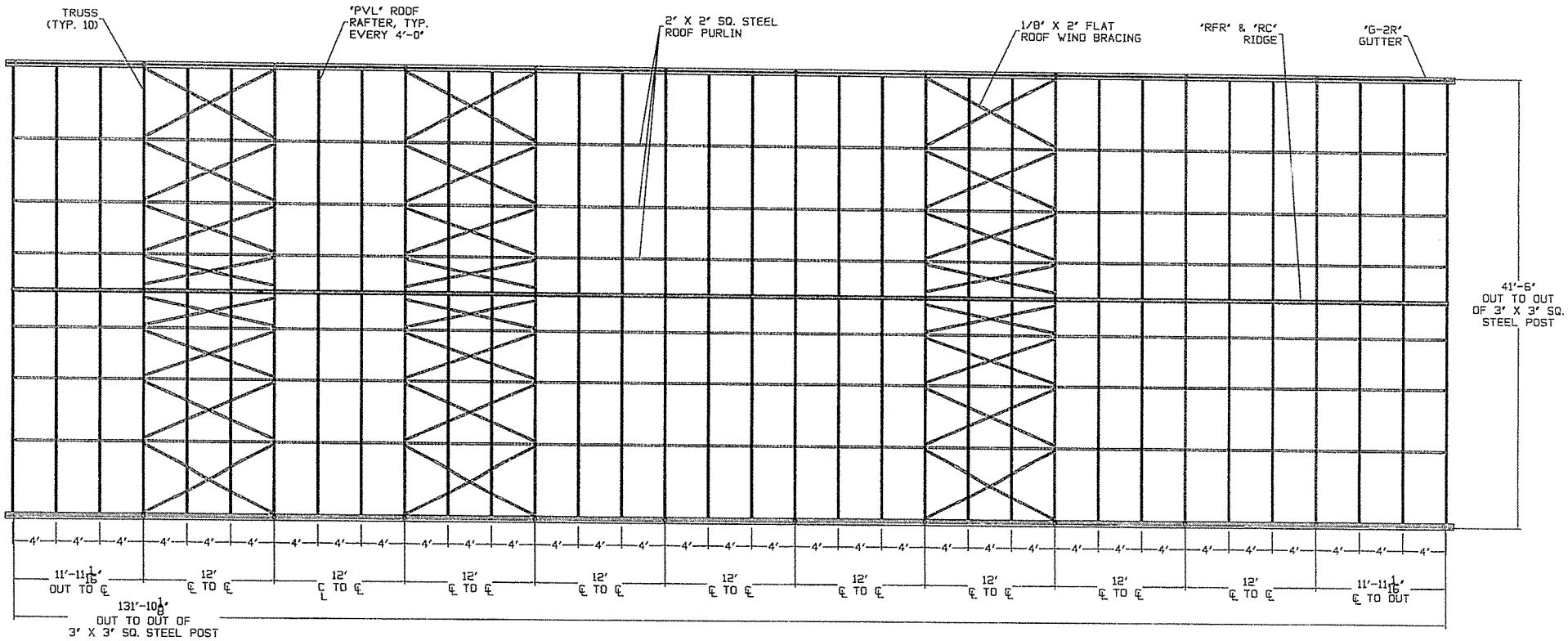
DRAWN BY BAW

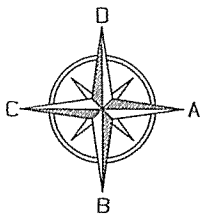
CHECKED BY

ACCESSORIES WIND BRACES FOR SIDEWALL WITH 3" X 3" SQ. STEEL TUBE POST ALUM. FLAT "X"BRACING

PAGE# 14B

GLAZING= FINISH=





WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 4/17/17 | REV: 4/13/17

ROOF FRAMING PLAN

MERCED COLLEGE

MERCED, CA

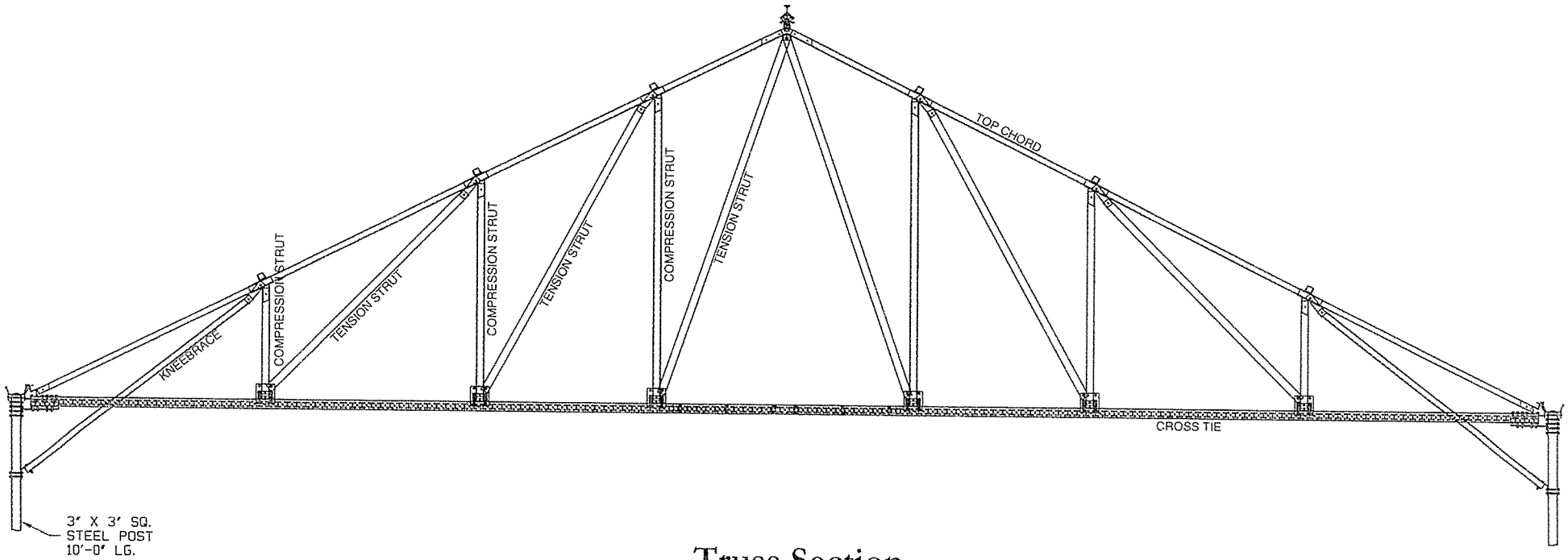
DRAWN BY: BAW

CHECKED BY:

PAGE#

GLAZING=

FINISH=



Truss Section

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

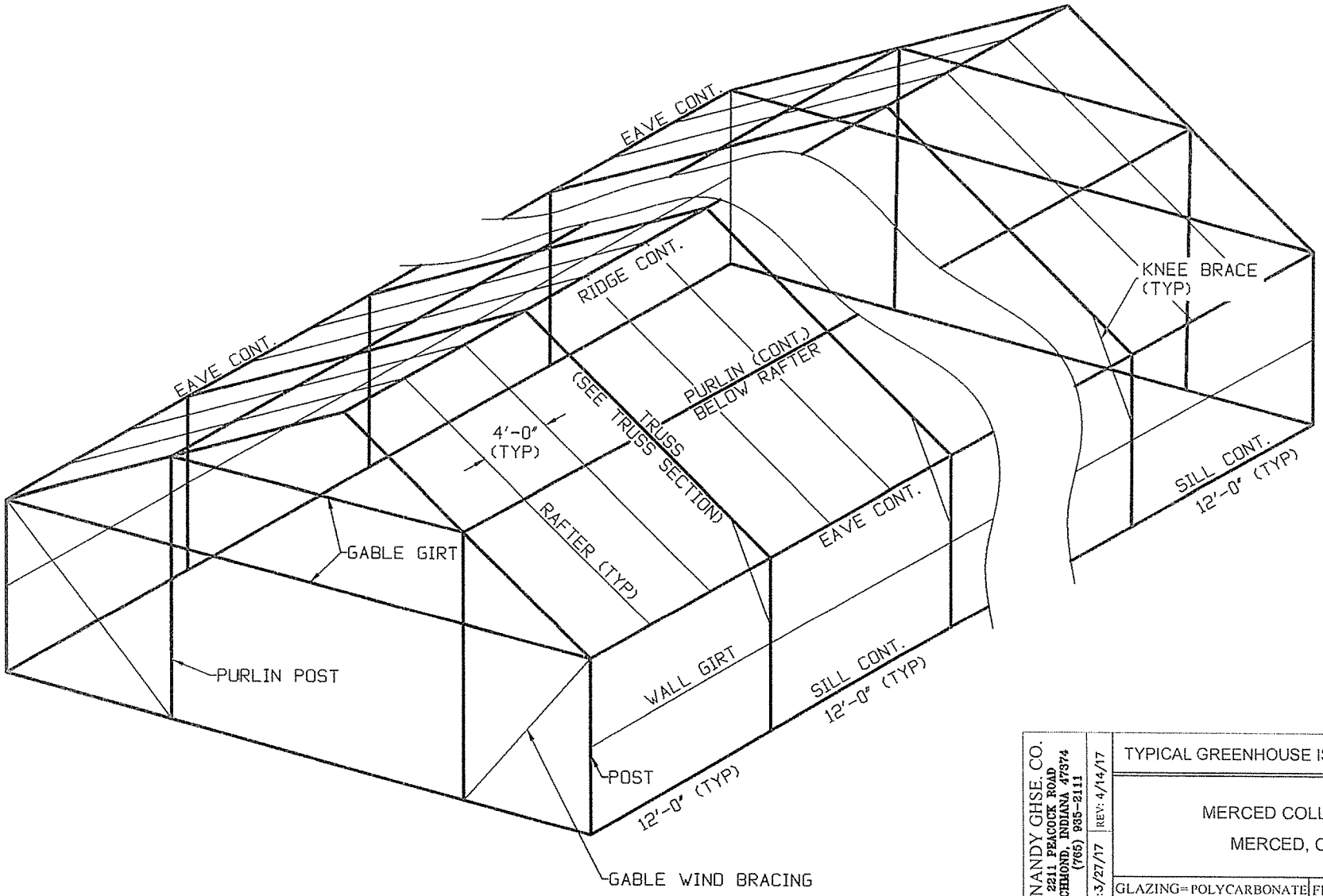
DATE: 3/8/17
REV: 4/14/17

TRUSS SECTION

DRAWN BY: BAW
CHECKED BY:
PAGE#

MERCED COLLEGE
MERCED, CA

GLAZING=
FINISH=



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17 | REV: 4/14/17

TYPICAL GREENHOUSE ISOMETIC VIEW

DRAWN BY: BAW

CHECKED BY:

PAGE#

MERCED COLLEGE

MERCED, CA

GLAZING= POLYCARBONATE | FINISH= MILL

Merced

3/31/17

Loads:

– Full Bay –

DL = 6 PSF

3' * 12 * 6 = 216# @ Node 5, 6

6' * 12 * 6 = 432# @ 13, 14, 16, 17

Node

Element

½(20.75 – 11.875) * 12 * 4 = 319.5# Node 22, 23

Panel Load

LL

LL = 15 PSF

3' * 12 * 15 = 540# @ Node 5, 6

6' * 12 * 15 = 1080# @ Node 13, 14, 16, 17

½(20.75 + 11.875) 12 X 15 = 799# @ Node 15

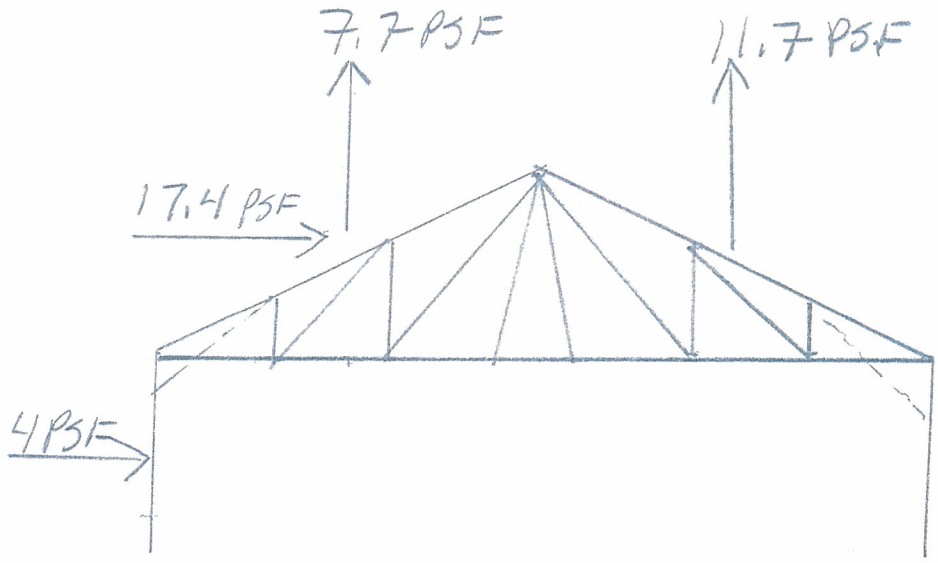
Node 22

½(20.75 – 11.875) * 12 * 15 = 799# 23

Merced 3/31/17

WL

90 MPH 105 exp B -



Sidewall

17.4 * 12 * 3 = 626 # @ Nod 3

17.4 * 4 * 12 = 836 # @ 1/2 Elem 1

1.5 * 12 * 17.4 = 314 # @ Node 1 + 5

Roof Horiz

3 * 12 * 14 = 144 # ✓ Nodes 13, 14 + Elem 14 @ 6'2"

1.5 * 12 * 4 = 72 # ✓ Node 5, 15

Roof Vert

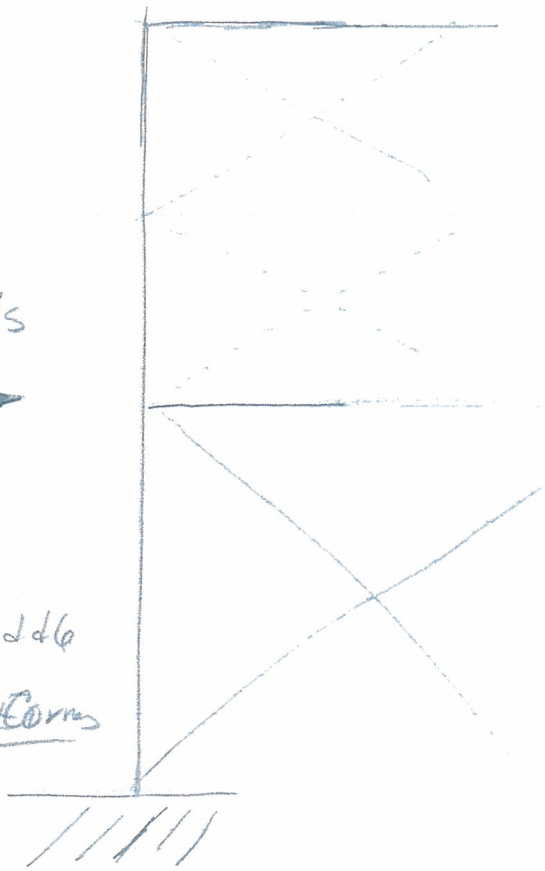
3 * 12 * 7.7 = 278 # ✓ Note 5, 15

6 * 12 * 7.7 = 555 # ✓ Note 13, Melem 14 @ 6'2"

3 * 12 * 11.7 = 429 # ✓ Note 15, 6

6 * 12 * 11.7 = 857 # ✓ Node 16, 17 Elem 15 @ 6'2"

Merced



4' x 24.1 PSF x 11 = 1061 #

17.4
24.1 @ Ends

1105 + 2210 + 530.5

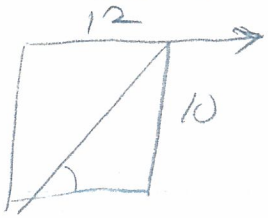
$\frac{20.75+12}{2}$ x 17.4 x .16 = 4420 #

17.4 Middle
24.1 @ Corners

1061 #/2 = 530.5 @ Bottom

4420/2 = 2210 @ Post Base

1105 + 2210 + 531 = 3846



$\frac{10}{12}$ = tan α

α = 40°

X Cos 40° = 3846 #

= 5021 # Max WB Load

A1

Earthquake Load

Merced

Seismic Shear

Note: No Floor Loads Imparted to the Greenhouse Structure ⇒ Floor is Slab on grade.

$$F = \frac{1.2\, S_{DS}}{R} * (W_x)$$

Seismic Use Group 1

$S_{DS} = 2/3\, S_{MS}$

$S_{MS} = F_a S_s$

$W_x = 5\,PSF$

$S_s = 150\% = 1.5$

$F_a = 1$

$$F = \frac{1.2\,(2/3 * 1 * 1.5)}{2.5}\,(5\,PSF)$$

$F = 2.5$ PSF Load

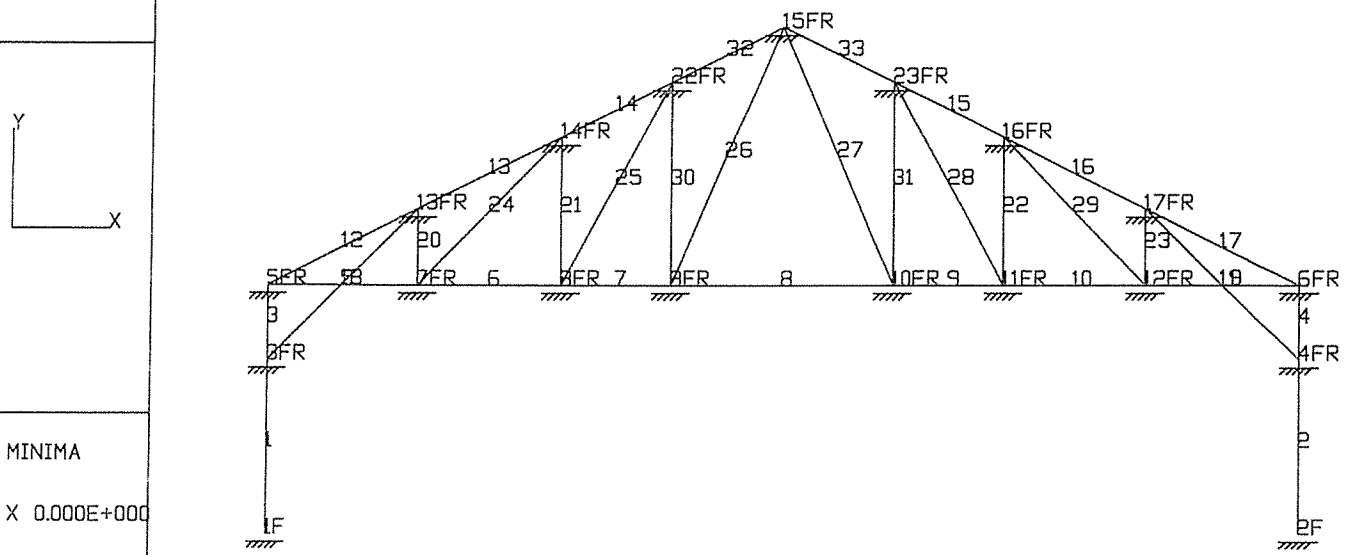
Smaller than WL - therefore Windload rules.

$2.5 * 12 * 20.5 * \frac{1}{2} = 312^{\#}$

FA3

UNDEFORMED

SHAPE



MINIMA

X 0.000E+000

Y 0.000E+000

MAXIMA

X 4.150E+001

Y 2.038E+001

NOTES :

JOB ID: MERCED

RUN ID: MERCED

NODAL INFORMATION

NODE NO	NODAL COORDINATES X	Y	SUPPORT CONDITIONS CODE	PX STIFF	PY STIFF	M STIFF
Units :	Ft	Ft		Lb/In	Lb/In	Lb-In /Deg
1	0.000	0.000	F			
2	41.500	0.000	F			
3	0.000	7.000	FR			
4	41.500	7.000	FR			
5	0.000	10.000	FR			
6	41.500	10.000	FR			
7	6.125	10.000	FR			
8	11.875	10.000	FR			
9	16.312	10.000	FR			
10	25.188	10.000	FR			
11	29.625	10.000	FR			
12	35.375	10.000	FR			
13	6.125	13.063	FR			
14	11.875	15.938	FR			
15	20.750	20.375	FR			
16	29.625	15.938	FR			
17	35.375	13.063	FR			
22	16.313	18.156	FR			
23	25.188	18.156	FR			

ELEMENT INFORMATION

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
		Units :	Ft	Deg				
1	1	3	7.000	90.00	1	BEAM		
2	2	4	7.000	90.00	1	BEAM		
3	3	5	3.000	90.00	1	BEAM		
4	4	6	3.000	90.00	1	BEAM		
5	5	7	6.125	0.00	2	STRUT	Y	Y
6	7	8	5.750	0.00	2	STRUT	Y	Y
7	8	9	4.437	0.00	2	STRUT	Y	Y
8	9	10	8.876	0.00	2	STRUT	Y	Y
9	10	11	4.437	0.00	2	STRUT	Y	Y
10	11	12	5.750	0.00	2	STRUT	Y	Y
11	12	6	6.125	0.00	2	STRUT	Y	Y
12	5	13	6.848	26.57	4	BEAM		
13	13	14	6.429	26.57	4	BEAM		
14	14	22	4.961	26.55	4	BEAM		

E L E M E N T I N F O R M A T I O N

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
15	23	16	4.960	-26.56	4	BEAM		
16	16	17	6.429	-26.57	4	BEAM		
17	17	6	6.848	-26.57	4	BEAM		
18	3	13	8.618	44.71	4	BEAM	Y	Y
19	17	4	8.618	-44.71	4	BEAM	Y	Y
20	7	13	3.063	90.00	3	BEAM		
21	8	14	5.938	90.00	3	BEAM		
22	11	16	5.938	90.00	3	BEAM		
23	12	17	3.063	90.00	3	BEAM		
24	7	14	8.266	45.92	5	TRUSS	Y	Y
25	8	22	9.285	61.45	5	TRUSS	Y	Y
26	9	15	11.284	66.84	5	TRUSS	Y	Y
27	10	15	11.284	113.16	5	TRUSS	Y	Y
28	11	23	9.285	118.55	5	TRUSS	Y	Y
29	12	16	8.266	134.08	5	TRUSS	Y	Y
30	22	9	8.156	-90.01	3	BEAM		
31	23	10	8.156	-90.00	3	BEAM		
32	22	15	4.961	26.57	4	BEAM		
33	23	15	4.962	153.43	4	BEAM		

P R O P E R T Y I N F O R M A T I O N

PROP NO	SECTION NAME	MODULUS	AREA	I	DIST
	Units :	Lb/In 2	In2	In4	Ft
1	3 X 3	2.9e+007	1.1	1.55	
2	#3	2.9e+007	0.328	1.02	
3	2.375RND	2.9e+007	0.681	0.443	
4	2 X 2	2.9e+007	0.825	0.493	
5	2 1/2 FLAT	2.9e+007	0.25	0.163	

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
	Units :	Lb Ft	Lb Ft	Ft-Lb Deg	

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
Description : DL					
Node List : 5,6					
1	1	FORCE	0.00	-216.00	0.00
Description : DL					
Node List : 13,14,16,17					
2	1	FORCE	0.00	-432.00	0.00
Description : DL					
Node List : 15					
3	1	FORCE	0.00	-639.00	0.00
Description : LL					
Node List : 5,6					
4	2	FORCE	0.00	-540.00	0.00
Description : LL					
Node List : 13,14,16,17					
5	2	FORCE	0.00	-1080.00	0.00
Description : LL					
Node List : 15					
6	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 3					
7	3	FORCE	626.00	0.00	0.00
Description : WL					
Node List : 1,5					
8	3	FORCE	314.00	0.00	0.00
Description : WL					
Node List : 5,15					
9	3	FORCE	72.00	278.00	0.00
Description : WL					
Node List : 13,14					
10	3	FORCE	144.00	555.00	0.00
Description : WL					
Node List : 15,6					
11	3	FORCE	0.00	429.00	0.00

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
Description : WL					
Node List : 16,17					
12	3	FORCE	0.00	857.00	0.00
Description : EL					
Node List : 1,2					
13	4	FORCE	312.00	0.00	0.00
Description : DL					
Node List : 22,23					
14	1	FORCE	0.00	-319.50	0.00
Description : LL					
Node List : 22,23					
15	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 22					
16	3	FORCE	144.00	555.00	0.00

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	Units :	In	In	Deg

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

1	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
2	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
3	1	-0.3362	-0.0147	0.0000
	2	0.7781	-0.0035	0.0000
	3	0.8938	0.0016	0.0000
	4	-0.1047	-0.0045	0.0000
4	1	0.3362	-0.0147	0.0000
	2	0.8834	-0.0031	0.0000
	3	0.7677	0.0020	0.0000
	4	0.1047	-0.0045	0.0000
5	1	-0.1550	-0.0184	0.0000
	2	0.8236	-0.0045	0.0000
	3	0.8766	0.0018	0.0000

3X3 Square

$f_a = 5617.5\,\#/1.11^{11^2} = 5061$ PSI

$f_b = 2821\,\#' \times 12/1.04 = 32550$ PSI

$f_s = 2100\,\#/1.11 = 1892$ PSI

$C_{mx} = .75$

$\frac{Kl}{r} = \frac{.8(84)}{11.19}$

$= 56.5$

$F_a = 23.31$ KSI

$F_b = .66(50) = 33$ KSI
$+ 1/3$ for DL+WL $= 44$ KSI
(1.5.6)

$F_e' = \frac{12(3.141)^2 29{,}000{,}00}{23(56.5)^2}$

$= 46779$

$\frac{5061}{33{,}000} + \frac{33161}{44{,}000} + 0 < 1$

$\frac{5061}{23310} + \frac{.75(32550)}{\left(1 - \frac{5061}{46779}\right)44{,}000} \leq .835$ sec OK for load

.217

2 X 2 SG Top Chord

$f_a = 7579\ \# / 1.83\ in^2 = 9131\ PSI$

$f_b = 419\ \# * 12'' / .50 = 10056\ PSI$ $\quad \frac{Kl}{r} = \frac{1(72)}{.723} = 69.7$

$f_s = 122 / 1.83 = 147\ PSI$

$F_a = 21{,}060\ PSI$

$F_a' = \frac{12(3.14)^2(2900000)}{23(69.7)^2} = 30739\ PSI$

$F_b = .6(50) = 33{,}000\ PSI$
$+ 1/3$ for WL+DL

$\frac{9131}{33{,}000} + \frac{10056}{33{,}000} + 0 \leq 1$

$\frac{9131}{21{,}060} + \frac{.75(10056)}{\left(1 - \frac{9131}{30739}\right)(33{,}000)} = .73$

Section OK

#3
Cross Tie

$F_a = 6784 / .328" = 20683$

$F_a = .6(50{,}000) = 30000$

$\frac{20683}{30000} \leq 1$ Sect ok

Tension Strut

$.125 * (2.5 - .5625) = .242"^2$

$f_a = 2313 / .242 = 9553$ PSI

$F_a = 25000 * .66 = 16500$ PSI

$\frac{9558}{16500} \leq 1$

Sect OK

2.375 Strut

$f_a = 2128\#/.681"^2 = 3125 PSI$

$f_b = 45'\#\ 12"/.373 = 1448 PSI$

$\frac{Kl}{r} = \frac{.8(94)}{.81} = 93$

$F_e' = \frac{12(\pi^2)29000000}{23(93)^2}$

$F_e' = 17266$

$F_A = 16.29\ KSI = 16290\ PSI$

$F_b = .66(50) = 33000\ PSI$

$\frac{3125}{33000} + \frac{1448}{33000} \leq 1$

$\frac{3125}{16290} + \frac{.8(1448)}{\left(1 - \frac{3125}{17266}\right)33000} < 1$

See Ok for Load

X Brace

use Flat 2½ x ⅛ @ 16500 * .242 =
3993 # Max Load

Max Applied = 5021 #

use ¼" double Plate w/ ⅜ bolt

⅜ bolt = 2310 #

.25 * (1½ - .625) * 16500 = 3610 #

use 3 Wind Brace Sets

Gable Post

$f_a = 1206^{\#} / .681^{in^2} = 1771 PSI$

$\frac{kl}{r}$:

$F_a = 6.420 KSI$ $\qquad \frac{(.7)(216)}{.81} = 187$

$\frac{1771 PSI}{6420} < 1$ Sect OK

X Brace

use 1/8 X 2 1/2 @ 16500 * .242 = 3992 # max

Applied load = 5021

use double 1/4" Plate at Brace w/ 3/4 bolt

Max Shear = 2310 #

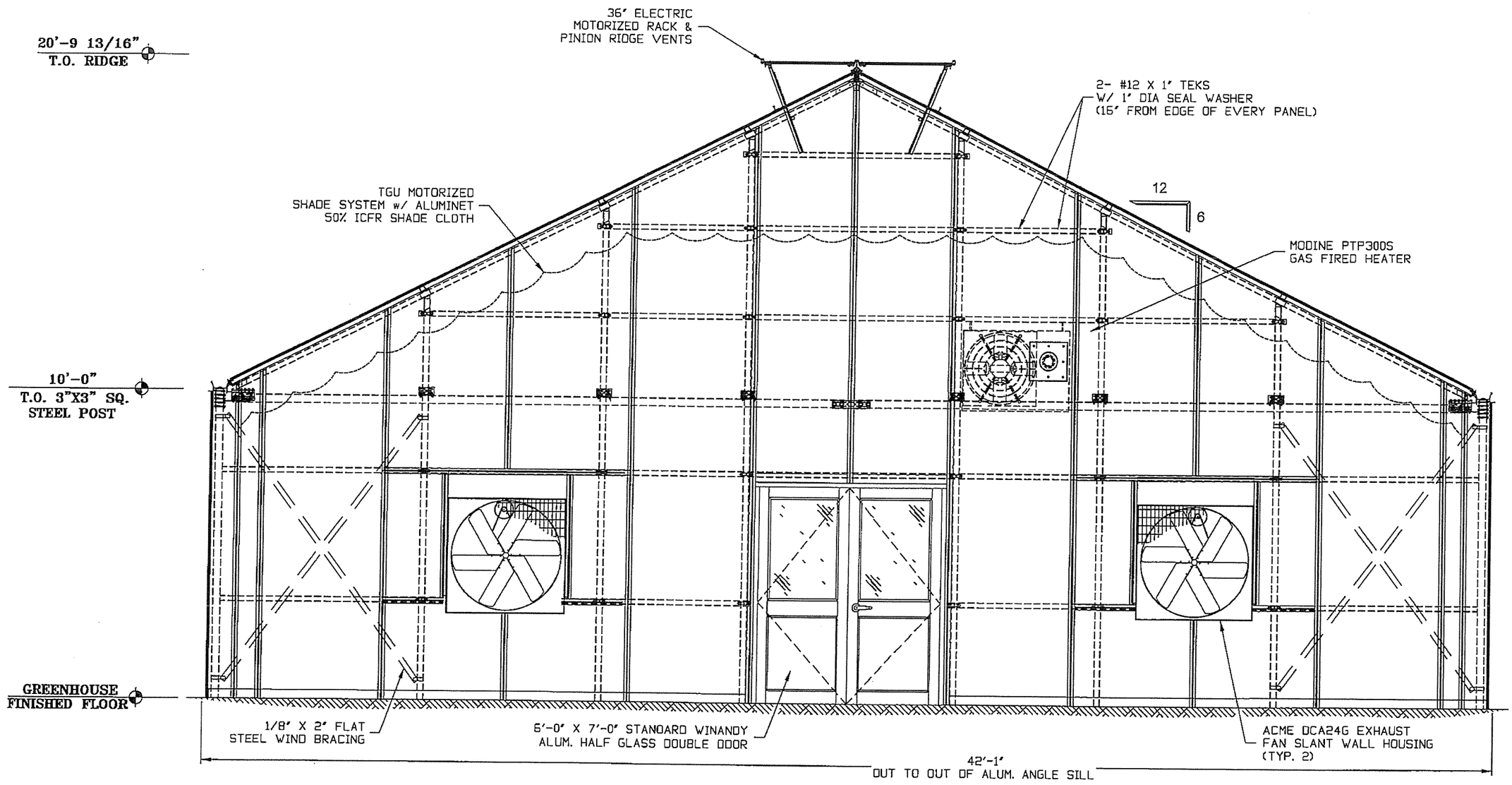
1/4" * (1.5 - .625) * 16500 = 3610 #

use 3 sets Wind Braces

1/2" Bolts are 1257# Single Shear
8514# double Shear

3/8 Bolts are 2310# Single Shear
4620# double Shear

All Connections have
More than Sufficient Bolts
to Resist All Applied Loads



1 Elevation A

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALTER
No. C0063831
Exp. 09/30/0
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17
REV: 4/14/17

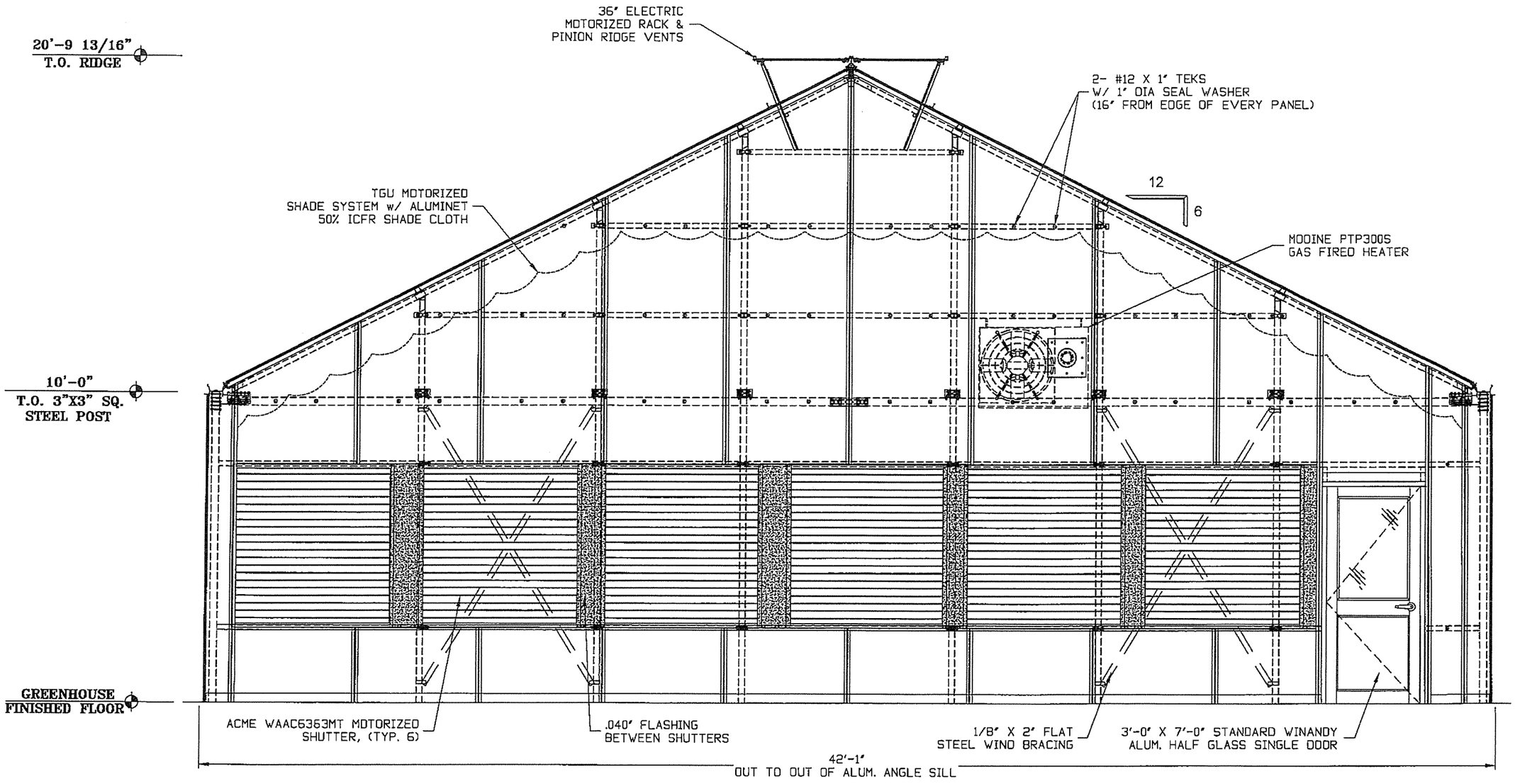
ELEVATIONS

MERCED COLLEGE

MERCED, CA

DRAWN BY: BAW
CHECKED BY:
PAGE#: 1

GLAZING=POLYCARBONATE | FINISH=MILL



3 Elevation C

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

5/8/17
REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WA...
No. C06...
Exp. 09/30/...
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STATE OF CALIFORNIA
HENRY T. DOHERTY
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RICHMOND, INDIANA 47374
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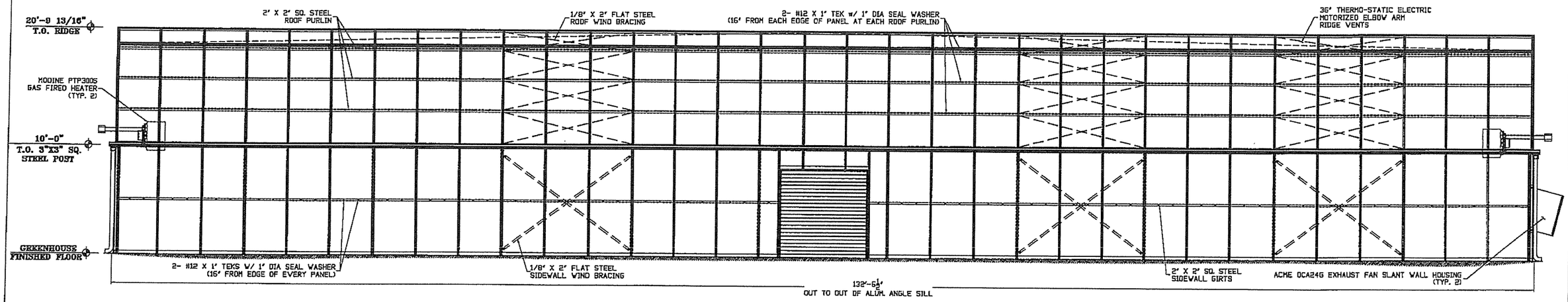
DATE: 3/27/17
REV: 4/14/17

ELEVATIONS

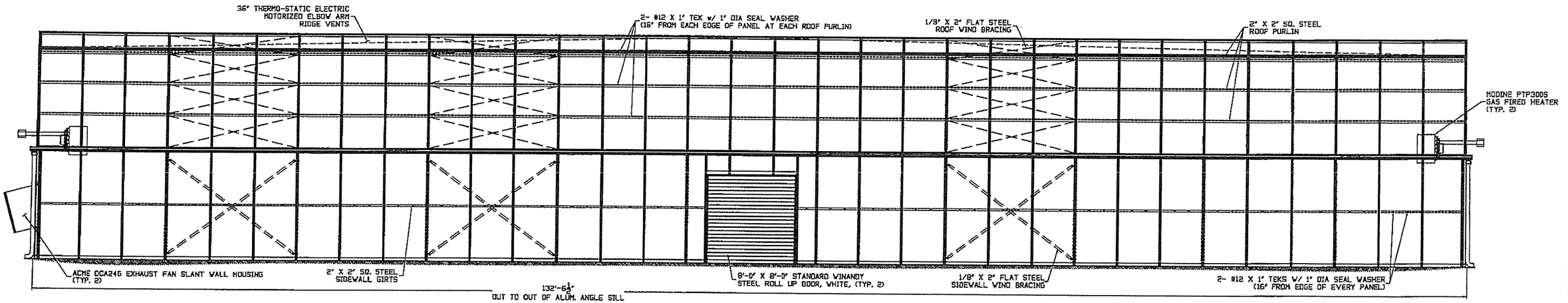
MERCED COLLEGE
MERCED, CA

DRAWN BY: BAW
CHECKED BY:
PAGE# 2

GLAZING=POLYCARBONATE | FINISH=MILL



2 Elevation B



4 Elevation D

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

REGISTERED PROFESSIONAL ENGINEER
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No. C063851
Exp. 09/30/18
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STATE OF CALIFORNIA

5/8/17

4/14/17

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DATE: 3/27/17 | REV: 4/13/17

ELEVATIONS

MERCED COLLEGE

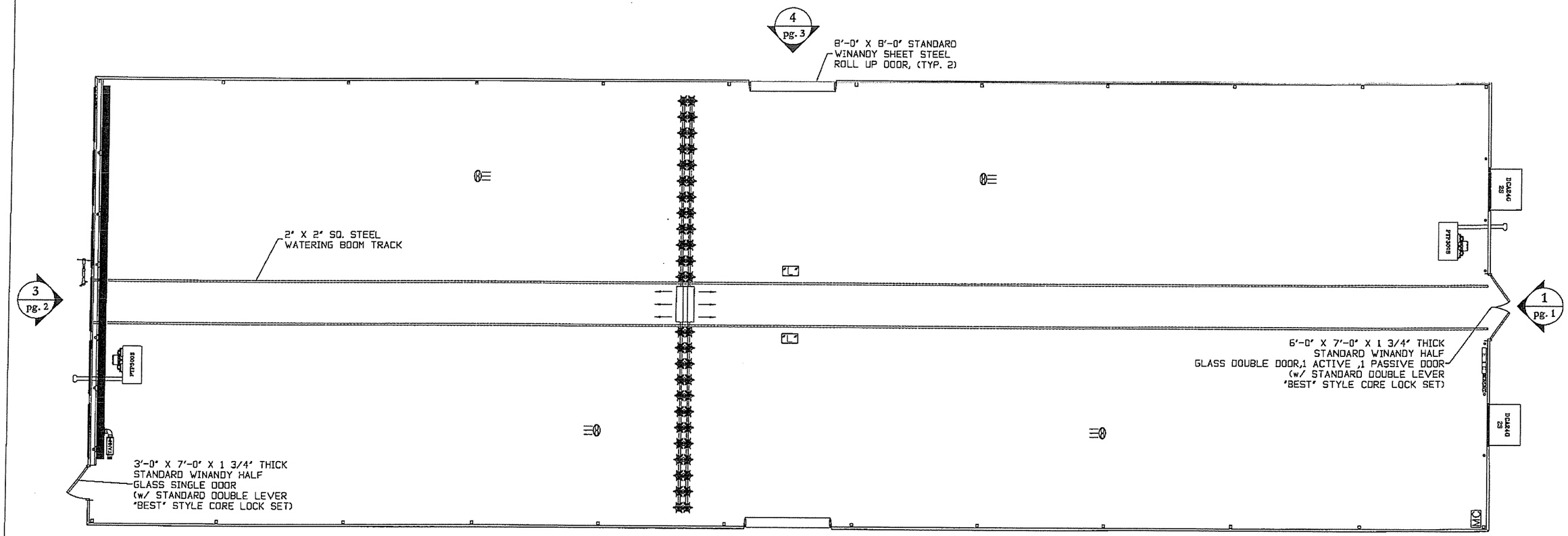
MERCED, CA

DRAWN BY: BAW

CHECKED BY:

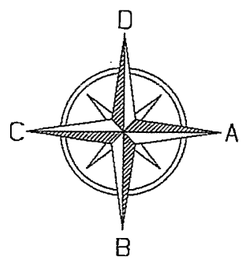
PAGE# 3

GLAZING= POLYCARBONATE | FINISH= MILL



GREENHOUSE EQUIPMENT

	CHERRY CREEK WATERING BOOM w/ BALDOR DC MOTOR w/ CHAIN DRIVE - 1/4 HP, 2.5 AMPS, (2 ROWS) SINGLE WATER BAR SETUP w/ TEEJET SPRAYS (0.8 gpm) EVERY 18", WHIP HOSE WATERING ASSEMBLY, COMPASS CAPTURE CONTROLLER w/ AREA CAPTURE PROGRAM		
"L"	EWA10 90Nm LOCK DRIVE ELECTRIC MOTORIZED ROOF VENT MACH. FOR RACK & PINION OPERATION, .13kW, 120V, 2.6 AMPS, (TYP. 2)	VC	"LOCK" VENT MACHINE CONTROL PANEL, (TYP. 2)
	SCHAEFER VS12 12" HAF FAN 115V, 1/10 HP, .9 AMPS, (TYP. 4)	MC	TGU ROOF SHADE SYSTEM DRIVE MOTOR, 1/5 HP, 2.5 AMPS, w/ 50% FLAME RETARDANT SHADE CLOTH (TYP. 1)
	MODINE NATURAL GAS FIRED UNIT HEATER, PTP300S w/ TUBULAR S.S. PRIMARY HEAT EXCHANGER & S.S. SECONDARY HEAT EXCHANGER, 1/2 HP, 115V, 8.11 AMPS	SC	MOTORIZED SHADE SYSTEM CONTROL PANEL, (TYP. 1)
FAN	ACME EXHAUST FAN, (2) DCA42J, 1 HP, W/WS, W/GS, W/ SLANT WALL HOUSING, w/ INLET & OUTLET GUARD, WITH SHUTTER, 115 V	E	WADSWORTH ENVIROSTEP GREENHOUSE CONTROLLER w/ STEP SAVER SOFTWARE, WIRED ALARM MANAGER, 115V, 2 AMPS (TYP. 1)
	ACME CAEG KOOL-CEL PAD SYSTEM (1) 35" LG. ,4" THICK PADS X 60" TALL, SUBMERSIBLE PUMP MODEL #20S, 1/3 HP, 115 V., 2.9 AMPS, w/ 16 X 18 MESH SCREENS	C	WADSWORTH ENVIROSTEP CONTACTOR PANEL, 115V, 2 AMPS (TYP. 1)
	ACME WAAC636NT MOTORIZED PAD INLET SHUTTER, 115V, 0.1 AMPS, (TYP. 6)		WADSWORTH ENVIROSTEP WEATHER STATION WITH MAST, **(MOUNTING, PLACEMENT, & CONTROL WIRING BY OTHERS)**



HENRY T. DOHERTY
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PE60900412
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DATE: 3/21/17 | REV: 4/13/17

EQUIPMENT LAYOUT

MERCED COLLEGE

MERCED, CA

DRAWN BY: BAW

CHECKED BY:

PAGE# 4

GLAZING=

FINISH=

5/8/17

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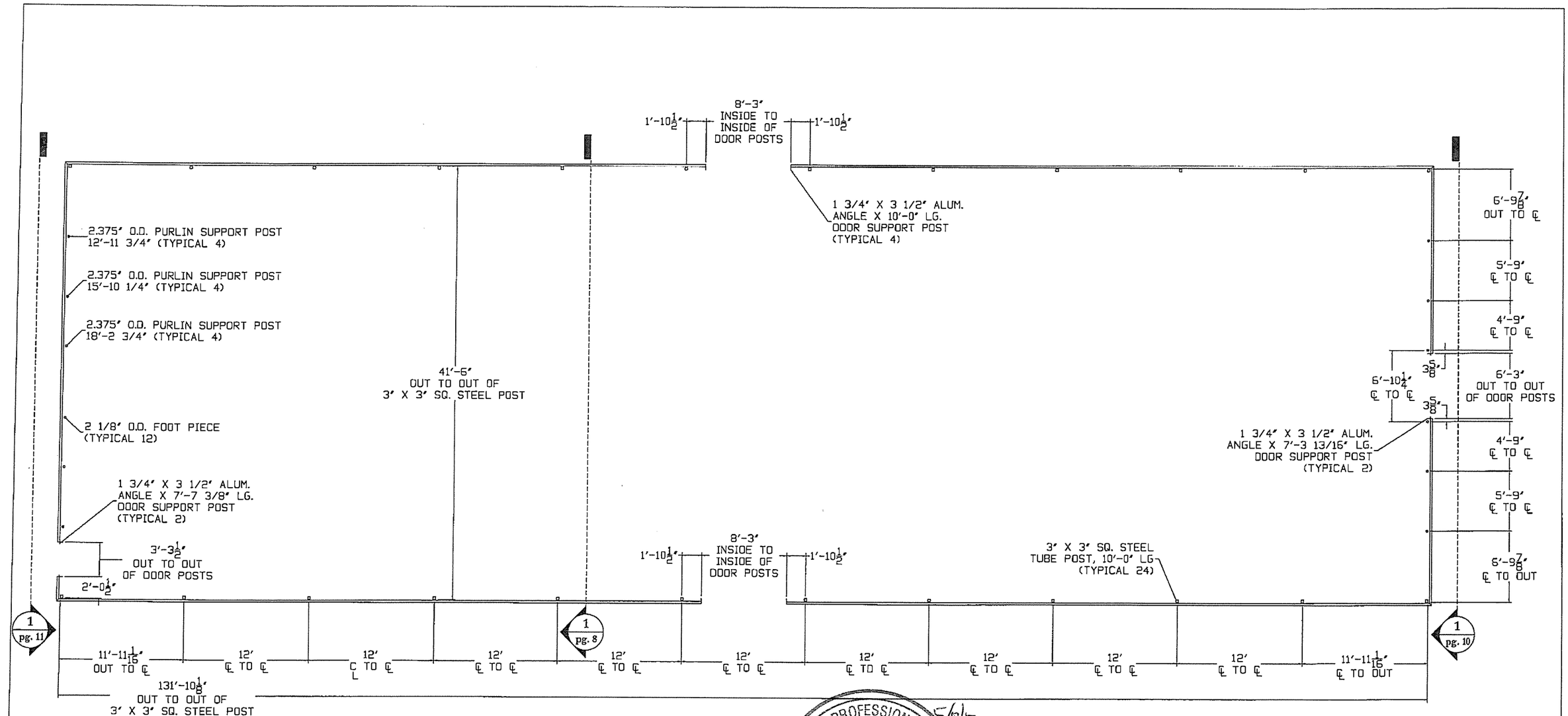
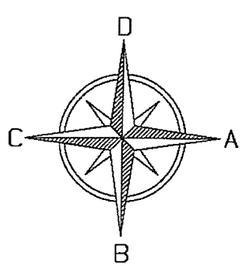
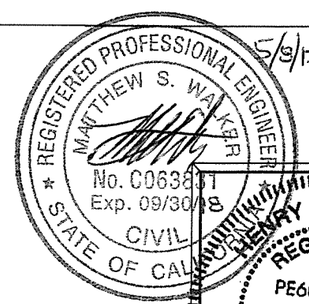
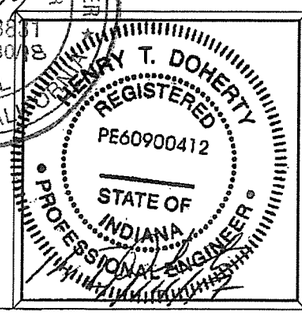
MATTHEW S. WALKER
No. C063831
Exp. 08/30/18
CIVIL
STATE OF CALIFORNIA







5/9/17



WINANDY GHSE. CO.
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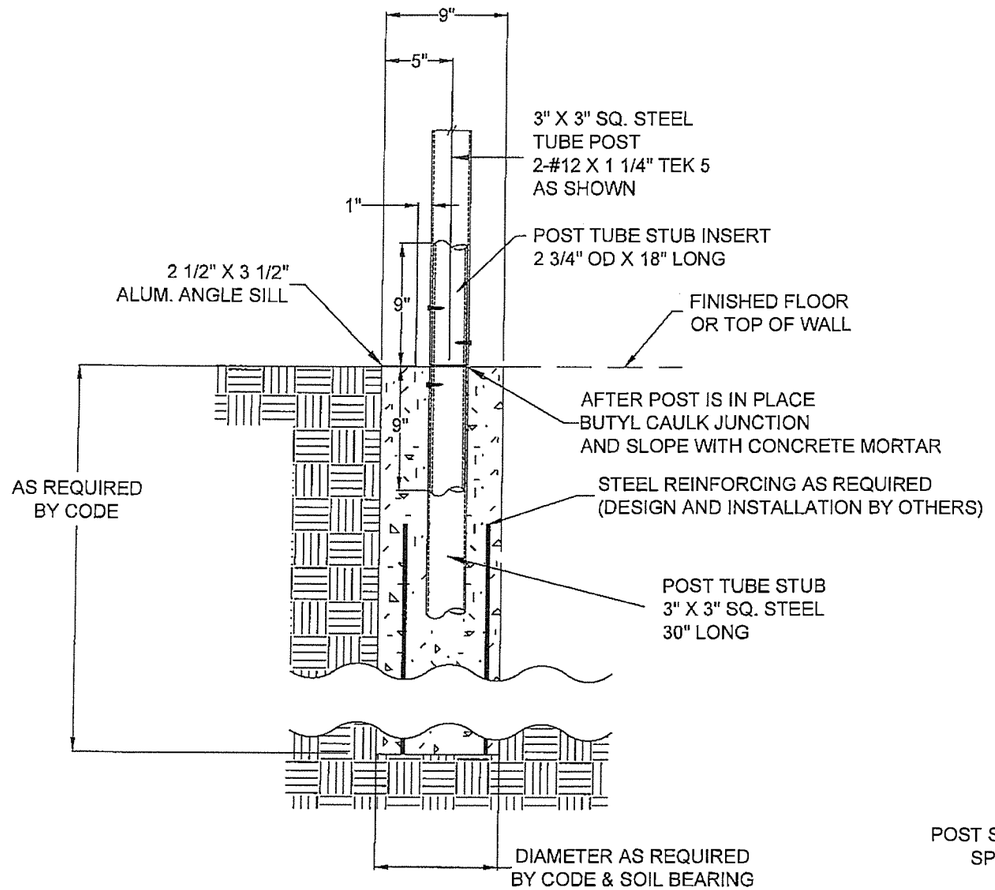
DATE: 3/20/17
REV: 4/13/17

POST LAYOUT

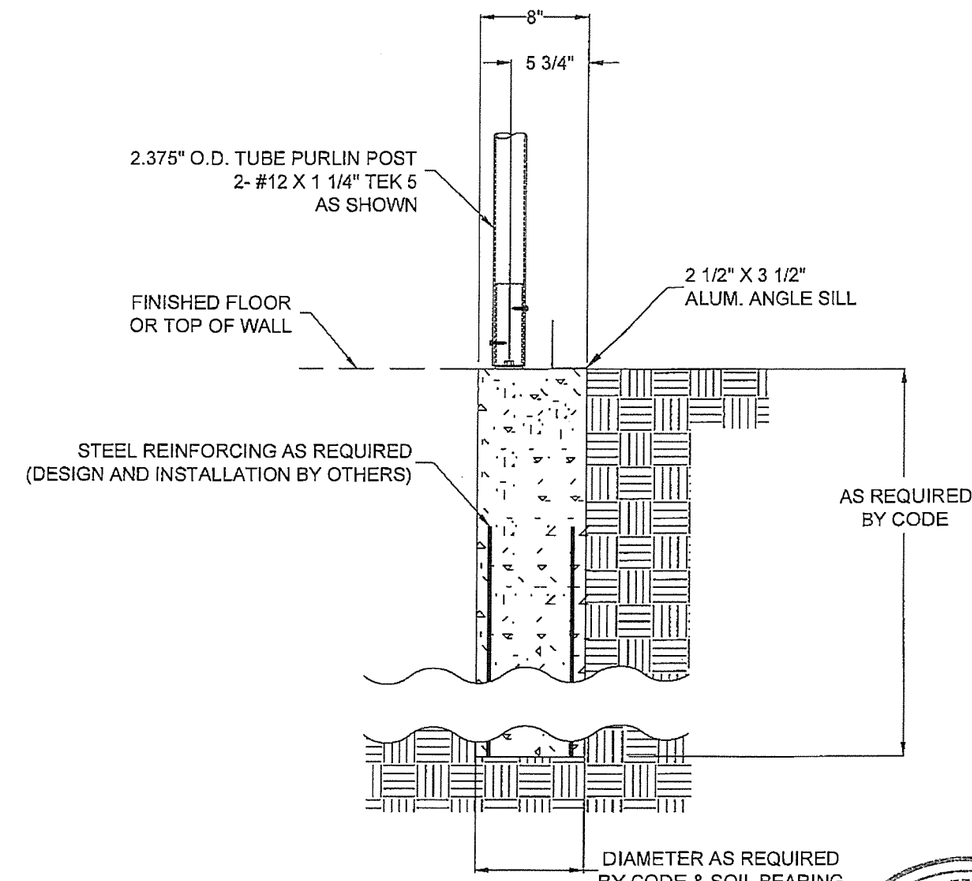
DRAWN BY: BAW
CHECKED BY:
PAGE# 5

MERCED COLLEGE
MERCED, CA

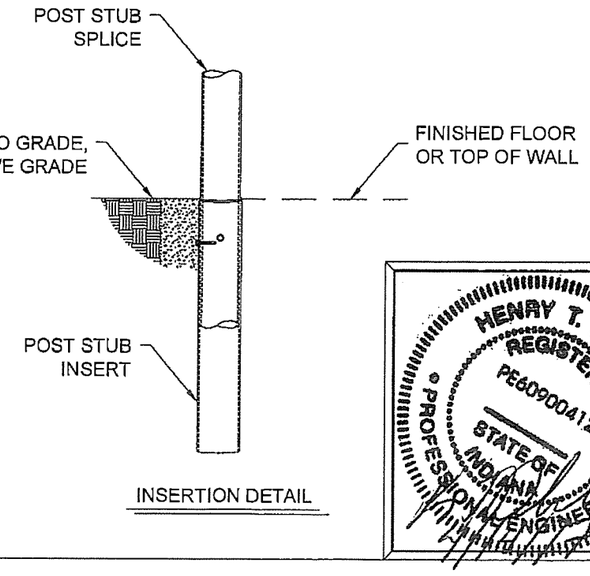
GLAZING=
FINISH=



SIDEWALL SECTION



GABLE WALL SECTION



INSERTION DETAIL

5/8/17

REGISTERED PROFESSIONAL ENGINEER * MATTHEW S. WALKER * No. C063891 Exp. 09/30/18 Civil * STATE OF CALIFORNIA

HENRY T. DOHERTY REGISTERED PE80900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

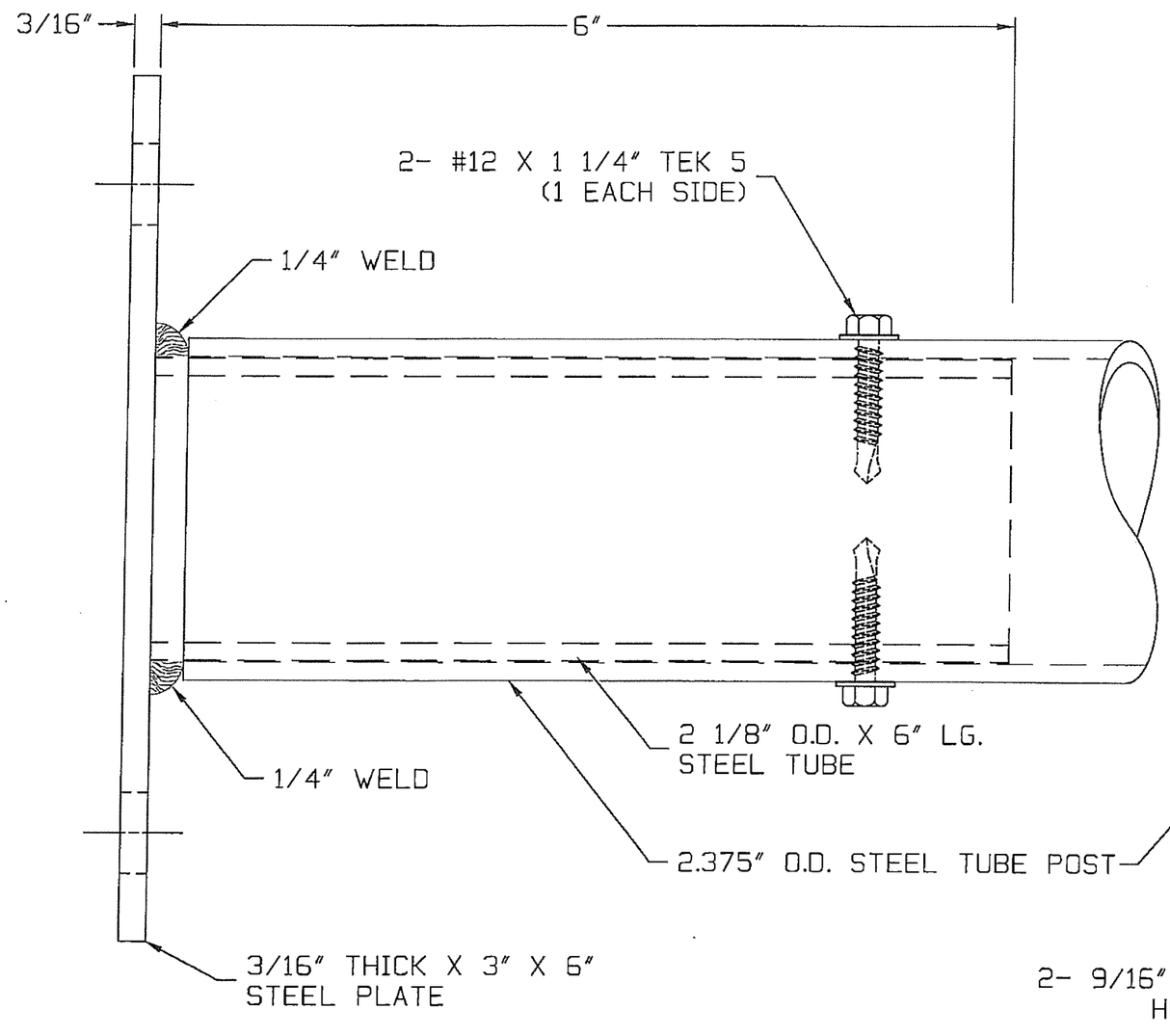
DATE: 03/16/16 | REV:

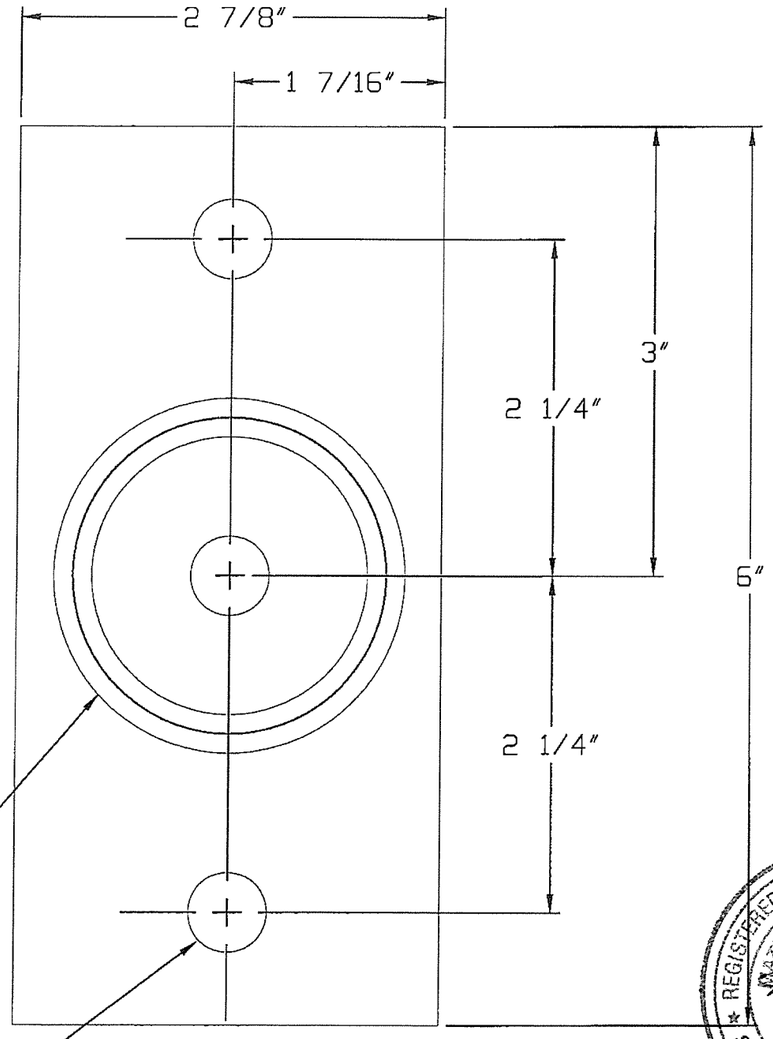
STANDARD DETAIL #IU-0458

INSTALLATION DETAILS UNIVERSAL POST TUBE STUB SETTING WITH 18" POST TUBE STUB *GUTTER HOUSE*

DRAWN BY: SRP
CHECKED BY:
PAGE# 6

GLAZING=
FINISH=





5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
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2211 PEACOCK ROAD
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DATE: 04/10/08 | REV: 12/08/10

STANDARD DETAIL # IU-0260

DRAWN BY: BAW

CHECKED BY:

INSTALLATION DETAILS UNIVERSAL, 2.375 O.D. ROUND TUBE POST ANCHOR

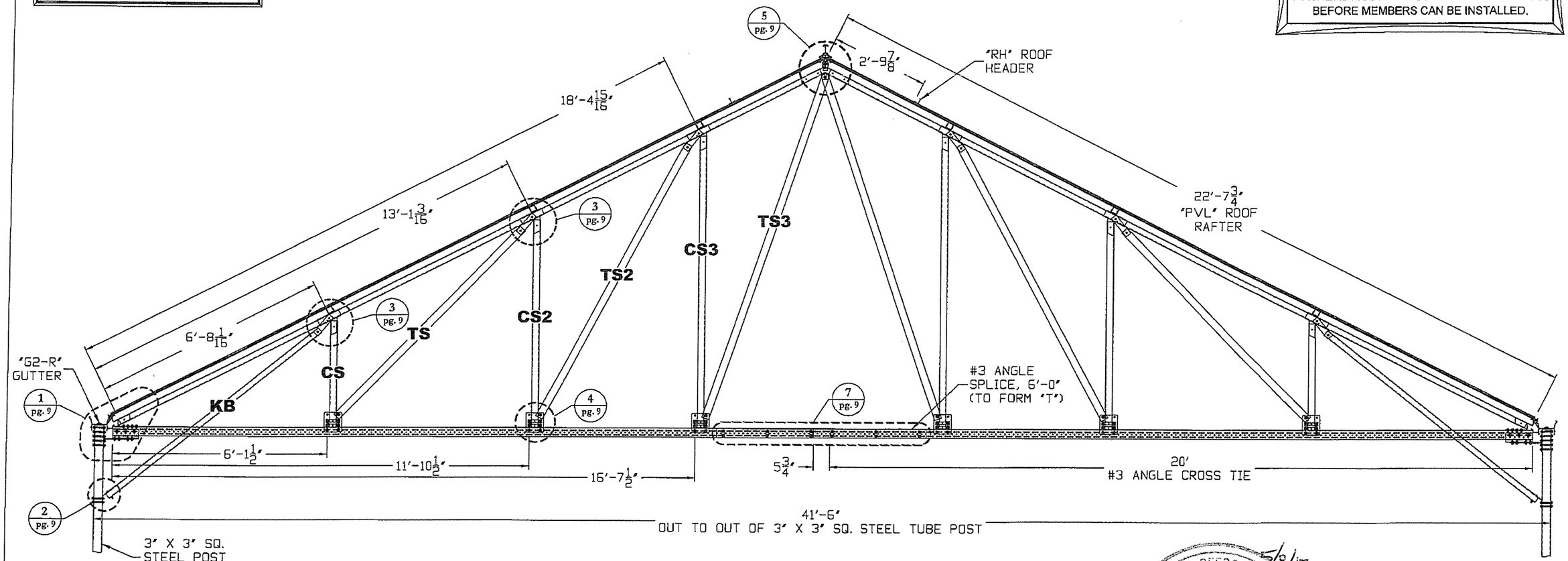
PAGE# 7

GLAZING=

FINISH=

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

IMPORTANT
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.



1 Truss Frame

KB	KNEE BRACE	2" X 2" SQ. STEEL TUBE X 7'-7 11/16"
CS	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 3'-0 3/8"
CS2	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 5'-10 7/8"
CS3	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 8'-3 3/8"
TS	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 7'-5 5/8"
TS2	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 8'-9 5/8"
TS3	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 10'-3 7/16"

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA
5/8/17

NOTE: FOR CONNECTION DETAILS SEE TRUSS FRAMEWORK DETAIL

#3 ANGLE - 1 5/8" X 3 1/8"

HENRY T. DOHERTY
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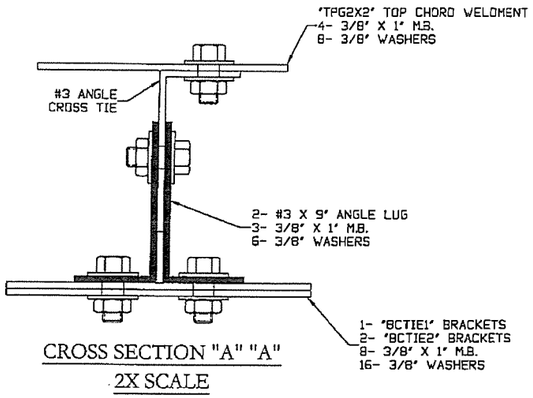
REV: 4/14/17
DATE: 3/8/17

TRUSS

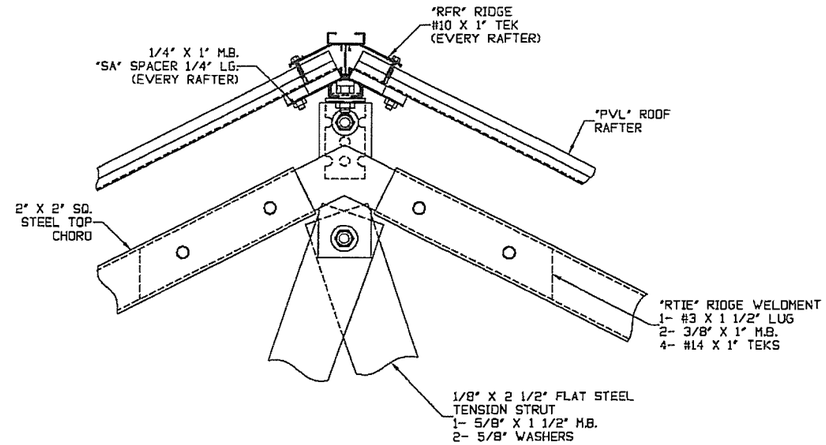
DRAWN BY: BAW
CHECKED BY:
PAGE#: 8

MERCED COLLEGE
MERCED, CA

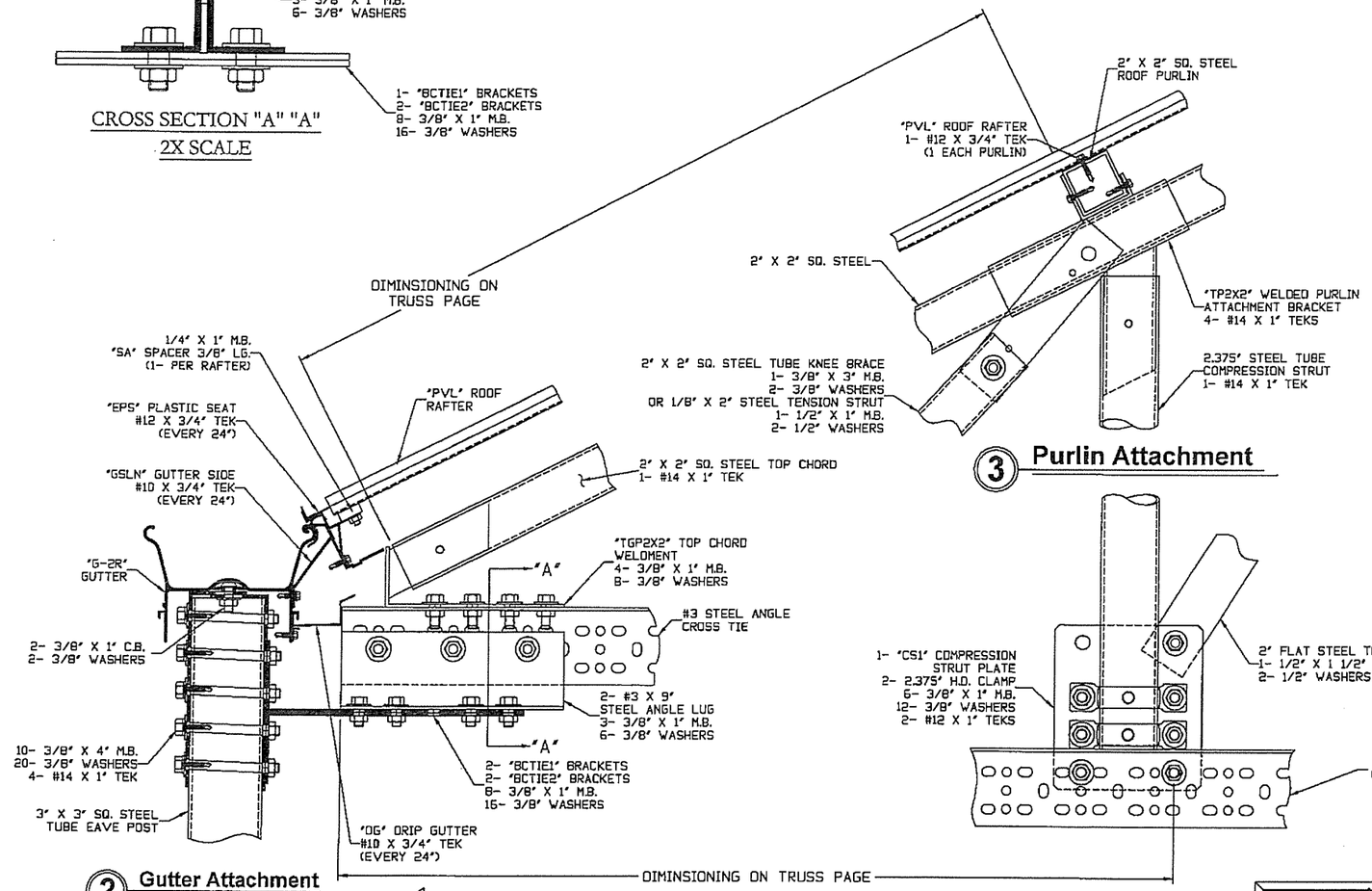
GLAZING=
FINISH=



CROSS SECTION "A" "A"
2X SCALE



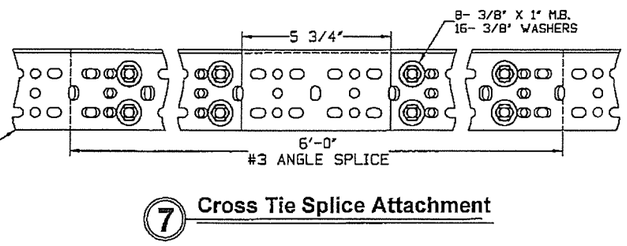
5 Ridge Attachment



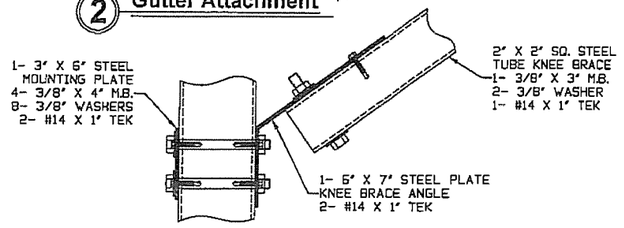
2 Gutter Attachment

3 Purlin Attachment

4 Purlin Strut Attachment



7 Cross Tie Splice Attachment



1 Knee Brace Attachment

#1 ANGLE - 1 5/8' X 1 5/8'
#3 ANGLE - 1 5/8' X 3 1/8'

IMPORTANT
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

5/3/17
REGISTERED PROFESSIONAL ENGINEER
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PROFESSIONAL ENGINEER

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2211 PEACOCK ROAD
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(765) 935-2111

DATE: 01/10/07 | REV:

STANDARD DETAIL # STP-1137

GALV. STEEL TUBE TRUSS
TOP CHORD ATTACHMENT
& CONNECTION DETAILS

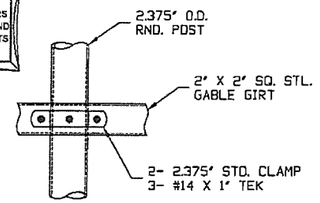
DRAWN BY: BAW
CHECKED BY:
PAGE#: 9

GLAZING=
FINISH=

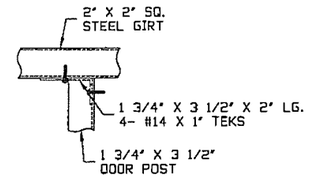
"IMPORTANT"
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

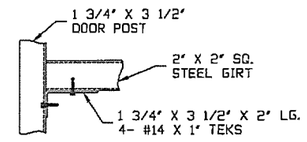
#3 ANGLE = 1 5/8" X 3 1/8"



5 Girt Attachment

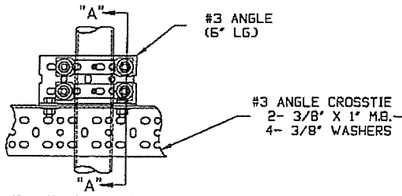


9 Door Post Attachment

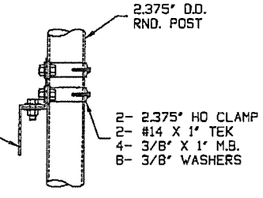


10 Door Post Attachment

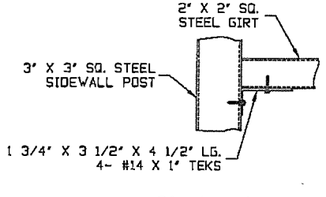
2 Gable Frame "A"



6 Purlin Post Attachment



Section A-A



7 Girt Attachment

5/5/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
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Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

STATE OF INDIANA
PROFESSIONAL ENGINEER
PE09004112
REGISTERED
MENTAL PROJECT

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/20/17
REV: 4/14/17

GABLE

DRAWN BY: BAW
CHECKED BY:
PAGE# 10

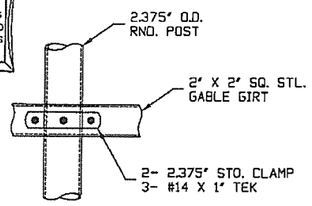
MERCED COLLEGE
MERCED, CA

GLAZING=
FINISH=

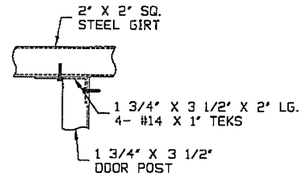
"IMPORTANT"
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

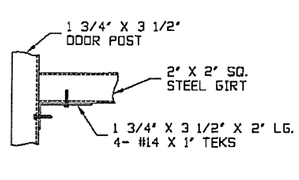
#3 ANGLE - 1 5/8" X 3 1/8"



5 Girt Attachment



8 Door Post Attachment

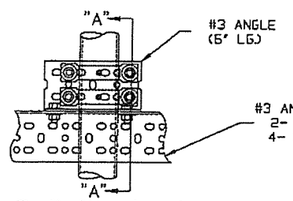


9 Door Post Attachment

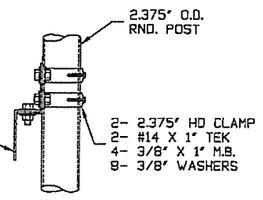
5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C068801
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

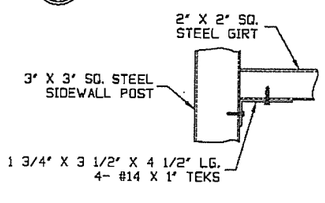
1 Gable Frame "C"



6 Purlin Post Attachment



Section A-A



7 Girt Attachment

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

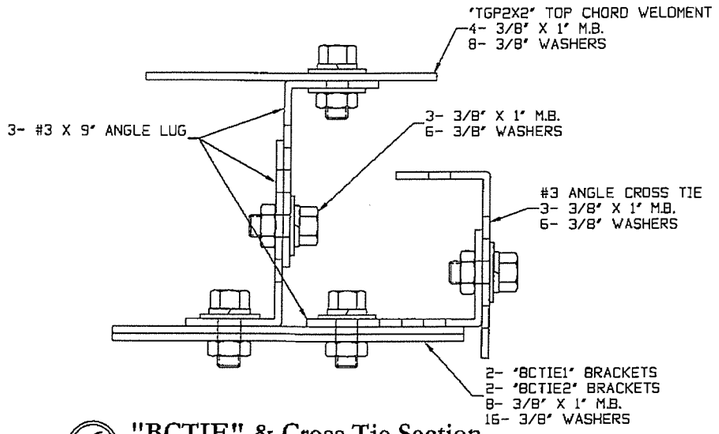
DATE: 3/20/17
REV: 4/14/17

GABLE

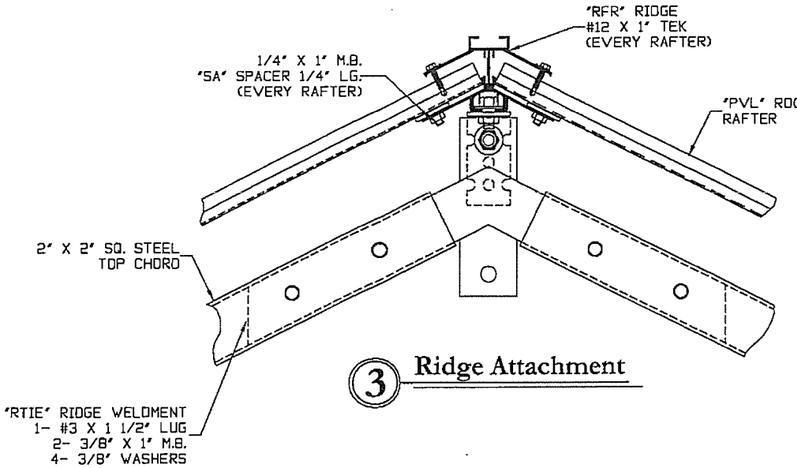
MERCED COLLEGE
MERCED, CA

DRAWN BY: BAW
CHECKED BY:
PAGE# 11

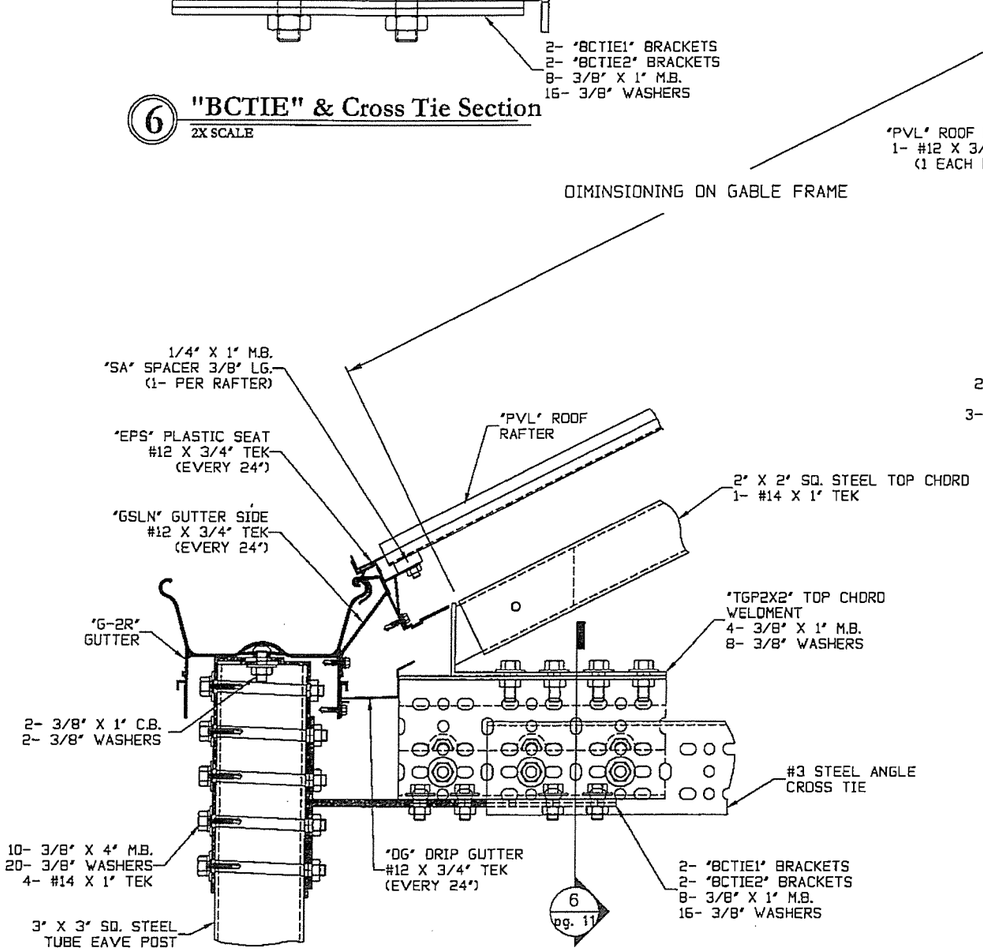
GLAZING=
FINISH=



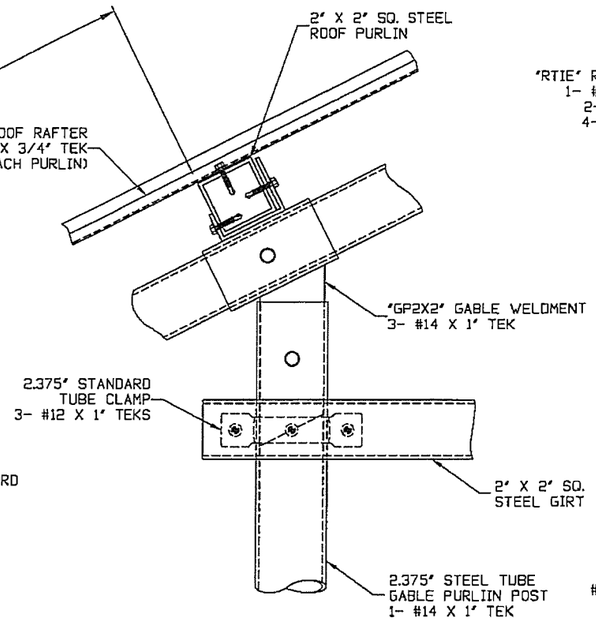
6 "BCTIE" & Cross Tie Section
2X SCALE



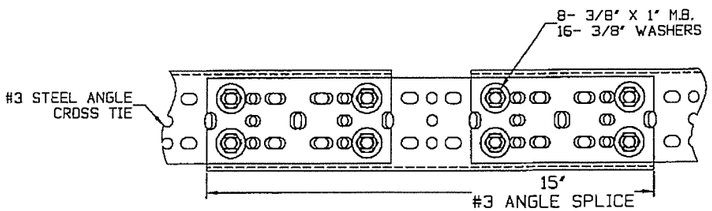
3 Ridge Attachment



1 Gutter Attachment



2 Purlin Post Attachment



4 Cross Tie Splice

#1 ANGLE - 1 5/8' X 1 5/8'
#3 ANGLE - 1 5/8' X 3 1/8'

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

5/8/17
REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

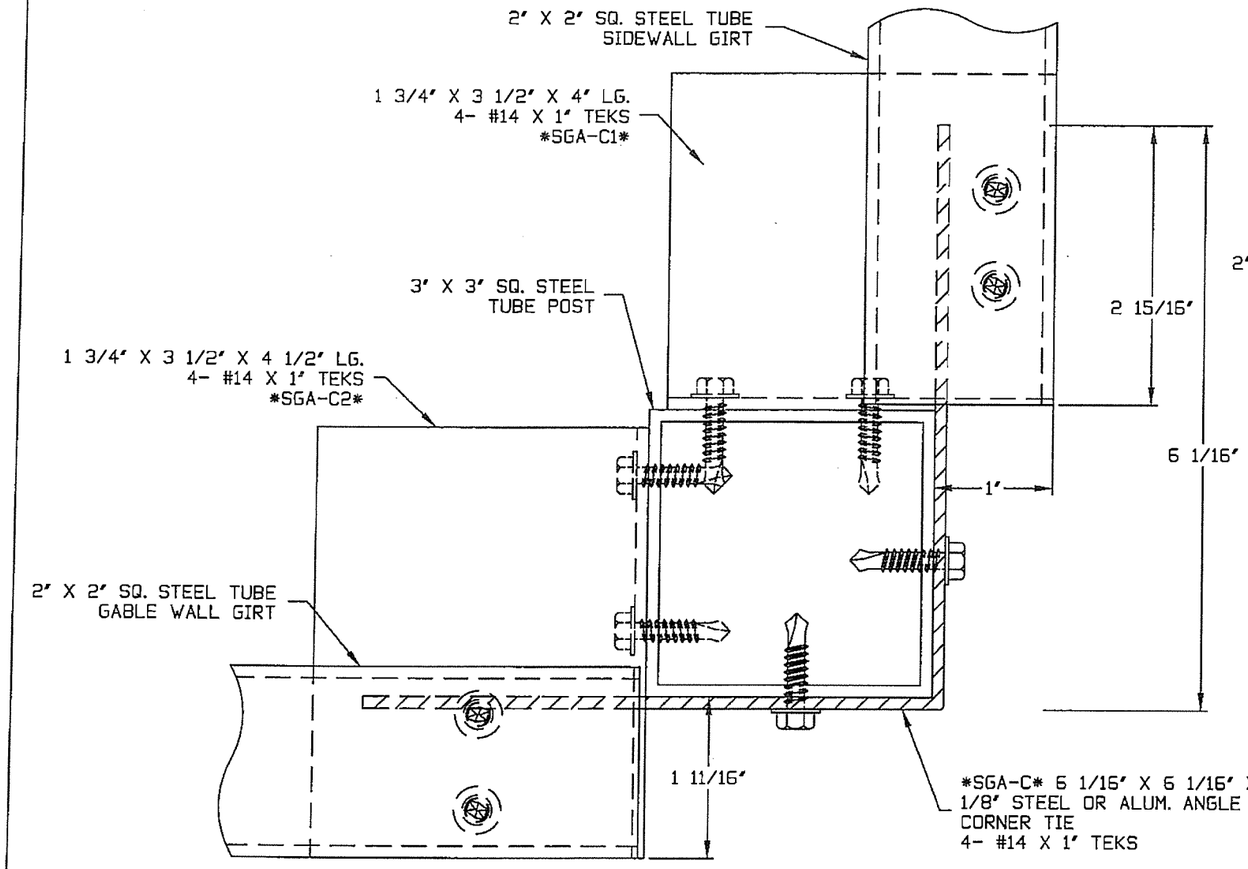
DATE: 01/10/07 | REV: 4/14/17

STANDARD DETAIL # STP-1138

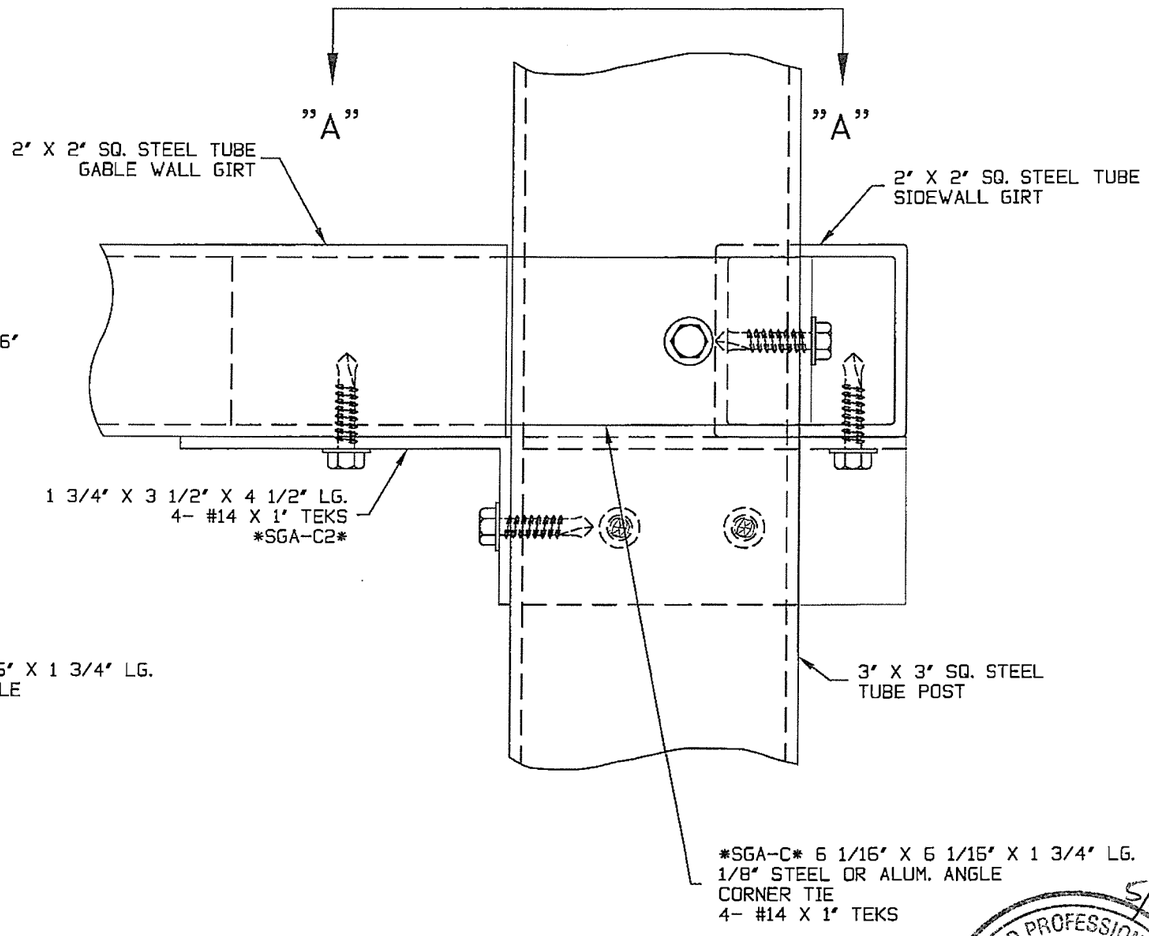
GALV. STEEL TUBE GABLE
TOP CHORD ATTACHMENT
& CONNECTION DETAILS

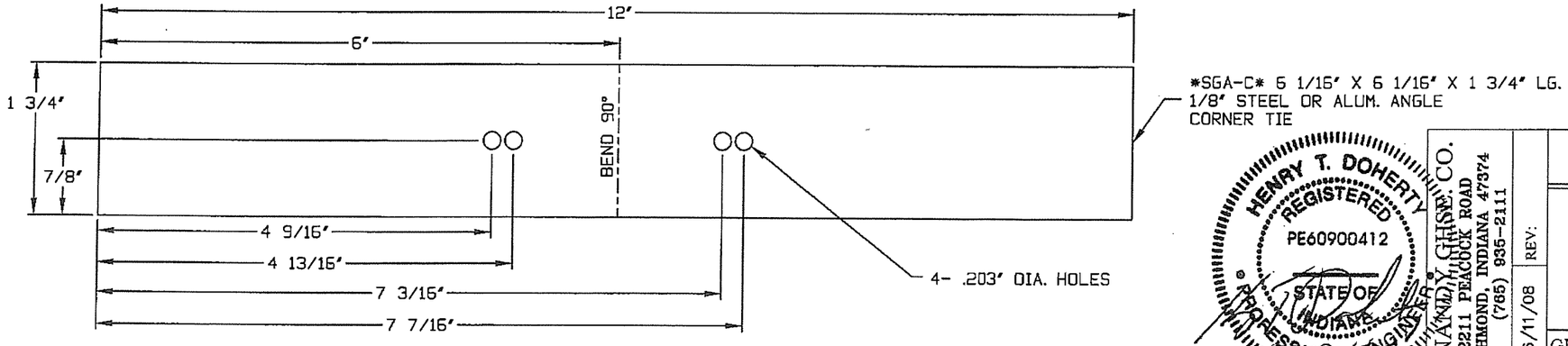
DRAWN BY: BAW
CHECKED BY:
PAGE# 12

GLAZING=
FINISH=



VIEW "A" "A"





HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER
3/2008

5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/17
STATE OF CALIFORNIA

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:6/11/08 | REV:

DRAWN BY: BAW
CHECKED BY:

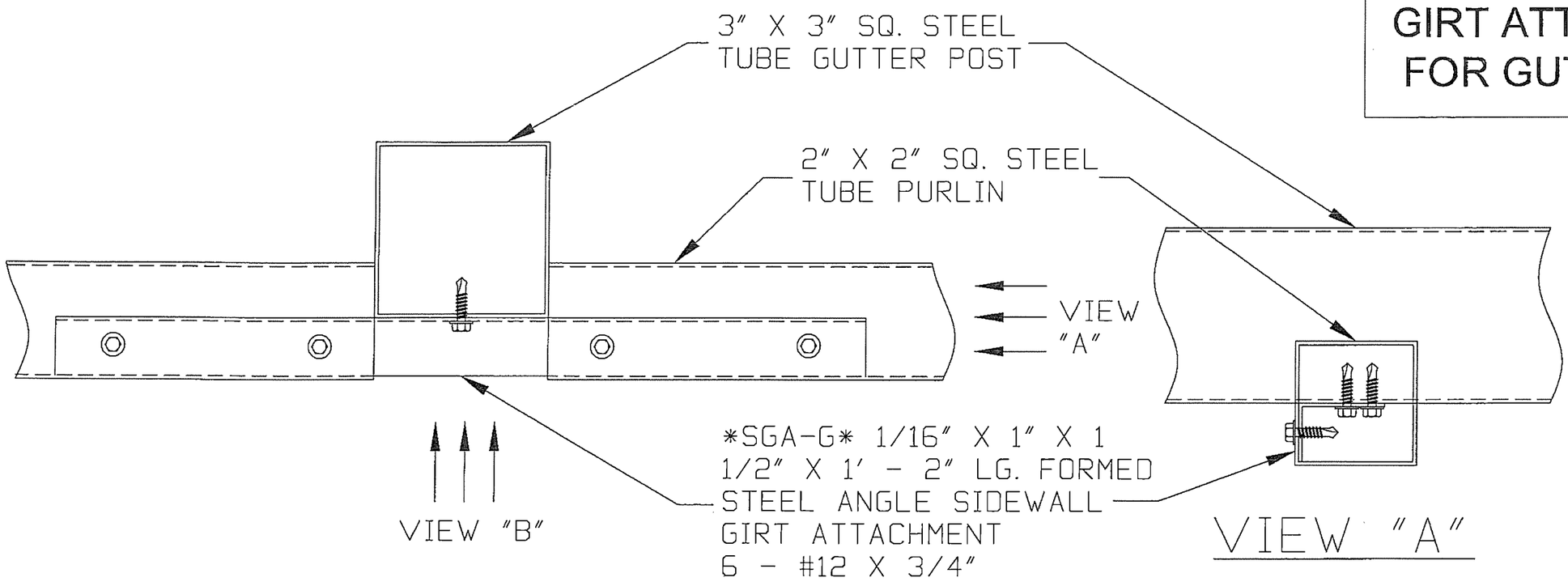
STANDARD DETAIL #STP20053

"STP" SUPER STRUCTURE
OUT SIDE CORNER "GUTTER" WITH
2" X 2" SQ. STEEL TUBE GIRTS AND
3" X 3" SQ. STEEL TUBE POST

PAGE# 13

GLAZING= | FINISH=

SIDEWALL GIRT ATTATCHMENT FOR GUTTER POST



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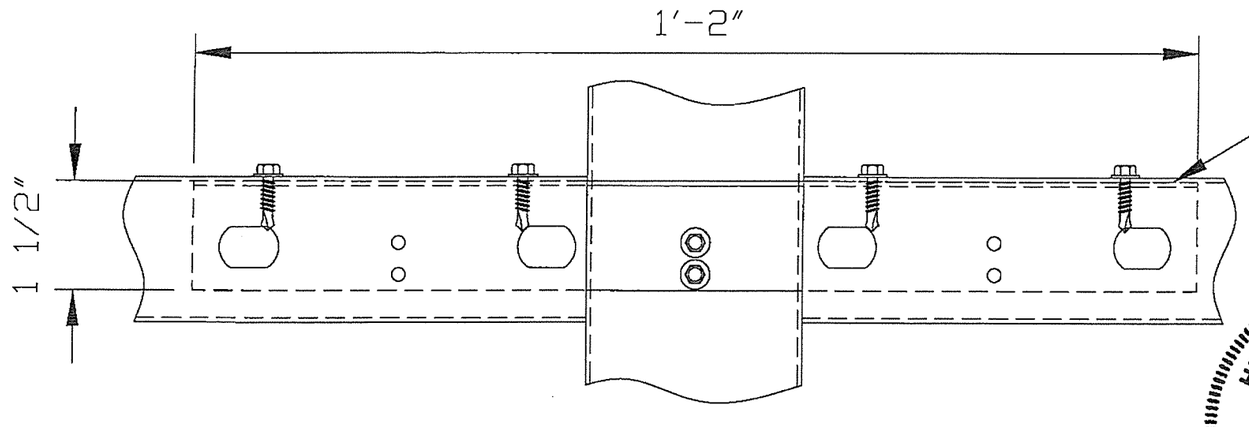


VIEW "B"

5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

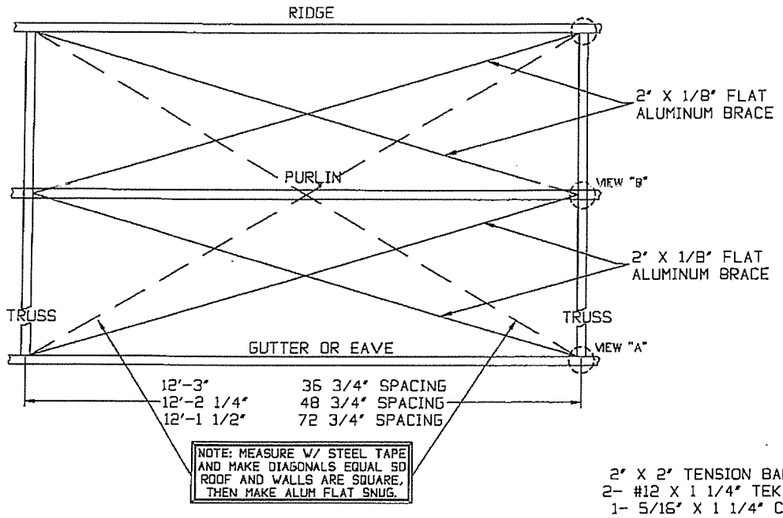
DATE:11/13/09 | REV: 10/14/11

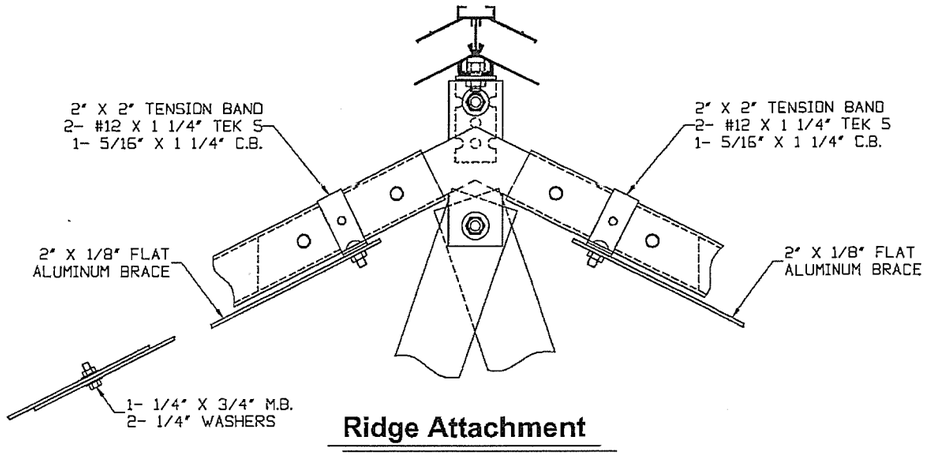
STANDARD DETAIL #STP-1155

MODEL "S" SUPERSTRUCTURE
2"X2" SQ. STEEL TUBE GIRT
W/ 3" X 3" SQ. STEEL TUBE
GUTTER POST ATTACHMENT SGA-G

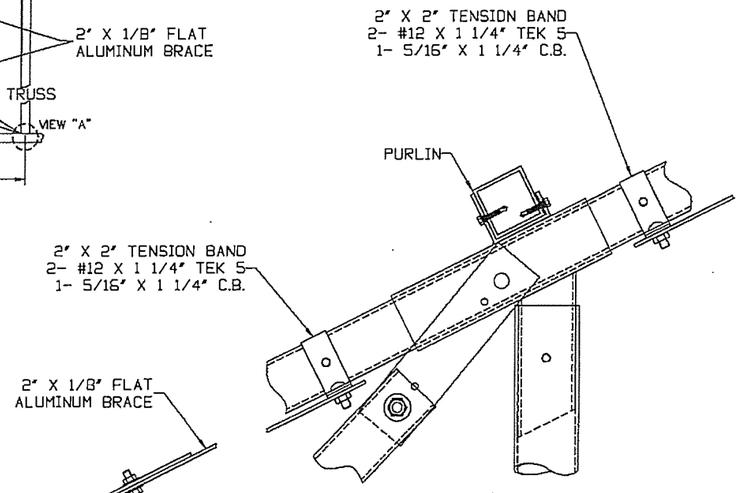
DRAWN BY: SRP
CHECKED BY:
PAGE# 14

GLAZING=
FINISH=





Ridge Attachment



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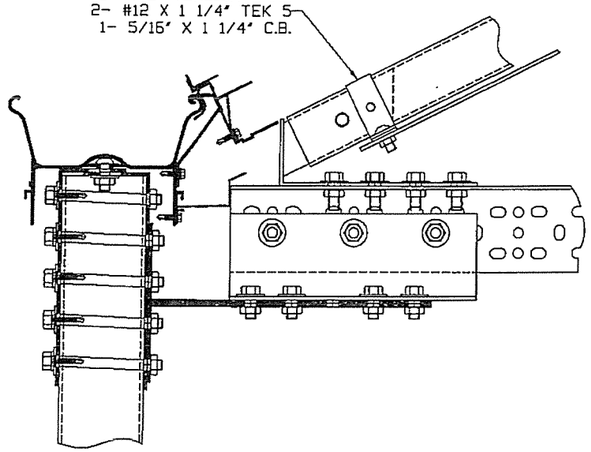
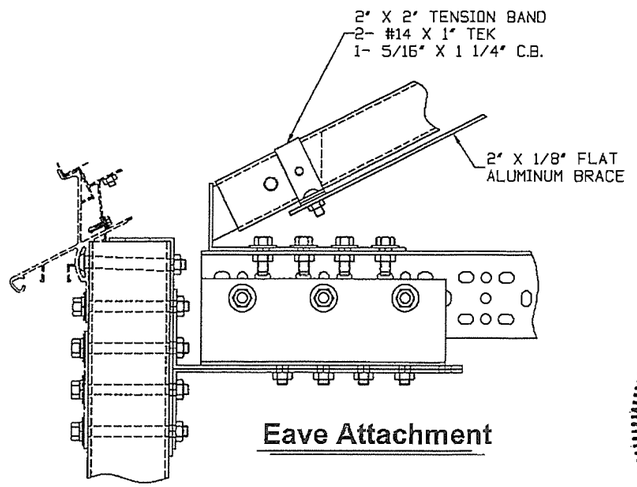


Gutter Attachment



Eave Attachment

5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

4/17/17

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

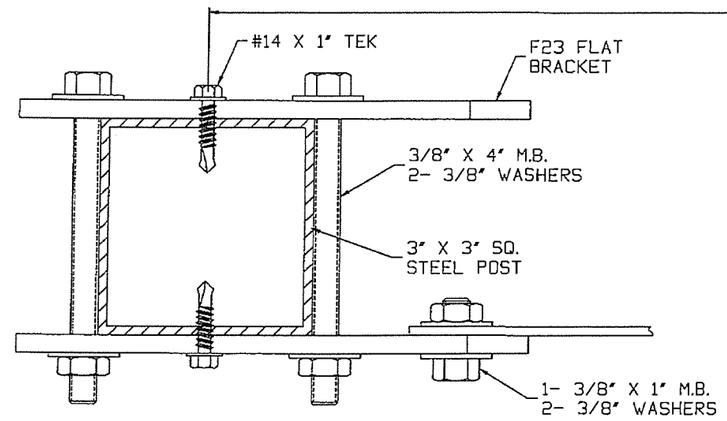
DATE: 04/17/17 | REV:

STANDARD DETAIL # QW-0152

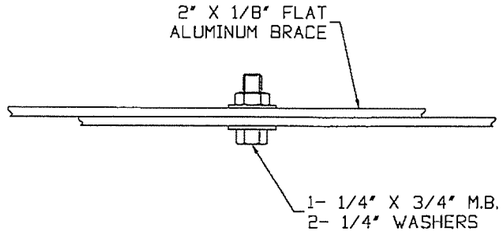
ACCESSORIES WIND BRACES
ROOF "X" FLAT BRACING WITH
2" X 2" OR 3" X 3" SQ. STEEL
TUBE PURLINS

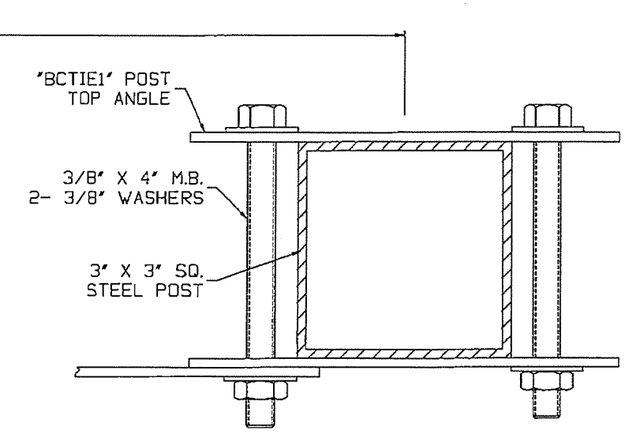
DRAWN BY: BAW
CHECKED BY:
PAGE# 14A

GLAZING=
FINISH=

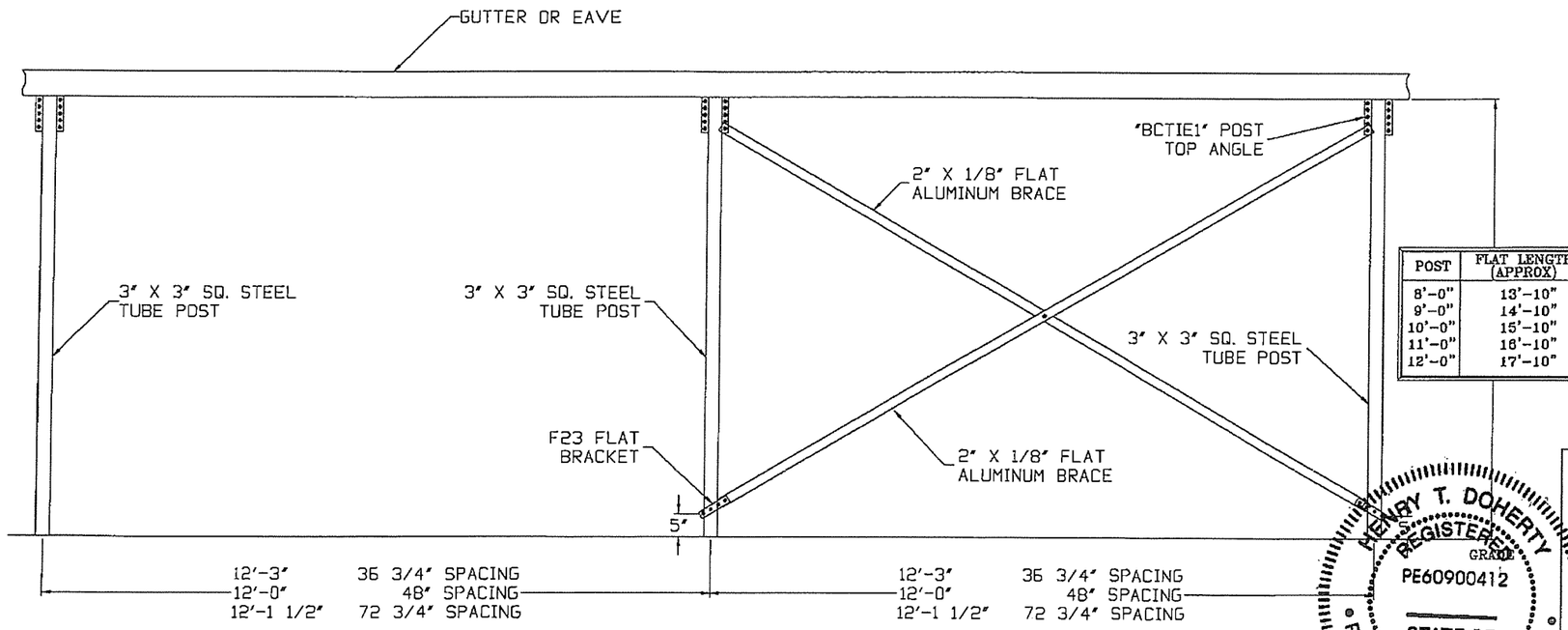


Flat Brace Attachment at Post Foot





Flat Brace Attachment at Post Top



POST	FLAT LENG'TH (APPROX)
8'-0"	13'-10"
9'-0"	14'-10"
10'-0"	15'-10"
11'-0"	16'-10"
12'-0"	17'-10"

NOTE:
1) INSTALL CABLES SEMI-TIGHT
2) MEASURE WITH STEEL TAPE AND MAKE DIAGONALS EQUAL SO WALLS ARE SQUARE
3) MAKE ALUM FLAT SNUG

NOTE: WIND BRACING TO BE LOCATED IN APPROX CENTER OF GREENHOUSE

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/19
CIVIL
STATE OF CALIFORNIA
5/8/17

HENRY T. DOHERTY
REGISTERED
GRADE
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE:1/29/08

STANDARD DETAIL # QW-0138

ACCESSORIES WIND BRACES FOR SIDEWALL WITH 3" X 3" SQ. STEEL TUBE POST ALUM. FLAT "X"BRACING

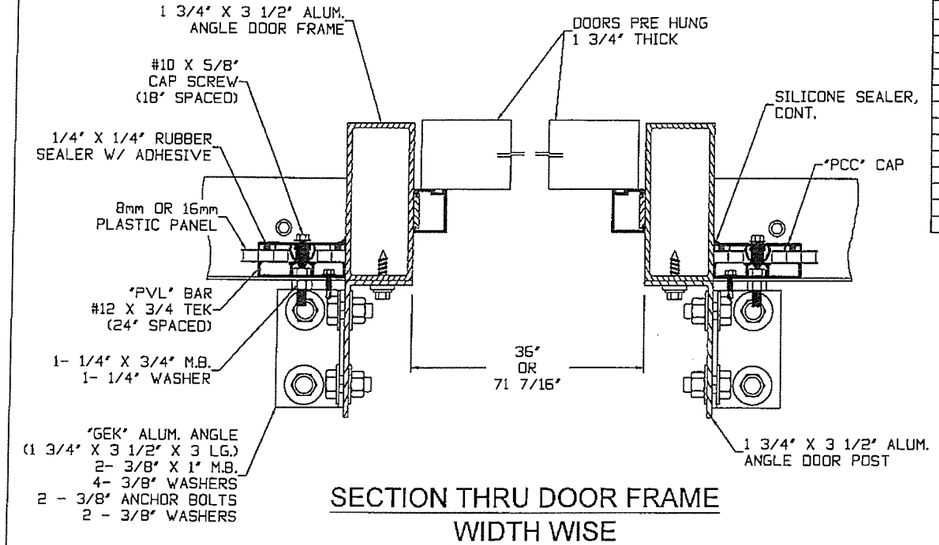
DRAWN BY: BAW

CHECKED BY

PAGE# 14B

GLAZING=

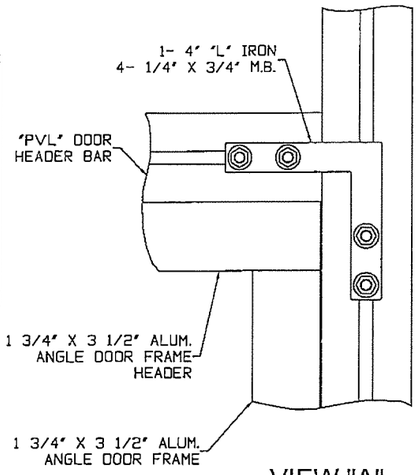
FINISH=



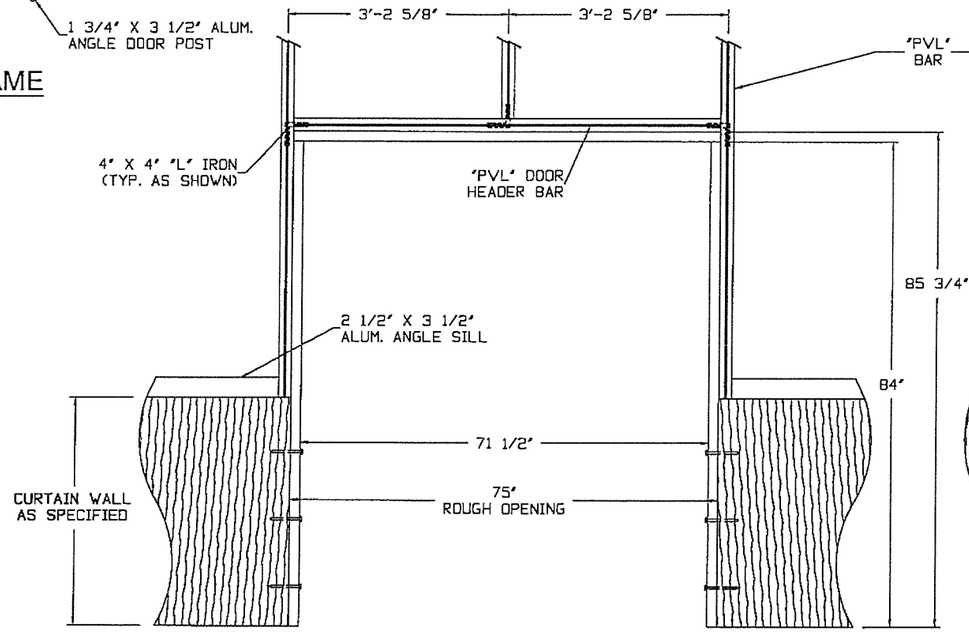
SECTION THRU DOOR FRAME WIDTH WISE

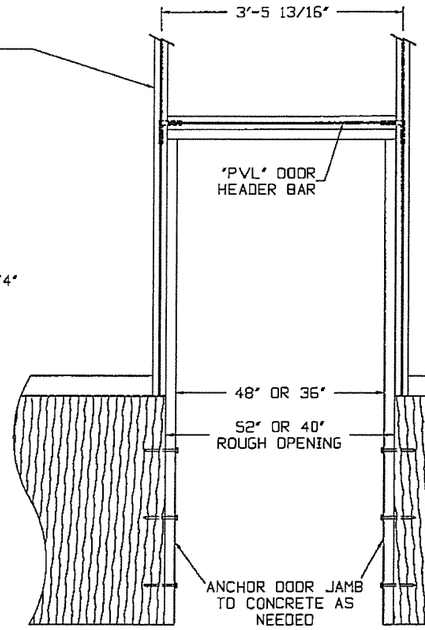
DOUBLE DOOR MATERIAL LIST		
ITEM	DESC.	# PER
#14 TEK	#14 X 1" TEK	2
#12 TEK	#12 X 1 1/2" TEK	10
#10 TEK	#10 X 3/4" TEK	4
MACHINE BOLT	1/4" X 3/4" M.B.	11
MACHINE BOLT	3/8" X 1" M.B.	2
WASHERS	1/4"	8
ANCHOR BOLTS	2"	6
TEE IRON	4" X 4"	3
"GEK" LUG	ALUM. ANGLE LUG	2
ALUM. DOOR FRAME	1 3/4" X 4"	2
ALUM. DOOR HEADER	1 3/4" X 4"	1
ALUM. THRESHOLD	DOOR THRESHOLD	1
S.S. POP RIVETS	1/8" X 1/8"	24

SINGLE DOOR MATERIAL LIST		
ITEM	DESC.	# PER
#14 TEK	#14 X 1" TEK	2
#12 TEK	#12 X 1 1/2" TEK	10
#10 TEK	#10 X 3/4" TEK	4
MACHINE BOLT	1/4" X 3/4" M.B.	8
MACHINE BOLT	3/8" X 1" M.B.	2
WASHERS	1/4"	8
ANCHOR BOLTS	2"	6
TEE IRON	4" X 4"	2
"GEK" LUG	ALUM. ANGLE LUG	2
ALUM. DOOR FRAME	1 3/4" X 4"	2
ALUM. DOOR HEADER	1 3/4" X 4"	1
ALUM. THRESHOLD	DOOR THRESHOLD	1
S.S. POP RIVETS	1/8" X 1/8"	24

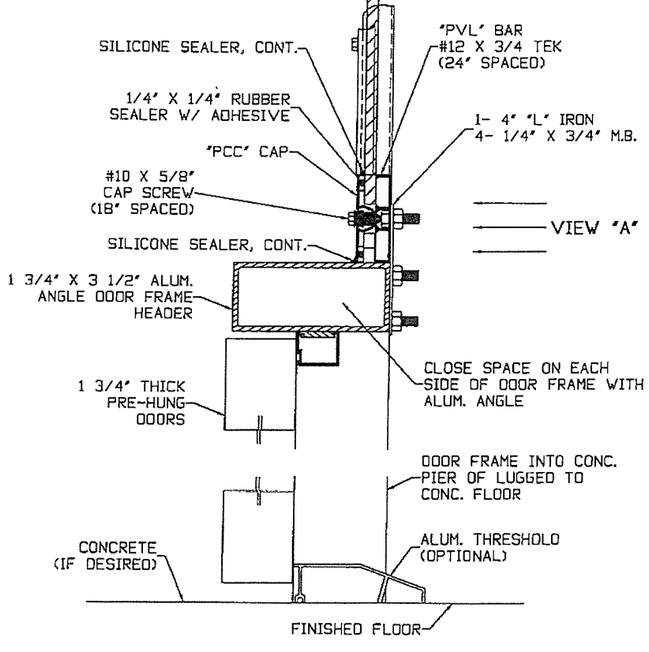


VIEW "A"

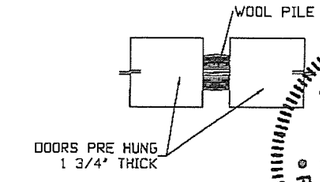




NOTE: REFER TO EQUIPMENT LAYOUT FOR HINGE RIGHT / HINGE LEFT DESIGNATION



SECTION THRU DOOR FRAME LENGTH WISE



DOUBLE DOOR DETAIL

#1 ANGLE - 1 5/8" X 1 5/8"
#3 ANGLE - 1 5/8" X 3 1/8"

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

MATTHEW S. WALKER REGISTERED PROFESSIONAL ENGINEER No. C063831 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA 5/8/17

WINANDY GHSE, CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 11/13/09 REV:

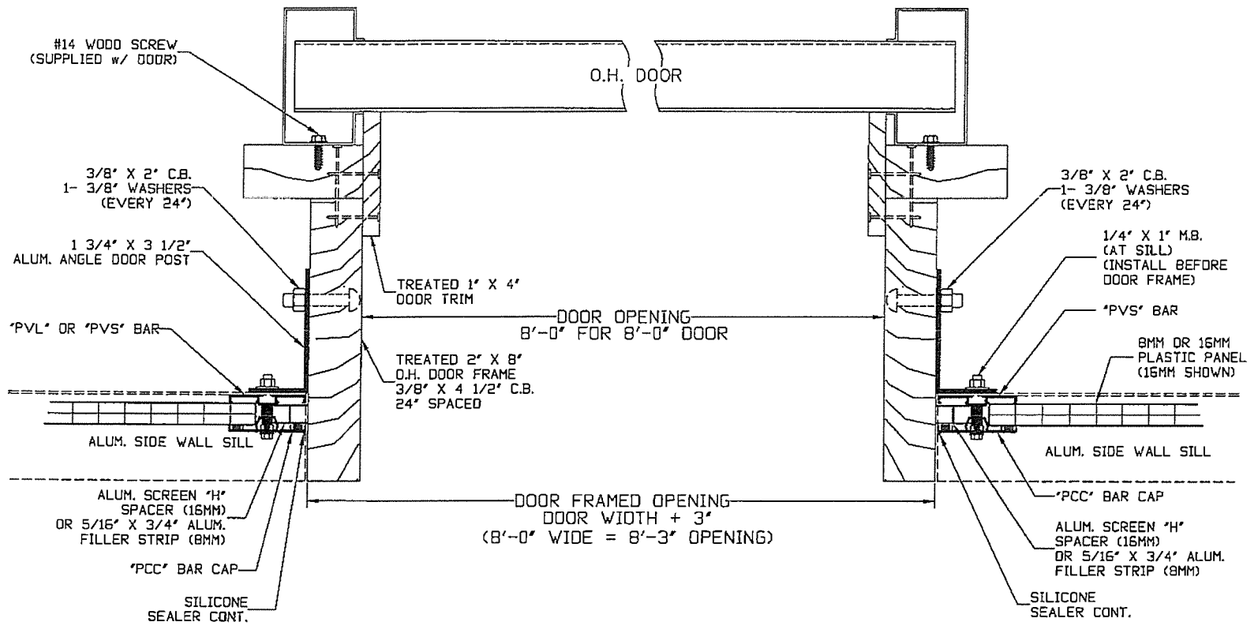
STANDARD DETAIL #QD-0012

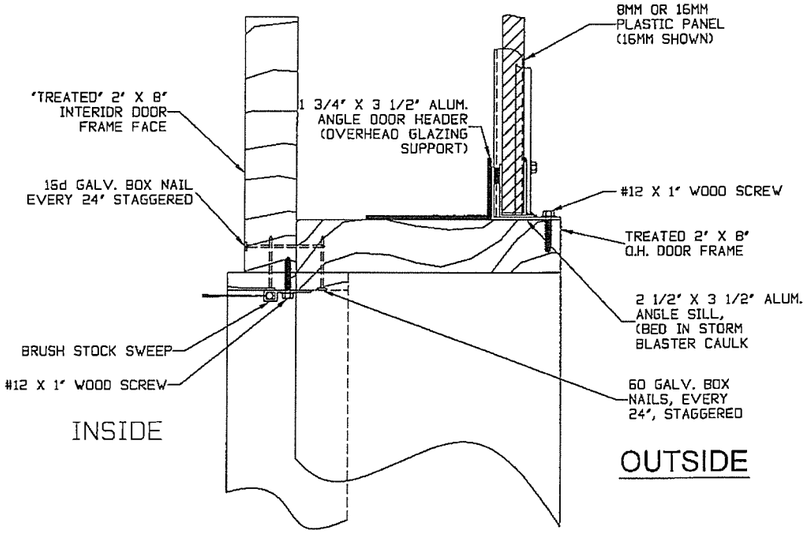
(ACCESSORIES) DOOR
STANDARD WINANDY ALUM. DOOR
8mm OR 16mm PLASTIC PANEL, w/
2 1/2" X 3 1/2" ALUM. ANGLE SILL

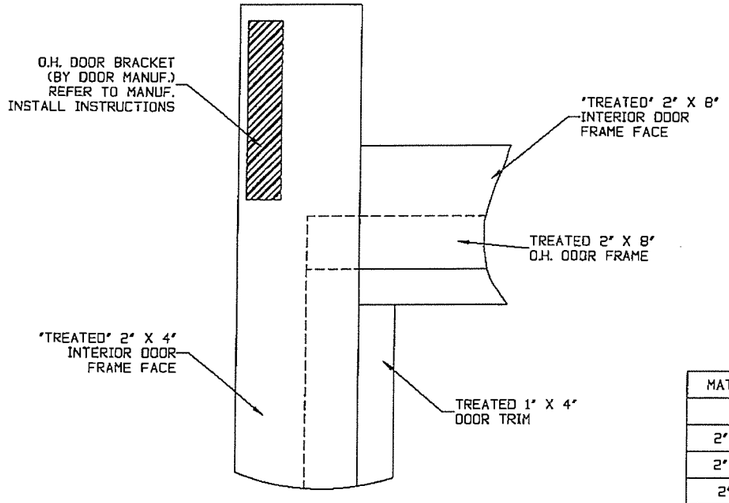
DRAWN BY: BAW
CHECKED BY:
PAGE# 15

GLAZING=
FINISH=

O.H. DOOR TRACK & ASSEMBLY
(PROVIDED BY MANUF.)
(INSTALL ACCORDING TO
MANUF. INSTURCTIONS)







UPPER LEFT CORNER
OF DOOR FRAME
VIEW FROM INSIDE
(RIGHT HAND THE SAME)

MATERIAL LIST FOR 8'-0" X 8'-0" DOOR - ADJUST ACCORDING TO SIZE OF DOOR		
ITEM	DESC.	# PER
2" X 8" DOOR JAMB"	2" X 8" X 8'-0" LONG	2
2" X 8" DOOR HEADER"	2" X 8" X 8'-3" LONG	2
2" X 4" DOOR FACE	2" X 4" X 9'-0" LONG	2 (FIELD TRIM)
3/8" X 2 1/2" C.B.	3/8" X 2 1/2" C.B. & NUT	10
RACK BRUSH (SWEEP)	RACK BRUSH (8'-0" LONG)	1
60 GALV BOX NAIL	60 GALV BOX NAIL	60
160 GALV BOX NAIL	160 GALV BOX NAIL	20
#12 X 1" WOOD SCREW	#12 X 1" WOOD SCREW	20

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

MATTHEW S. WALKER
REGISTERED PROFESSIONAL ENGINEER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

5/8/17

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:08/07/14 REV:

DRAWN BY: SRP
CHECKED BY:
PAGE# 16

STANDARD DETAIL #QD-0142

ACCESSORIES, DOORS, O.H. DOOR FRAMING FOR STANDARD TRACK MOUNTING W/ PLASTIC PANEL, W/ "CPP" POSTS

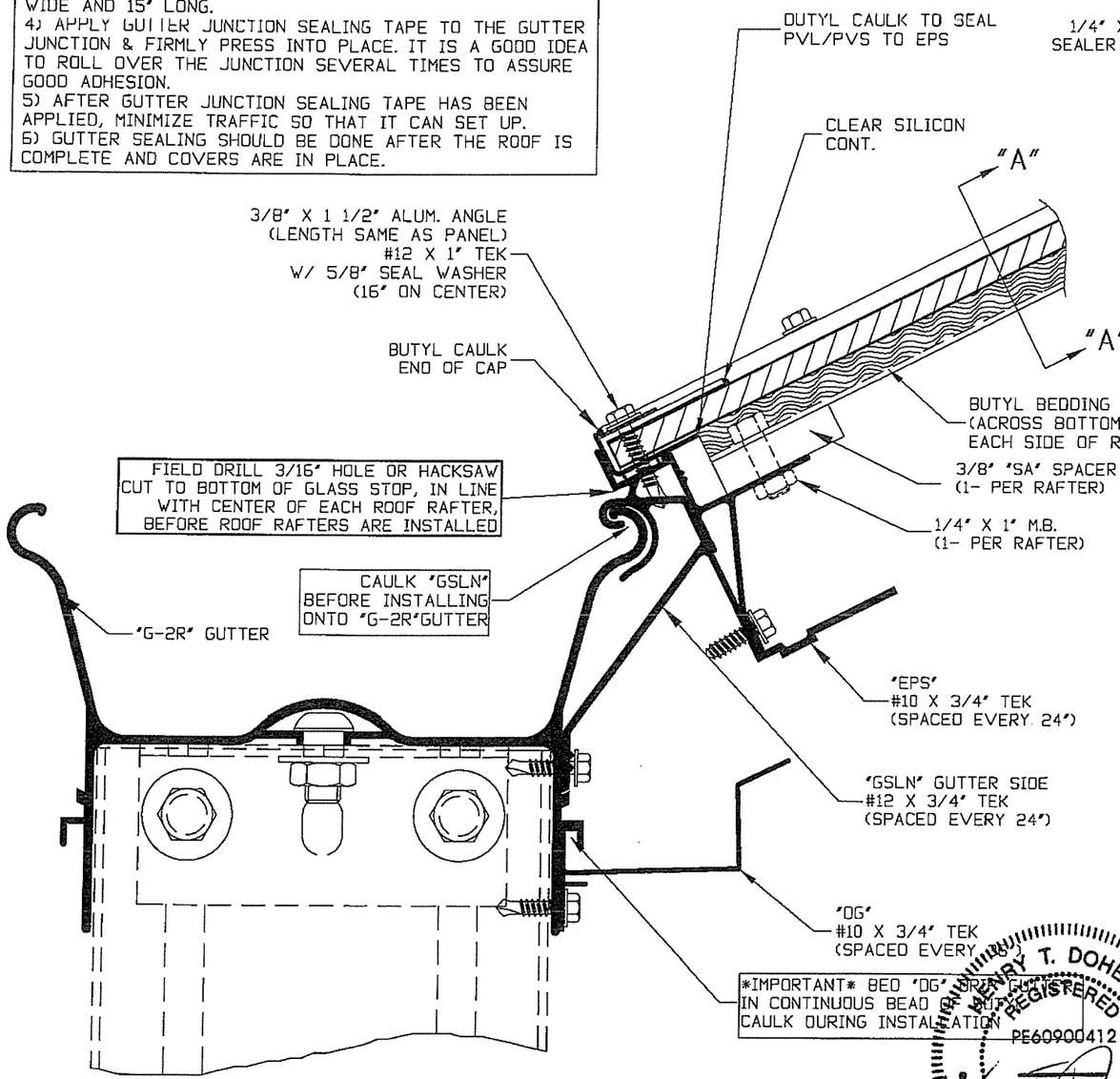
GLAZING=
FINISH=

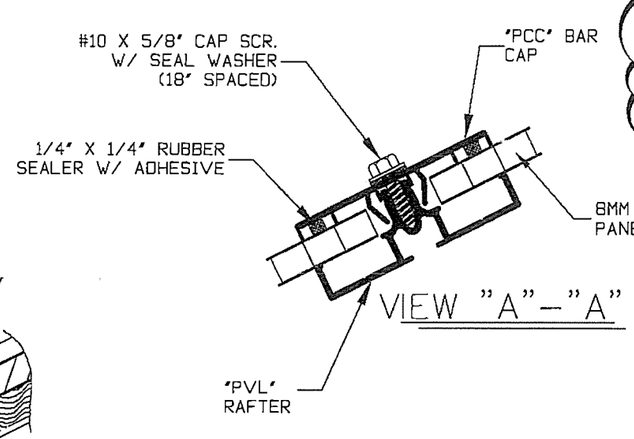
GUTTER JUNCTION SEALER

DIRECTIONS FOR APPLICATION:
1) CLEAN THE GUTTER JUNCTION THOROUGHLY WITH MINERAL SPIRITS SOLVENT AT LEAST 2" ON BOTH SIDES OF GUTTER JUNCTION CAP.
2) AFTER SOLVENT HAS DRIED, CAULK GUTTER JUNCTION GAP W/ BUTYL RUBBER CAULKING. CAULK ENTIRE LENGTH OF GAP.
3) CUT A PIECE OF GUTTER JUNCTION SEALING TAPE 2" WIDE AND 15" LONG.
4) APPLY GUTTER JUNCTION SEALING TAPE TO THE GUTTER JUNCTION & FIRMLY PRESS INTO PLACE. IT IS A GOOD IDEA TO ROLL OVER THE JUNCTION SEVERAL TIMES TO ASSURE GOOD ADHESION.
5) AFTER GUTTER JUNCTION SEALING TAPE HAS BEEN APPLIED, MINIMIZE TRAFFIC SO THAT IT CAN SET UP.
6) GUTTER SEALING SHOULD BE DONE AFTER THE ROOF IS COMPLETE AND COVERS ARE IN PLACE.

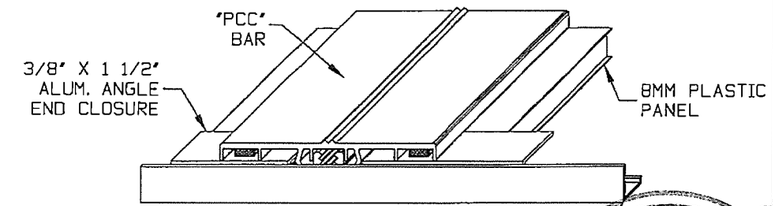
IMPORTANT ALL POLYCARBONATE OR ACRYLIC PANELS HAVE HAD THE EXTERIOR SURFACE TREATED TO PREVENT YELLOWING AFTER PROLONGED EXPOSURE TO THE ELEMENTS (U.V. EXPOSURE). ALL PANELS ARE MARKED AS TO WHICH SURFACE IS TO FACE THE EXTERIOR OF THE GREENHOUSE.

FAILURE TO INSTALL THE PANELS CORRECTLY WILL DRASTICALLY REDUCE THEIR LIFE SPAN.

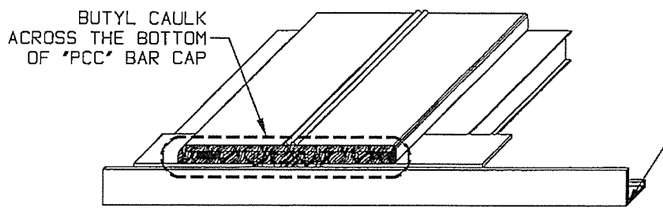




VIEW "A"–"A"



DETAIL 1



DETAIL 2

BOTTOM OF "PCC" BAR CAP MUST BE BUTYL CAULKED AT ALUM. ANGLE END CLOSURE (SEE DETAIL 2)

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

NOTE: FOR GUTTER AND POST ATTATCHMENT SEE TRUSS OR GABLE FRAME DRAWING

HENRY T. DOHERTY REGISTERED PROFESSIONAL ENGINEER PE60900412 STATE OF INDIANA

REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA

5/8/17

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

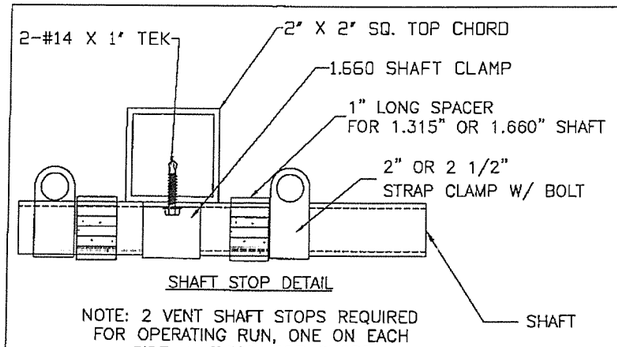
DATE:12/14/06 | REV: 05/18/11

STANDARD DETAIL #PR-1114

PLASTIC PANEL UNITS, ROOF, STEEL & ALUM. FRAME, "G-2R" GUTTER, "EPS" GUTTER SIDE, "PVL" RAFTER WITH 8MM PLASTIC PANEL

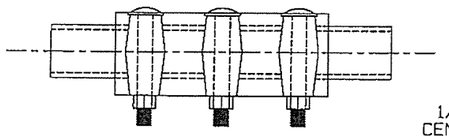
DRAWN BY: SRP
CHECKED BY: HTD
PAGE#: 17

GLAZING=
FINISH=



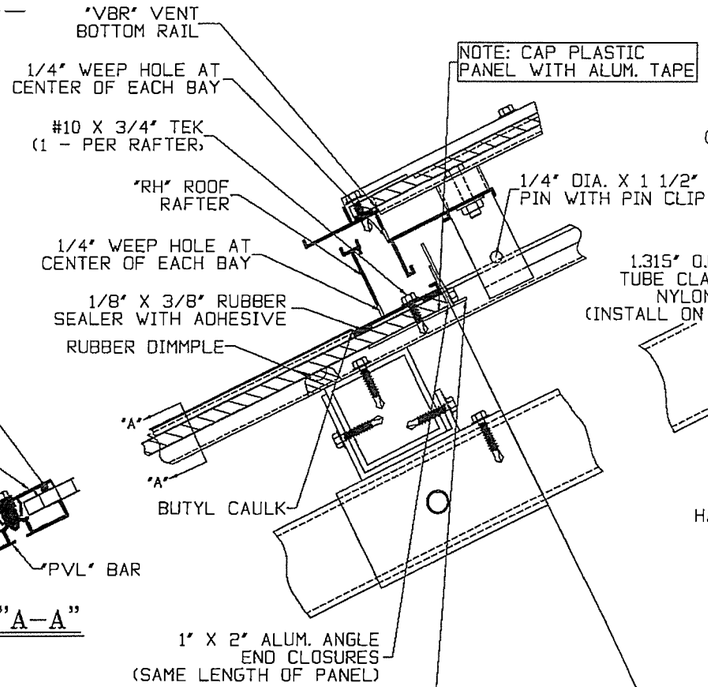
SHAFT STOP DETAIL

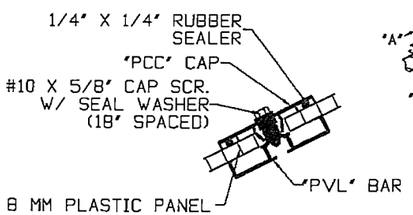
NOTE: 2 VENT SHAFT STOPS REQUIRED FOR OPERATING RUN, ONE ON EACH SIDE OF TRUSS TOP CHORD



COUPLING DETAIL

TO FASTEN COUPLING TO PREVENT SLIPPING, FIRST TIGHTEN ALL BOLTS & THEN TAP SHARPLY WITH A HAMMER & RE-TIGHTEN BOLTS.



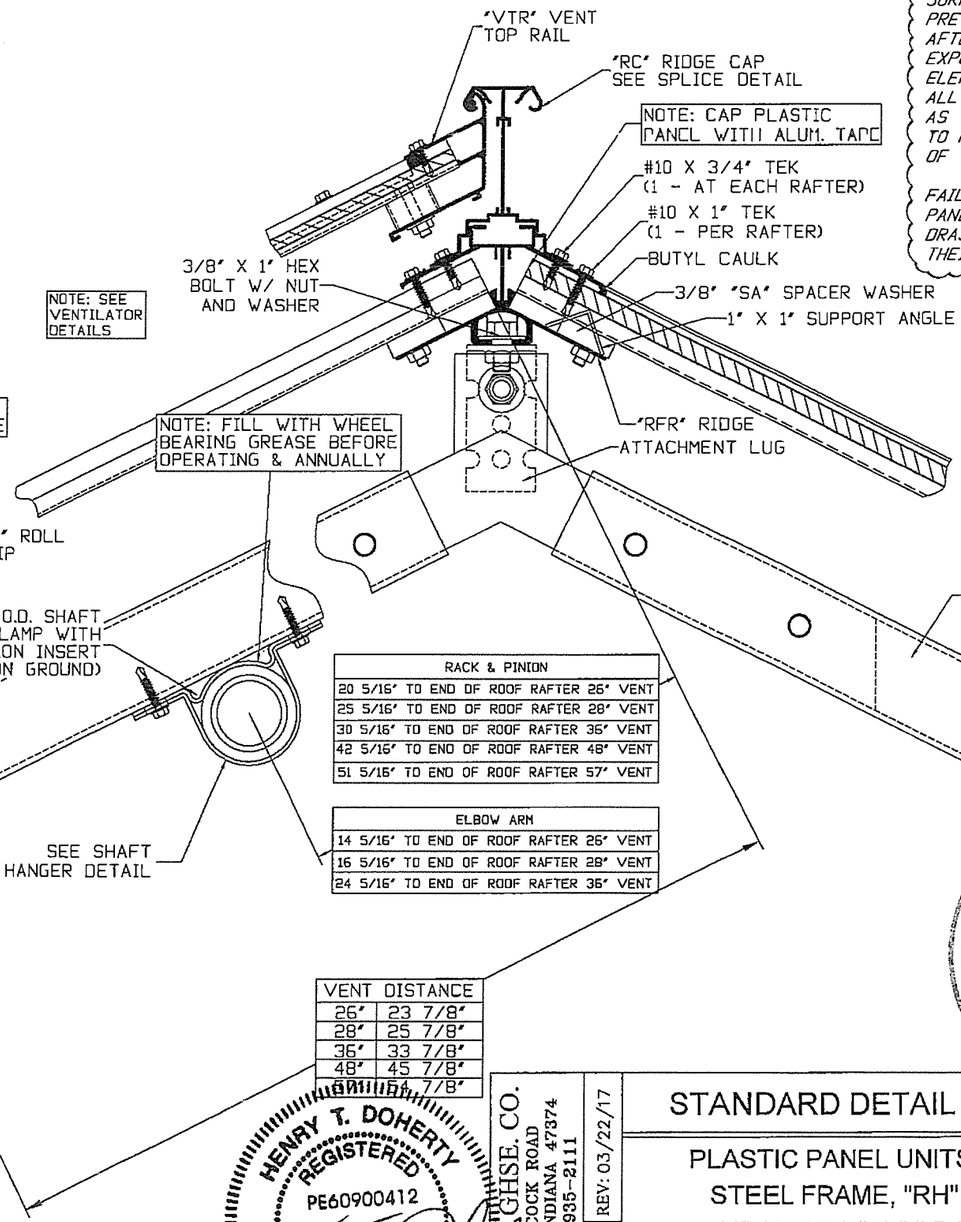


VIEW "A-A"

3/8" X 1 1/2" ALUM. ANGLE
1 - #10 X 5/8" TEK AT MID SPAN
USE WITH SCREEN ONLY

IMPORTANT ALL POLYCARBONATE OR ACRYLIC PANELS HAVE HAD THE EXTERIOR SURFACE TREATED TO PREVENT YELLOWING AFTER PROLONGED EXPOSURE TO THE ELEMENTS (U.V. EXPOSURE). ALL PANELS ARE MARKED AS TO WHICH SURFACE IS TO FACE THE EXTERIOR OF THE GREENHOUSE.

FAILURE TO INSTALL THE PANELS CORRECTLY WILL DRASTICALLY REDUCE THEIR LIFE SPAN.



RACK & PINION
20 5/16" TO END OF ROOF RAFTER 26" VENT
25 5/16" TO END OF ROOF RAFTER 28" VENT
30 5/16" TO END OF ROOF RAFTER 36" VENT
42 5/16" TO END OF ROOF RAFTER 48" VENT
51 5/16" TO END OF ROOF RAFTER 57" VENT

ELBOW ARM
14 5/16" TO END OF ROOF RAFTER 26" VENT
16 5/16" TO END OF ROOF RAFTER 28" VENT
24 5/16" TO END OF ROOF RAFTER 36" VENT

VENT	DISTANCE
26"	23 7/8"
28"	25 7/8"
36"	33 7/8"
48"	45 7/8"
60"	57 7/8"

IMPORTANT ALL POLYCARBONATE OR ACRYLIC PANELS HAVE HAD THE EXTERIOR SURFACE TREATED TO PREVENT YELLOWING AFTER PROLONGED EXPOSURE TO THE ELEMENTS (U.V. EXPOSURE). ALL PANELS ARE MARKED AS TO WHICH SURFACE IS TO FACE THE EXTERIOR OF THE GREENHOUSE.

FAILURE TO INSTALL THE PANELS CORRECTLY WILL DRASTICALLY REDUCE THEIR LIFE SPAN.

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA

5/8/17

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

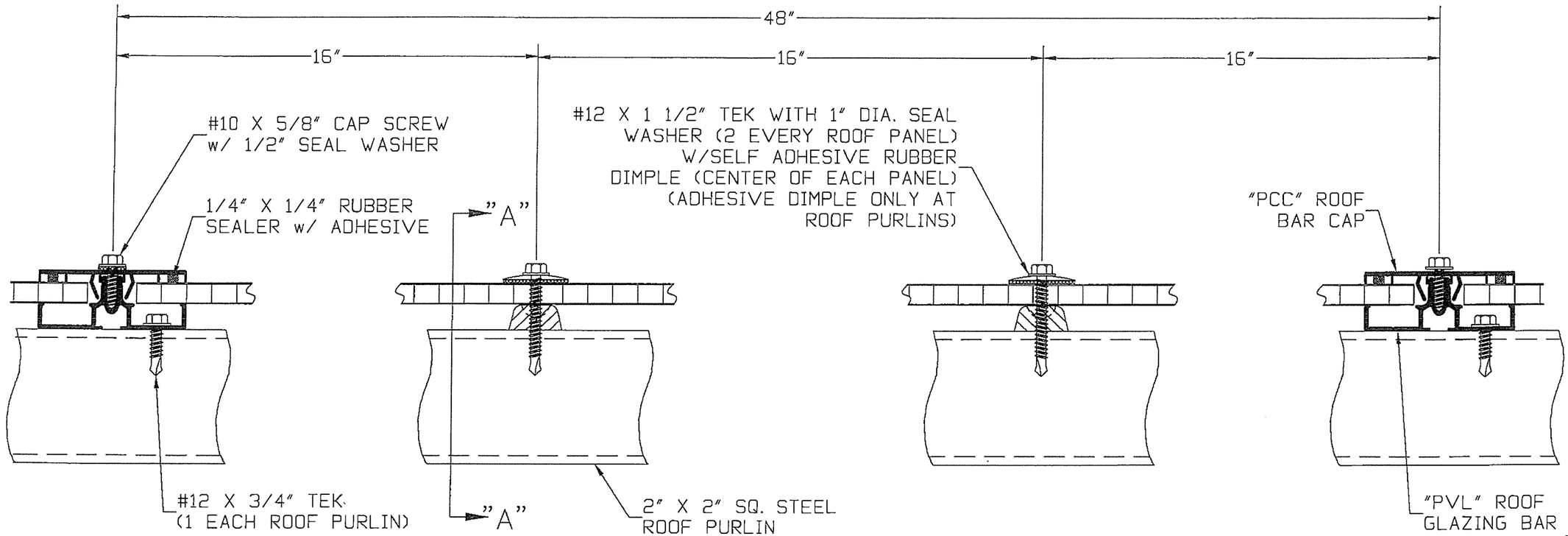
DATE:10/05/10 | REV: 03/22/17

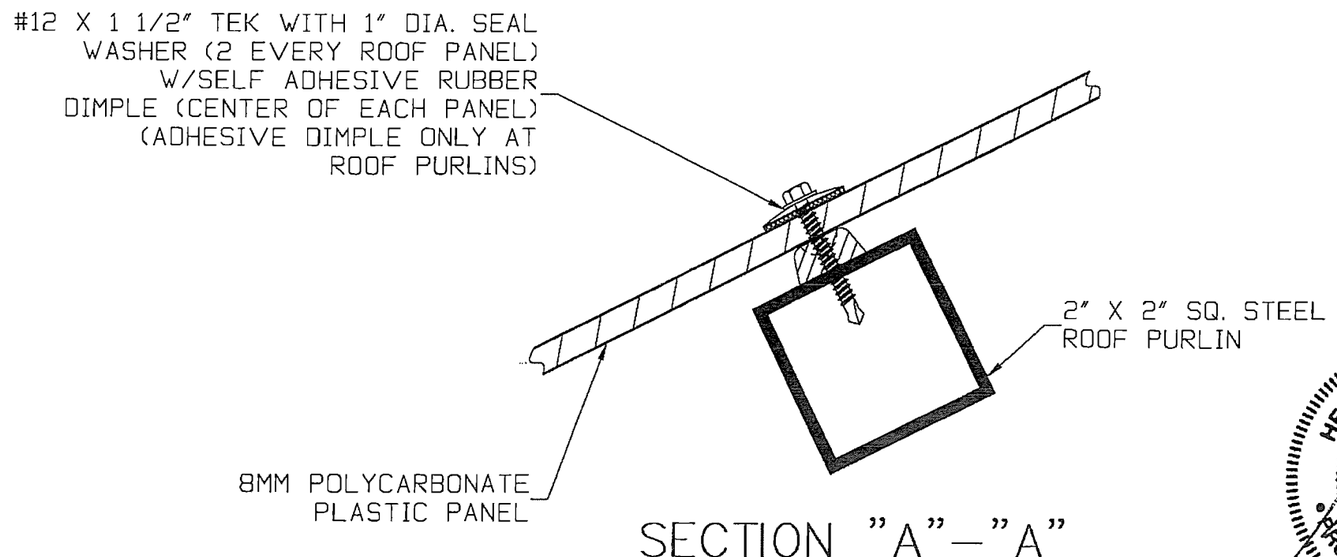
STANDARD DETAIL #V-1221

PLASTIC PANEL UNITS, ROOF
STEEL FRAME, "RH" ROOF
HEADER & "PVL" RAFTER
& 8MM PLASTIC PANEL

DRAWN BY: SRP
CHECKED BY:
PAGE# 18

GLAZING= FINISH=





SECTION "A"–"A"

NOTE: RUBBER SELF ADHESIVE DIMPLES MUST BE KEPT WARM UNTIL JUST BEFORE APPLICATION (68 ° F)

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WILKER
No. C063831
Exp. 09/30/18
STATE OF CALIFORNIA
5/8/17

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 12/17/10 | REV:

STANDARD DETAIL # PR-0241

PLASTIC PANEL UNITS, ROOF,
INTERMEDIATE PLASTIC PANEL
SUPPORTS AT 2" X 2"
SQ. STEEL TUBE PURLINS

DRAWN BY: BAW
CHECKED BY:
PAGE#: 19

GLAZING= | FINISH=

NOTE: SEE GUTTER DETAIL ASSEMBLY AND INSTALLATION PAGE

'G-2R' GUTTER

ROOF RAFTER

NOTE: FOR ROOF GLAZING AND ROOF RAFTER PITCH DETAIL, SEE 'GR' SERIES DETAILS

NOTE: FOR GUTTER AND POST ATTATCHEMENT SEE TRUSS OR GABLE FRAMEWORK DRAWING

BUTYL CAULK CONT.

1" X 1/2" ALUM. ANGLE END CLOSURE CONT.

NOTE: CAP PLASTIC PANEL W/ ALU. TAPE

#12 X 3/4" TEK (24" SPACED)

BUTYL CAULK CONT.

#12 X 1 1/2" TEK (SEE ELEVATION FOR LOCATION)

#12 X 3/4" TEK (1 - PER BAR)

3/8" X 1 1/2" ALUM. ANGLE END CLOSURE & HOLD DOWN (SAME LENGTH AS PANEL)

POST CENTERED ON GUTTER

BEAD OF SILICONE

1" X 1 1/2" ALUM. ANGLE END CLOSURE & HOLD DOWN (SAME LENGTH AS PANEL)

7/16" X 7/16" RUBBER SEALER WITH BUTYL CAULK ADHESIVE TO ALUM.

IMPORTANT ALL POLYCARBONATE OR ACRYLIC GLAZING PANELS HAVE HAD THE EXTERIOR SURFACE TREATED TO PREVENT YELLOWING AFTER PROLONGED EXPOSURE TO THE ELEMENTS (U.V. EXPOSURE). ALL PANELS ARE MARKED AS TO WHICH SURFACE IS TO FACE THE EXTERIOR OF THE GREENHOUSE.

FAILURE TO INSTALL THE PANELS CORRECTLY WILL DRASTICALLY REDUCE THEIR LIFE SPAN.

3" X 3" SQ. STEEL SIDEWALL POST

"A"

"A"

SELF-ADHESIVE GRAY RUBBER DIMPLE (AT TEK)

#12 X 1 1/2" TEK WITH 1" DIA. SEAL WASHER (SEE ELEVATION FOR LOCATION)

#12 X 3/4" TEK (1 - PER BAR)

SGA-G 1/16" X 1" X 1 1/2" X 1' - 2" LG. FORMED STEEL ANGLE SIDEWALL GIRT ATTACHMENT 6 - #12 X 3/4" (SEE STP-1155)

#12 X 3/4" TEK (SEE ELEVATION)

3" X 3" SQ. STEEL SIDEWALL POST

#10 X 5/8" CAP SCR. W/ SEAL WASHER

'PCC' BAR CAP

1/4" X 1/4" RUBBER SEALER W/ ADHESIVE

8MM PLASTIC PANEL

'PVL' BAR

VIEW "A"-"A"

7/16" X 7/16" RUBBER SEALER WITH BUTYL CAULK ADHESIVE TO ALUM.

BEAD OF SILICONE

3/8" X 1 1/2" ALUM. ANGLE END CLOSURE & HOLD DOWN (SAME LENGTH AS PANEL)

#12 X 1 1/2" TEK (SEE ELEVATION FOR LOCATION)

BUTYL CAULK CONT.

2 1/2" X 3 1/2" SIDE WALL ALUM. ANGLE SILL (BED SILL IN STORM BLASTER CAULK)

1" X 1 1/2" ALUM. ANGLE END CLOSURE & HOLD DOWN (SAME LENGTH AS PANEL)

3" X 3" SQ. STEEL SIDEWALL POST

#12 X 3/4" TEK (1 - PER BAR)

2" X 2" SQ. STEEL SIDEWALL GIRT (SEE ELEVATION FOR LOCATION IF REQUIRED)

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

POLYURETHANE CAULK

#14 X 1 1/4" TAPTITE (24" SPACED)

STATE OF CALIFORNIA * REGISTERED PROFESSIONAL ENGINEER * CIVIL * MATTHEW S. WALKER No. 63831 Exp. 08/31/15

PROFESSIONAL ENGINEER * STATE OF INDIANA * HENRY THOMAS OHERRY * REGISTERED * PE6900412

WINANDY GREENHOUSE CO.
2311 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:10/21/11 | REV:10/02/13

STANDARD DETAIL # PWS-1101

(PLASTIC PANEL UNITS) SIDE WALL STEEL FRAME, 8MM PLASTIC PANEL W/O VENT, ALUM. ANGLE SILL W/ GUTTER

DRAWN BY: SRP

CHECKED BY:

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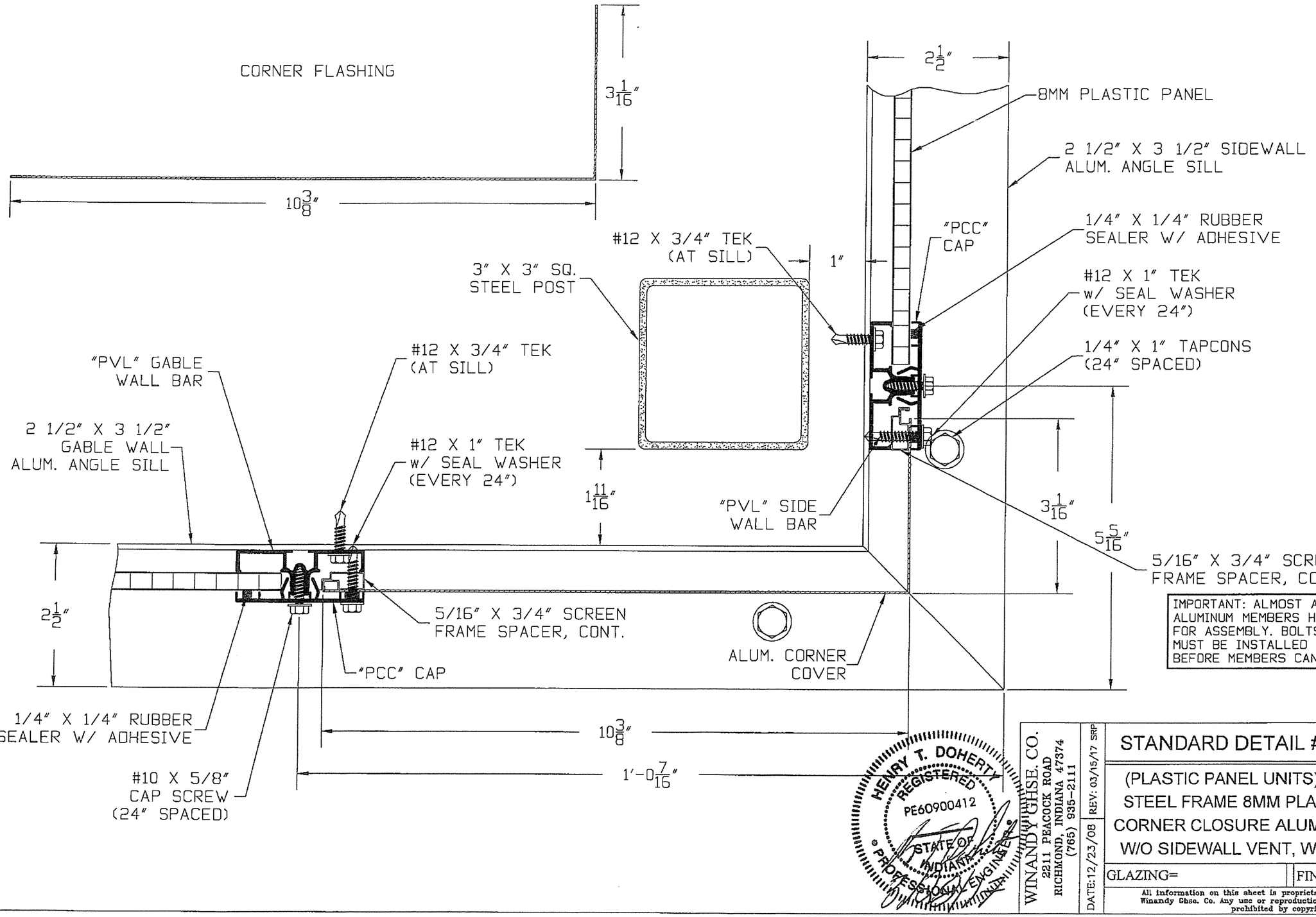
FINISH=



IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA
5/8/17

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:12/23/08 | REV: 03/15/17 SRP

STANDARD DETAIL # STP-0101

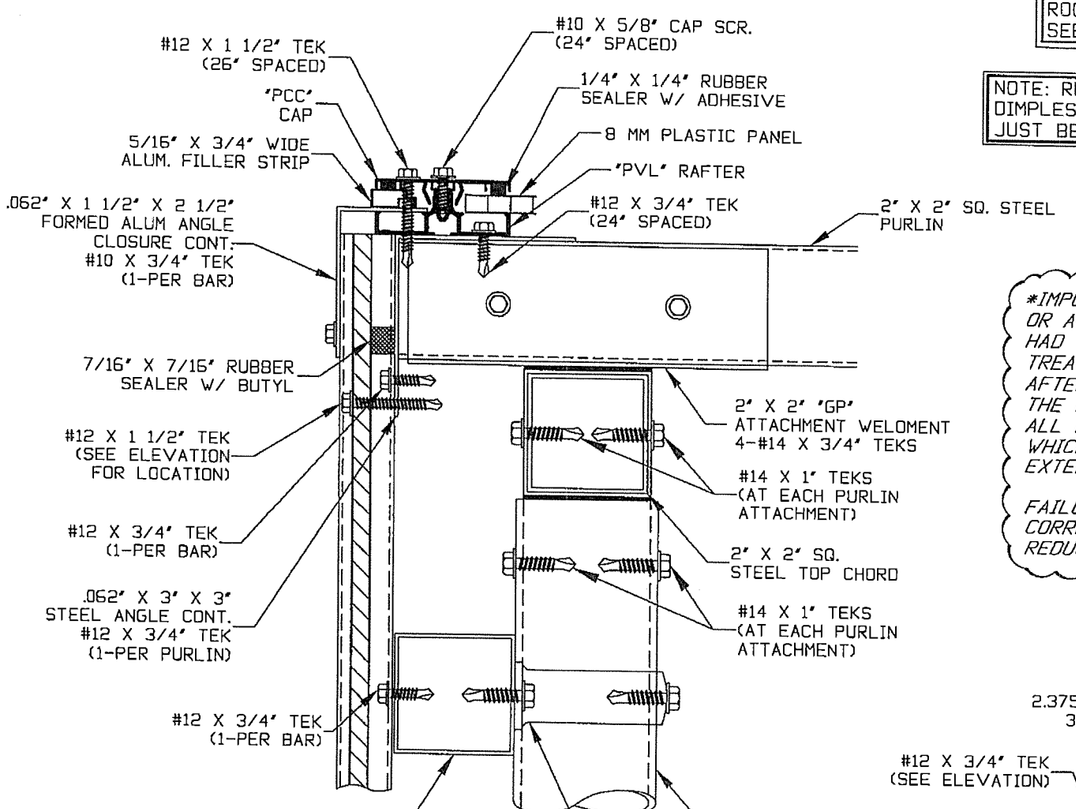
(PLASTIC PANEL UNITS), SIDEWALL
STEEL FRAME 8MM PLASTIC PANEL
CORNER CLOSURE ALUM. ANGLE SILL
W/O SIDEWALL VENT, WITH GUTTER

DRAWN BY: BAW
CHECKED BY:
PAGE#: 21

GLAZING=
FINISH=

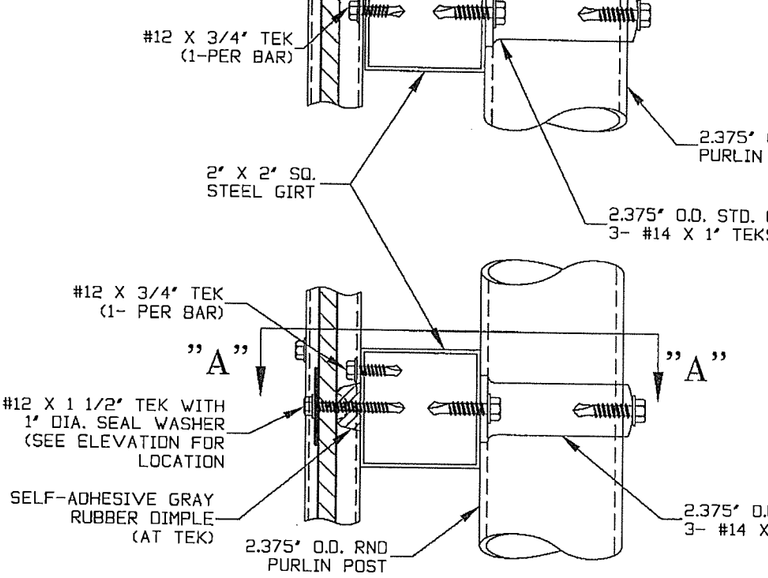
NOTE: FOR ROOF GLAZING AND ROOF RAFTER PITCH DETAIL, SEE "GR" SERIES DETAILS PAGE.

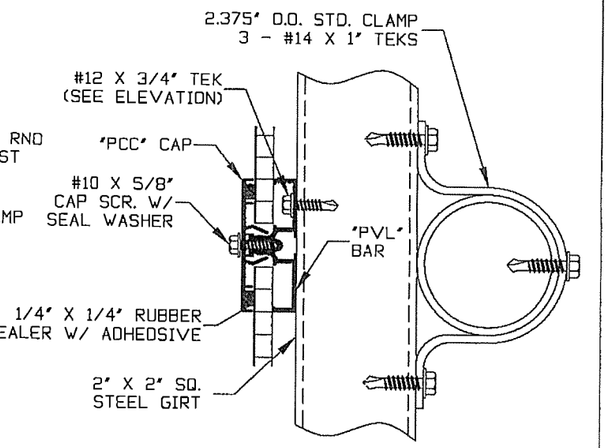
NOTE: RUBBER SELF ADHESIVE DIMPLES MUST BE KEPT WARM UNTIL JUST BEFORE APPLICATION (68° F)



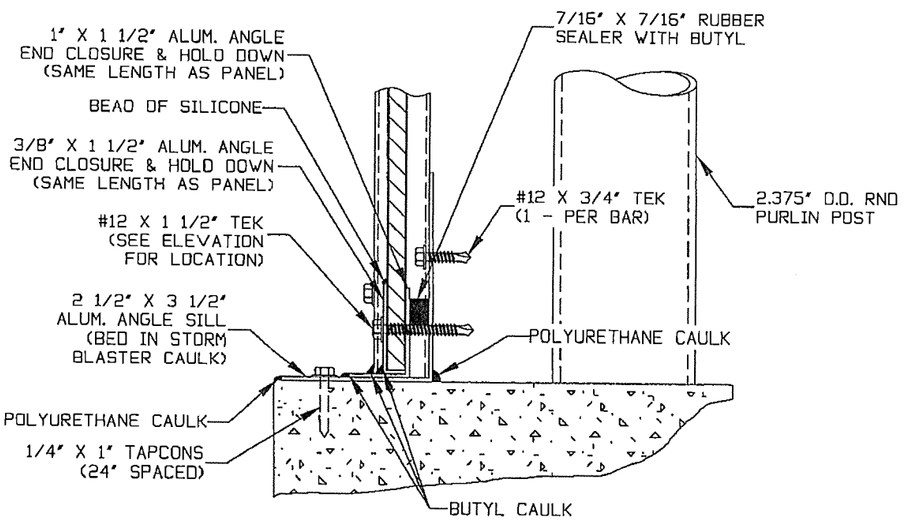
IMPORTANT ALL POLYCARBONATE OR ACRYLIC GLAZING PANELS HAVE HAD THE EXTERIOR SURFACE TREATED TO PREVENT YELLOWING AFTER PROLONGED EXPOSURE TO THE ELEMENTS (U.V. EXPOSURE). ALL PANELS ARE MARKED AS TO WHICH SURFACE IS TO FACE THE EXTERIOR OF THE GREENHOUSE.

FAILURE TO INSTALL THE PANELS CORRECTLY WILL DRASTICALLY REDUCE THEIR LIFE SPAN.

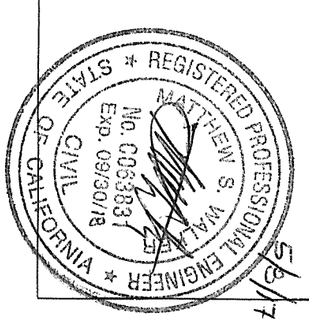


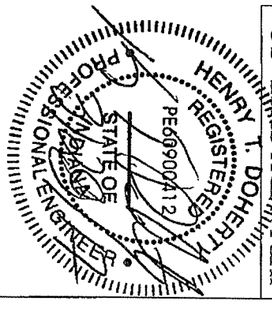


SECTION "A"–"A"



IMPORTANT ALMOST ALL EXTRUDED ALUMINUM MEMBER HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLTS SLOTS BEFORE MEMBERS CAN BE INSTALLED.





WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 10/18/11 | REV: 08/09/12

STANDARD DETAIL # PGS - 1301

(PLASTIC PANEL UNITS) GABLE STEEL FRAME, 8MM PLASTIC PANEL W/ 2" X 2" "GP" ATTACHMENT WELDMENT, "DWS" SILL

DRAWN BY: SRP

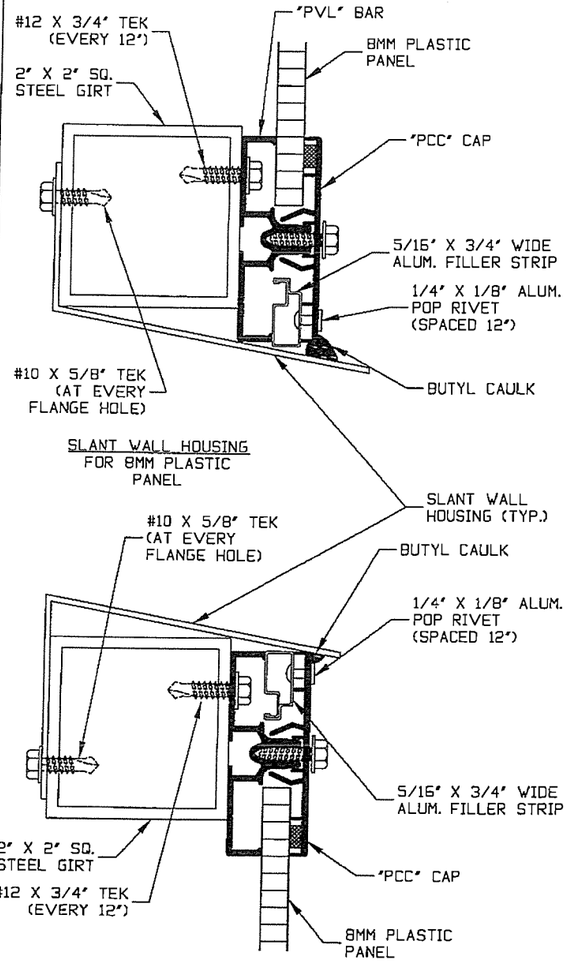
CHECKED BY:

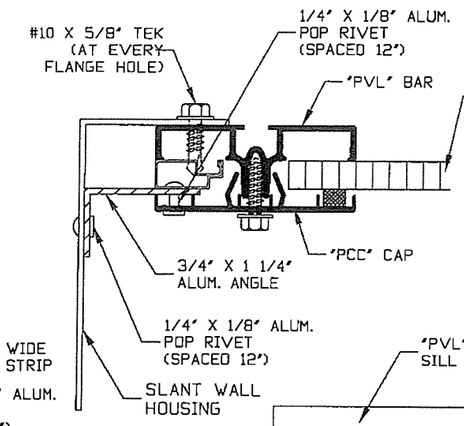
PAGE#: 22

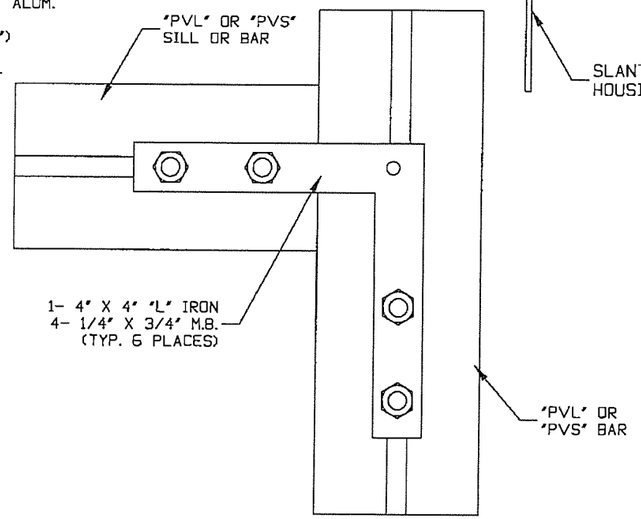
GLAZING=

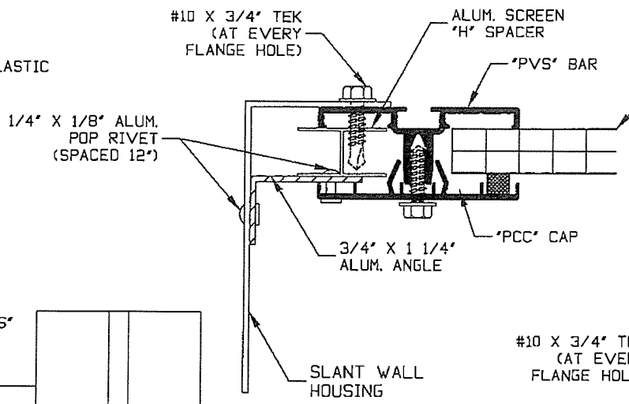
FINISH=

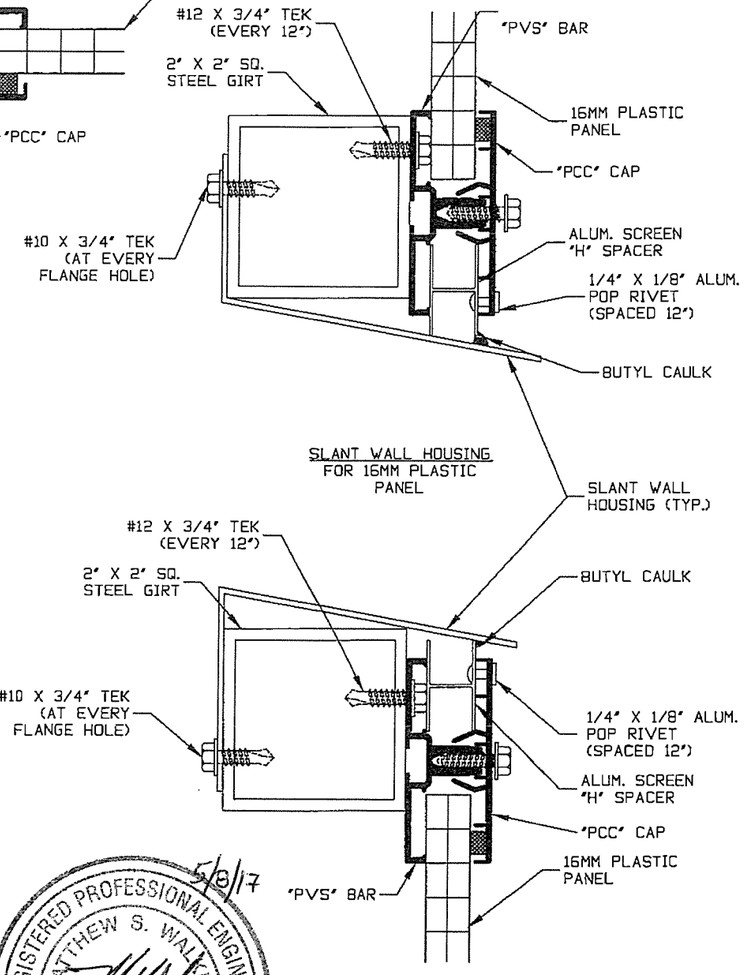
IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS ARE ASSEMBLED.



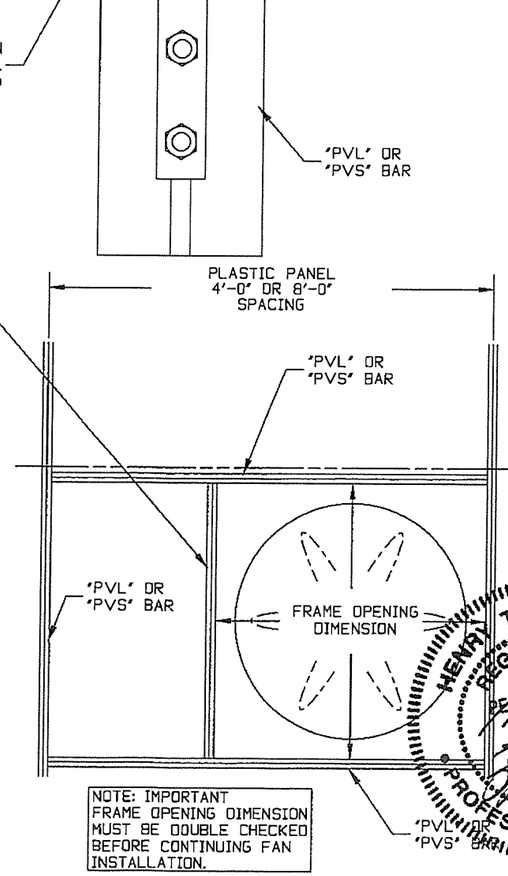






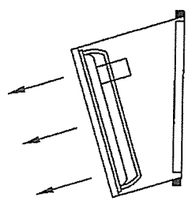


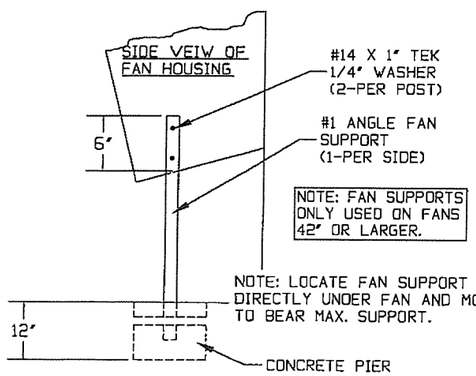
FAN SIZE	"PVS" OR "PVL" BAR LENGTH
24"	29 11/16"
30"	35 7/16"
36"	41 11/16"
42"	47 15/16"
48"	56 5/8"
54"	62 7/16"



NOTE: IMPORTANT FRAME OPENING DIMENSION MUST BE DOUBLE CHECKED BEFORE CONTINUING FAN INSTALLATION.

FAN SIZE	WALL HOUSING MODEL	FRAMED OPENING DIMENSION WIDTH	HEIGHT
24"	OC(A)24	28 1/4"	29 11/16"
30"	OC(A)30	34 1/4"	35 7/16"
36"	OC(A)36	40 3/8"	41 11/16"
42"	OC(A)42	46 1/4"	47 15/16"
48"	OC(A)48	54 1/4"	56 5/8"
54"	OC(A)54	60 1/4"	62 7/16"





#1 ANGLE - 1 5/8" X 1 5/8"
#3 ANGLE - 1 5/8" X 3 1/8"

REGISTERED PROFESSIONAL ENGINEER ★ MATTHEW S. WALKER ★ No. C063831 Exp. 09/30/18 STATE OF INDIANA

HENRY T. DOHERTY REGISTERED PE09900412 PROFESSIONAL ENGINEER STATE OF INDIANA

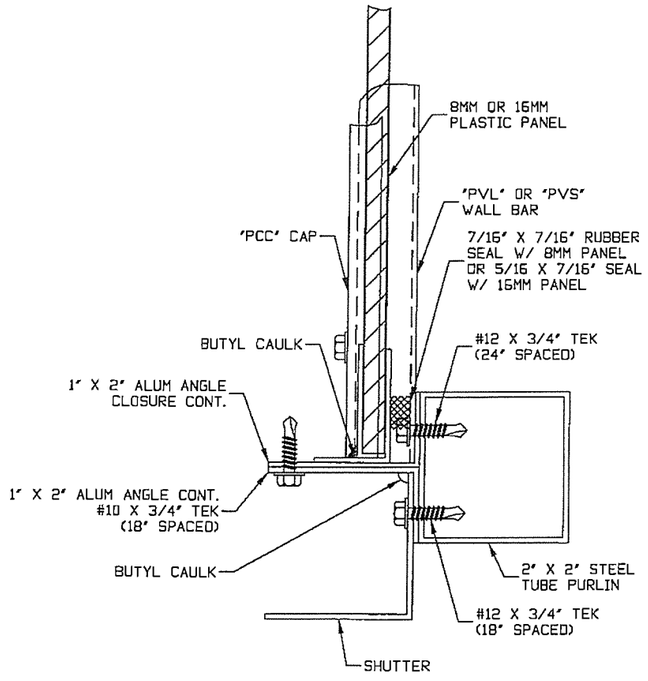
1/9/17

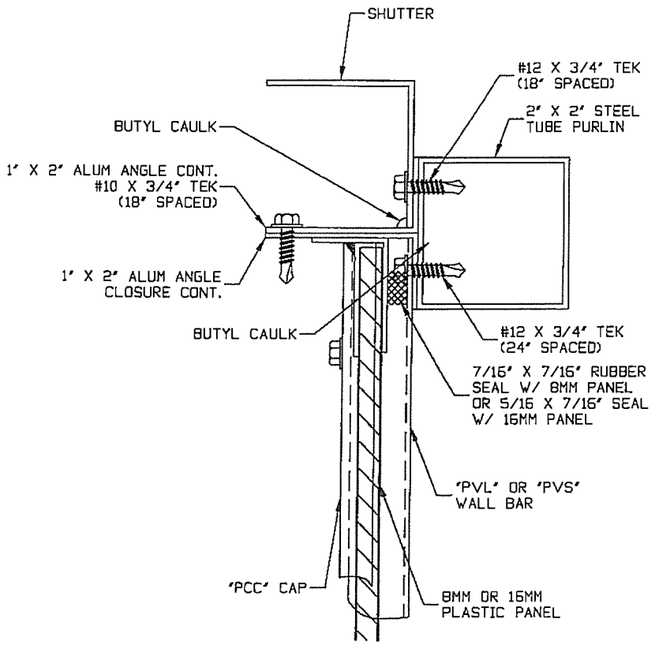
WINANDY GHEE CO. INC. 2211 PEACOCK ROAD RICHMOND, INDIANA 47374 (765) 935-2111

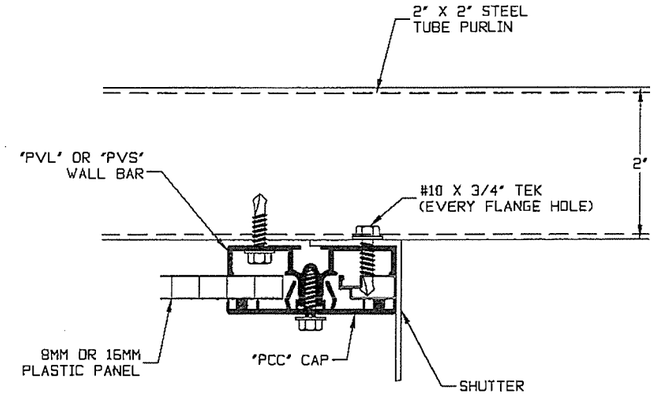
STANDARD DETAIL NO. QA-0523

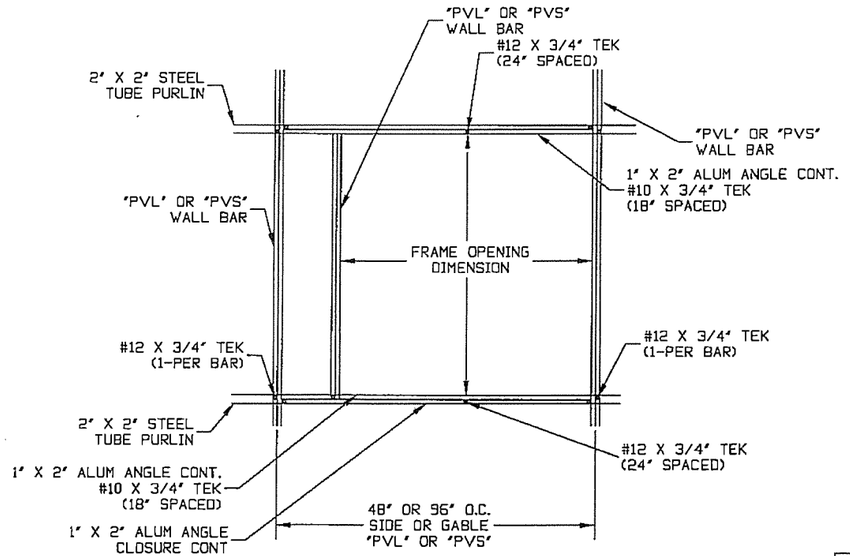
ACCESSORIES, AIR CONDITIONING, FAN & PAD COOLERS, EXHAUST FAN FRAMING FOR 8MM OR 16MM PLASTIC PANEL

DRAWN BY: BAW
CHECKED BY:
PAGE#: 23
REV: 03/14/05
DATE: 03/14/05
GLAZING=
FINISH=









SHUTTER SIZE	SIDE BAR LENGTH
1818	16 3/8'
2626	24 3/8'
3333	31 3/8'
4040	38 3/8'
6318	16 3/8'
6340	38 3/8'
6342	60 3/8'

SHUTTER SIZE	OPENING (W X H)
1818	16' X 16 3/8'
2626	24' X 24 3/8'
3333	31' X 31 3/8'
4040	38' X 38 3/8'
6318	61' X 16 3/8'
6340	61' X 38 3/8'
6342	61' X 60 3/8'

IMPORTANT: FRAME OPENING DIMENSION MUST BE DOUBLE CHECKED BEFORE CONTINUING FAN INSTALLATION

5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

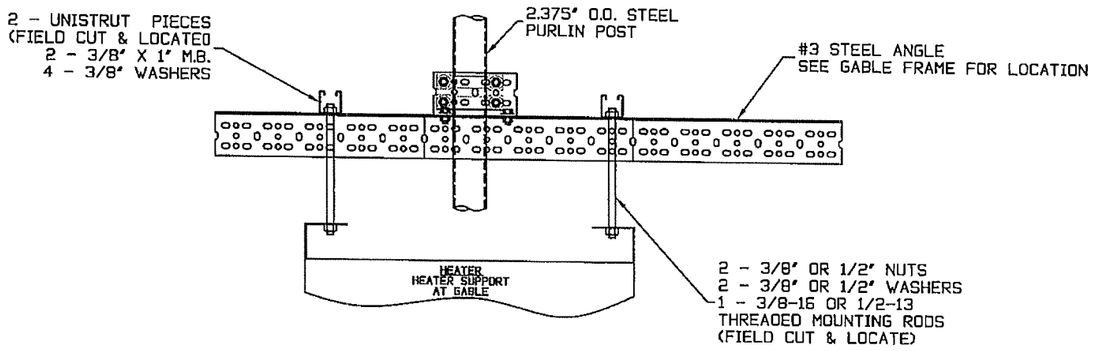
DATE: 02/07/17 | REV:

STANDARD DETAIL NO. CA-0245

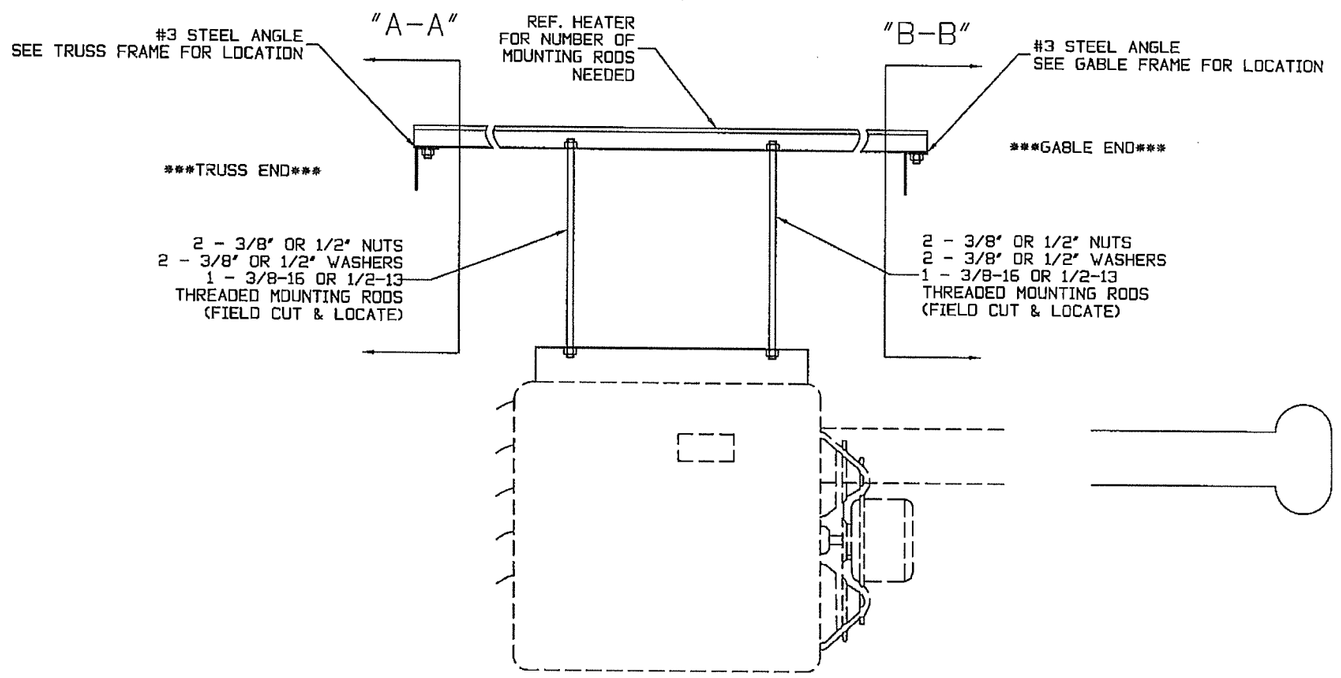
ACCESSORIES, AIR CONDITIONING FAN & PAD COOLERS, EXHAUST SHUTTER FRAME FOR (ACME "WAAC")

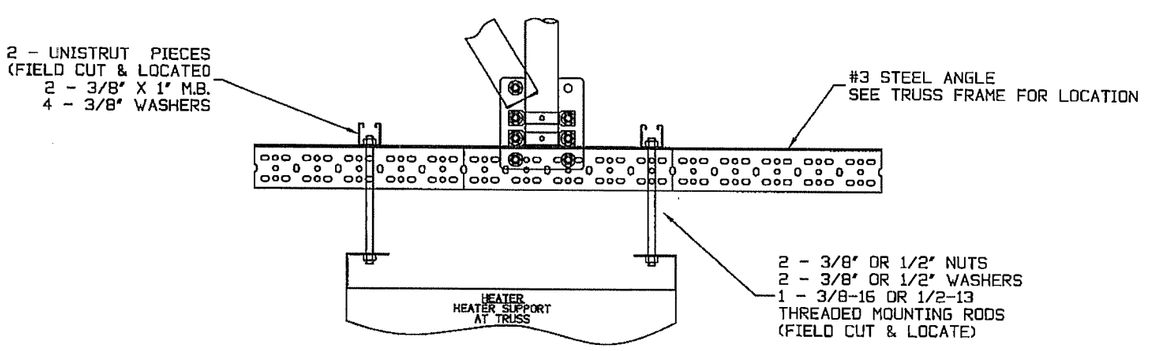
DRAWN BY: SRP
CHECKED BY:
PAGE# 24

GLAZING=
FINISH=



SECTION "B-B"





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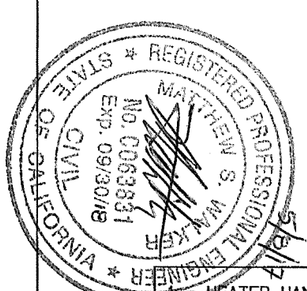
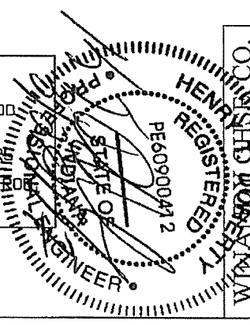


HEATER HANGING KIT

1 - 3/8"-16 OR 1/2"-13 X 6'-0" THREADED ROD
4 - 12"-3" UNISTRUT
15 - 3/8" X 1" M.B.
30 - 3/8" OR 22 - 3/8" & 4 - 1/2" WASHERS
30 - 3/8" OR 22 - 3/8" & 4 - 1/2" NUTS
NOTE: SEE HEATER UNIT SIZE FOR THREADED ROD, NUTS, AND WASHER SIZE



WINANDY GHSE CO.
2241 HAGERSTOWN ROAD
RICHMOND, INDIANA 47374
(785) 935-2111

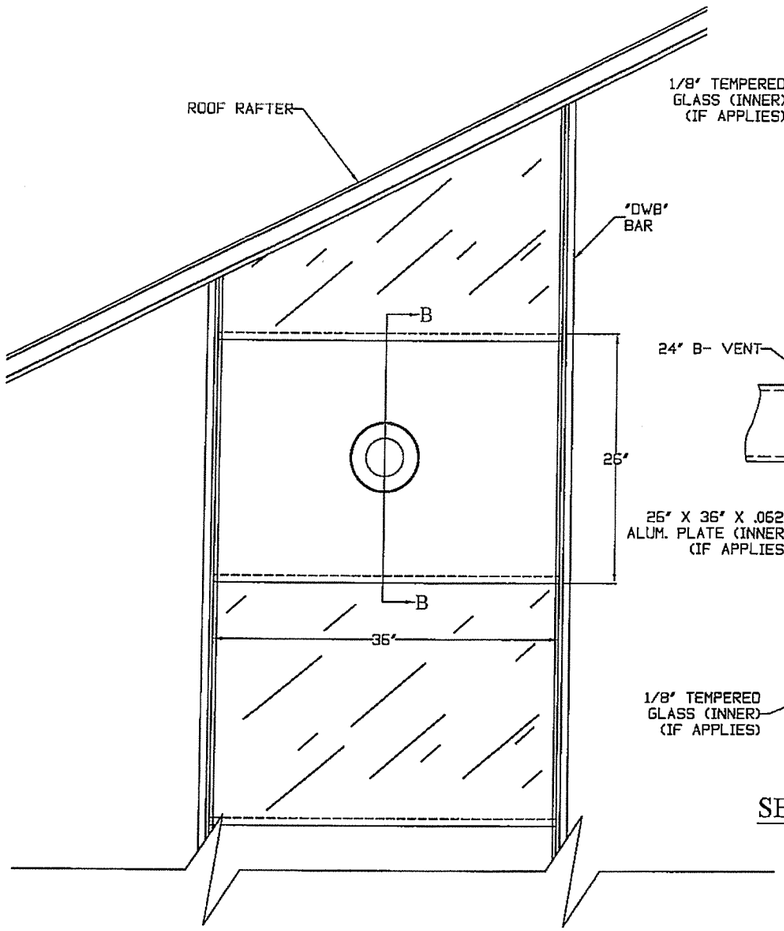
DATE:03/10/16 | REV:

STANDARD DETAIL #QH-0102

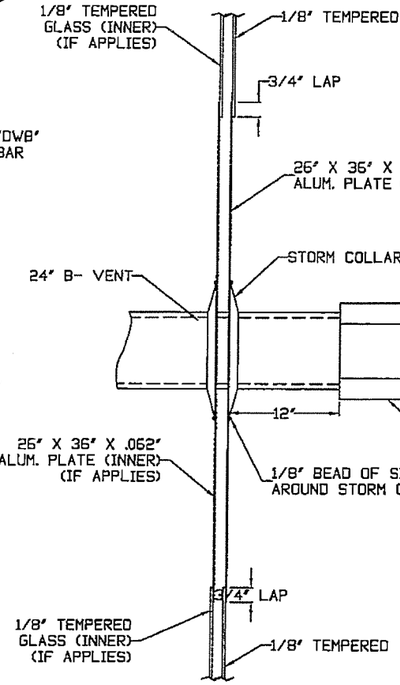
ACCESSORIES, HEATERS,
HEATER HANGING
HORIZONTAL DELIVERY TYP. FOR
ALUM. FRAME, BELOW SHADE CLOTH

DRAWN: SRP
CHECKED:
BY:
PAGE#: 25

GLAZING=
FINISH=



GLASS HOUSE PENETRATION



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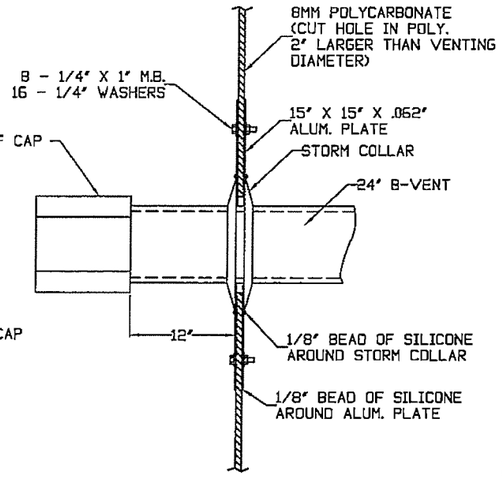

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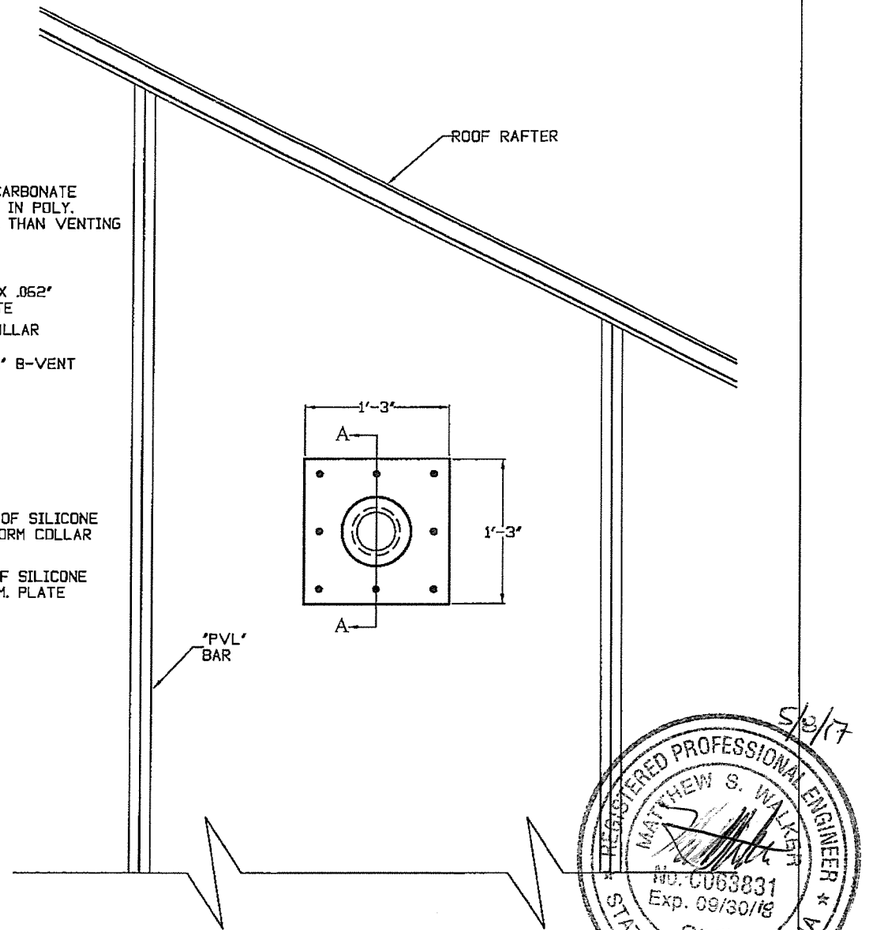


POLYCARBONATE HOUSE PENETRATION

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 09/28/05 | REV:

STANDARD DETAIL NO. QH-0292

ACCESSORIES HEATERS, HANGING & VENTING OF PROPELLER UNIT W/FLUE (HORIZONTAL)

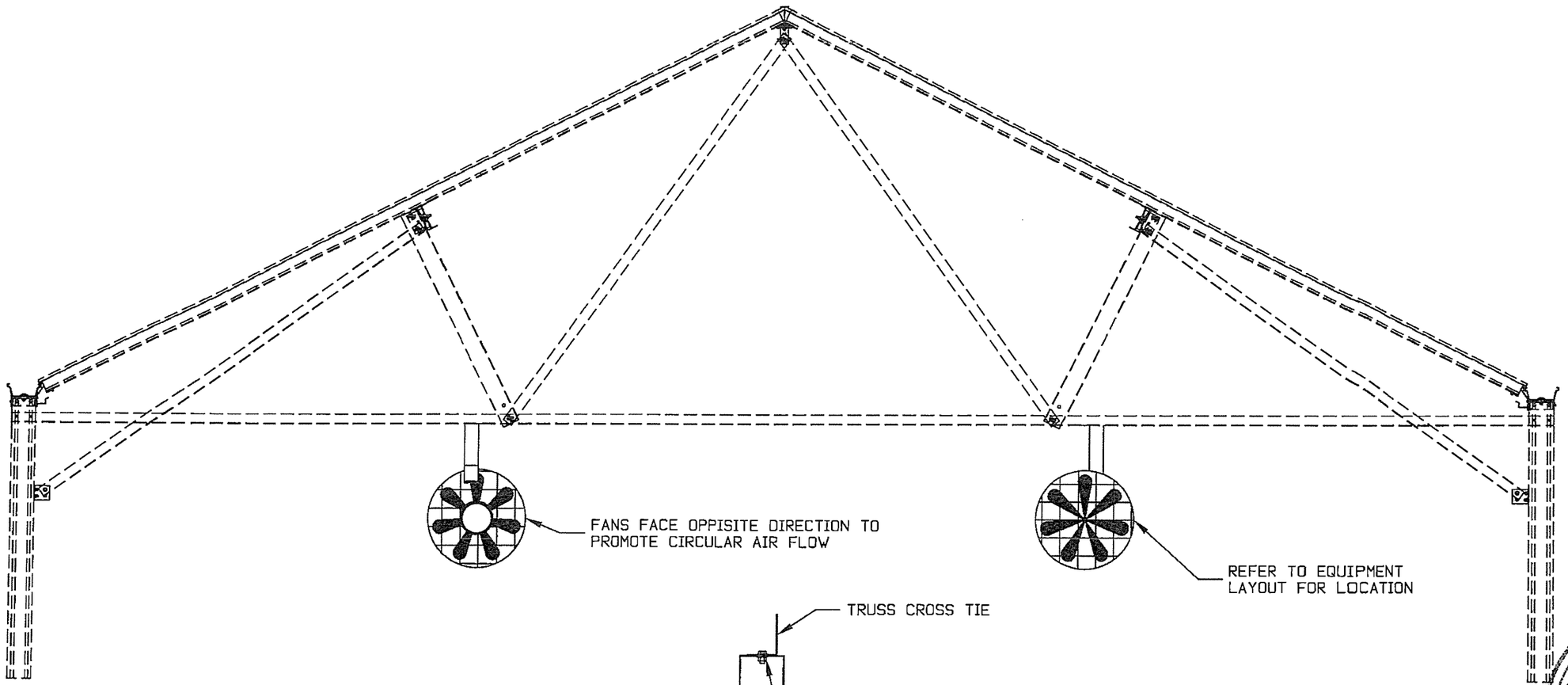
DRAWN BY: BAW

CHECKED BY:

PAGE# 26

GLAZING=

FINISH=



HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 CIVIL STATE OF CALIFORNIA

5/3/17

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 07/23/14 | REV:

STANDARD DETAIL #QA-2000

DRAWN BY: SRP

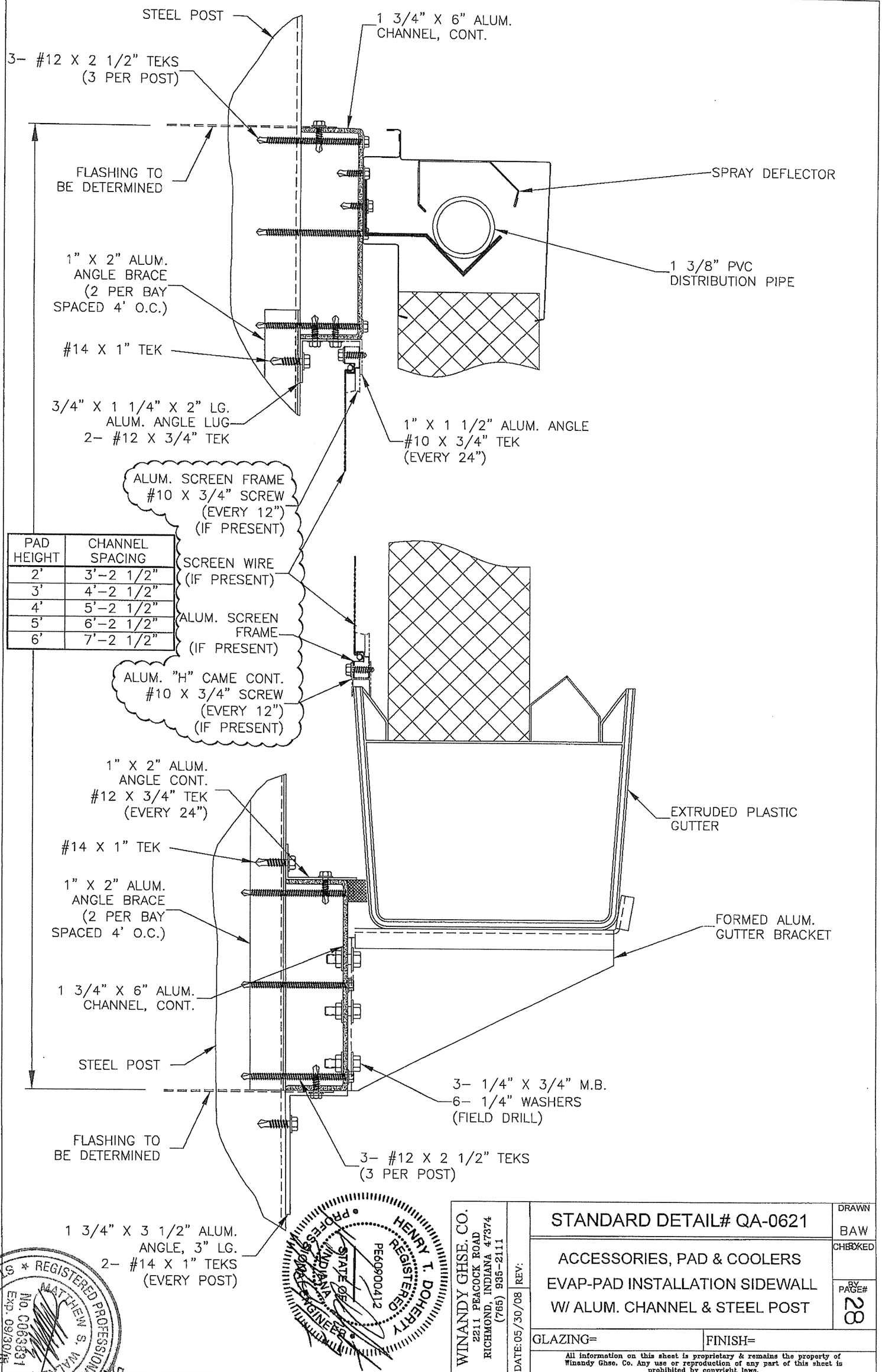
CHECKED BY:

HAF FAN ATTACHMENT DETAIL ALUM. SUPER STRUCTURE

PAGE# 27

GLAZING=

FINISH=



PAD HEIGHT	CHANNEL SPACING
2'	3'–2 1/2"
3'	4'–2 1/2"
4'	5'–2 1/2"
5'	6'–2 1/2"
6'	7'–2 1/2"

HENRY T. DOHERTY REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA PE6900412

STATE OF CALIFORNIA * REGISTERED PROFESSIONAL ENGINEER * CIVIL
MATTHEW S. WALKER
No. C063331
Exp. 09/30/08

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

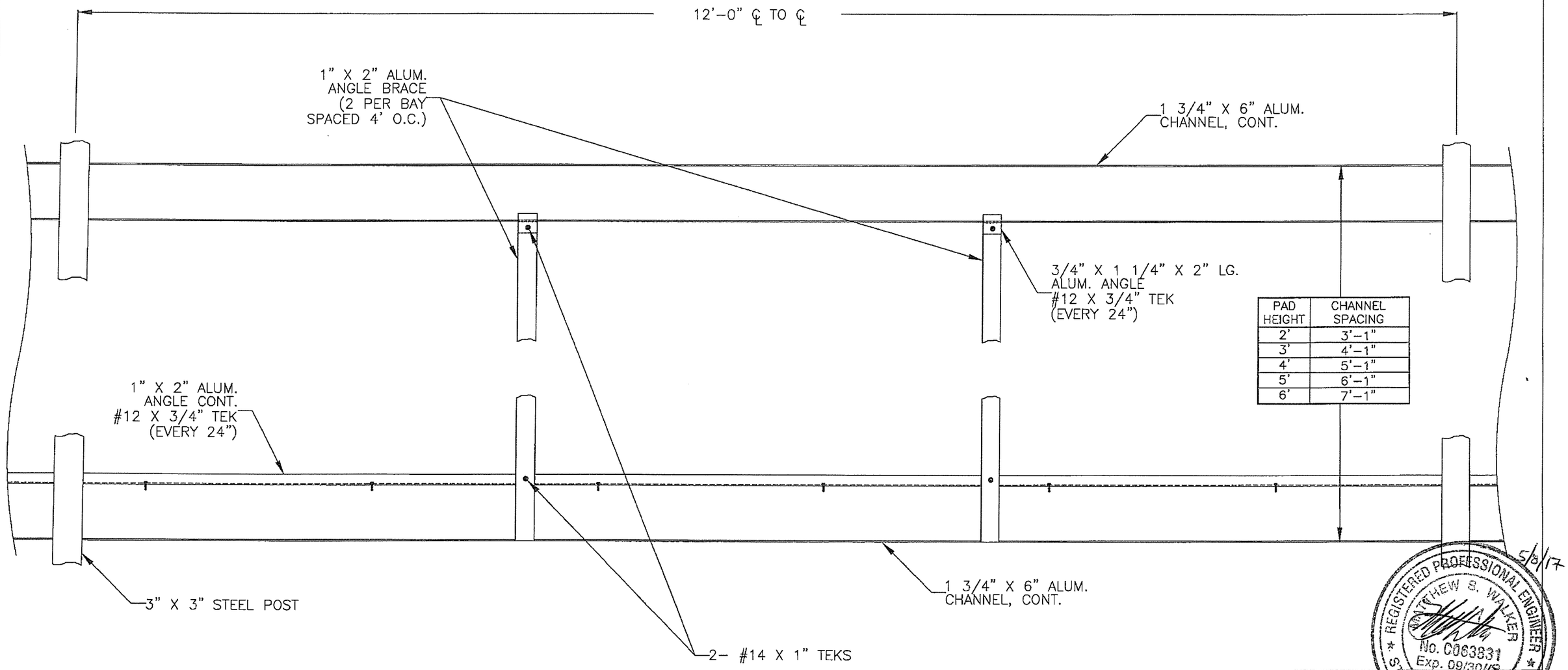
DATE: 05/30/08 REV:

STANDARD DETAIL# QA-0621

DRAWN: BAW
CHECKED:
BY:
PAGE# 28

ACCESSORIES, PAD & COOLERS
EVAP-PAD INSTALLATION SIDEWALL
W/ ALUM. CHANNEL & STEEL POST

GLAZING=
FINISH=



PAD HEIGHT	CHANNEL SPACING
2'	3'-1"
3'	4'-1"
4'	5'-1"
5'	6'-1"
6'	7'-1"

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

5/5/17

REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 STATE OF CALIFORNIA CIVIL

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 12/31/09 | REV:

STANDARD DETAIL QA-0622

ACCESSORIES, PAD & COOLERS
EVAP-PAD SUPPORT INSTALLATION w/ ALUM. CHANNEL & STEEL POST

DRAWN BY

CHECKED BY

PAGE# 29

GLAZING=

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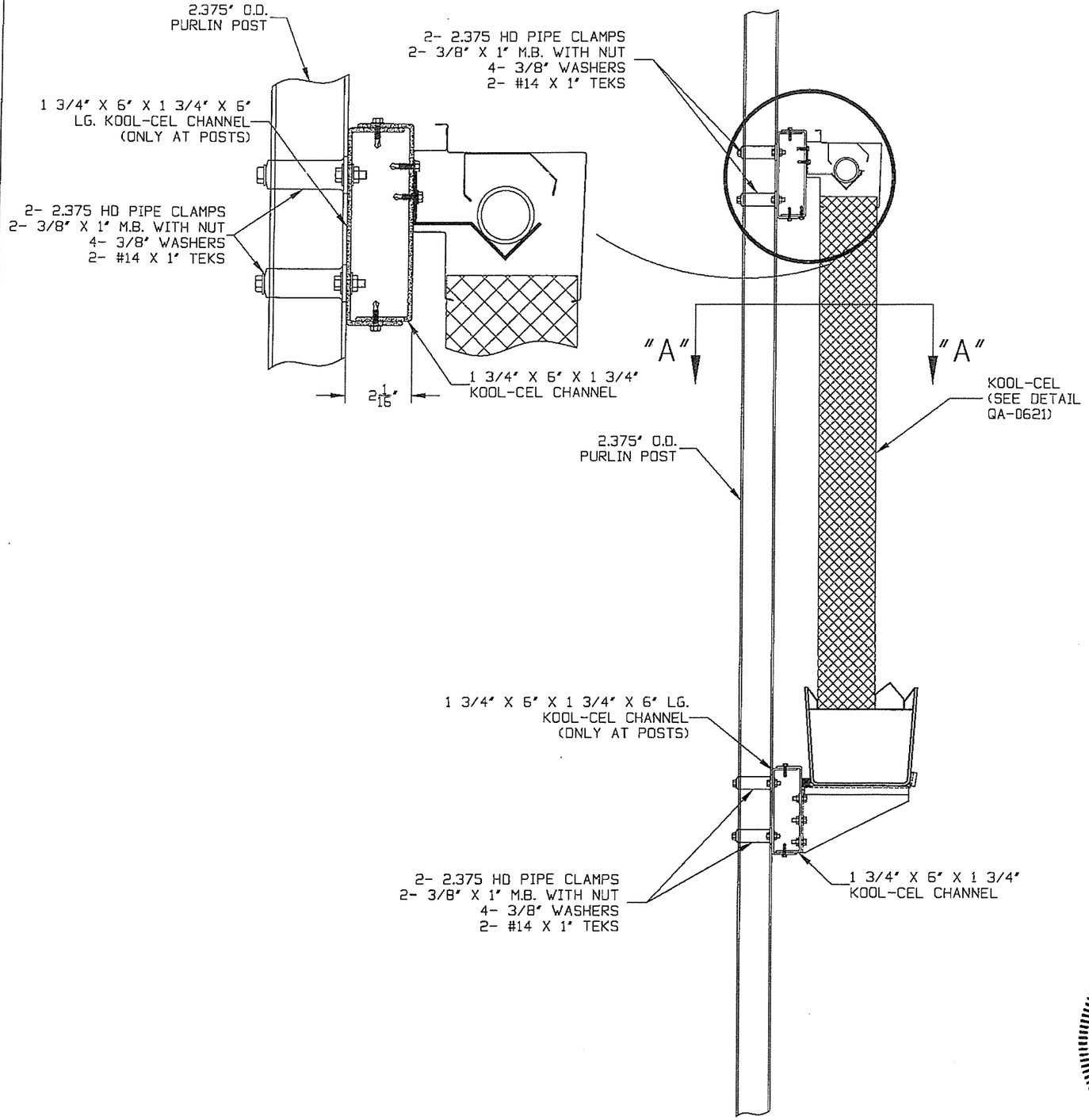
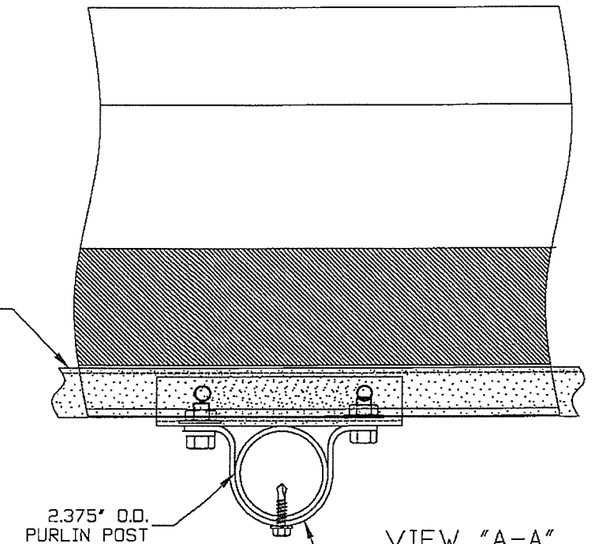




VIEW "A-A"

5/8/17

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
CIVIL
STATE OF CALIFORNIA

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:04/06/16 | REV:

STANDARD DETAIL #QA-1930

DRAWN BY: SRP

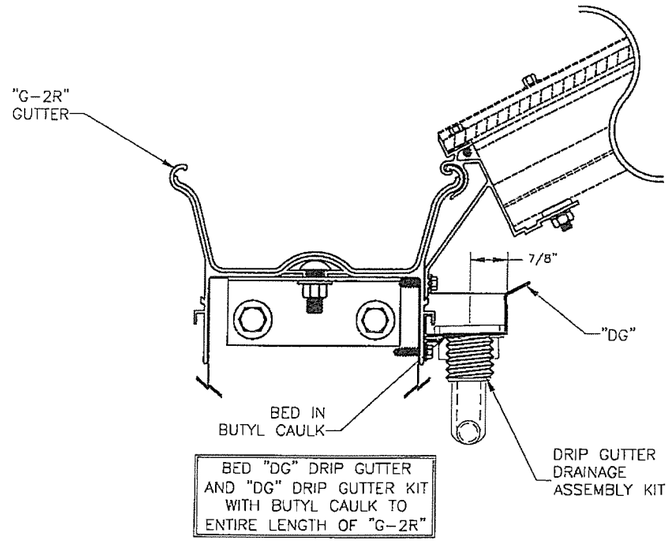
CHECKED BY:

ACCESSORIES, PAD & COOLERS
ACME CAEG INSTALLATION GABLE w/ KOOL-CEL AT ROUND PURLIN POSTS

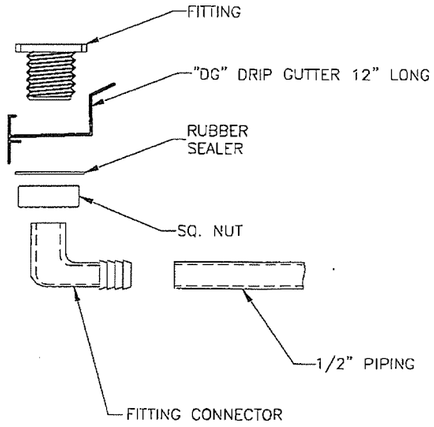
PAGE# 30

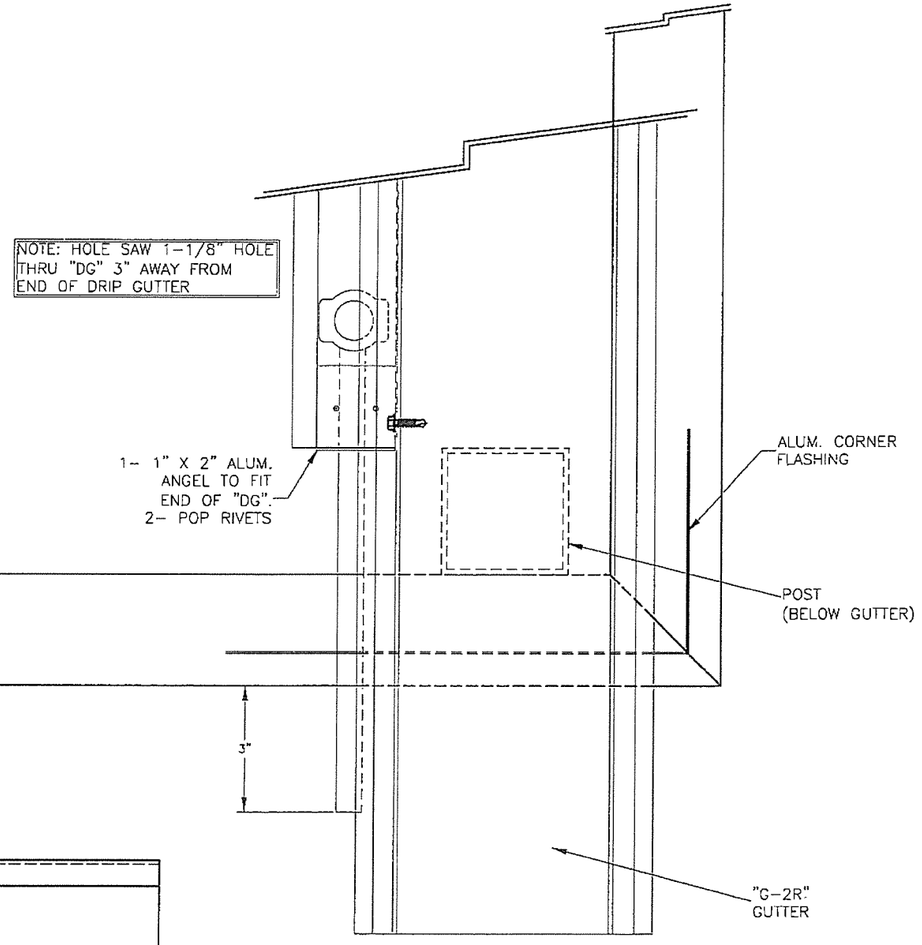
GLAZING=

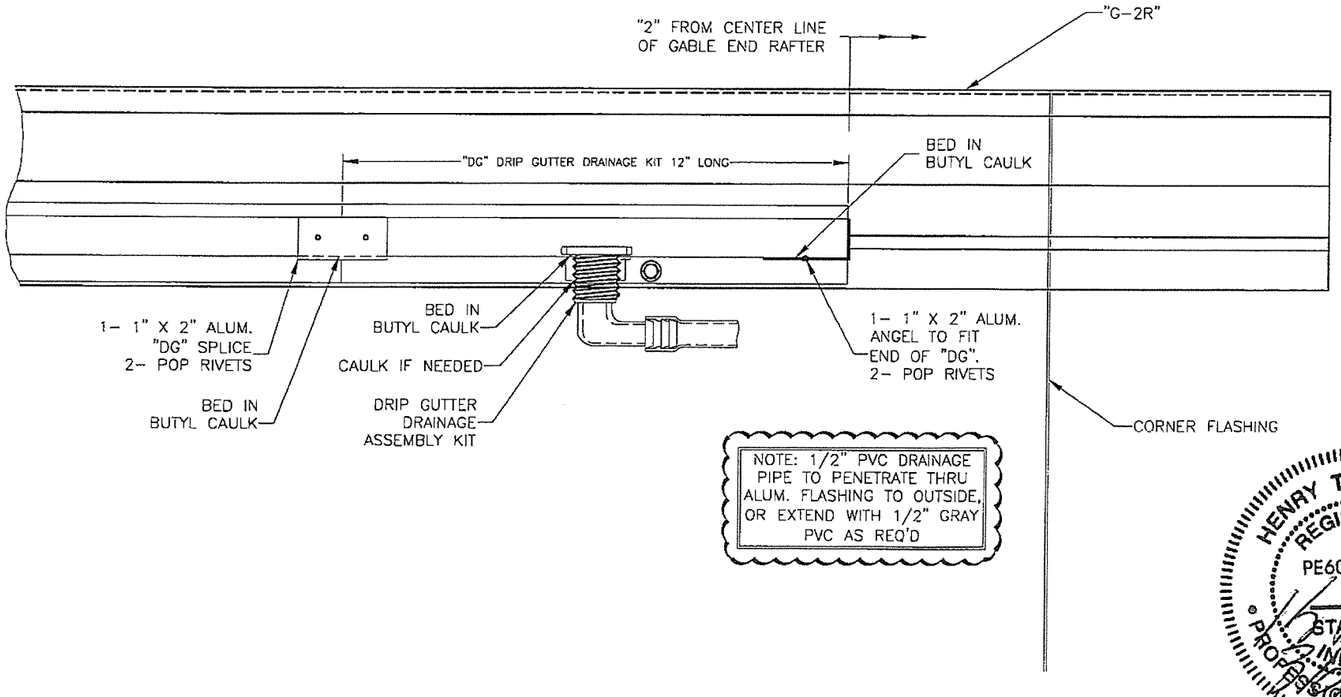
FINISH=



BED "DG" DRIP GUTTER AND "DG" DRIP GUTTER KIT WITH BUTYL CAULK TO ENTIRE LENGTH OF "G-2R"







NOTE: 1/2" PVC DRAINAGE PIPE TO PENETRATE THRU ALUM. FLASHING TO OUTSIDE, OR EXTEND WITH 1/2" GRAY PVC AS REQ'D

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

5/2/17

REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 STATE OF INDIANA CIVIL

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 09/22/06 | REV: 11/20/12

STANDARD DETAIL # QG-0075

ACCESSORIES, GUTTER
DRIP GUTTER

DRAWN BY: SRP
CHECKED BY:
PAGE# 31

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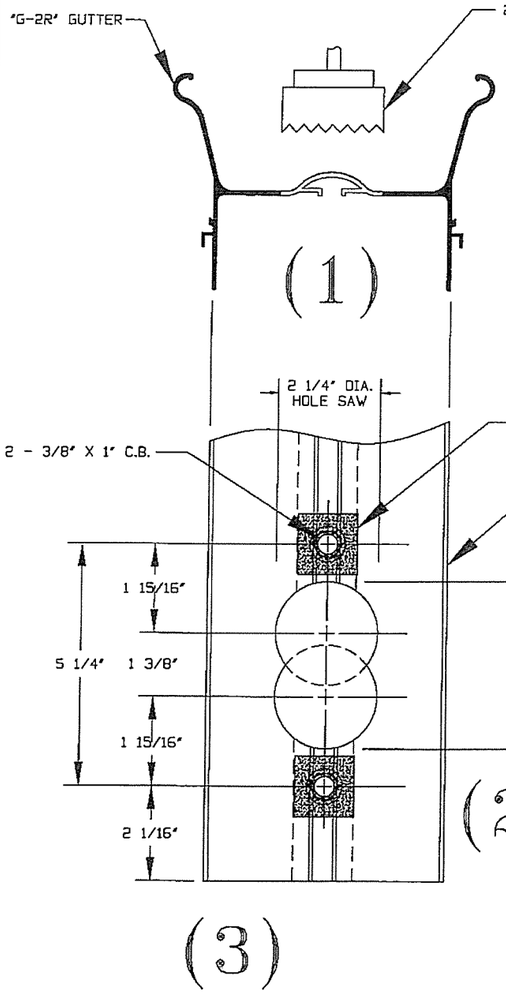
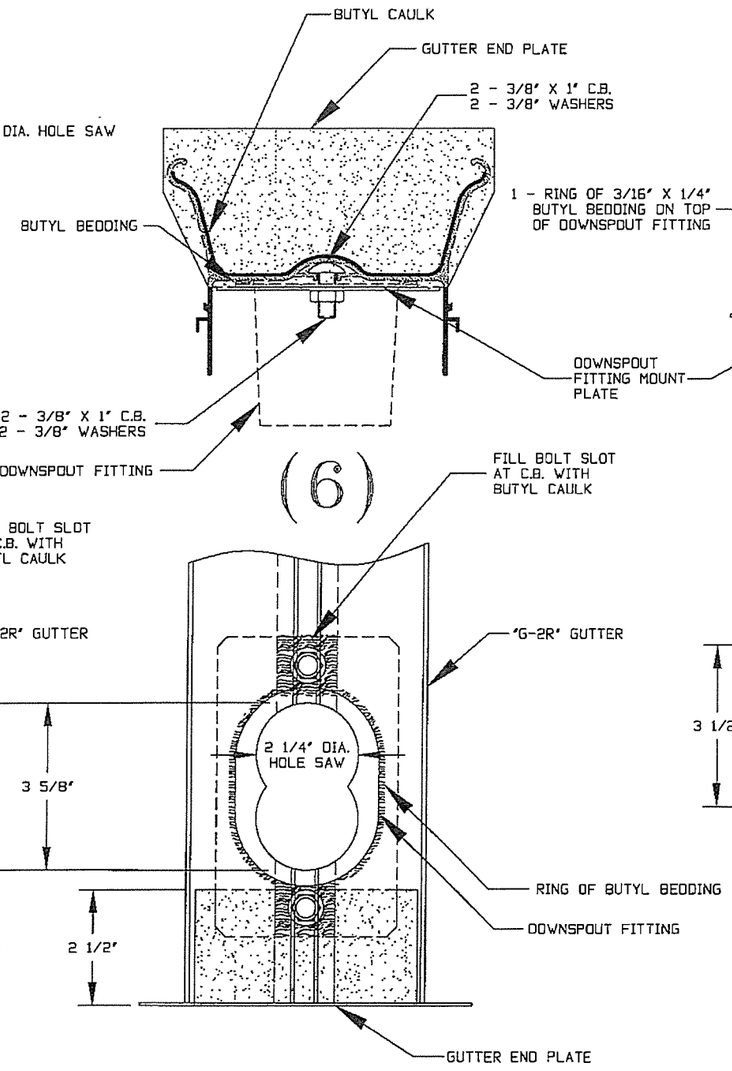
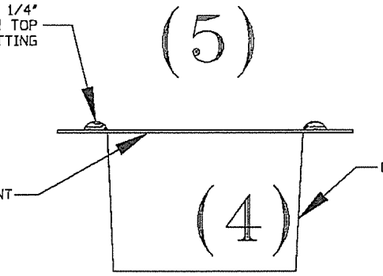
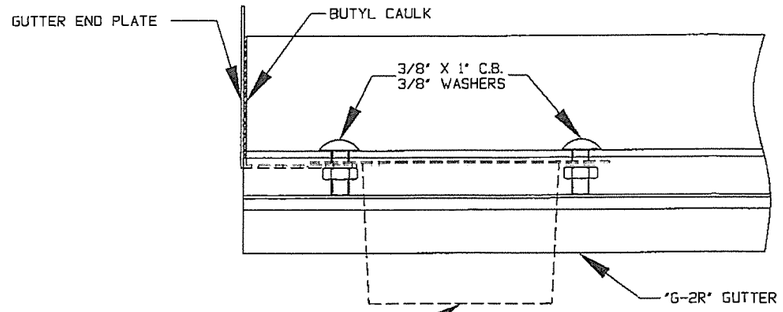
FINISH=



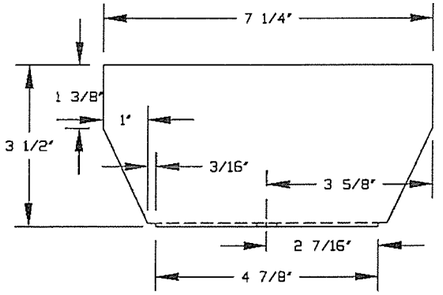




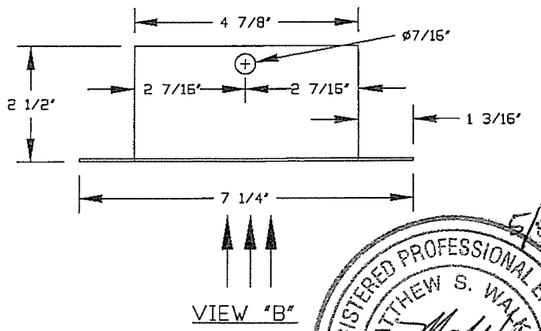


VIEW "A"

(1) BORE HOLE WITH 2 1/4" DIA. HOLE SAW AS SHOWN CENTER OF "G-2R" GUTTER
(2) INSTALL 3/8" CARRIAGE BOLTS
(3) FILL BOLT SLOT AT C.B. WITH BUTYL CAULK TO PLUG BOLT SLOT
(4) INSERT DOWNSPOUT FITTING INTO DOWNSPOUT FITTING MOUNT PLATE
(5) APPLY A RING OF BUTYL BEDDING ARDUNO TOP OF DOWNSPOUT FITTING
(6) INSERT GUTTER END PLATE TO EDGE OF GUTTER
(7) MOUNT TO "G-2R" GUTTER, CENTER AND BOLT AND BED IN PLACE
(8) ADD DOWNSPOUT AND POP-RIVET OR TEK (1 - EACH SIDE)



VIEW "B"



VIEW "B"

GUTTER END PLATE

* FOR INSIDE PVC DOWNSPOUT SEE DETAIL QG-0040

IMPORTANT: ALL ALUMINUM EXTRUDED ALUMINUM MEMBERS WITH BOLT SLOTS FOR ASSEMBLY, BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS ARE ASSEMBLED

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

5/2/17
REGISTERED PROFESSIONAL ENGINEER MATTHEW S. WALKER No. C063831 Exp. 09/30/18 STATE OF CALIFORNIA CIVIL

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

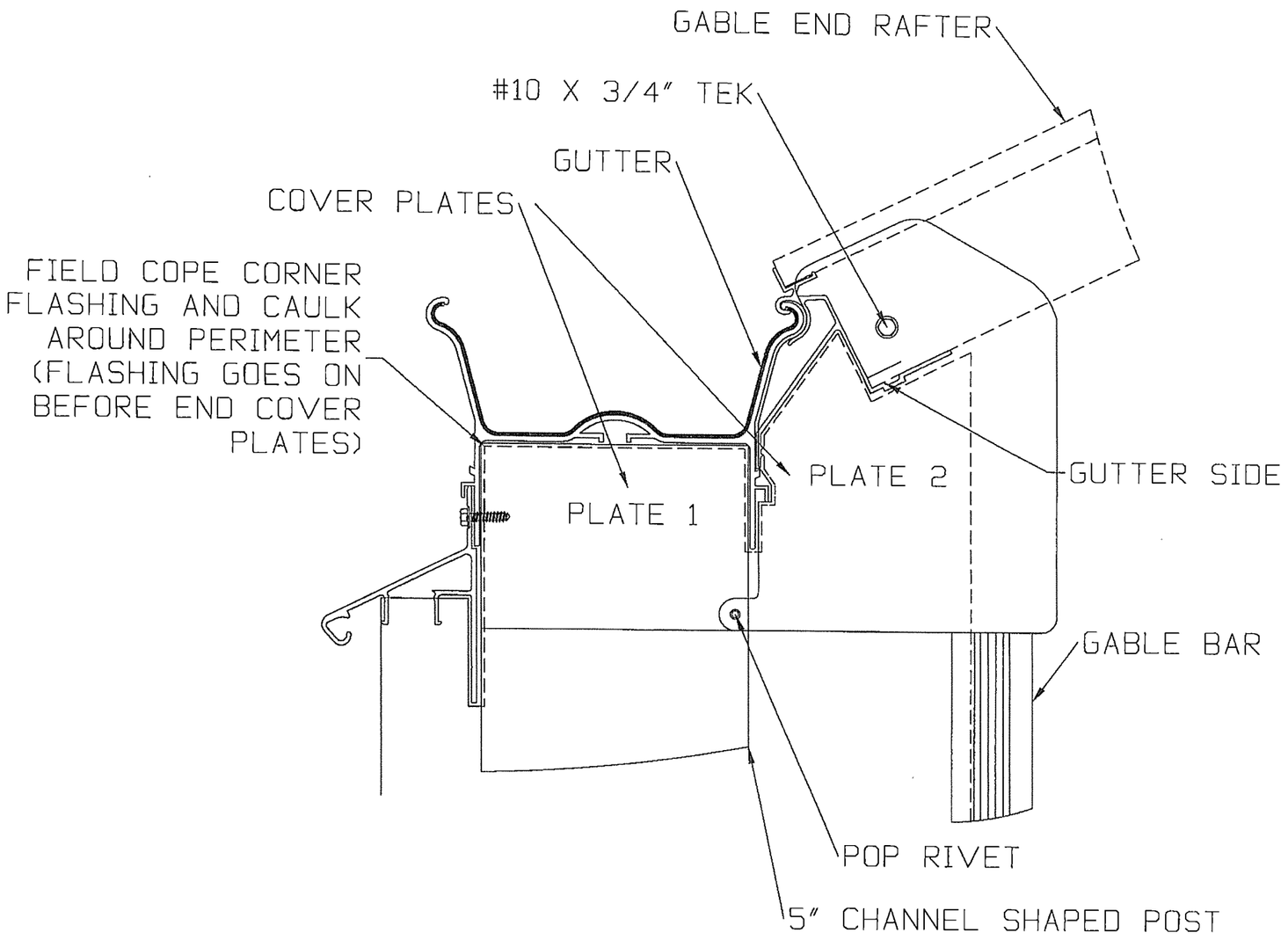
DATE: 02/29/12 | REV: 05/11/12

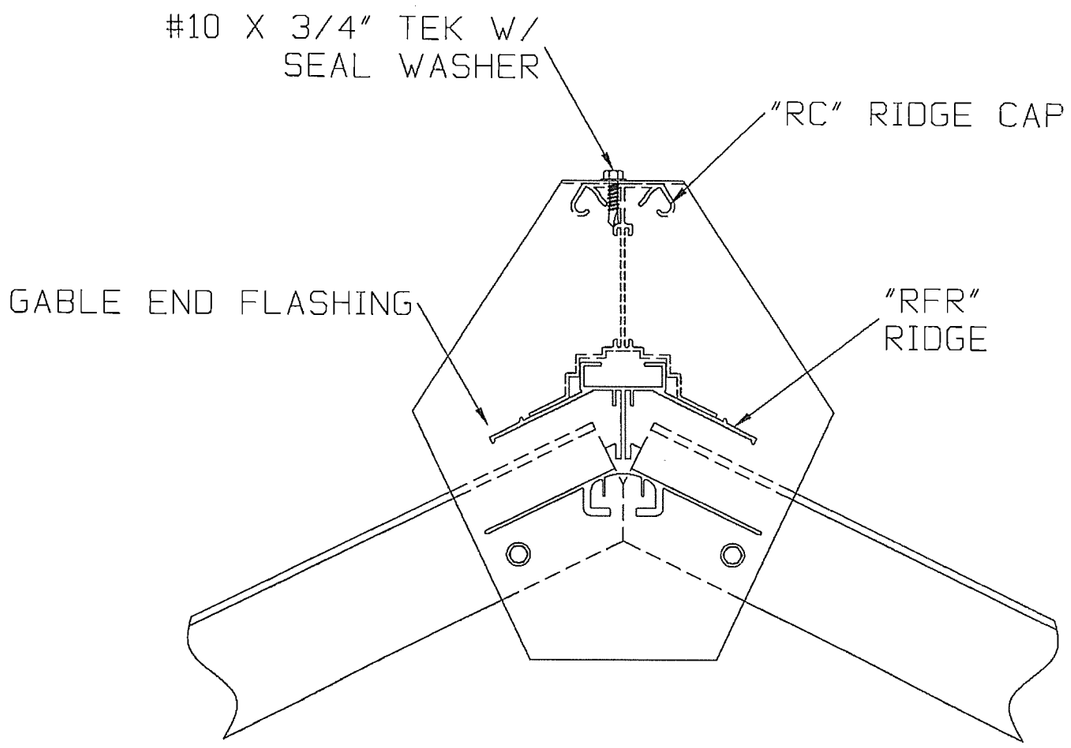
STANDARD DETAIL #QG-0110

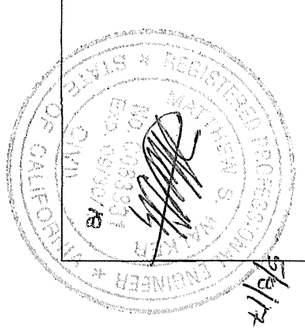
ACCERSORIES GUTTERS
DOWN SPOUT FITTING
ASSEMBLY FOR ALUM.
DOWN SPOUT

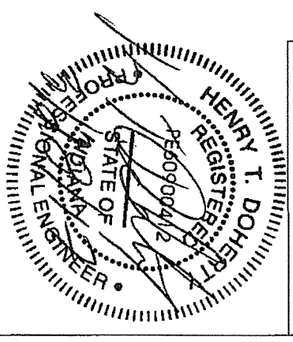
DRAWN BY: SRD
CHECKED BY:
PAGE# 32

GLAZING=
FINISH=









WINANDY GHSE. CO. 2211 PEACOCK ROAD RICHMOND, INDIANA 47374 (765) 935-2111	REV:	STANDARD DETAIL #F - 0163	DRAWN BY SRP
			CHECKED BY
	DATE: 08/22/12	FLASHING GABLE END COVER PLATES	PAGE# 33
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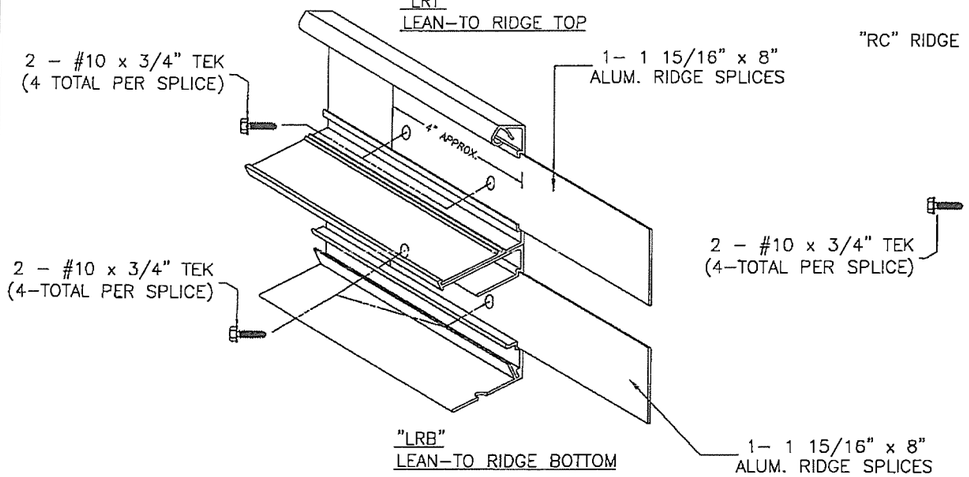
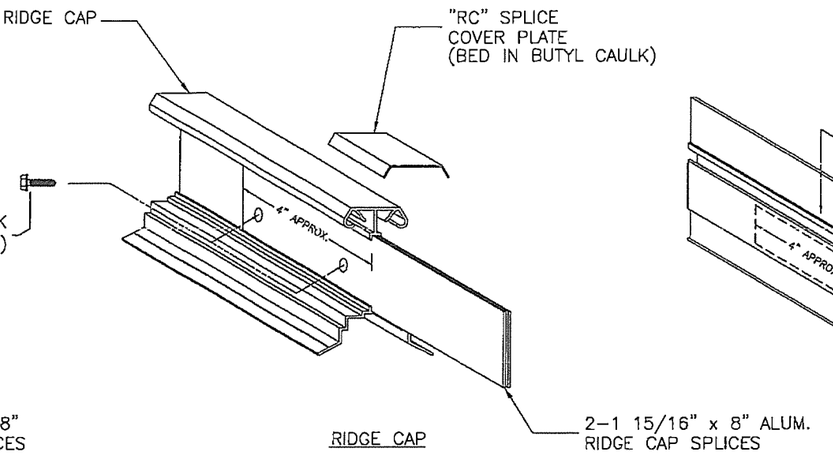
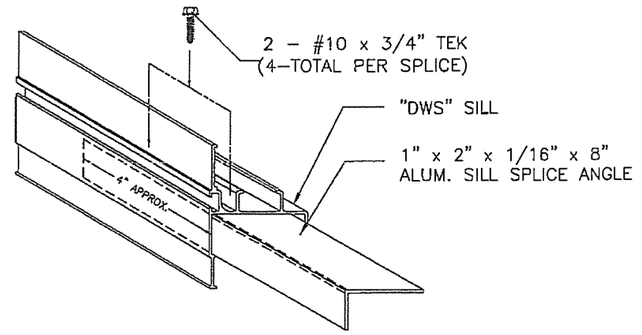
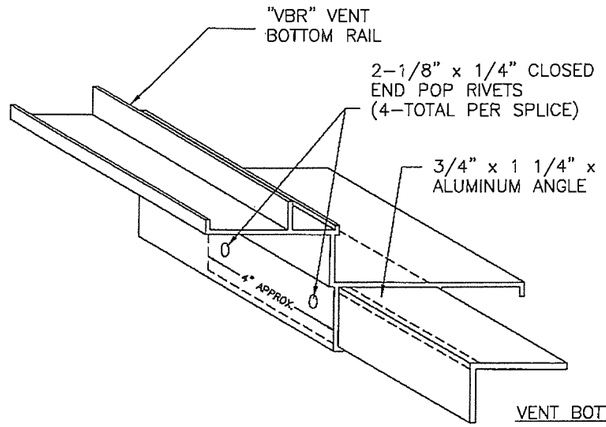




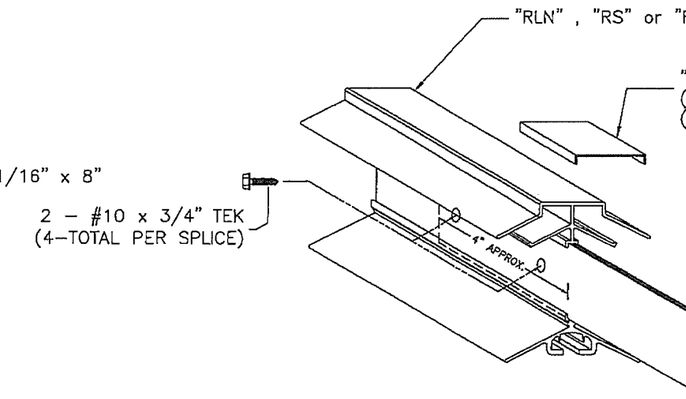
RIDGE CAP



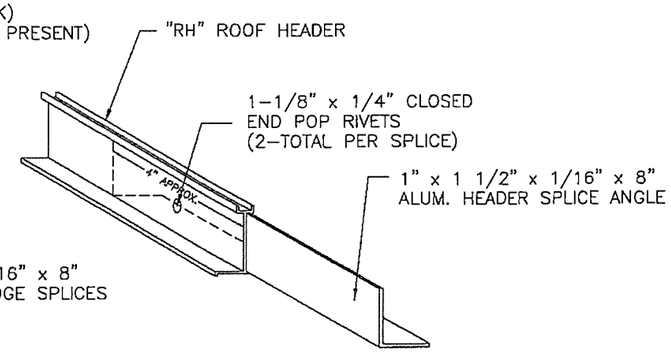
SILL



VENT BOTTOM RAIL



RIDGE

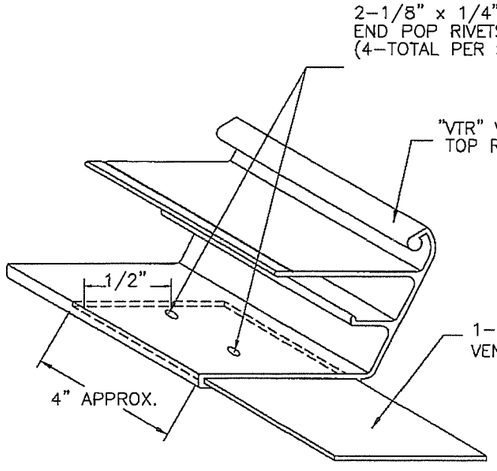


HEADER

NOTE: INSTALL RIDGE & RIDGE CAP SPLICES & TEKS WHILE PIECES ARE STILL ON GROUND. KEEP TEKS TORWARDS BOTTOM OF RIDGE CAP. SPLICE TO AVOID INTERFERING WITH VENTS. FOR EASE OF INSTALLATION, STAGGER SPLICE PLATES APPROX 1/2".

NOTE: VENT RAILS, HEADER & SILL ONLY
1) SLIDE ALL SPILCES INTO FIRST MEMBER, INSTALLED WHILE ON GROUND
2) BUTT & LINE UP ENDS & SLIDE SPLICE EQUAL DISTANCE ACROSS JUNCTION
3) CHECK WITH SPACING GAUGE WHERE APPLICABLE.
4) INSTALL POP RIVETS

NOTE: ALL EXTERIOR SPLICES ARE TO BE CAULKED TO ENSURE A LEAK FREE INSTALLATION



VENT TOP RAIL

CAUTION: SPACING GAUGE MUST BE USED WITH SPLICES. SEE WRITTEN INSTRUCTIONS.

SEE # IU-0050 FOR OTHER SPLICE DETAILS.

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS ARE ASSEMBLED.

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

REGISTERED PROFESSIONAL ENGINEER
MATTHEW S. WALKER
No. C063831
Exp. 09/30/18
STATE OF CALIFORNIA
CIVIL

5/2/17

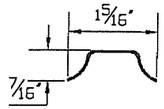
STANDARD DETAIL NO. IU-0040

DATE - 10-20-99 REVISED - 00-00-06

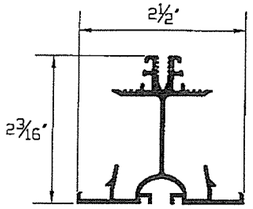
INSTALLATION DETAILS
UNIVERSAL
SPLICE DETAILS

WINANDY GUTTER CO.
RICHMOND, IN

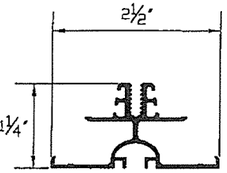
PAGE=



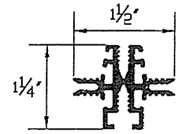
ALUM. BAR CAP



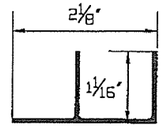
BD
DBL GLAZING BAR, SMALL



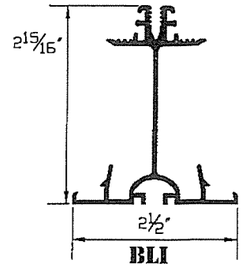
BDSR
BD SMALL REVISED



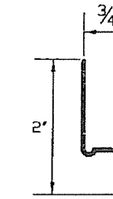
DVB
VENT BAR



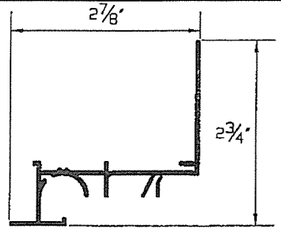
BE
BENCH EDGE



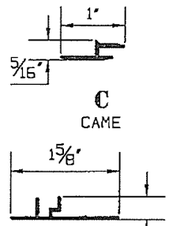
BLI
DBL GLAZING BAR LARGE



BRF
BAR REST FIBERGLASS

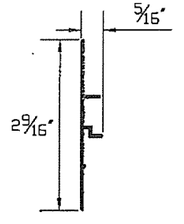


BRG
BAR REST GUTTER

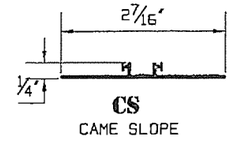


C
CAME

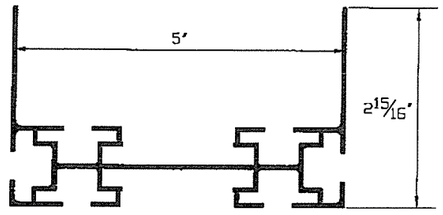
CA
CAME ADJUSTABLE



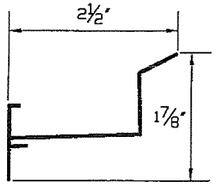
CL
CAME LARGE



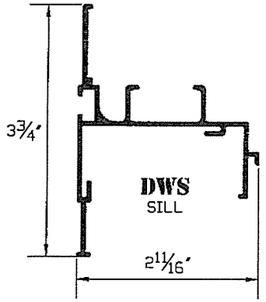
CS
CAME SLOPE



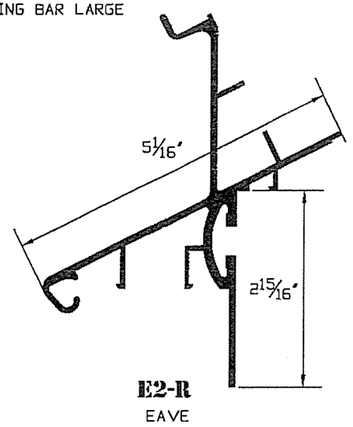
CPN
CONVERTABLE PURLIN POST NEW



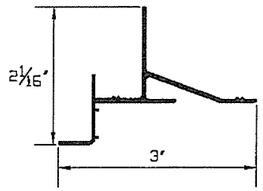
DG
DRIP GUTTER



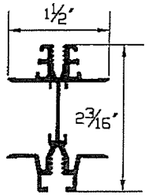
DWS
SILL



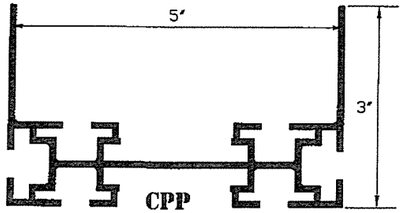
E2-R
EAVE



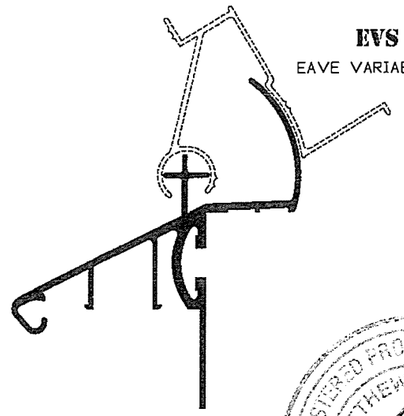
EPS
EAVE PLASTIC GLASS



DWB
DBL WALL BAR



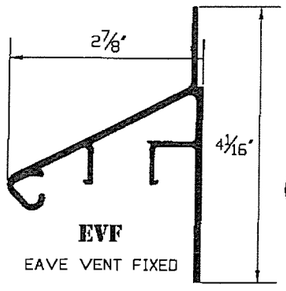
CPP
COMB. POST & PURLIN



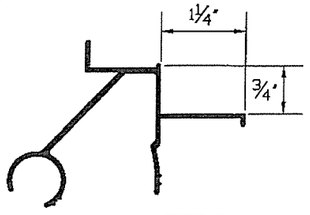
EVB
EAVE VARIABLE BASE

EVS
EAVE VARIABLE SEAT

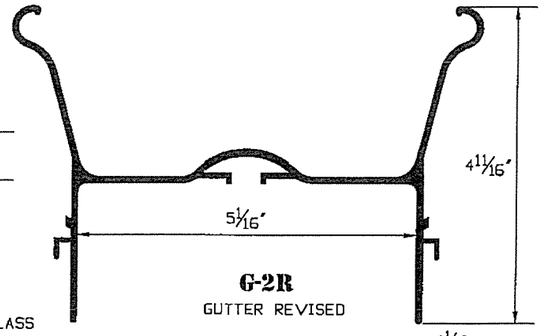
5/8/17



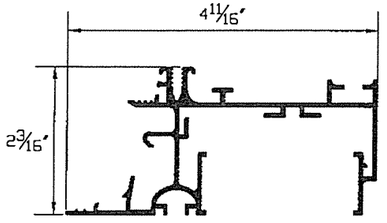
EVF
EAVE VENT FIXED



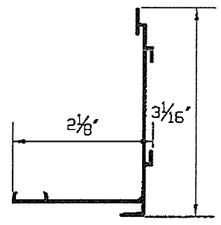
EVPG
EAVE VARIABLE PLASTIC GLASS



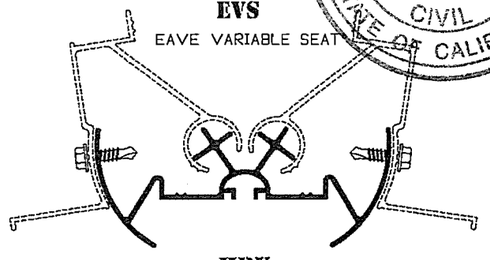
G-2R
GUTTER REVISED



GRS-2
GABLE END RAFTER, SMALL

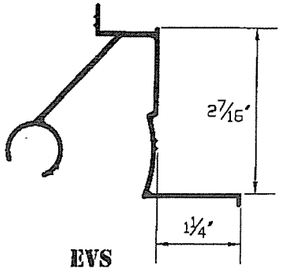


HCL
H CAME LARGE

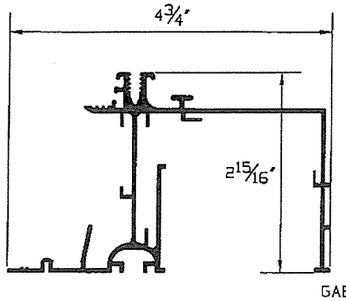


HRV
HIP RAFTER VARIABLE

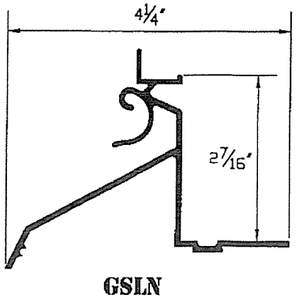
EVS
EAVE VARIABLE SEAT



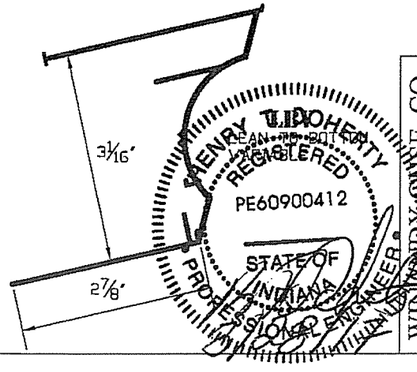
EVS
EAVE VARIABLE SEAT



GRL-3R
GABLE RAFTER LARGE



GSLN
GUTTER SIDE LARGE NEW



NOTE: ALL EXTRUSIONS SHOWN ARE MADE FROM STRUCTURAL ALUMINUM ALLOYS

WINANDY GHSE. CO.
2311 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 05/06/11 | REV: 08/05/15

STANDARD DETAIL NO. IU-0060

DRAWN BY: SRP

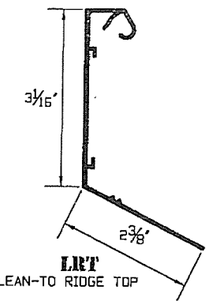
CHECKED BY: HTD

PAGE#: 35

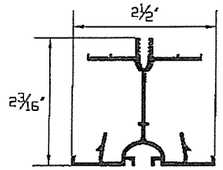
INSTALLATION DETAILS UNIVERSAL, EXTRUSIONS I.D CHART #1

GLAZING=

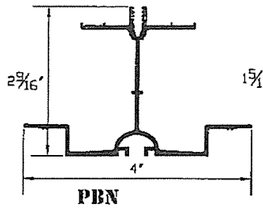
FINISH=



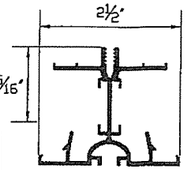
LRT
LEAN-TO RIDGE TOP



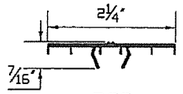
PBL
PLASTIC BAR LARGE



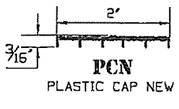
PBN
PLASTIC BAR NEW



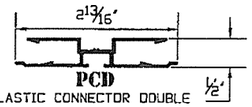
PBS
PLASTIC BAR SMALL



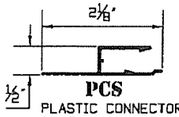
PCC
PLASTIC CAP



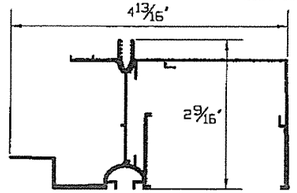
PCN
PLASTIC CAP NEW



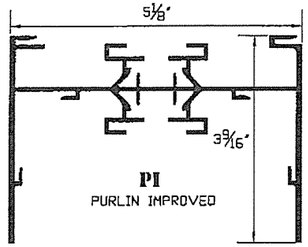
PCD
PLASTIC CONNECTOR DOUBLE



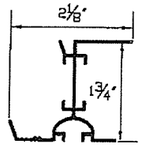
PCS
PLASTIC CONNECTOR SINGLE



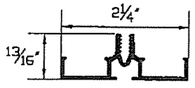
PGN
PLASTIC GABLE RAFTER



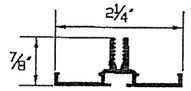
PI
PURLIN IMPROVED



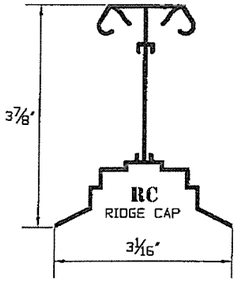
PMSR
PANEL MID SUPPORT REVISED



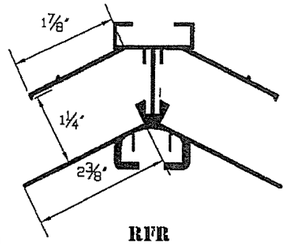
PVL
PLASTIC VENT BAR LARGE



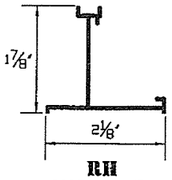
PVS
PLASTIC VENT BAR SMALL



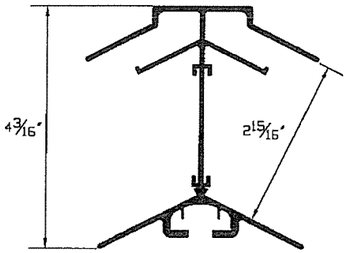
RC
RIDGE CAP



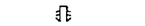
RFR
RIDGE FIBERGLASS RESKIN



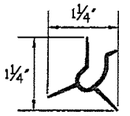
RH
ROOF HEADER



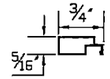
RLN
GLASS RIDGE



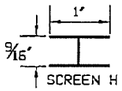
RUBBER GLAZING CHANNEL



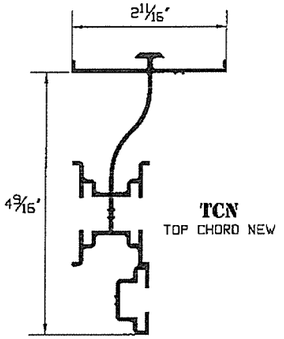
SA
SPACER ALUMINUM



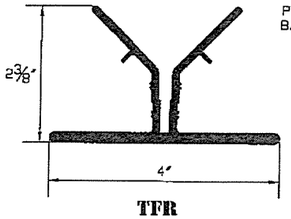
SCREEN FRAME SPACER



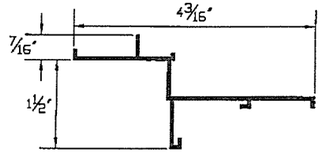
SCREEN H



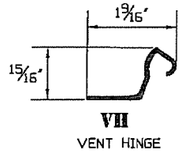
TCN
TOP CHORD NEW



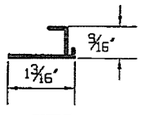
TFR
TRUSS FLANGE RIDGE



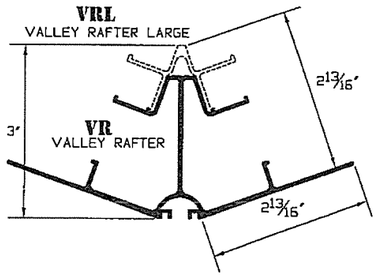
VBR
VENT BOTTOM RAIL



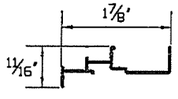
VH
VENT HINGE



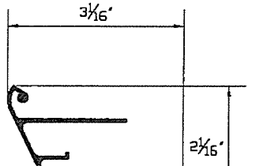
VHS
VENT HEADER STOP



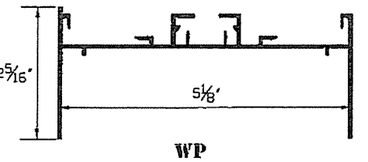
VRL
VALLEY RAFTER LARGE



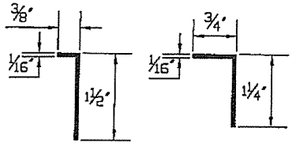
VSN
VENT SEAT NEW

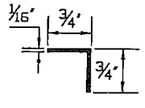


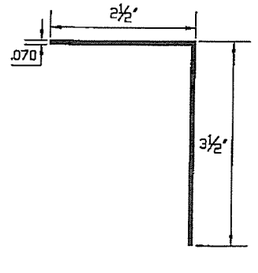
VTR
VENT TOP RAIL



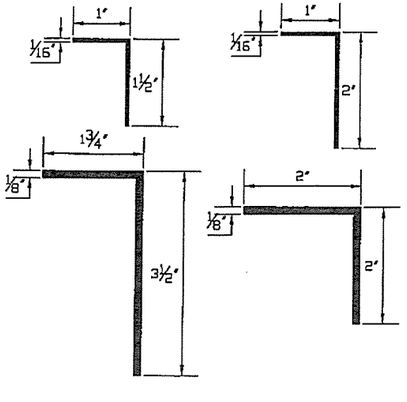
WP
WALL PURLIN

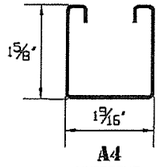




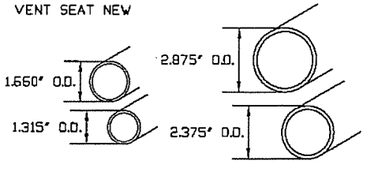


ANGLE SIZES

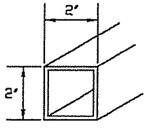




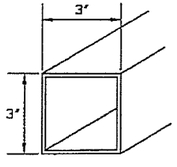
A4
UNISTRUT



STRUCTURAL ZINC GALVANIZED TUBES



GALV. STEEL SQ. TUBING



NOTE: ALL EXTRUSIONS SHOWN ARE MADE FROM STRUCTURAL ALUMINUM ALLOYS EXCEPT AS NOTED GALVANIZED STEEL

WINANDY GHSE. CO.
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DATE: 05/06/16 REV: 11/10/16

STANDARD DETAIL NO. IU-0061

DRAWN BY: SRP

CHECKED BY: HTD

INSTALLATION DETAILS
UNIVERSAL, EXTRUSIONS I.D CHART #2

11/6/17

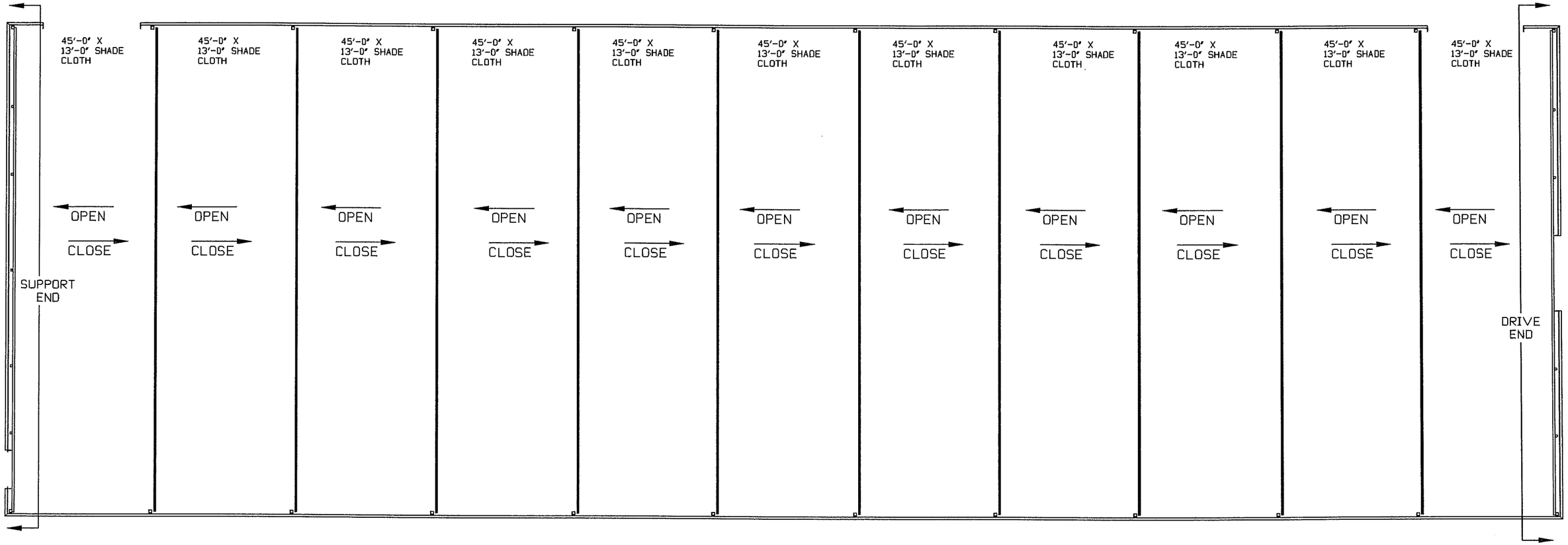
PAGE# 36

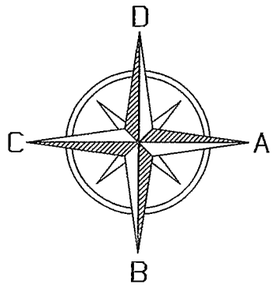
GLAZING=

FINISH=

HENRY T. DOHERTY REGISTERED PE6900941 2 STATE OF INDIANA PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEER ANDREW S. WALKER REGISTERED Exp. 09/30/18 CIVIL STATE OF CALIFORNIA





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TGU LAYOUT

MERCED COLLEGE

MERCED, CA

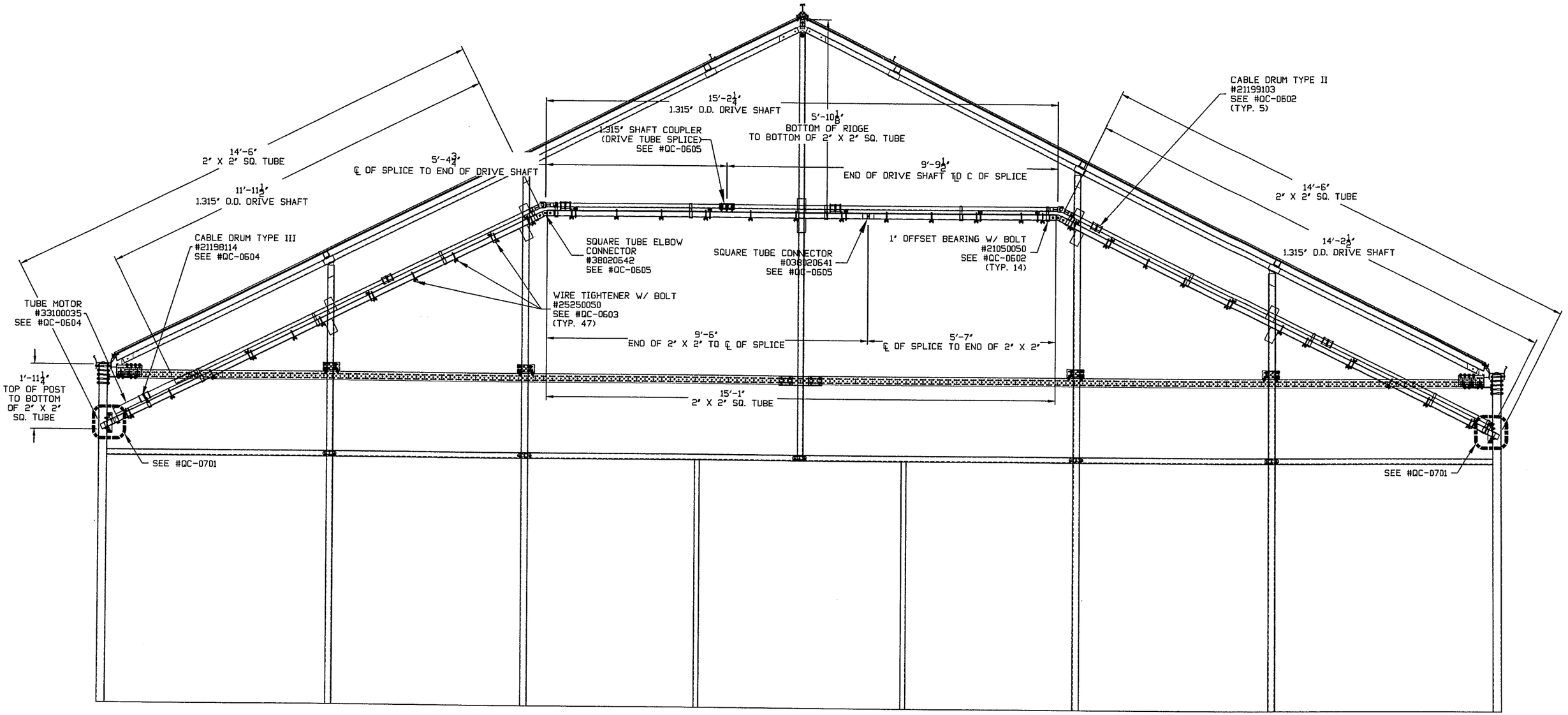
DRAWN BY: SRP

CHECKED BY:

PAGE# 37

GLAZING=

FINISH=



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TGU DRIVE END

MERCED COLLEGE

MERCED, CA

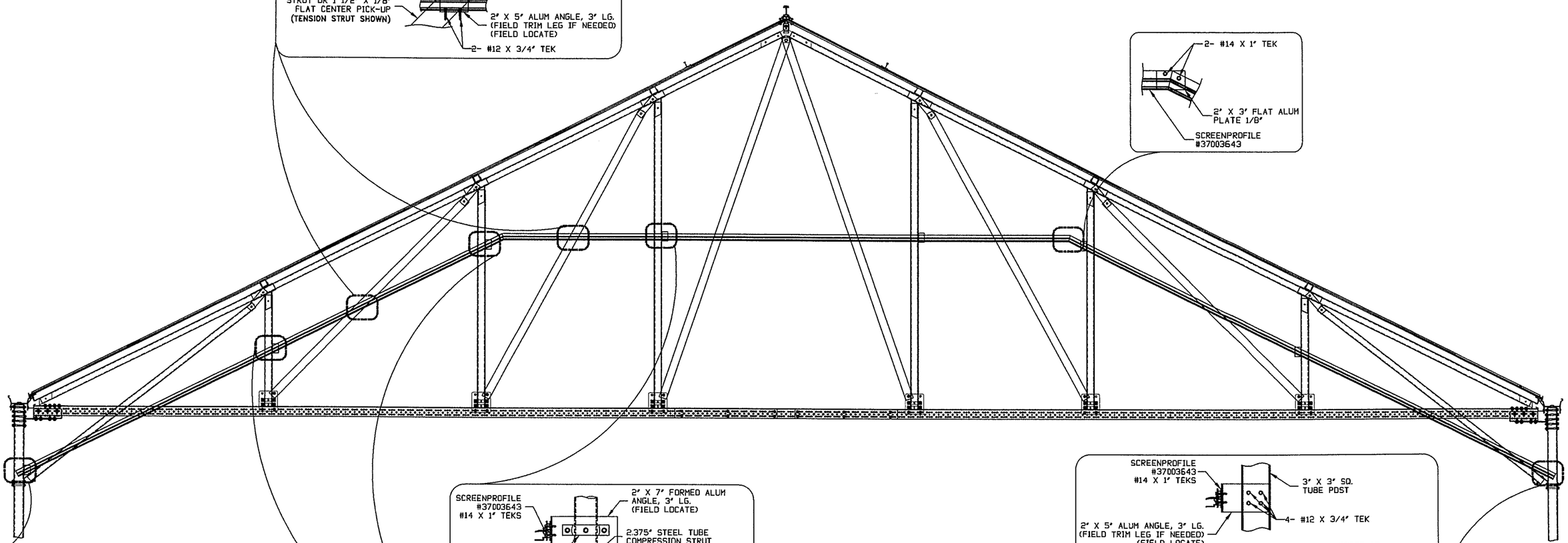
DRAWN BY SRP

CHECKED BY

PAGE# 38

GLAZING=

FINISH=



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REV:

DATE:04/12/17

SCREENPROFILE

MERCED COLLEGE

MERCED, CA

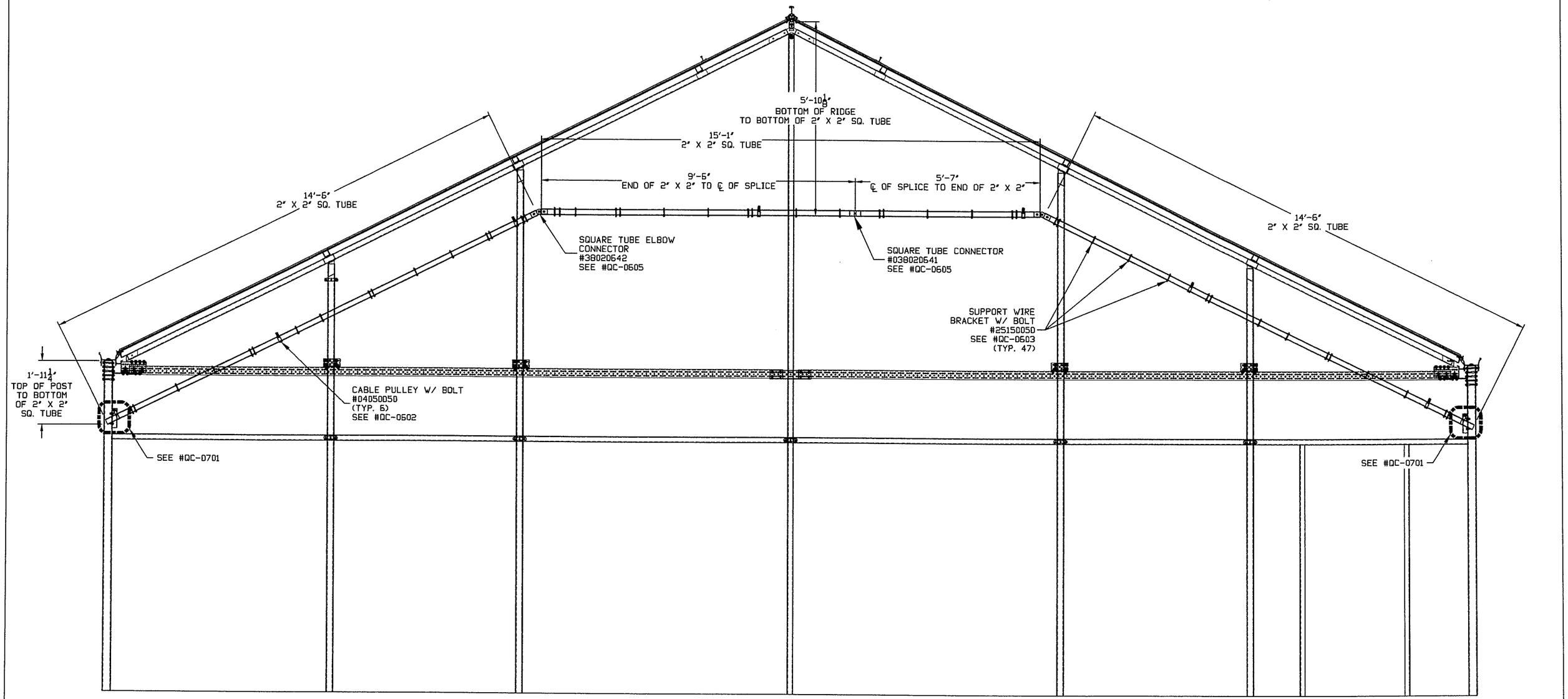
DRAWN BY: SRP

CHECKED BY:

PAGE# 39

GLAZING=

FINISH=



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DATE: 4/12/17

REV:

TGU SUPPORT END

MERCED COLLEGE

MERCED, CA

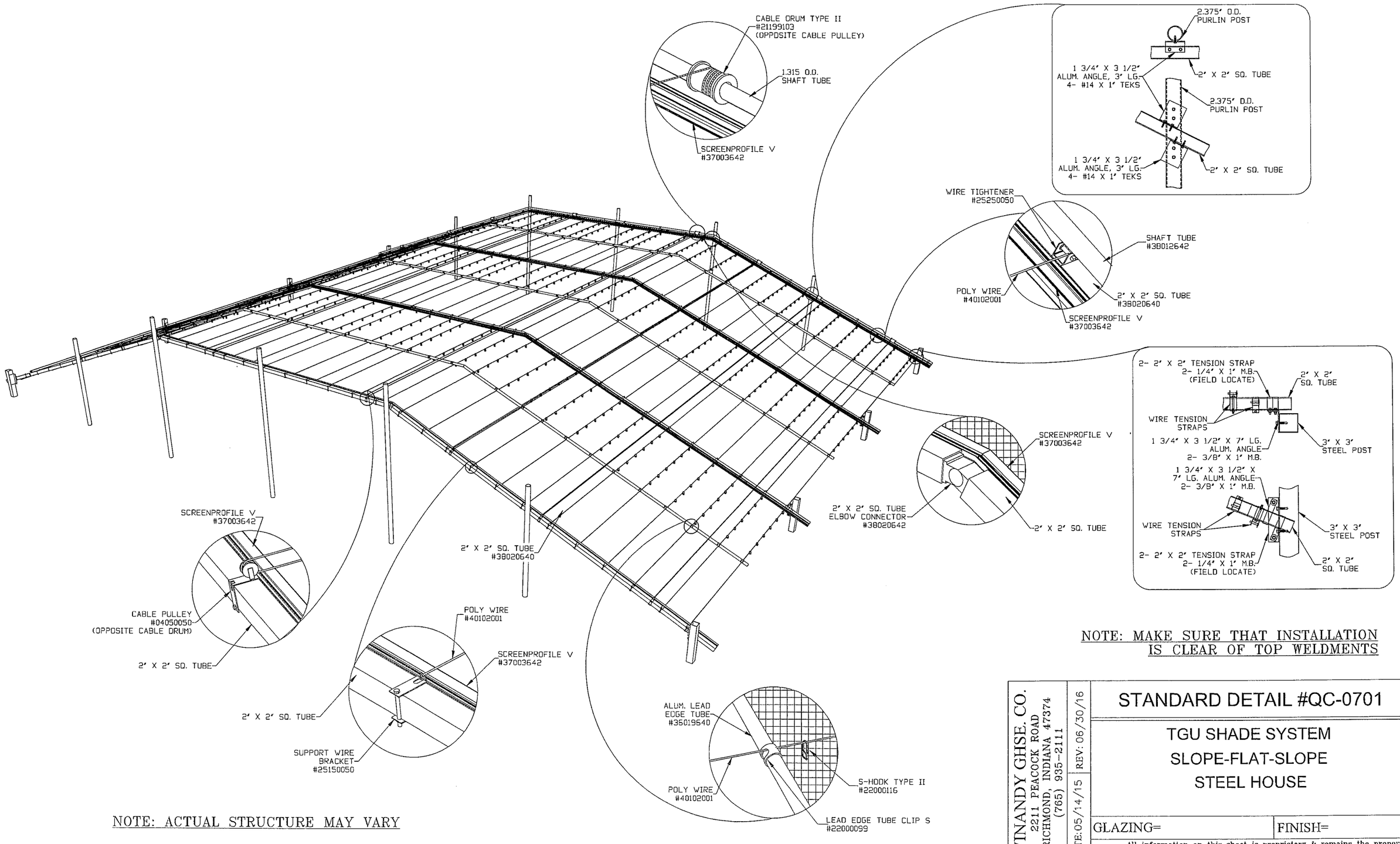
DRAWN BY: SRP

CHECKED BY:

PAGE# 40

GLAZING=

FINISH=



NOTE: ACTUAL STRUCTURE MAY VARY

NOTE: MAKE SURE THAT INSTALLATION IS CLEAR OF TOP WELDMENTS

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STANDARD DETAIL #QC-0701

TGU SHADE SYSTEM
SLOPE-FLAT-SLOPE
STEEL HOUSE

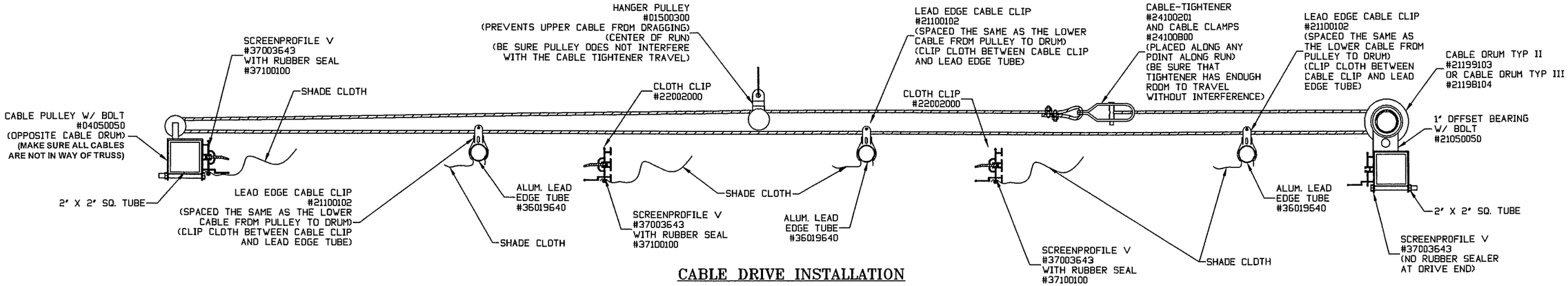
DRAWN BY: SRP

CHECKED BY:

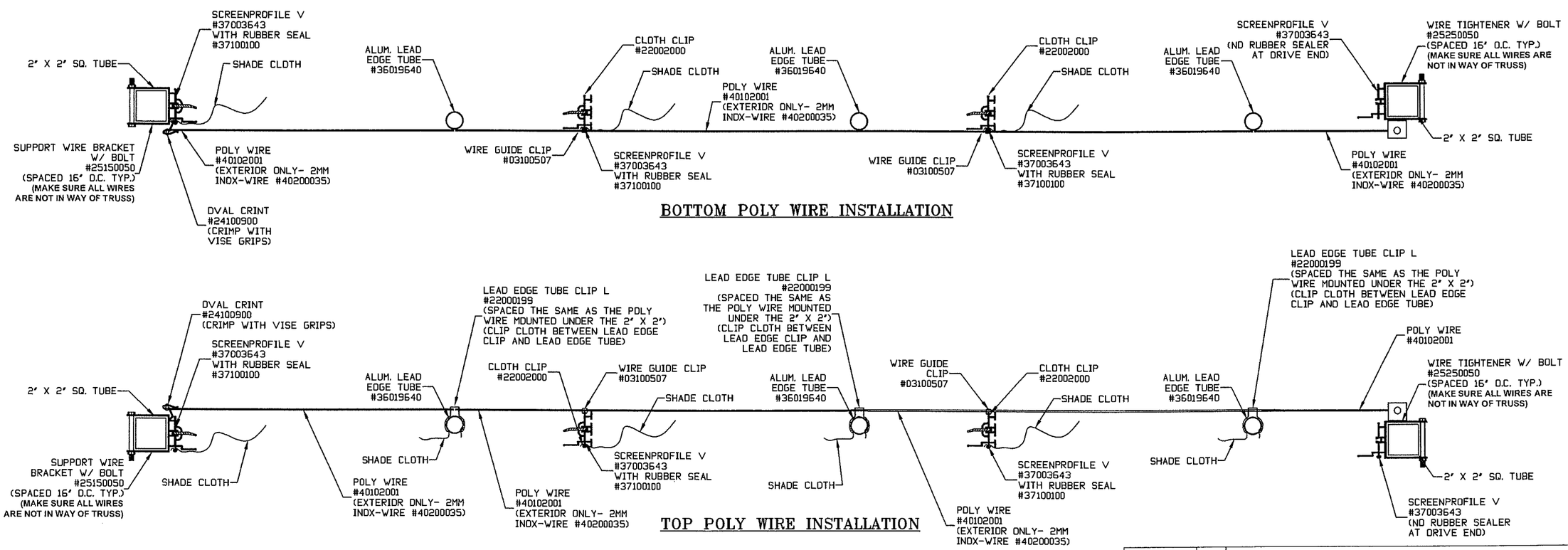
PAGE# 41

GLAZING=

FINISH=



CABLE DRIVE INSTALLATION



BOTTOM POLY WIRE INSTALLATION

TOP POLY WIRE INSTALLATION

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REV:

DATE:10/17/14

STANDARD DETAIL #QC-0611

DRAWN BY: SRP

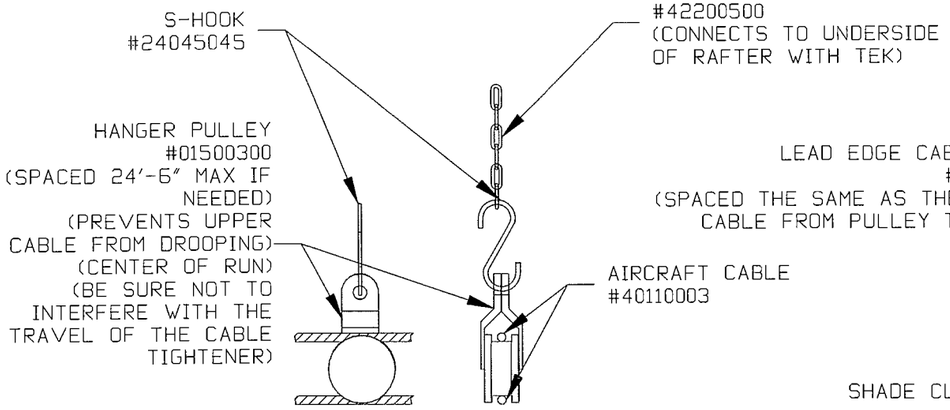
CHECKED BY:

TGU SHADE SYSTEM
WIRE AND CABLE SYSTEM
ASSEMBLY

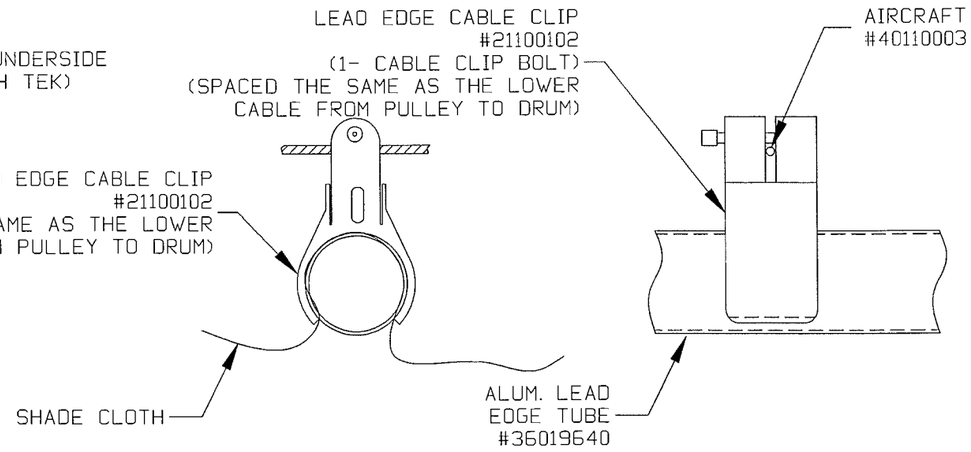
PAGE# 42

GLAZING=

FINISH=



HANGER PULLEY FOR CABLE



CABLE CLIP AT LEAD EDGE TUBE
DO NOT INSTALL ON BAY WITH SLIP JOINT

1" OFFSET BEARING
W/ M8 X 70 BOLT
AND M8 NUT
#21050050

CABLE DRUM TYP II
W/ SET SCREWS AND
CORNER BOLTS WITH
NUTS
#21199103

S-HOOK
#24045045

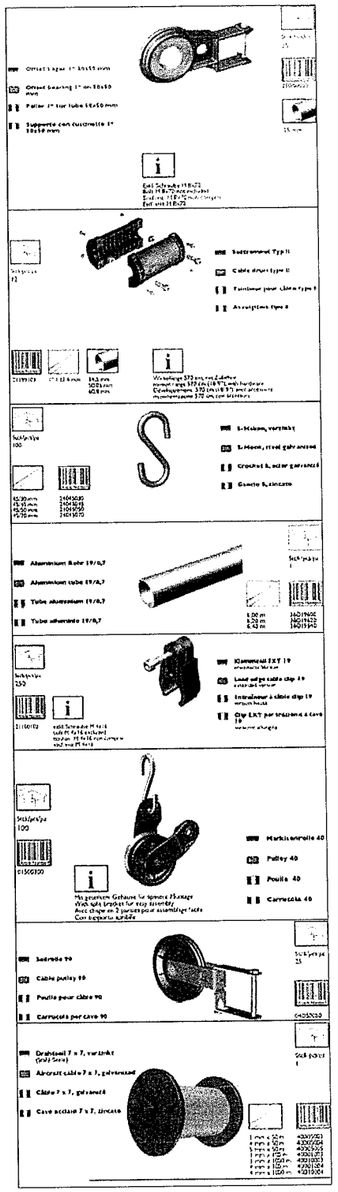
ALUM. LEAD EDGE TUBE
#36019640

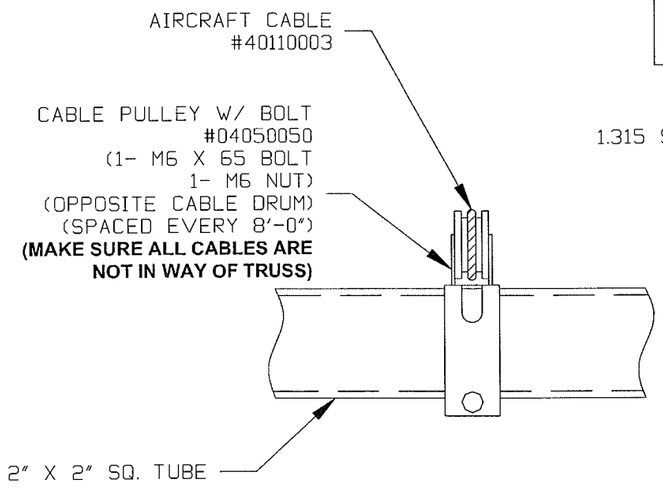
LEAD EDGE CABLE CLIP W/
CABLE CLIP BOLT
#21100102

HANGER PULLEY
#01500300

CABLE PULLEY W/
M6 X 65 BOLT
AND M6 NUT
#04050050

AIRCRAFT CABLE
#40110003

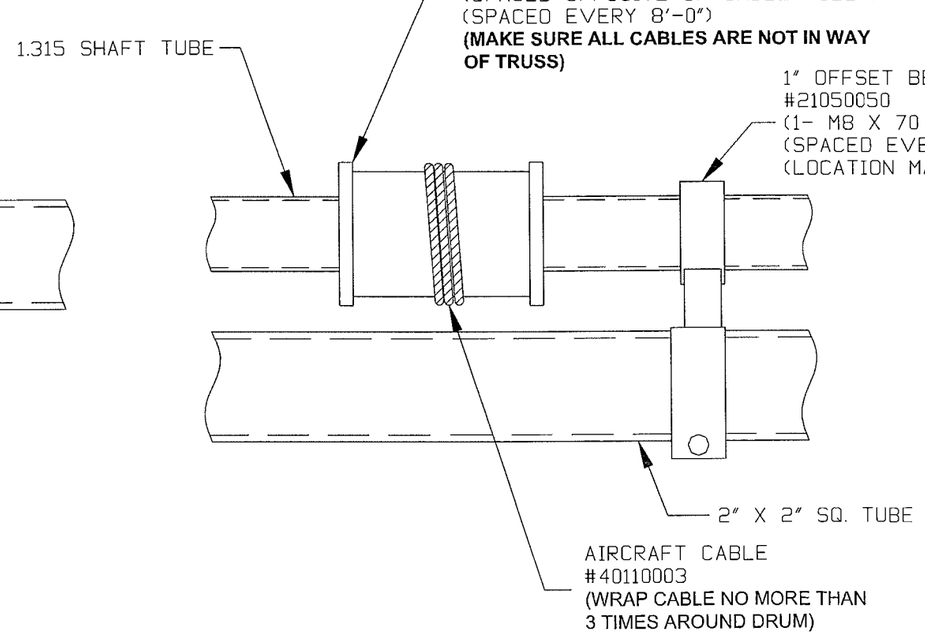




PULLEY AT GABLE END

CABLE DRUM TYP III
#21198104
(2- SET SCREWS AND BOLTS)
(2- METAL BANDS)
(LOCATE ON TUBE MOTOR)

CABLE DRUM TYP II
#21199103
(2- SET SCREWS AND BOLTS)
(4- CORNER BOLTS AND NUT)
(SPACED OPPOSITE OF CABLE PULLY)
(SPACED EVERY 8'-0")
(MAKE SURE ALL CABLES ARE NOT IN WAY OF TRUSS)



CABLE DRUM AT GABLE END

NOTE: BE SURE ALL CABLE
SPACING IS OUT OF WAY
OF TRUSS WEBBING

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STANDARD DETAIL #QC-0602

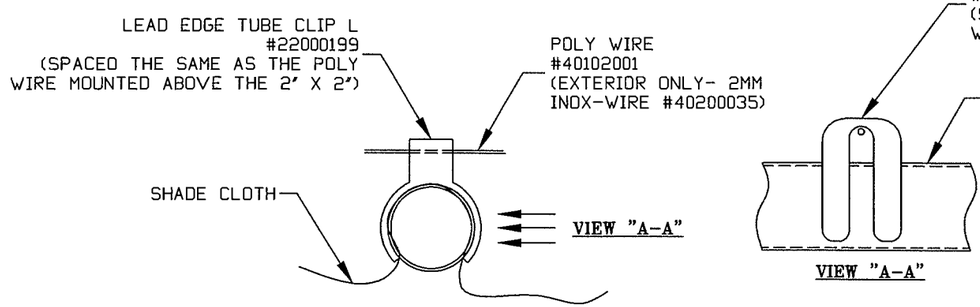
DRAWN BY: SRP
CHECKED BY:
PAGE#: 43

TGU SHADE SYSTEM
CABLE SYSTEM ASSEMBLY

GLAZING=
FINISH=

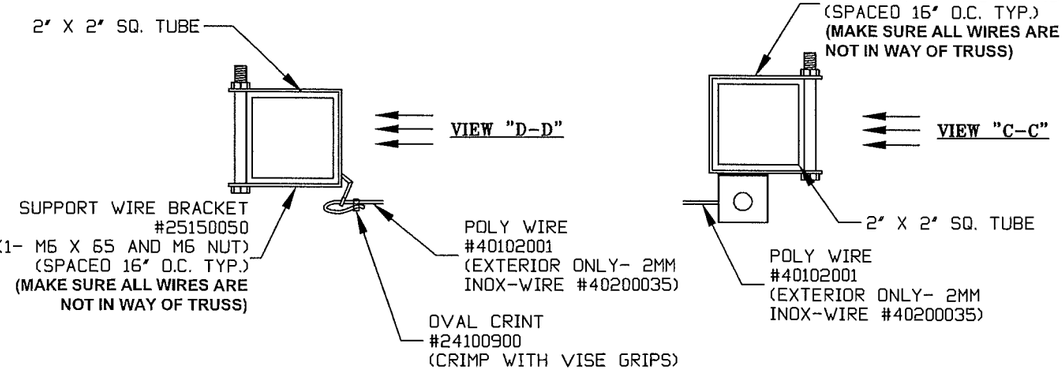
NOTE: FOR EXTERIOR SHADE SYSTEM USE 2MM INOX-WIRE #40200035 IN PLACE OF POLY WIRE

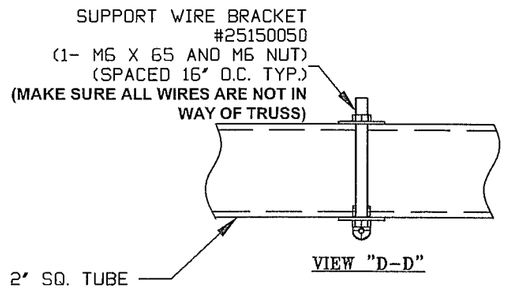
NOTE: BE SURE ALL WIRE SPACING IS OUT OF WAY OF TRUSS WEBBING

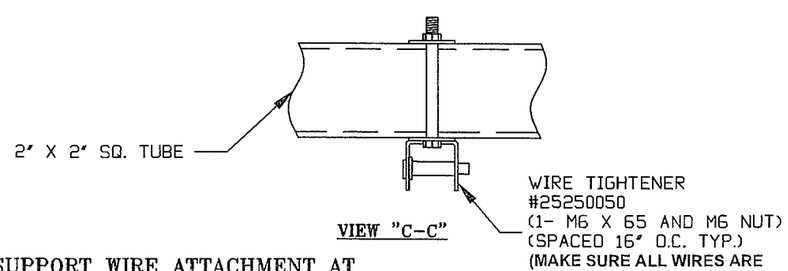


LEAD EDGE TUBE CLIP FOR WIRE ABOVE 2" X 2" SQ. TUBE

SUPPORT WIRE BRACKET W/ BOLT #25150050
(NOTE: BRACKET IS TURNED SO WIRE IS ABOVE SQ. TUBE. THIS OCCURS AT EACH END OF TUBE AND AT EACH CHANGE OF PLANE. WIRE TIGHTENER ON OPPSITE END WILL ALSO BE TURNED. SPACED EVERY 8'-0")

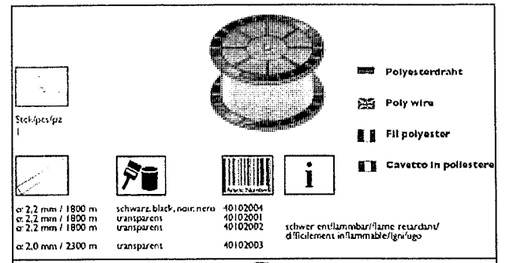




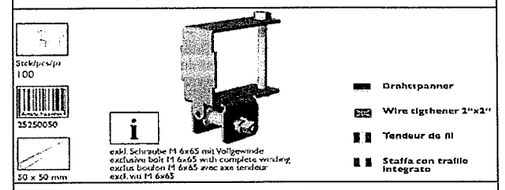


SUPPORT WIRE ATTACHMENT AT 2" X 2" SQ. TUBE

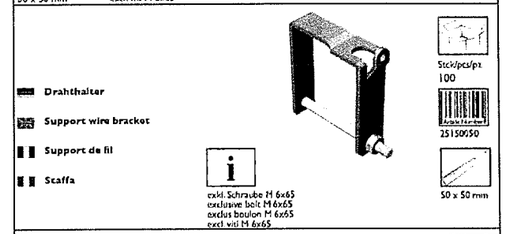
POLY WIRE #40102001



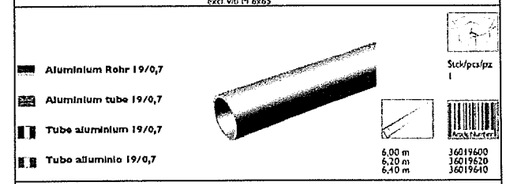
WIRE TIGHTENER W/ M6 X 65 BOLT AND M6 NUT #25250050



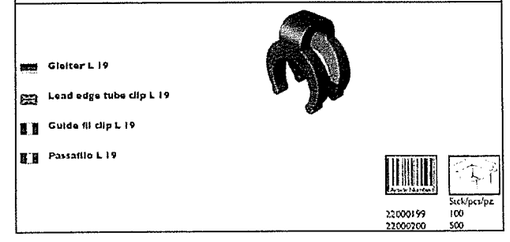
SUPPORT WIRE BRACKET W/ M6 X 65 BOLT AND M6 NUT #25150050



ALUM. LEAD EDGE TUBE #36019640



LEAD EDGE TUBE CLIP L #22000199



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DATE: 10/08/14 | REV: 06/12/15

STANDARD DETAIL #QC-0603

DRAWN BY: SRP

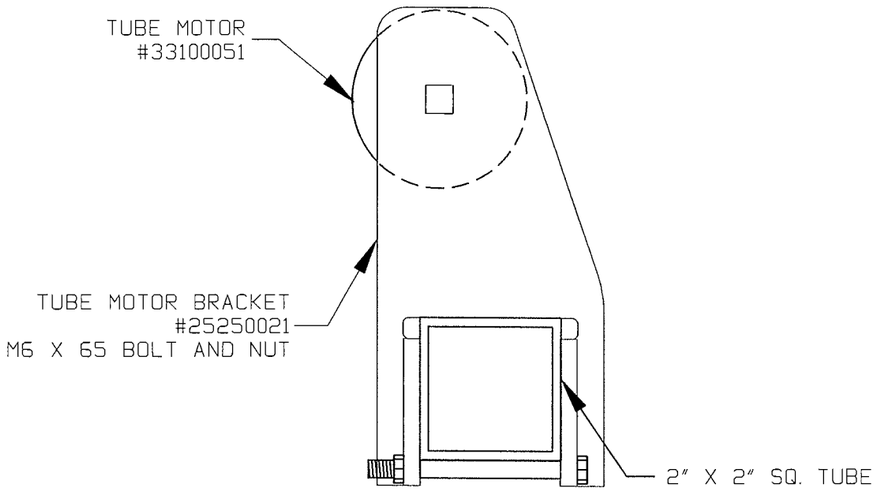
CHECKED BY:

TGU SHADE SYSTEM WIRE SYSTEM ASSEMBLY

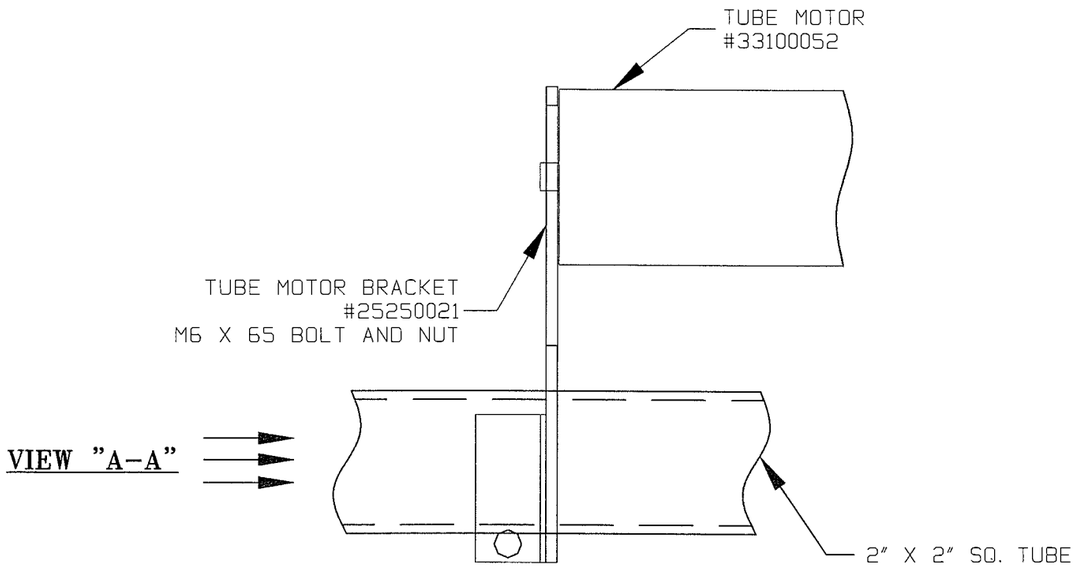
PAGE# 44

GLAZING=

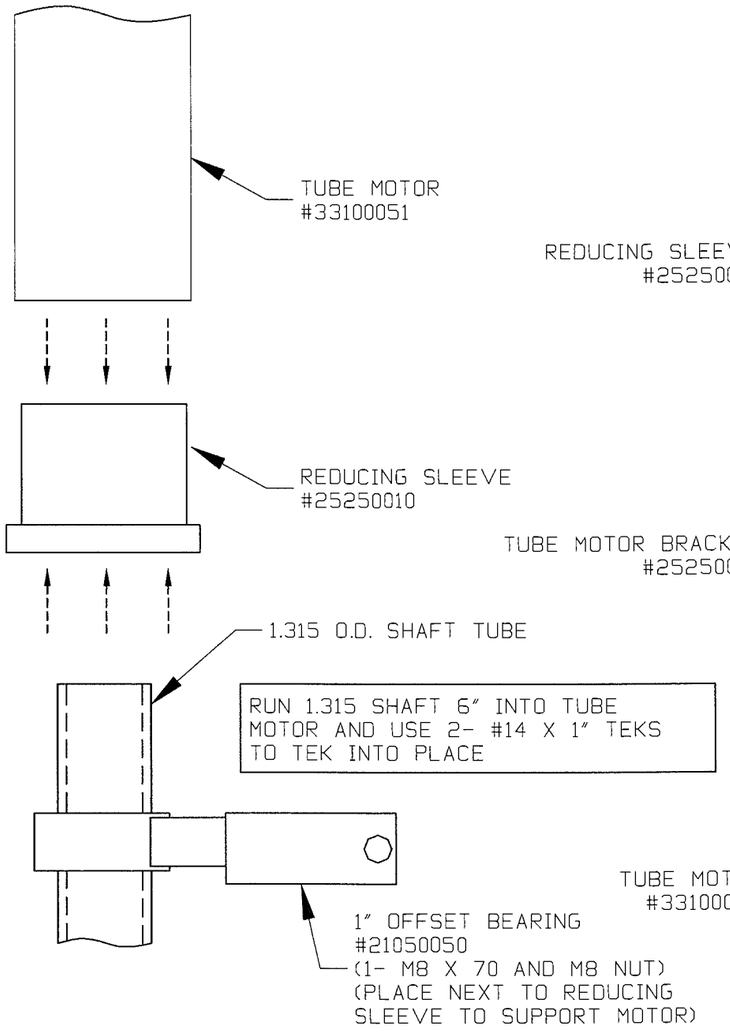
FINISH=

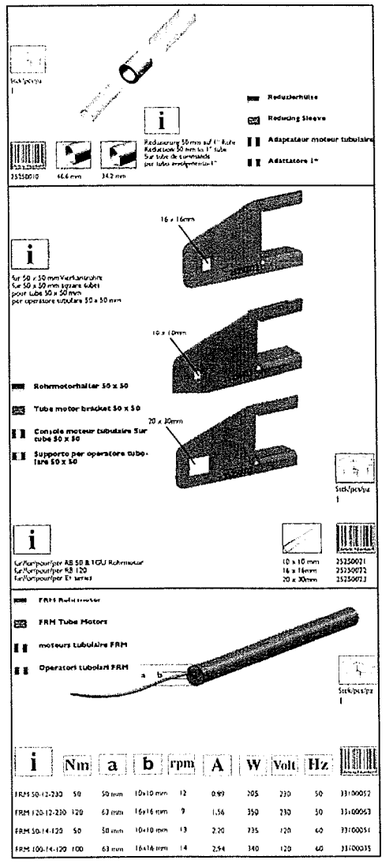


VIEW "A-A"



TUBE MOTOR BRACKET





TUBE MOTOR TO SHAFT TUBE

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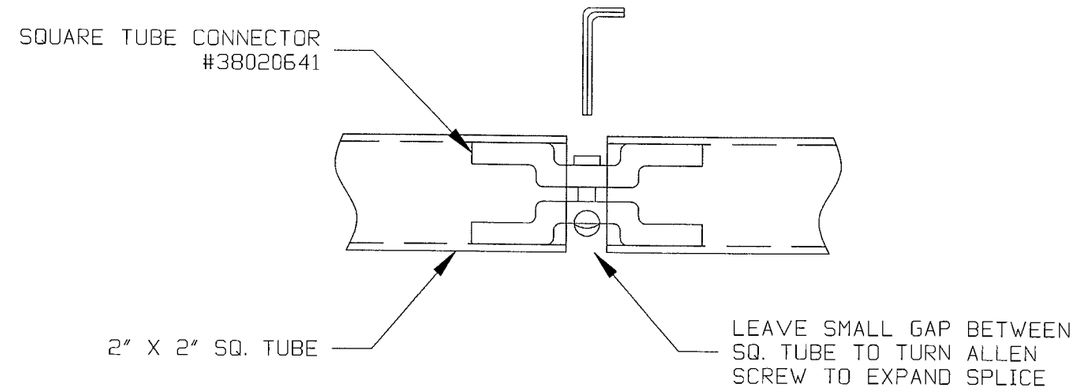
DATE:10/08/14 | REV: 09/23/16

STANDARD DETAIL #QC-0604

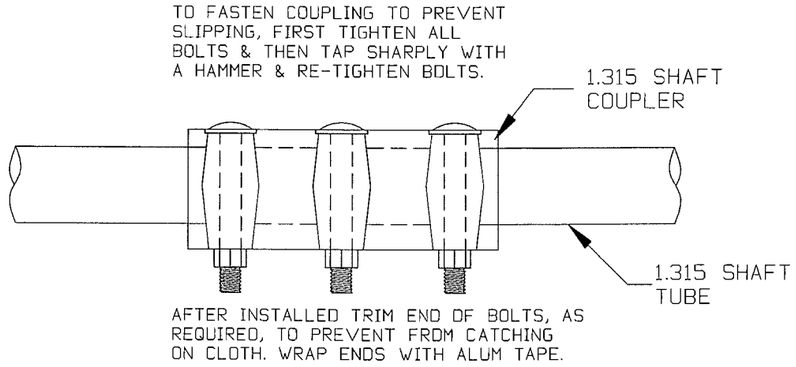
TGU SHADE SYSTEM
TUBE MOTOR ATTACHMENT

DRAWN BY: SRP
CHECKED BY:
PAGE# 45

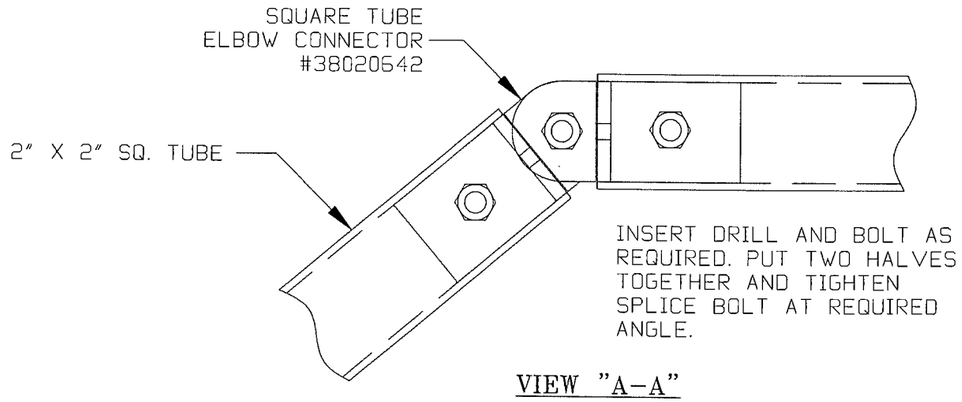
GLAZING=
FINISH=



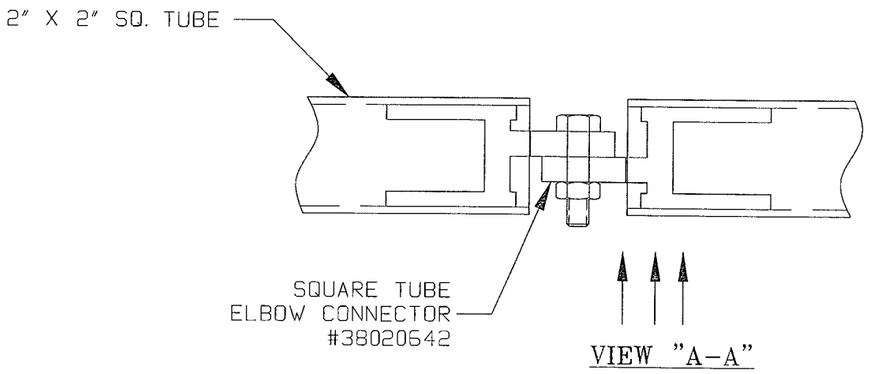
SQ. TUBE STRAIGHT SPLICE



1.315 DRIVE SHAFT SPLICE



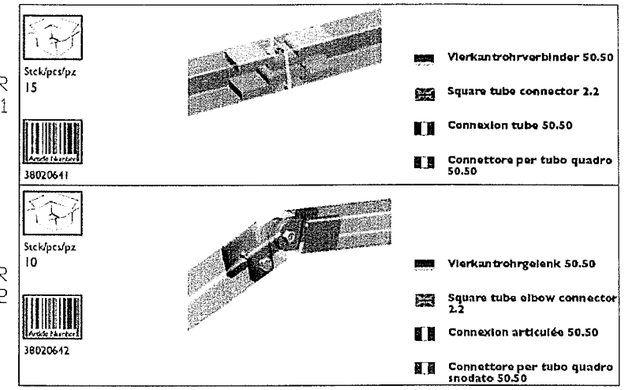
VIEW "A-A"



VIEW "A-A"

SQ. TUBE ELBOW SPLICE

SQUARE TUBE CONNECTOR
#38020641



SQUARE TUBE ELBOW CONNECTOR
#38020642

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DATE:10/08/14 REV:

STANDARD DETAIL #QC-0605

DRAWN BY: SRP

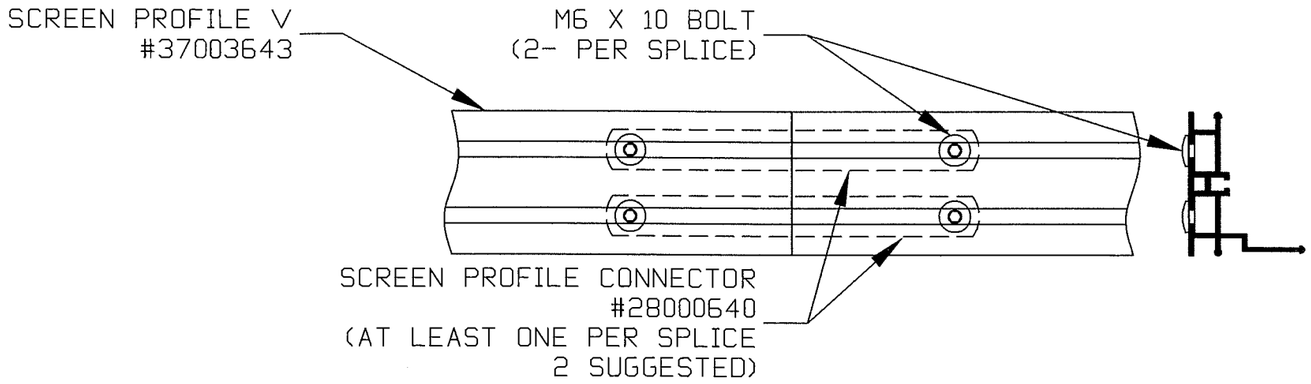
CHECKED BY:

TGU SHADE SYSTEM
2" X 2" SQ. TUBE SPLICE
1.315 SHAFT TUBE SPLICE

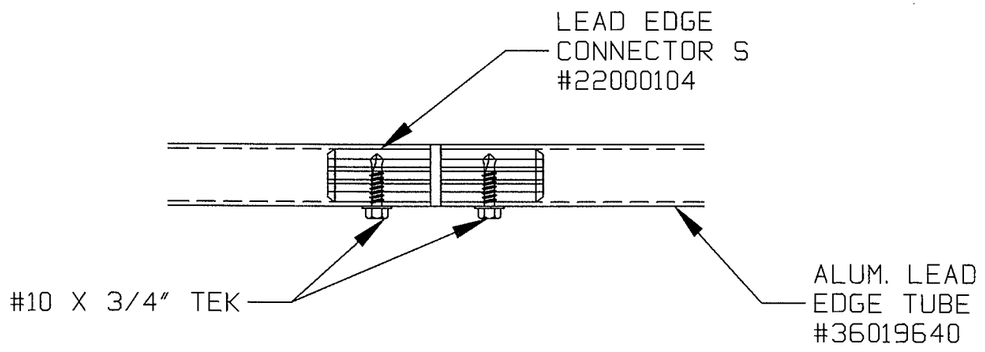
PAGE# 46

GLAZING=

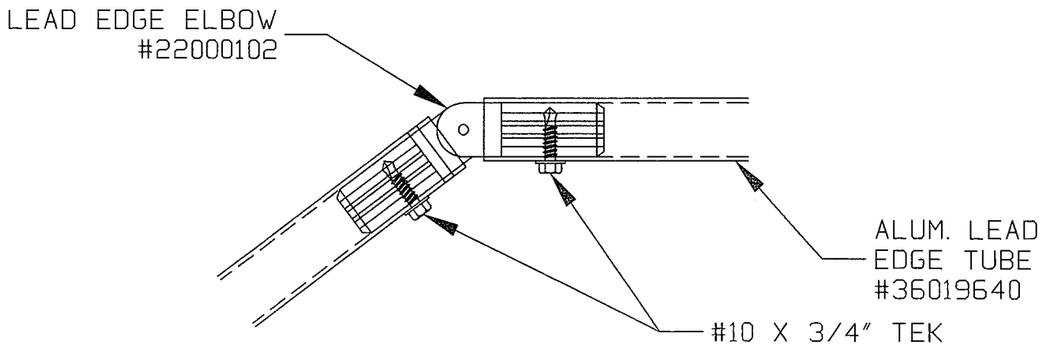
FINISH=



SCREEN PROFILE SPLICE

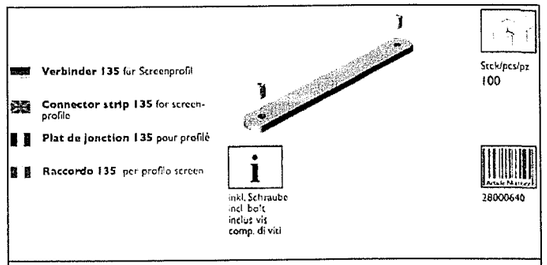


LEAD EDGE TUBE SHORT SPLICE

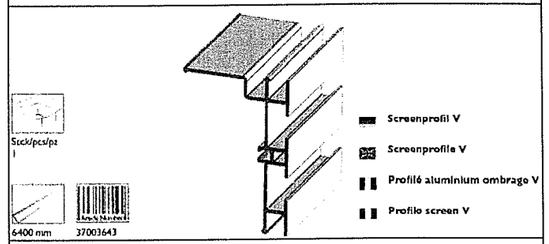


LEAD EDGE TUBE ELBOW SPLICE

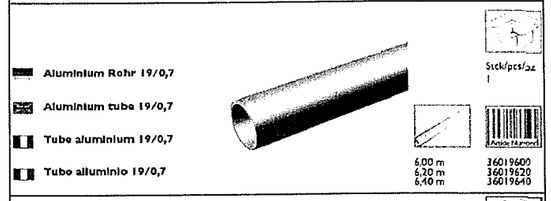
SCREEN PROFILE
CONNECTOR
#28000640



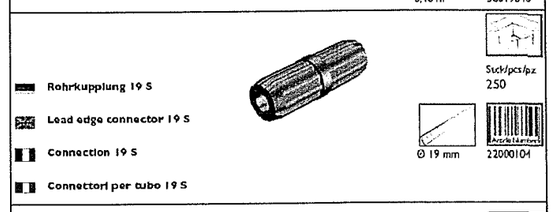
SCREEN PROFILE V
#37003643



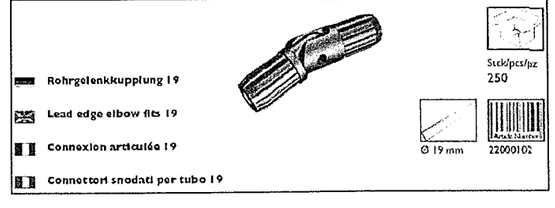
ALUM LEAD
EDGE TUBE
#36019640



LEAD EDGE
CONNECTOR S
#22000104



LEAD EDGE ELBOW
#22000102



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE: 10/08/14

STANDARD DETAIL #QC-0606

DRAWN BY: SRP

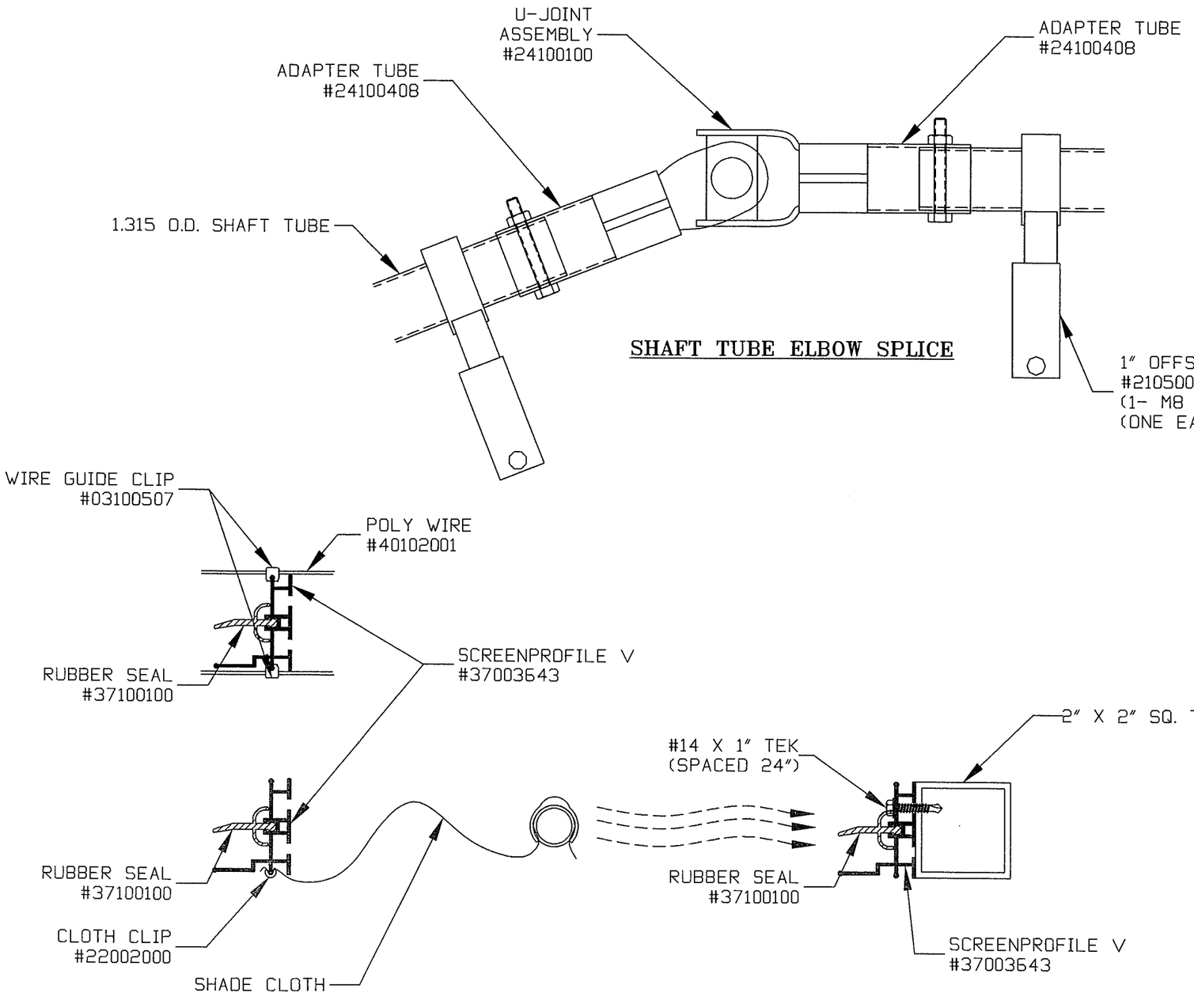
CHECKED BY:

TGU SHADE SYSTEM
LEAD EDGE TUBE SPLICE
&
SCREENPROFILE SPLICE

PAGE# 47

GLAZING=

FINISH=



SHAFT TUBE ELBOW SPLICE

SCREEN PROFILE ATTACHMENT TO 2" X 2" SQ. TUBE

WIRE GUIDE CLIP #03100507

CLOTH CLIP #22002000

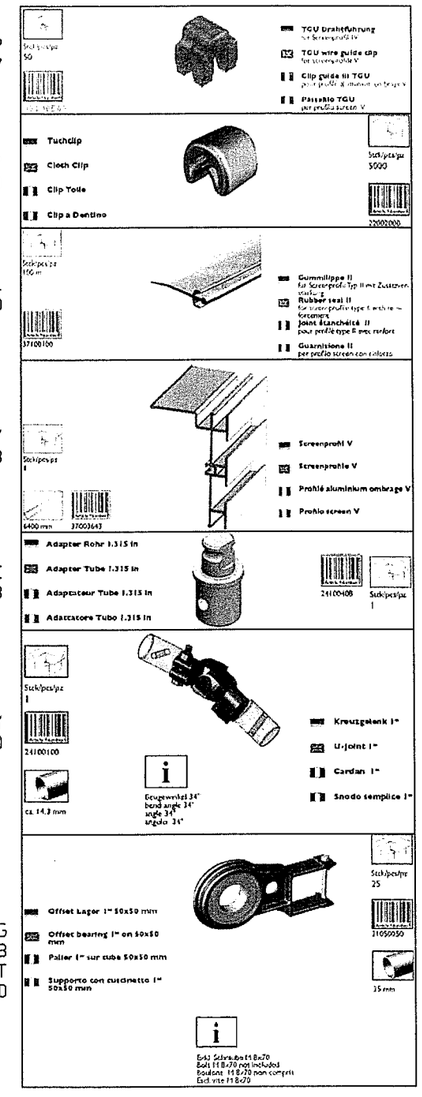
RUBBER SEAL #37100100

SCREENPROFILE V #37003643

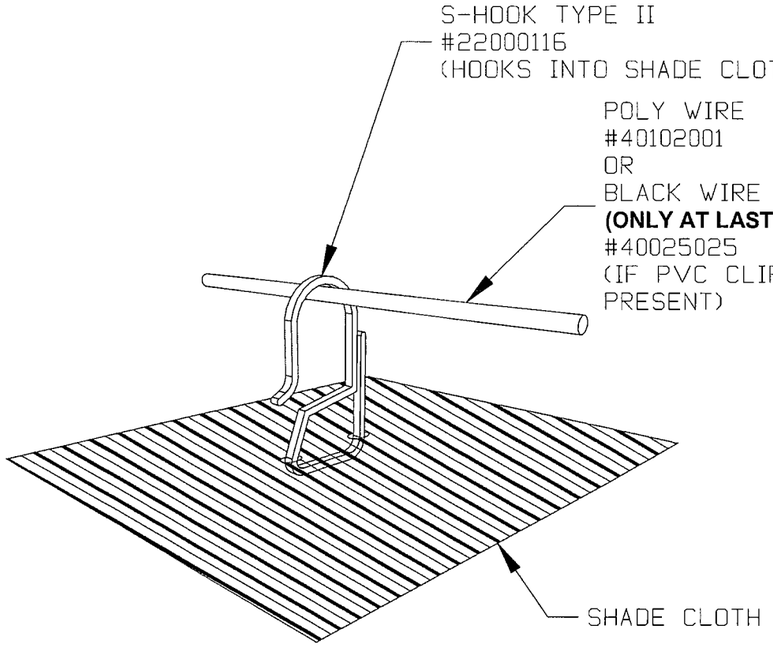
ADAPTER TUBE #24100408

U-JOINT ASSEMBLY #24100100

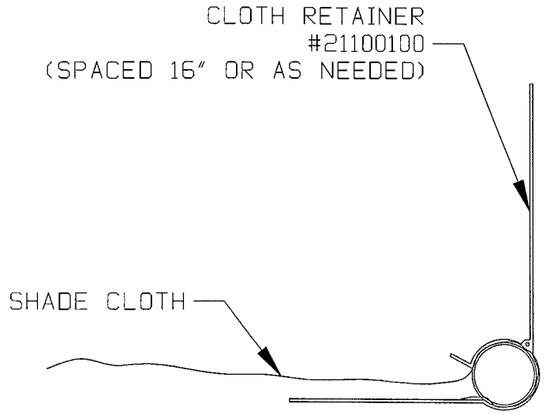
1" OFFSET BEARING W/ M8 X 70 BOLT AND M8 NUT #21050050



WINANDY GHSE, CO. 2211 PEACOCK ROAD RICHMOND, INDIANA 47374 (765) 935-2111	DATE:10/08/14 REV: 09/23/16	STANDARD DETAIL #QC-0607	DRAWN BY SRP
		TGU SHADE SYSTEM SCREEN PROFILE ATTACHMENT U-JOINT ASSEMBLY	CHECKED BY
			PAGE# 48
		GLAZING=	FINISH=



HOOK ATTACH TO SHADE CLOTH



CLOTH RETAINER ATTACHMENT

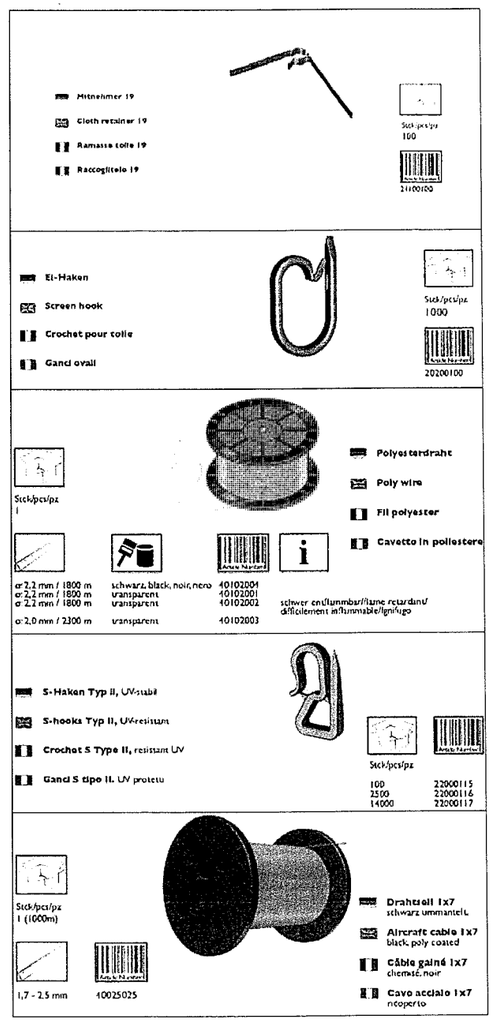
CLOTH RETAINER
#21100100

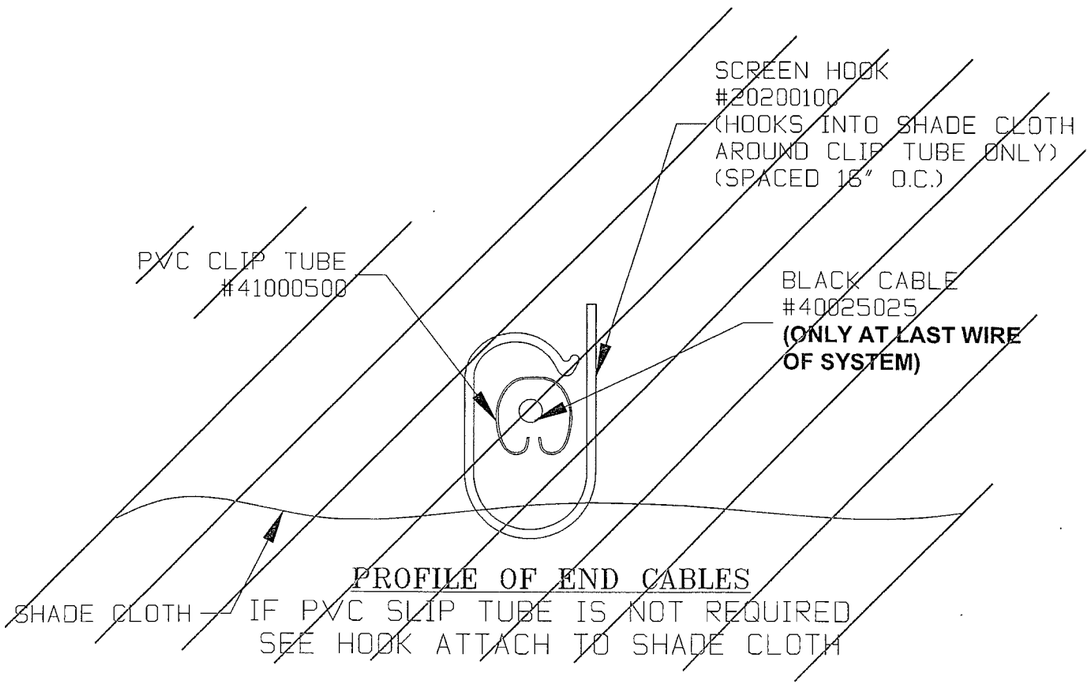
SCREEN HOOK
#20200100

POLY WIRE
#40102001

S-HOOK TYPE II
#22000116

BLACK CABLE
#40025025





PROFILE OF END CABLES
IF PVC SLIP TUBE IS NOT REQUIRED
SEE HOOK ATTACH TO SHADE CLOTH

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE:10/08/14

STANDARD DETAIL #QC-0609

TGU SHADE SYSTEM
SHADE CLOTH AND BLACK CABLE

DRAWN BY: SRP

CHECKED BY:

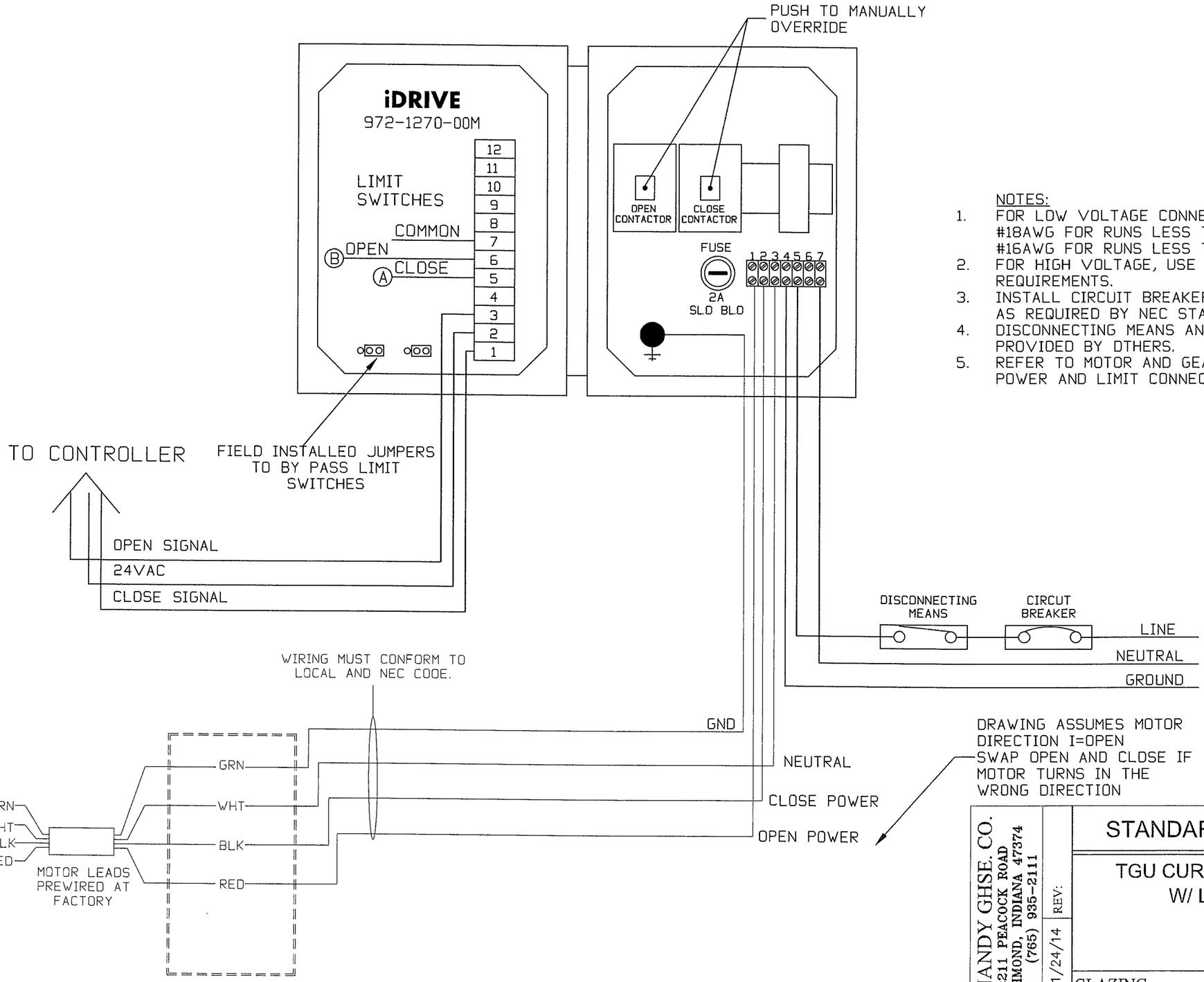
PAGE# 49

GLAZING=

FINISH=

iDRIVE MOTOR CONTROLLER

120VAC 60HZ SINGLE PHASE



NOTES:

1. FOR LOW VOLTAGE CONNECTION USE STRANDED WIRES.
   #18AWG FOR RUNS LESS THAN 250FT.
   #16AWG FOR RUNS LESS THAN 750FT.
2. FOR HIGH VOLTAGE, USE WIRES PER NEC REQUIREMENTS.
3. INSTALL CIRCUIT BREAKERS AND DISCONNECTING MEANS AS REQUIRED BY NEC STANDARDS.
4. DISCONNECTING MEANS AND CIRCUIT BREAKERS PROVIDED BY DTHERS.
5. REFER TO MOTOR AND GEAR BOX (IF PRESENT) FOR POWER AND LIMIT CONNECTION DIAGRAM.

DRAWING ASSUMES MOTOR DIRECTION I=OPEN
SWAP OPEN AND CLOSE IF MOTOR TURNS IN THE WRONG DIRECTION

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:11/24/14 REV:

STANDARD DETAIL #QC-0600

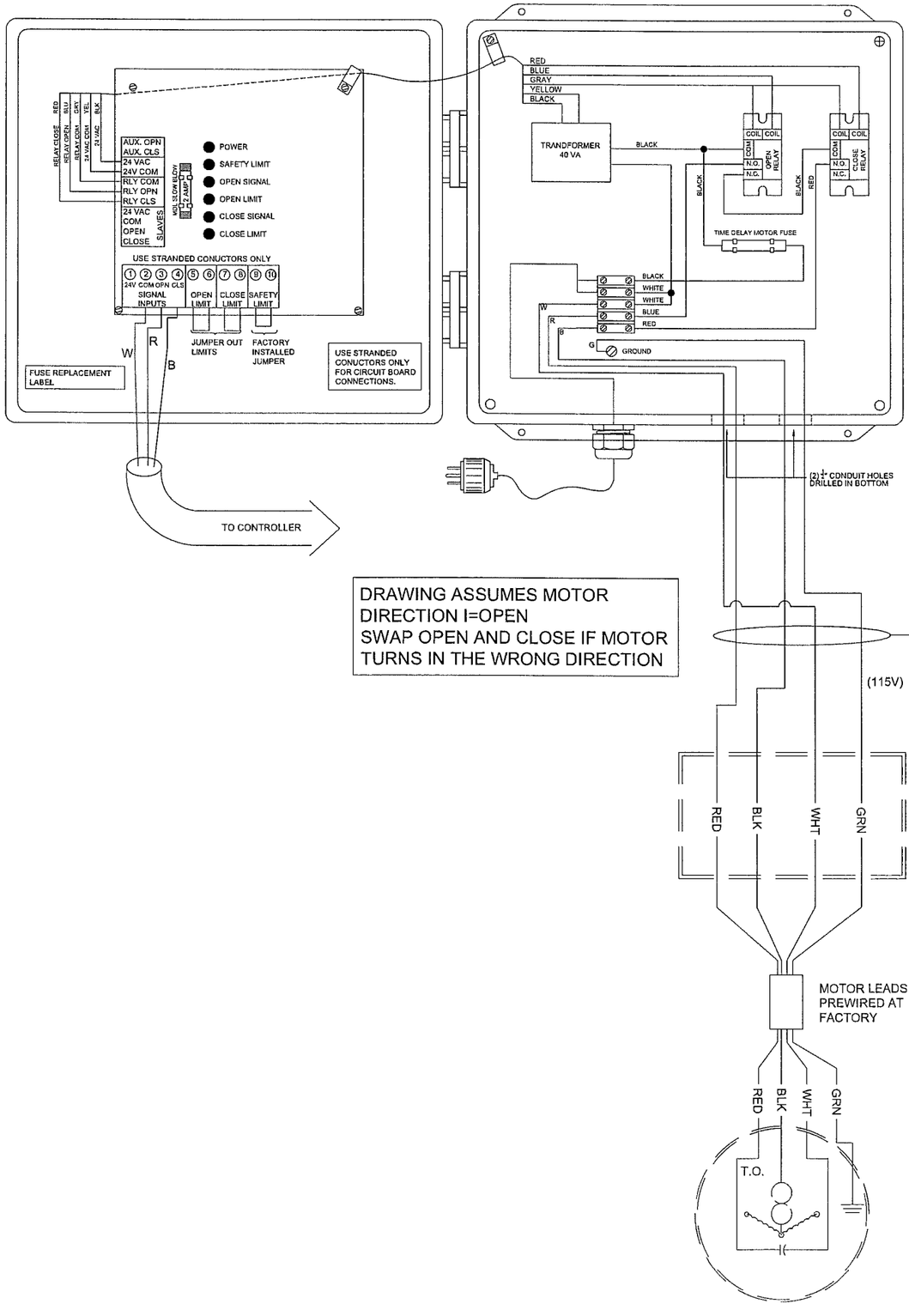
TGU CURTAIN SYSTEM MOTOR W/ LINK 4 CONTROL BOX

DRAW BY TAM

CHECKI BY

PAGE: 5C

GLAZING= FINISH=



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE:01/18/17

STANDARD DETAIL #EV-0332

DRAWN BY: SRP

CHECKED BY:

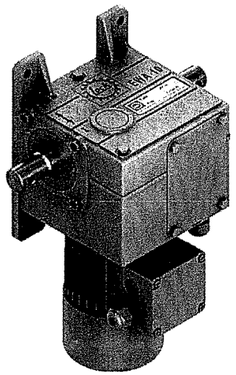
PAGE# 51

TGU CURTAIN MOTOR W/ MICROGROW CONTROL BOX W/ CIRCUIT BOARD

GLAZING=

FINISH=

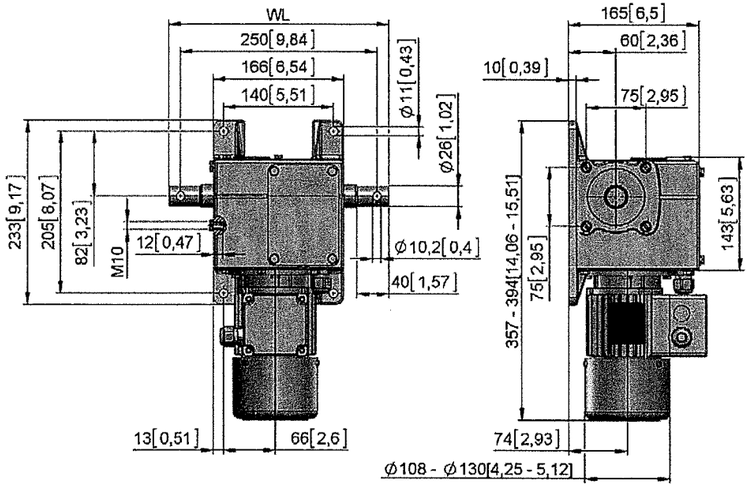
EWA 10 // Power drive
50–90 Nm



- → Extremely quiet, self-locking worm gear units with long service life, zero-maintenance.
- → Universal mounting with standard mounting at back or on side left (symmetrical).
- → Installed precision END 20 gear limit switch for 580 shaft revolutions (UL+CSA).
- → Quality motors with multi-range voltage (IEC 38) for 50 Hz (400 V 3~ // 230 V 1~) and 60 Hz (208 V 3~ // 480 V 3~ as well as 120 V 1~ and 240 V 1~ in UL+CSA). IP55, Th.Cl.F, S3-40 %.
- → A coil protection contact is integrated in all single-phase motors, so no separate motor protection switch is required. Turnkey with cable.
- → Round shaft We 06, 90 Nm version also available with hex shaft We 66.
- → On 60 Hz versions, END 20.40 auxiliary limit switch as standard!

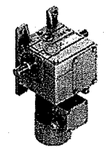
Options:

- → END 20.40 auxiliary limit switch.
- → PAR 06 position repeater.
- → Version A60 for use in the open air.



mm [inch]

EWA 10
50–90 Nm



We 06
WL 280 mm

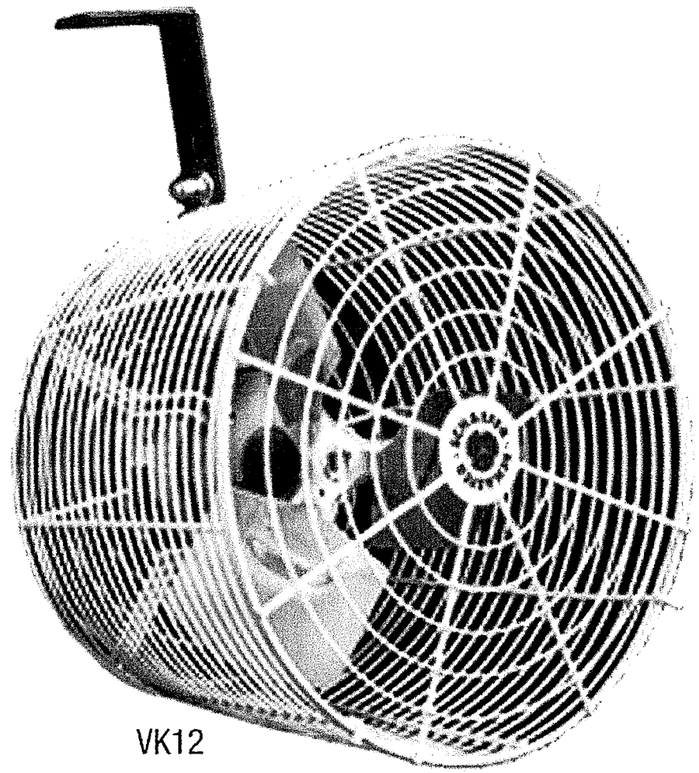
We 66
WL 385 mm

Version	We 06 Type no.	We 66 Type no.	T [Nm]	n [U/min]	P [kW]	I [A]	m We 06 [kg]	m We 66 [kg]
400 V 3~, 50 Hz								
EWA 10.0503	12210.0503.06	–	50	3,6	0,06	0,40	17,4	–
EWA 10.0505	12210.0505.06	–	50	5,6	0,11	0,45	16,0	–
EWA 10.0903	12210.0903.06	12210.0903.66	90	3,6	0,08	0,48	17,4	18,1
EWA 10.0905	12210.0905.06	12210.0905.66	90	5,6	0,13	0,53	16,0	16,7
230 V 1~, 50 Hz								
EWA 10.0503	12210.0503.0620	–	50	3,8	0,06	1,10	18,7	–
EWA 10.0505	12210.0505.0620	–	50	5,2	0,10	1,80	16,5	–
EWA 10.0903	12210.0903.0620	12210.0903.6620	90	3,8	0,09	1,20	18,7	19,4
EWA 10.0905	12210.0905.0620	12210.0905.6620	90	5,2	0,13	1,90	16,5	17,2
24 V DC, 50 Hz								
EWA 10.0505	12210.0505.0640	–	35	4,2	0,08	4,00	16,5	–

Version	We 06 Type no.	T [Nm]	T [in.-lb]	n [rpm]	P [kW]	I [A]	m We 06 [kg]
120 V 1~, 60 Hz, UL/CSA							
EWA 10.0503	12210.0503.0631	50	450	4,6	0,09	2,40	18,6
EWA 10.0903	12210.0903.0631	90	800	4,6	0,13	2,60	18,6
240 V 1~, 60 Hz, UL/CSA							
EWA 10.0503	12210.0503.0636	50	450	4,6	0,09	1,28	21,5
EWA 10.0903	12210.0903.0636	90	800	4,6	0,13	1,42	21,5
208 V 3~, 60 Hz, UL/CSA							
EWA 10.0503	12210.0503.0611	50	450	4,6	0,06	0,90	17,3
EWA 10.0903	12210.0903.0611	90	800	4,6	0,09	1,00	17,3
480 V 3~, 60 Hz, UL/CSA							
EWA 10.0503	12210.0503.0616	50	450	4,6	0,06	0,41	17,3
EWA 10.0903	12210.0903.0616	90	800	4,6	0,09	0,45	17,3

Versa-Kool® Deep Guard Circulation Fans

Reduce heat stress and improve air quality with Schaefer's deep guard circulation fans. Unrivaled in the industry, these fans are engineered to produce greater air movement and superior cooling with less noise. You don't hear them. You don't see them. You only feel them!



VK12

INDUSTRY STANDARD FOR GREENHOUSE VENTILATION

Features and Benefits

- Deep guard design for high airflow, low noise levels and safety
- Matched high quality motors and blades for maximum efficiency
- Powder coated steel guards for increased durability and corrosion resistance
- Hot dipped galvanized guards on VK12-GA and VK20-GA models for even greater rust protection
- Powder coated steel mounting bracket and power cord included
- Wide variety of mounting options available for flexible and easy installation
- Variable speed controls available
- Misting kits available for even greater cooling

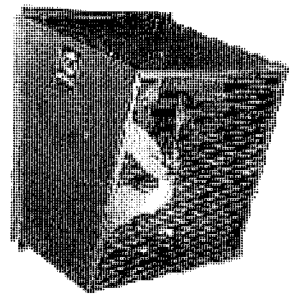
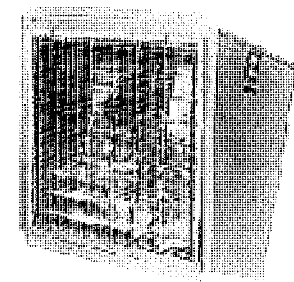
White Model	Diameter	Variable Speed	Phase	HP	Volts	Amps	CFM	Thrust (lbf)	RPM	Weight
~~VK8~~	~~8"~~	~~N~~	~~1~~	~~1/100~~	~~115~~	~~0.6~~	~~450~~	~~.19~~	~~1550~~	~~8~~
VK12	12"	Y	1	1/10	115/230	1.3/.65	1470	.85	1725	18
~~VK12-GA*~~	~~12"~~	~~Y~~	~~1~~	~~1/10~~	~~115/230~~	~~1.3/.65~~	~~1470~~	~~.85~~	~~1725~~	~~18~~
~~VK12TF-GPM-W~~	~~12"~~	~~Y~~	~~1~~	~~1/10~~	~~115/230~~	~~1.3/.65~~	~~1510~~	~~.90~~	~~1725~~	~~18~~
~~VK20~~	~~20"~~	~~Y~~	~~1~~	~~1/2~~	~~115/230~~	~~3.8/1.9~~	~~5470~~	~~4.26~~	~~1725~~	~~37~~

MADE IN USA Since 1957

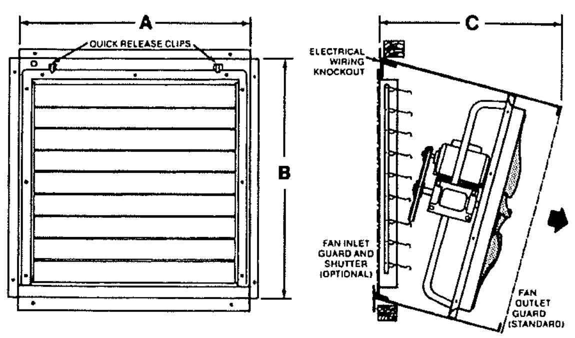
2 YEAR WARRANTY

MODEL WS SLANT WALL HOUSING

- Constructed of heavy gauge galvanized steel or aluminum.
- For Model DC, DCA, FQ and FN Fans.
- Energy Savings - with inside shutter saves up to 3750 BTU/HR heat loss per fan.
- High Flow Capacity - shutter directs air to fan. Select fan at .05" sp. instead of .10".
- Weather Protected - slant arrangement protects motor and drives from elements.
- Outside Mounting - keeps equipment from blocking aisles.
- Assembled to fan for quick, easy field installation.
- Includes 1" x ½" guard on outlet side.

- Shutter and inlet guard held in place with quick release clips.
- Wiring knockout included to allow all wiring connections for motor to be made inside the building. For fan application, see pages 4 and 5 for Windmaster® (DC or DCA) and page 8 for DynaMaster® (FQ and FN).



FAN SIZE	WALL HOUSING		AUTOMATIC ALUMINUM SHUTTER		INLET GUARD		INSIDE FRAMED OPENING DIMENSIONS		
	MODEL	WT.	MODEL	WT.	MODEL	WT.	A	B	C
[redacted]									
42"	WS42DC	53	WAA4545	25	GS42	12	46¾"	49"	36¾"
[redacted]									

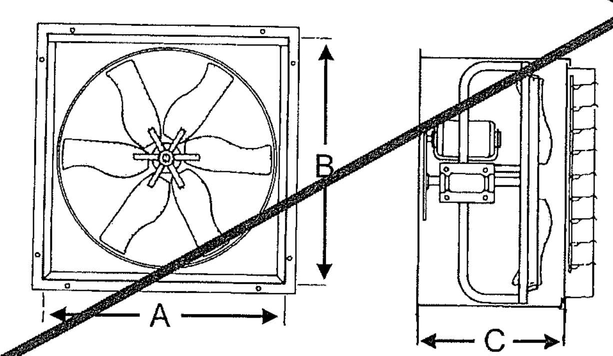
CAUTION! Guards must be installed when fan is within reach of personnel or within seven (7) feet of working level or when deemed advisable for safety.

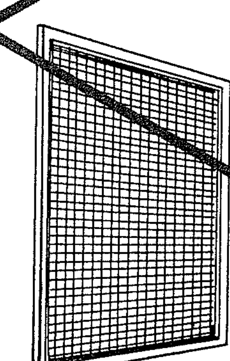
MODEL WB SQUARE WALL HOUSING

- Constructed of heavy gauge galvanized steel.
- For Model DC and DCA.
- Provides convenient means to install fan and shutter.
- Outside Mounting - keeps equipment from blocking aisles.
- Mounting Flanges for attaching to wall and to attach shutter.
- Assembled to fan for quick, easy field installation.

FAN SIZE	WALL HOUSING		AUTOMATIC ALUMINUM SHUTTER		INLET GUARD		INSIDE FRAMED OPENING DIMENSIONS		
	MODEL	WT.	MODEL	WT.	MODEL	WT.	A	B	C
24"	WB24DC	30	WAA2727	9	GD24	5	28¾"	28¾"	24"
30"	WB30DC	36	WAA3333	13	GD30	7	34¾"	34¾"	24"
36"	WB36DC	38	WAA3939	[illegible]	GD36	10	40¾"	40¾"	24"
42"	WB42DC	40	WAA4545	25	GD42	12	46¾"	46¾"	24"
48"	WB48DC	70	WAA5454	35	GD48	15	54¾"	54¾"	25"
54"	WB54DC	90	WAA6060	40	GD54	18	60¾"	60¾"	29"

CAUTION! Guards must be installed when fan is within reach of personnel or within seven (7) feet of working level or when deemed advisable for safety.





All Guards: for wall housings have 1" x " welding galvanized wire in aluminum frame for inlet side of wall housing. Outlet guards are included on WS wall housings as standard equipment.

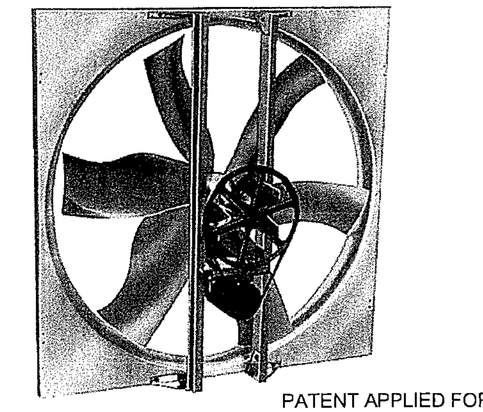
Inlet guards are mounted with quick release clips.

Super Windmaster FANS

DCA SERIES (ALUMINUM)

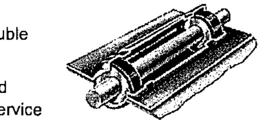
- All aluminum construction
- Six-bladed propeller utilizing a cambered - twist blade design with a unique dihedral tip for higher air flow capacities at less horsepower.
- Non-overloading design maintains horsepower within catalog range of static pressure, resulting in lower motor load and reduced operating costs.
- Streamlined orifice insures higher air flow capacity.
- Available mounted in either slant or square wall housing.

Acme Engineering and Manufacturing Corporation certifies that the Super Windmaster DCA as shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.



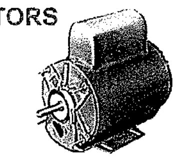
PATENT APPLIED FOR

SEALED BEARINGS



- Prelubricated oversize ball bearings are double sealed, require no service.
- Improved, more efficient drive assembly and super-duty neoprene belts provide longer service life.

ENERGY EFFICIENT ENCLOSED MOTORS



- Heavy duty totally enclosed motors with shielded ball bearings are designed for continuous work load.
- Available in two speed.
- Built-in thermal overload for low-line voltage protection on all single phase motors.

MOTOR NOTES

1. All single speed single phase motors are dual voltage (115/230) except ¼ horsepower.
2. All ¼ horsepower single phase motors are single voltage (115 or 230).
3. Two-speed motors are single voltage (115 or 230) and not available in 1½ horsepower.
4. Low speed capacity of two speed fans is approximately one half of maximum.
5. All three phase motors are triple voltage (200-230/460).

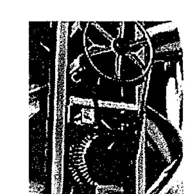
FAN	HP	RPM	CERTIFIED CFM VS. STATIC PRESSURE (INCHES WG) .000"			.050"			.100"			.125"			.150"			MAX STATIC PRESSURE
			CFM	*BHP	C/W	CFM	*BHP	C/W	CFM	*BHP	C/W	CFM	*BHP	C/W	CFM	*BHP	C/W	
[redacted]																		
DCA42J‡	1	485	18295	1.11	17.1	17620	1.14	16.1	16980	1.19	14.8	16575	1.20	14.7	16125	1.20	14.0	.250
[redacted]																		

‡ Available with two-speed motor in 230/1 only.
Performance shown is installation of type A-Free inlet. Free outlet.
* Power ratings (BHP) does not include drive losses.
Performance ratings do not include the effects of appurtenances in the airstream.
† These models feature a four-bladed propeller

CFM per Watt does not include drive losses. C/W ratings are not licensed to bear the AMCA seal.

WARNING! DO NOT use in HAZARDOUS ENVIRONMENTS where fan's electrical system could provide ignition to combustible or flammable materials unless unit is specifically built for hazardous environments.

CAUTION! Guards are strongly recommended when the fan is installed within seven (7) feet of the floor, working level or within reach of personnel. Guards complying with OSHA regulations are available as optional equipment. Review OSHA Codes and obtain a quotation.



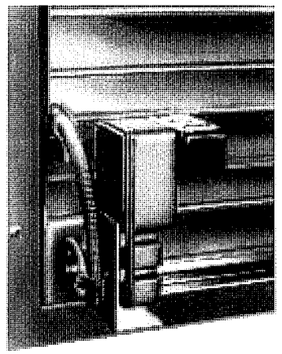
BELT TIGHTENERS FOR DCA SERIES:
Keep fan performance to the design level, maintaining efficiency.

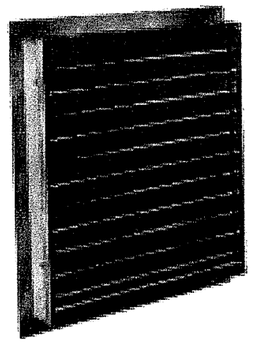
Not available for DCA24 and RCA24 models.

Flo-Master®

ALUMINUM WALL SHUTTERS

- Corrosion resistant heavy gauge aluminum frame.
- Precision counterbalanced aluminum blades open easier, wider to permit higher fan capacity.
- Nylon bearings throughout are corrosion proof to help prevent sticking. Suitable for dusty or humid applications.
- Stainless steel hinge pins will not rust, insure easy positive blade action.
- All shutter blades are reinforced with polished galvanized steel rods, and equipped with double tie-rods.
- Automatic - Used with exhaust fans; opens automatically when fan is on, closes automatically when fan is off.
- Keeps out wind, rain and backdrafts when fan is not in operation.
  (See fan selection for shutter sizes)

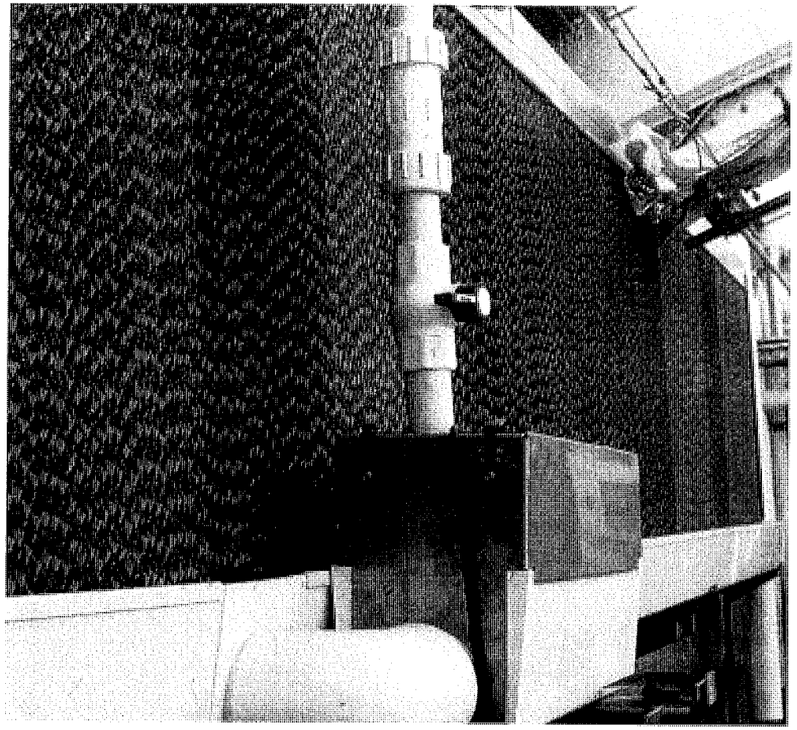




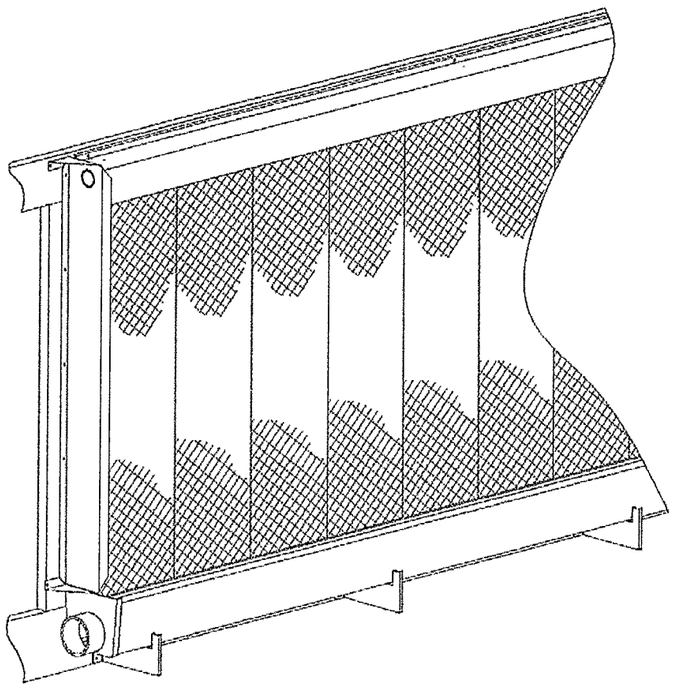
MOTORIZED INLET SHUTTERS

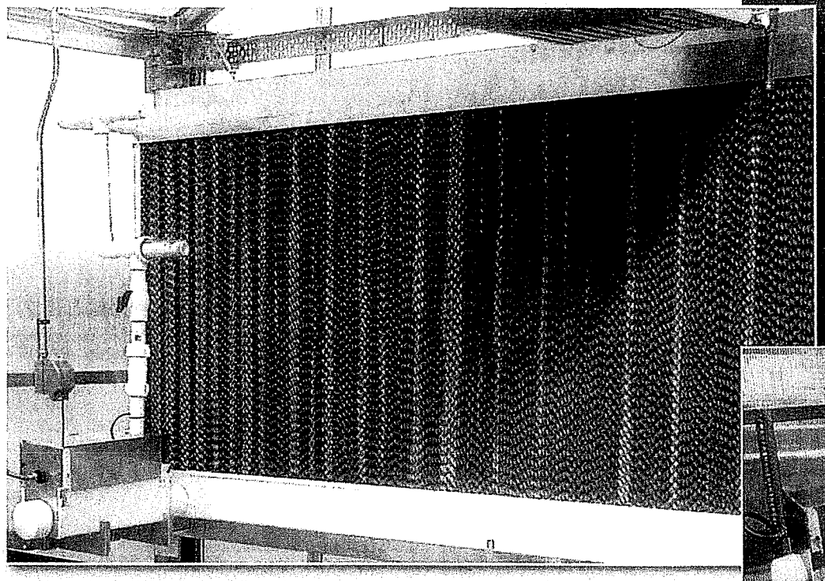
- New cam pulley operator - Provides long life to motor - corrosion resistant.
- Motor draws only 17 watts.
- WAAC models are center pivoted to open easier against house static pressures.
- Motors are available in 24v, 115v, 230v, 460v, (Specify Voltage Required).

SHUTTER MODEL	DIMENSIONS			
	OVERALL	OPENING	Sq. Ft. OPENING	WT.
~~WAAC1818MT~~	~~18x18~~	~~15x15~~	~~1.56~~	~~10~~
~~WAAC2626MT~~	~~26x26~~	~~23x23~~	~~3.67~~	~~14~~
~~WAAC3333MT~~	~~33x33~~	~~30x30~~	~~6.25~~	~~18~~
~~WAAC4040MT~~	~~40x40~~	~~37x37~~	~~9.50~~	~~22~~
~~WAAC6318MT~~	~~63x18~~	~~60x15~~	~~6.25~~	~~19~~
~~WAAC6340MT~~	~~63x40~~	~~60x37~~	~~15.42~~	~~35~~
~~WAAC6362MT~~	~~63x62~~	~~60x59~~	~~24.58~~	~~52~~
WAAC6363MT	63x63	60x60	25.00	52



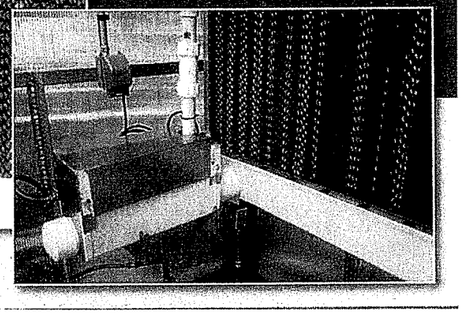
ABOVE PICTURE SHOWING INLINE WRAP AROUND KIT

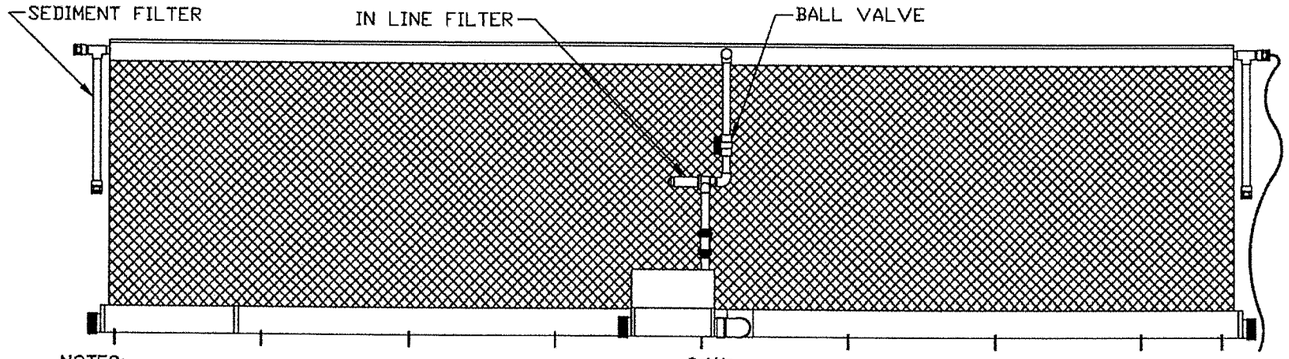




Kool Cel

Acme's CSEG 6" and CAEG 4" evaporative cooling systems offer ease of installation and very low maintenance. The gutter's UV protection and rugged stainless steel CSEG or aluminum CAEG top offers many years of trouble-free operation. Just glue the sections together and snap in the pad tray. The gutter is mounted level and serves as a retention tank. The gutter may be mounted either on a wall stringer, using stainless steel brackets, or directly on a level concrete pad, to remove the load from the wall. This unit can be supplied in a number of configurations and lengths to suit your application.





NOTES:
Installation

1. The pump tank must be mounted so that the top of the tank PVC is the same height as the top of the gutter.
2. All PVC joints must be cleaned with appropriate cleaner prior to gluing.
3. The ball valve should be located so that it can easily be adjusted by hand.
4. The compression coupling should be located to facilitate pump maintenance.
5. Be sure that the bleed off pipe does not feed back into the system.

OPTIONAL TANK PLACEMENT IN CENTER OF SYSTEM

Set Up

1. Check the water replenishment supply to assure that it is greater than the amount of water to be evaporated.
2. Set the float level to as low as possible while keeping the water level above the pump impeller chamber height.
3. Before initial seasonal start up or on initial start up, pre-charge the system with water until the water level is just below the pad bottom.
4. Set the ball valve to ¼ to ½ opening.
5. Turn on the pump for the initial start up.
6. Adjust the ball valve until the pads are just fully wetting. If access to the distribution pipe is available check that all holes are operating and that the water is sprayed approximately 1 foot above the distribution pipe.

ACME SYMBOL OF QUALITY

MODINE

BRING VALUE TO YOUR SPACE WITH THE NEW PTP HEATER.

PTP unit heaters can use natural or propane gas, and are available in single-stage or optional two-stage controls.

Introducing the new power vented, PTP unit heater line with stainless steel bent tube heat exchanger standard. The PTP was specifically designed with the customer in mind to provide high value at a reasonable cost. Backed by Modine's nearly 100 years of pioneering HVAC innovation, the horizontal mounted PTP delivers reliable performance and longer life in a small-business-friendly package.

Propeller Unit Model PTP General Performance Data

	Model PTP Sizes							
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	[illegible]	[illegible]
BTU/Hr Input[1]	15[illegible]000	17[illegible]000	20[illegible]000	25[illegible]000	300,000	35[illegible]000	40[illegible]000	
BTU/Hr Output[1]	12[illegible]000	14[illegible]000	16[illegible]000	20[illegible]000	240,000	28[illegible]000	32[illegible]000	
Max. Mounting Height (Ft.)[2]					19			
Heat Throw (Ft.) (@ Max Mtg Ht)[2]					69			

[1] Ratings shown are for elevations up to 2,000 ft. For elevations above 2,000 feet, ratings should be reduced at the rate of 4% for each 1,000 feet above sea level. (In Canada see rating plate.) Reduction of ratings requires use of a high altitude kit.

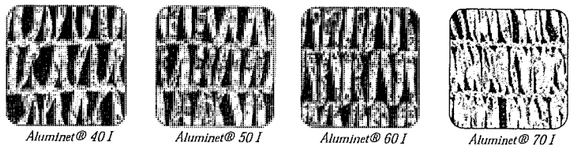
[2] Data taken at 55°F air temperature rise. At 65°F ambient and unit fired at full-rated input. Mounting height as measured from bottom of unit, and without deflector hoods.

BENEFITS OF THE PTP LINE INCLUDE:

- Stainless steel heat exchanger comes STANDARD on all units, extending the life of your investment
- 10-year heat exchanger warranty is STANDARD, providing you peace of mind
- Totally enclosed, permanently-lubricated fan motor outside the cabinet is standard for trouble-free dependability
- Constructed with Modine's proven tubular heat exchangers for a low-profile design on jobs with lower mounting heights
- Optional finger-proof fan guard for low mounting height applications
- Power exhauster and controls mounted inside the cabinet for protection from airborne moisture and dust
- Installs quickly and easily with knockouts and field gas and wiring connections inside a roomy controls section for quick and easy access
- Proudly Made in the USA

MODINE
RAISE YOUR COMFORT LEVEL

Aluminet® I Open Screens



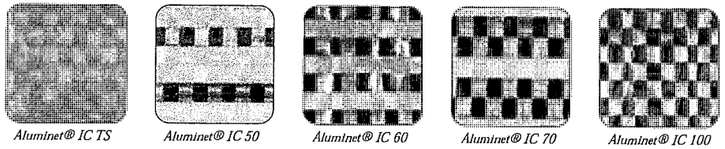
Aluminet® 40 I *Aluminet® 50 I* *Aluminet® 60 I* *Aluminet® 70 I*

	Shade percentage	Diffused light transmission	Energy saving
Aluminet® 40 I	40-43%	72%	15%
Aluminet® 50 I	49-53%	65%	20%
Aluminet® 60 I	62-64%	55%	36%
Aluminet® 70 I	70-74%	45%	45%

Aluminet® I Open Screens provide multiple solutions where both heat-stress reduction and frost protection is necessary. The double-sided reflection screen helps to protect your crop against both midday heat stress and overnight frost.

Light transmission parameters were tested according to ASTM-D 1746 & ASTM-D 1494 methods.

Aluminet® IC Closed Screens for Energy-Saving



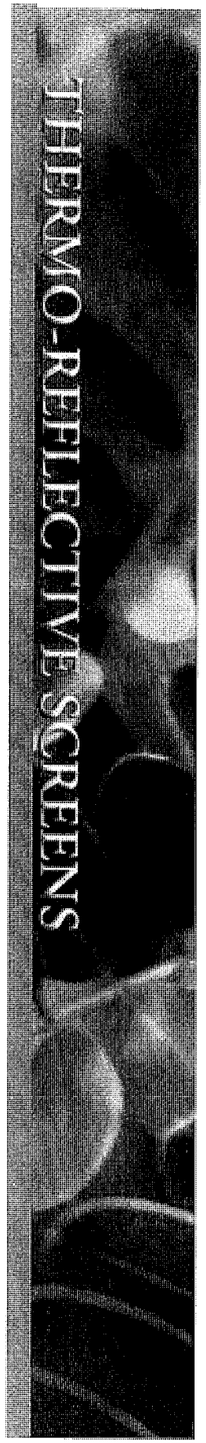
Aluminet® IC TS *Aluminet® IC 50* *Aluminet® IC 60* *Aluminet® IC 70* *Aluminet® IC 100*

	Energy Saving	Diffused light transmission	Shade percentage
Aluminet® IC TS	43%	94-95%	22-24%
Aluminet® IC 50	55%	74-75%	46-48%
Aluminet® IC 60	60%	60-61%	59-61%
Aluminet® IC 70	70%	45-46%	73-75%
Aluminet® IC 100	75%	0%	98-99.5%

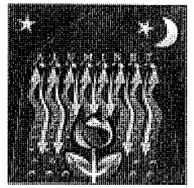
Available with fire retardant ICFR

Aluminet® IC is highly recommended for greenhouses where a high level of energy saving is essential. Tests show that Aluminet's insulation properties contribute significantly to reduced energy consumption.

Energy savings tested by the INTRON Quality Assessment Institute in Test no. R20010307 on Nov. 8, 2001.
Light transmission parameters were tested according to ASTM-D 1746 & ASTM-D 1494 methods.
Fire retardant parameters were tested according to NFPA 701 regulations.



WHY SHOULD YOU CONSIDER INSTALLATION OF ALUMINET® SCREENS?



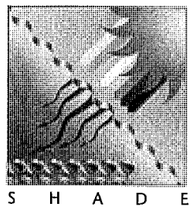
ENERGY SAVING

Saves energy

Aluminet® screens have been tested and proved to save over 50% of heating energy, which means direct reduction of your operational costs.

Increases yields

Better temperature control, together with optimized light management, ensure maximum yield from your greenhouse. Aluminet® screens raise plant temperatures at night, avoid overheating in the day and improve photosynthesis by increasing the amount of scattered light.



S H A D E

Protects against frost

Many outdoor crops benefit from improved climate management. Aluminet® screens installed on light-frame shade houses protect crops from frost, wind and heat stress, increasing both crop quality and productivity.

Warranty

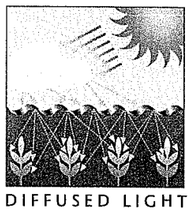
Aluminet® screens carry a long-term guarantee on product quality. The company's quality assurance policy focuses on supply of quality products to its customers - for long-term use - under harsh and diverse field conditions. All the company's activities are conducted under ISO 9001 and IQNet standards.

R E F L E C T I O N

HOW DOES IT WORK?

Double-side reflection

Aluminet® screens reflect sun radiation during the day, reducing overexposure to heat, and reflect IR radiation at night, increasing plant temperature and reducing risk of freezing. The screens also prevent condensation on leaves.

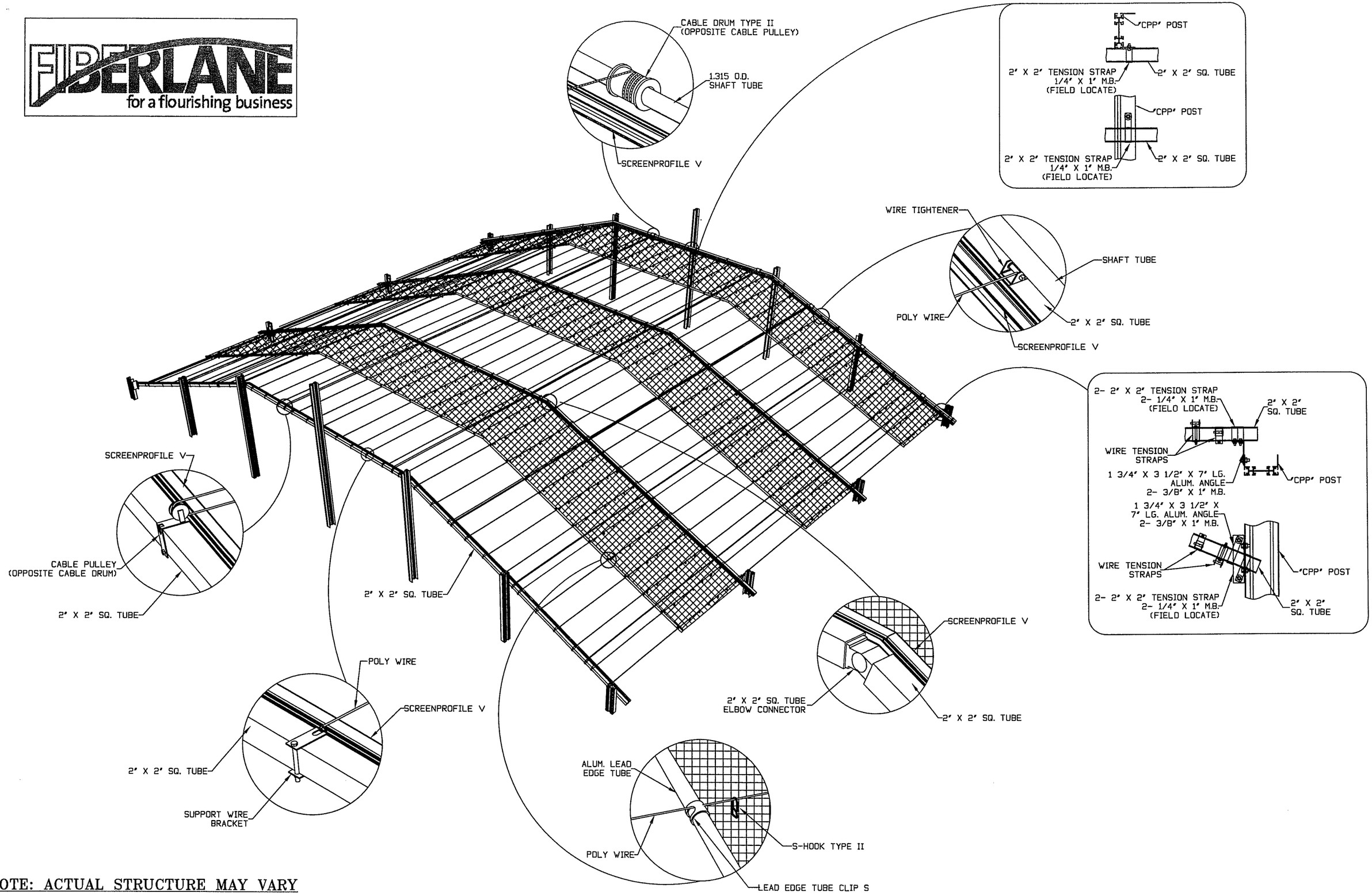


D I F F U S E D L I G H T

Light Diffusion

Aluminet's special structure improves light management. The use of special additives and the multifaceted reflection of the twisted Aluminet® strips contribute to efficient diffusion of incoming radiation, creating uniform light throughout the greenhouse.

FIBERLANE
for a flourishing business



NOTE: ACTUAL STRUCTURE MAY VARY

EnviroSTEP™

Each year hundreds of growers install EnviroSTEP controls in their greenhouses. It's the flexible, rugged choice to integrate the climate control equipment for one zone. There's no better combination of power and value than the EnviroSTEP. Garden centers, production growers, laboratories and schools all benefit from this control. And it bears the UL mark, your assurance of regulatory approval.

Features:

- Single zone control
- 3 set point periods — day, night and DIF
- 12 relay outputs with manual override switches
- 2 analog outputs (0 to 10VDC) to control variable-speed fans and modulating valves
- 7 analog input channels for connecting light, CO_2, RH and temperature sensors
- 4 digital detector channels sense precipitation, wind speed and direction
- Records the status of all inputs and outputs in 15-minute increments
- Alarm outputs: temperature, RH and power failure
- Replaceable 10 amp DPDT relays, can operate a wide variety of equipment — these relays reduce the cost of your contactor panel
- Durable corrosion-resistant cabinet with locking door protects your control
- Cabinet measures 16" x 16" x 5"
- Largest display in the industry; has menu-driven choices and graphic functions
- Keypad for easy operation
- Ramping allows for gentle transition between set point periods and saves fuel

Includes:

- Solar-guarded aspirated temperature and humidity sensor and 100' of cable
- Solar-shielded outdoor temperature sensor with 25' of cable

Maintaining the Climate for Growth

Our EnviroSTEP and VersiSTEP integrated controls monitor and manage all aspects of climate: temperature, humidity, light level, CO_2 and watering.

*Unlike staged STEP controls that group several pieces of equipment into stages, integrated controls allow each piece of equipment to have it's own parameters. These advanced controls offer more precise control. Now more than ever, the Wadsworth STEP brand name is your key to a **S**imple **T**otal **E**nvironmental **P**rogram.*

Advantages to using integrated controls:

Easy to Use

- Your integrated control is plug-n-play; all you need to do is connect it
- Although our settings are optimized for the typical greenhouse, customizing your control is simple
- Your shipment includes an instructional DVD
- Largest screen in the industry — includes graphic capabilities
- Interface panel is easy to use — simply push the button to select the desired option from the menu and press the GO key

Enhances Crop Quality

- Provides uniform growing conditions
- Multiple set point capability mimics nature, improves crop quality and hardiness
- Increased precision in monitoring and equipment control, each piece of equipment has its own parameters
- Highly accurate temperature and humidity control

Reduces Fuel Costs

- Maximizes energy management
- Reduce energy consumption by lowering night temperatures, this is when 80% of the heating occurs
- Ramping allows for a gentle transition between set point periods
- Solar-guarded, aspirated temperature and humidity sensors provide excellent accuracy. This counts in real-world terms; consider that for every one degree of improved accuracy, your energy consumption is reduced by 3%

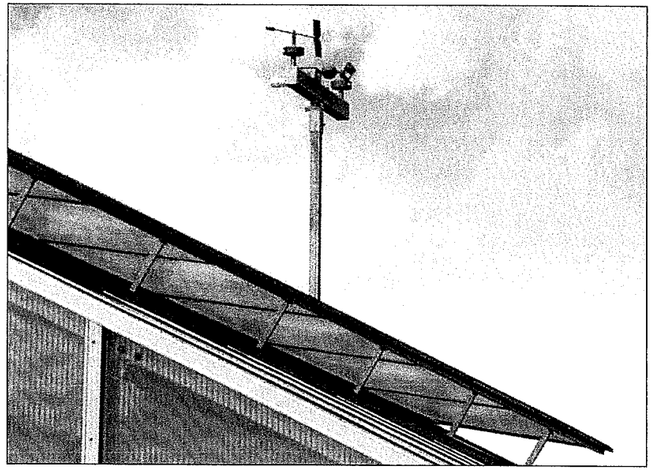
Increases Productivity

- Automation allows you and your staff to focus on other aspects of running your business, such as growing plants and growing sales
- The EnviroSTEP or VersiSTEP are a great addition to your team. Your control works 24/7, with no complaints, and it will do exactly what you tell it to do. Talk about good management/labor relations!
- Add STEPsaver software (see page 14) to save even more on labor costs

Ask about our training sessions that can be done **on-site** or **via the internet** (see page 21).

Optimize the power of EnviroSTEP and VersiSTEP

Wadsworth sensors increase the power of your integrated STEP controls. By using additional sensors, your control can make anticipatory decisions for optimum control. Visit our website at www.WadsworthControls.com to learn more about how sensors add power to your integrated controls.



Part #M-4825
Shipping Wt. 90 lb | 41 kg

Computer Weather Station

Wadsworth's Weather Station monitors the following outdoor weather conditions:

- Temperature
- Humidity
- Wind speed and direction
- Precipitation
- Light intensity
- Accumulated light

EnviroSTEP and VersiSTEP Sensors

Temperature and Humidity Aspirated Sensors
Part #M-4821 Shipping Wt. 3 lb | 1.4 kg
Part #G-0400 4-Pair Cable for M-4821 aspirator

Temperature Aspirated Sensor – no RH
Part #M-4822 Shipping Wt. 3 lb | 1.4 kg
Part #G-0405 2-Pair Cable for M-4822 aspirator

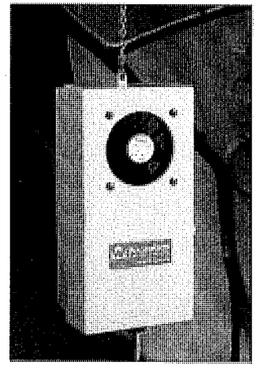
Stainless Steel Soil Temperature Probe
Part #M-4823 Shipping Wt. 1 lb | 0.5 kg

CO_2 Sensor
Part #E-1505 Shipping Wt. 3 lb | 1.4 kg

Light Sensor (Pyranometer)
Part #D-1326 Shipping Wt. 1 lb | 0.5 kg

Hot Water Sensor
Part #M-4820 Shipping Wt. 1 lb | 0.5 kg

Weather Station (photo shown above)
Part #M-4825 Shipping Wt. 90 lb | 41 kg



Sensors

Wadsworth's sensors provide accurate temperature and humidity readings. Housed in a solar-guarded, aspirated unit. A fan draws air across the sensors providing an accurate ambient temperature reading rather than an incorrect reading due to direct sunlight exposure.

For every 1° of improved accuracy you reduce energy consumption by 3%.

"The sensors inside and outside the greenhouse help us to maintain the perfect soil moisture."

— Peter Thaman-Bigsby
Texas Floral
Azle, TX

STEPsaver™ Software

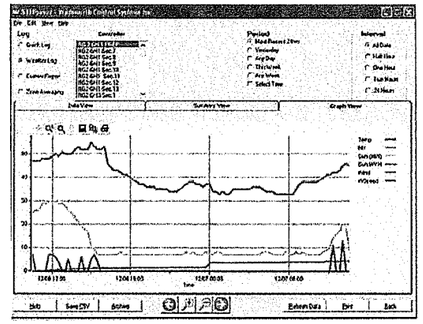
Add the convenience of your PC to the power of your environmental control. STEPsaver provides a single view of all of your greenhouse zones. Allows you to monitor and make changes from your PC or via the internet. It provides advanced data logging and analysis tools to help you manage your crop.

STEPsaver as a Productivity Tool

- View conditions for the entire greenhouse range at a glance. For greenhouses with many zones or acres, STEPsaver is a step saver
- All features accessible with point-and-click menus and buttons
- Allows you to see and change the settings for any controller in any zone
- Not limited to a single PC. No extra charge for sites with a Local Area Network
- Oversee the greenhouse climate, no matter where you are
- STEPsaver Imaging takes a snap-shot of all settings so you can replicate previous success
- Instructional DVD included

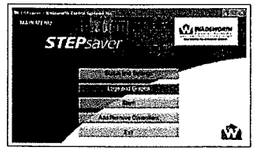
STEPsaver as an Analysis Tool

- STEPsaver expands the graphing power of your Wadsworth STEP control
- Analyze temperature with equipment use
- Compare data between zones
- Filter data to pinpoint every data entry, or broaden your view to a few points that represent hours or a whole day. Spot long-term trends by hiding detail
- Create custom views of your data that combine sensor readings, equipment use and weather
- Dynamic, quick, and easily done with a few mouse clicks



"Data from the STEPsaver logging feature helped us achieve the lowest possible night temps while running the fewest amount of exhaust fans. This is critical in the Texas summer heat so we can avoid heat delay on our mums."

—Jimmy Klepac
Klepac Greenhouses
Blanco, TX



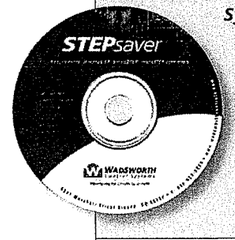
STEPsaver as a Management Tool

- Transfer and store data from your greenhouse control
- Use STEPsaver's built-in reporting tools to summarize stored data. Know how many hours your fans or heaters ran. Confirm that systems ran as you expected. Learn the average temperature and humidity for day, night and DIF
- Manage access to settings with user names and passwords
- Access STEPsaver over the internet, with user name and password protection

STEPsaver as Your Watchdog

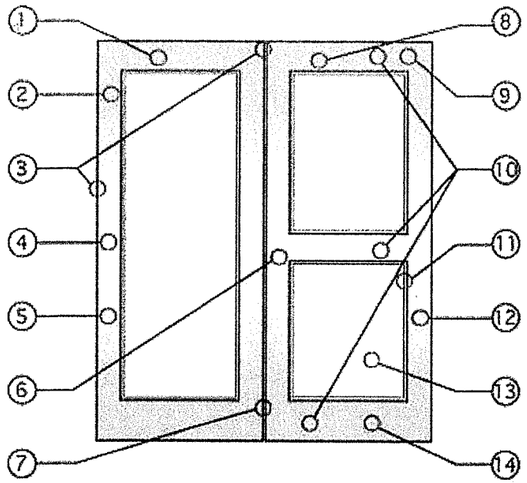
- STEPsaver constantly monitors your Wadsworth STEP controls for alarm reports
- Pop-up window on your desktop PC alerts you to trouble
- With your permission, STEPsaver reports to e-mail, or it will text your cell phone or PDA
- Makes an ideal complement to your Alarm Manager or other alarm monitoring system

Part #M-4900
Shipping Wt. 2 lb | 1 kg



System Requirements

- Windows Operating System: 2000 or XP
- 500 MB available hard disk space
- STEPsaver works with: EnviroSTEP, VersiSTEP, STEP Up and post '95 microSTEP controls
- Upgrades available for pre '95 microSTEPs

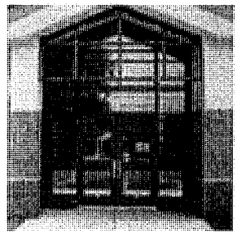


1. Available 6-1/2" Head Rail for Closer Mount without Using Drop Plates
2. 4-1/2" Stiles Width
3. .187" Edge Wall Thickness on Lock and Hinge Stiles
4. Nominal .125" Door Face Thickness
5. Tubular Aluminum Extrusion Construction
6. Flexible Design for Multiple Hardware Applications
7. Durable Woolpile Weatherstrip with fin strip for Positive Weather Protection
8. Rail Face Thickness is 3/16" to avoid through bolting closers
9. **True Mortise and Tenon Construction at Every Stile and Rail Intersection (Standard) - No Messy Welding Involved**
10. Number, Size, and Location of Horizontal Rails are Very Flexible (Adaptable to Meet ADA Regulations)
11. Screw Applied Interior Glazing Stops for Easy Glass Replacement
12. 1-3/4" Overall Door Thickness
13. Accepts 1/4" up to 1-1/4"
14. Available in Fluted/Smooth Face, Kynar/Dunar Paint and Anodized Finishes

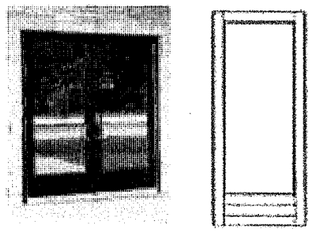
The same quality and structural integrity that is engineered into our flush door line, is carried over into our stile & rail glass door (storefront entrances). The vertical stiles of the MS-400 series are tubular extrusions that are 4 inches wide. This allows for usage of most commercial hardware. There are a wide variety of glass configurations that can be created, from full view glass to various horizontal and vertical mullion assemblies. These custom variables allow for the creation of many unique entrance designs. Entrances that are required to meet the American Disabilities Act (ADA) are easily fabricated. The base and top horizontal rails of the doors can vary from 4-1/2" to any desired height. Other structural points of emphasis are:

- Door sections are 1-3/4" x 4-1/2" tubular shapes of extruded aluminum 6063-T5 alloy.
- **True Mortise and Tenon Joinery at every Stile and Rail Intersection.**
- Joinery is 3/8" diameter zinc plated steel tie rods bolted through the stiles. Where applicable, a minimum of three rods will be installed in each door.
- Wall thickness of the extrusion stile face is .125" nominal. While the end wall thickness at the hinge and lock stiles are .187".
- Meeting stile of all pair of doors have wool pile weather stripping w/ fin strip.
- Glass glazing stops are extruded channels with minimum wall thickness of .125" and are removable only from the inside.
- All exterior glazing is part of the door extrusions and non-removable.
- The glazing stops will always match the finish of the door.
- The doors accept glass from 1/4" up to 1-1/4" thickness.
- Accept hardware of any type and manufacturer as required.
- Available in a variety of anodized and painted colors.

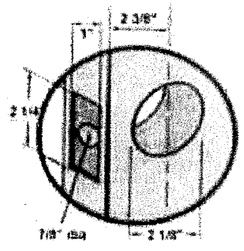
Cross Aluminum's MS-400 series doors are fabricated with a true mortise and tenon joinery. The rails are composed of a spline composition which encompasses the entire Tie-Rod through the full width of the horizontal rail. This construction process provides maximum strength without the use of a welded joint. Utilizing this method allows the owner the option to replace any piece of the door that may be damaged by abuse or accident. This can be done by disassembling the door and purchasing a replacement part, rather than having to spend hundreds of dollars to purchase a completely new door.



1/2 Glass door with midrail and aluminum panel below



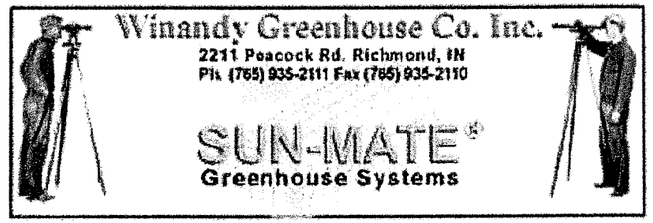
Full Glass door with out mid rail



NOTE:
ALL Standard Winandy Greenhouse Doors come Prep'd with Standard GOV160 Lock Preperation- 2 1/8" dia hole with a 2 3/8" backset.

CROSS ALUMINUM

Standard Medium Stile and Rail Glass Door Entrances



Note:
All Standard Winandy Greenhouse Doors are provided with a Heavy Duty Full Mortise continuous gear hinge.

Innovation, Quality, Customer Service

MATERIAL:	EXTRUDED 6063-T6 ALUMINUM ALLOY WITH POLYACETAL THRUST BEARINGS
COLOR:	30 MINUTE CLEAR ANODIZED AND 2-STEP DARK BRONZE ANODIZED
CUSTOM HOLE LOCATIONS:	HOLE SIZES & LOCATIONS PER CUSTOMER SPECIFICATIONS.
DOOR TYPE	FOR 1-3/4" DOORS, STANDARD / HEAVY DUTY TO 450 LBS. LEAD-LINES TO 1000 LBS.
DOOR REINFORCEMENT:	NONE REQUIRED
FRAME REINFORCEMENT:	OVER 200 LBS. REINFORCE WITH 16 GA. CHANNEL
SPECIAL FEATURES:	LEAD LINES MODEL FOR HOSPITAL X-RAY ROOM. DOUBLE ROW SCREWS TO STRADDLE LEAD.
HINGE KING:	TEMPLATED AND HOLE PATTERN IS THE SAME FROM HINGE TO HINGE
HANDING:	HINGE IS NON-HANDED UNLESS CUT IN THE FIELD.
FIRE RATING:	UL LISTED FOR 90 MINUTE RATED DOORS. UL LISTED FOR UP TO 3 HOUR RATED DOORS WITH USE OF A STEEL STUD.
SCREW DETAIL:	12-24 x 11/16" PH. F.H. UNDERCUT SELF DRILLING THREAD FORMING TEK SCREW

CAL-ROYAL PRODUCTS, INC.

CRP SECURITIES

SL/CSL SERIES
ANSI GRADE 2
HEAVY DUTY
CYLINDRICAL LEVERSETS
● Available with Interchangeable Core

SPECIFICATIONS

APPLICATIONS
For offices, schools, hospitals, apartments, hotel/motel, residential, commercial and public buildings.

DOOR RANGES
1 ⅜" to 1 ¾" thickness doors.

BACKSET
2 ¾" Standard, 2 ⅜", 3 ¾" and 5" optional.

LATCH FACEPLATE
2 ⅛" x 1 ⅛", adjustable for flat or beveled doors 1⅛" in 2", for 2 ¾" backset. Optional 2 ⅛" x 1" for 2 ⅜" backset.

LATCHBOLT
½" Throw solid brass, reversible for RH or LH applications.UL Listed.

ANSI STANDARDS
Meets or exceeds requirements of BHMA/ANSI A156.2 Series 4000, Grade 2 (FF-H 106C), 400,000 cycles.

EXPOSED TRIM
Wrought brass, bronze or stainless steel, levers are Zinc casting, plated to match trim finish.

KEYING
6-pin "C" keyway cylinder, 2 keys per lock. Keying as per individual job requirement.

CYLINDER & KEYWAYS
6 pin solid brass "C" keyway standard. Schlage E, Schlage C-K, Russwin D1-2-3-4, Corbin 59/60, Corbin-Russwin L4, Sargent LA-LB-LC, Falcon/Weiser E, Arrow A, Yale 8, Yale GA and Kwikset. Can also accept Medeco, Assa, Kaba and Cal-Royal (HSK) High Security Cylinders.

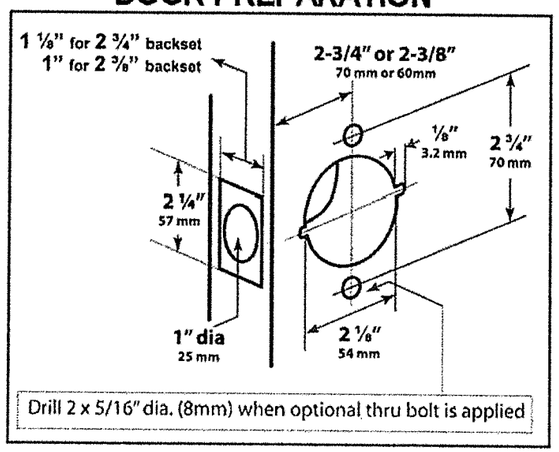
~~**CLUTCH**~~
~~Clutch available on all keyed locks and privacy functions. Prefix "C" before part number.~~

~~**Tactile & Lead Lining** available upon request.~~

● **INTERCHANGEABLE CORE**
Interchangeable Core locks will accept compatible 6 or 7 pin cores with BEST, FALCON and ARROW. Prefix "IC" before part number. Available combinated or uncombinated Temporary construction cores available. Factory keying with control key and masterkey available.

STRIKES: ASA strike standard, "T" and full lip strike available on request.

DOOR PREPARATION



Drill 2 x 5/16" dia. (8mm) when optional thru bolt is applied

MEETS *The Buy American Act*

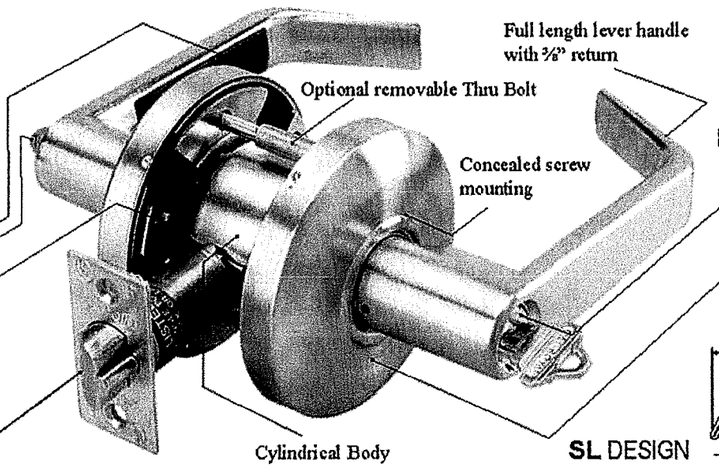
PIONEER
SL SERIES (NON CLUTCH MECHANISM)
CSL SERIES (CLUTCH MECHANISM)
OPTIONAL THRU BOLT INSTALLATION

3 HOUR FIRE RATI
UL10C, UBC 7-2-1

Lifetim
Warrant
BHM

Meets ADA requirements
Specially designed for Barrier Free Application
Conforms with ANSI A156.2 Series 4000, Grade 2
Exceeds 400,000 cycles

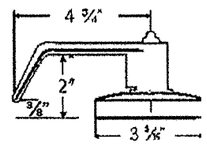
HURRICANE APPROVED HARDWARE
FLORIDA BUILDING CODE:
FL13922
ASTM E1886/E1996
ASTM E330
TAS 201, 202, 203
UL10B
UL10C

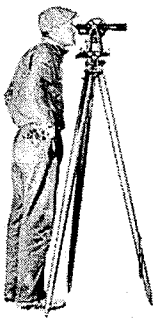


SL DESIGN

● Solid brass 6 pin "C" keyway cylinder. Ava with Interchangeable

Individual spring on side to prevent lever maintain reliability a reduce maintenance





SERVICE SPEED SATISFACTION

WINANDY GREENHOUSE COMPANY, INC.

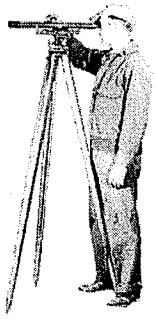
Greenhouse Manufacturers, Builders and Heating Engineers

New **"SUN-MATE"** *ReNew*

Phone (765) 935-2111

RICHMOND, INDIANA 47374
2211 PEACOCK ROAD
SINCE 1919

Fax (765) 935-2110



STRUCTURED PLASTIC PANEL SUPPLEMENT TO ERECTION INSTRUCTION FOR WINANDY "SUN-MATE" INTEGRATED GLAZED ENCLOSURES

1) Almost all of the information and instructions for the erection of the "Sun-Mate" tempered glass greenhouse will apply to the Winandy "Sun-Mate" structured plastic panel glazed greenhouse except for the following changes.

2) The "Sun-Mate" structured plastic panel glazed greenhouse will either have polycarbonate structured plastic panels or acrylic panels.

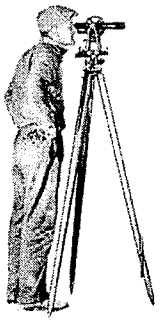
3) The spacing in the roof and wall rafter spacing will be the same for the structured plastic panel glazed greenhouse as the "Sun-Mate" greenhouse that receives 36" wide tempered safety glass. If your "Sun-Mate" greenhouse is to be glazed with acrylic panels, the rafter spacing on the roof and walls will be at 48" center to center.

4) The plan will show the rafter spacings in multiples of 36 3/4" or 12'-3" bays or 24'-6" manufacturing modules. You will know the plastic panel is to be General Electric Lexan or other manufacturer's polycarbonate panels in 6'-0 3/4" widths.

5) Roof rafters on the "Sun-Mate" polycarbonate panel glazed roof are different than tempered glass. Refer to your extrusions chart. You will see PBL is designed for receiving structured plastic panels. It will be spaced at every other 36 3/4" hole or spacing lengthwise of the greenhouse to receive the outside edge bed and seal the 6'-0 3/4" wide structured plastic panel. Refer to the extrusion chart for the BD rafter. These rafters will be installed to be in the middle as the mid-panel support for the 6'-0 3/4" wide polycarbonate panels. BD rafters are the correct height to give mid-panel support as indicated on Standard Detail PR-0100.

6) Exterior side and end walls where the polycarbonate panels are to be used have a rafter spacing of 6'-1 1/2" and use the polycarbonate panel width of 6'-0 3/4". Refer to your extrusion chart for your PVB rafter and PGC plastic glass cap. These members are normally used on side and end walls. The polycarbonate panels are the normal plastic panels used on a wall. Refer to Standard Detail PC 0050, cross section of structured plastic panels when used on an end wall. This drawing illustrates how to use the PVB rafter, PG Cap, and shows how all are secured to the end frame. Side walls are installed in a similar manner.

7) All of the 6'-0 3/4" wide structured plastic panels must be secured with 1 - #12 X 1 1/2" TEK with sealer washer placed mid-way of the 6'-0 3/4" plastic panels on exterior end and side walls.



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WINANDY GREENHOUSE COMPANY, INC.

Greenhouse Manufacturers, Builders and Heating Engineers

New **"SUN-MATE"** *ReNew*

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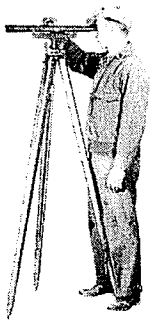
RICHMOND, INDIANA 47374
2211 PEACOCK ROAD
SINCE 1919

Fax (765) 935-2110

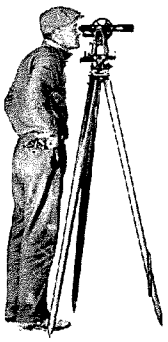


Tool List for Installation

The following list is the minimum tools that you should have on-site to facilitate rapid installation of the greenhouse:

- 2 – Wrench sets, open end or combination wrench including 3/8", 7/16", 1/2", 9/16", 5/8", 3/4" sizes.
- 2 – Socket sets with ratchet including the above sizes.
- 2 – Battery power drill drivers capable of running tek screws with tek screws bits of 5/16", 3/8".
- 1 or 2 – Battery powered impact wrenches or adaptors for your battery drill drivers to facilitate the rapid tightening of 3/8" bolts on the trusses.
- 1 – 4'-0" level
- 1 – Laser level or Builder's Level
- 12 -16 – 2" x 4" x 10'-0" or 12'-0" with stakes and clamps to clamp off brace the post with padding to pad the clamps and boards to the posts w/ stakes
- Various ladders, scissor lifts, or Painter's scaffolds high enough to reach the peak of the building and the sides
- Padded rigging to raise the frames into place
- 2 – caulking guns
- 1 – pop rivet gun
- Aluminum cutting miter box saw & hack saw
- Sheet metal shears
- Cords & GFI plug
- Corded screw gun for teks
- Circular saw w/ plywood blade battery or corded for trim in panels
- Something to raise trusses into place.
- Carpenter Square
- Small cable cutters or bolt cutters
- Guide ropes for trusses
- 19' Scissor Lift
- Scaffolding (Recommended but not required)
- Drill bits for Steel and Aluminum: 1/8", 9/64", 3/16", 1/4", 9/32", 5/16", 3/8", 13/32", 1/2"; (1/8" pop rivets, 1/4" bolts, 5/16" bolts, 3/8" bolts, & 1/2" bolts)

This is the minimum list that you should have on the jobsite. I would recommend more lumber bracing rather than less and extra tools, so that you have plenty of tools to work rapid, especially in the battery powered drill driver etc.



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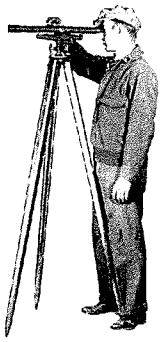


TGU Curtain Installation Sequence

The curtain system has primary priority in its travel plane area above and below.

1) Determine location for 2" X 2" square tube at each end of the area to be covered. Choose a location free of obstructions for the system to travel. Be sure to take into account the system needs to be above heaters, grow lights, and overhead watering yet be out of the way of vent operators etc. Look at suggested location on enclosed drawings.

2) Install 2" X 2" square tube securely by bolting it to the structure and taking care to install bolts in alignment. *QC-0608*

3) Install drive shaft on to 2" X 2" square tube on end best for drive. Tube motor at one end with shaft supported by evenly spaced offset bearings. *QC-0604,QC-0611*

4) Install cable drums on to drive shaft tube – one close to each end at a location to allow clear transit of drive cable across the length of the system. Then install the rest of cable drum(s) locating them where the drive cable(s) will have clear transit. *QC-0611, QC-0602*

5) Install wire tighteners on to 2" X 2" square tube on 16"$\pm$ center with wire to be on the bottom of the 2" X 2" square tube. *QC-0603*

6) Install a minimum of 4 wire tighteners for wires to be on top of 2" X 2" square tube to suspend cloth in alignment. One at each end plus one at each change of plane for the 2" X 2" square tube. *QC-0603*

7) Install wire support brackets on opposite 2" X 2" square tube aligned with wire tighteners. *QC-0603*
8) Install rubber seal onto screen profiles as shown. *QC-0607*

9) Install screen profiles on to 2" X 2" square tube installed on gables. *QC-0607*

10) Install screen profile(s) onto intermediate bay structure as shown take care to maintain alignment with ends. *TGU TRUSS ATTACHMENT*

11) Install vinyl coated cable at ends on the top of the 2" X 2" square tube and install "clip tube PVC" if required. *QC-0609*

12) Install poly wires above and below screen profiles tightening only enough to remove sag. Fastening at support brackets with "lead edge tube clip "L" and/or "S". *QC-0603*

13) Run drive shaft to determine open/close – sync the control box with the proper direction of rotation (exchange red & black wires to reverse directional control). [Drum(s) should turn so the bottom (closest to the 2" X 2" square tube) of the drum rotates toward the outside.]

14) Run drive until stops at the open limit.

15) As the drive shaft turns to the closed position observe how the cable would travel across the cable drum.

16) Install "cable pulleys with bolt" onto opposite 2" X 2" square tube and align with center of drive drum(s). *QC-0602*

17) Install upper drive cable "hanger pulley(s)". Locate so as not to interfere with travel. *QC-0602*

18) Thread drive cable through the pulleys opposite of cable drums. Cable will run above the screen profiles. Wrap the cable around the cable drums 3 or 4 times towards the "open" end of the cable drum and then splice the top cable together as shown close to the cable drum end of the upper cable travel as shown using cable clamps and cable tightener. (Test with one cable installed and then return to closed position and install the rest.) *QC-0602*

19) Mark lower cable and test travel. The mark should travel from the closed position next to screen profile backside (non-rubber flap end) to the front side (rubber flap end). Adjust travel length with travel adjustment screws on tube motor. Leave in closed position.

20) Install wire guide clips on to intermediate screen profile for poly wire – top and bottom of screen profile. *QC-0611*

21) Install lead edge tube, attaching to drive cable with lead edge cable tube clip positioning the lead edge to be touching screen profile rubber seal.

22) Run drive back and forth to adjust limits. Close limit should have lead edge tube in full contact with rubber seal on screen profile.

23) Install shade clothes. Be sure to install the cloth shiny side up. Lay cloth on to bottom poly wires below upper wires. Use "S-hook Type II" to attach beginning edge of the cloth to the bottom of the screen profile. Take care to install straight and to center in the space so edge over hang is as required.

24) Use sharp scissors to cut slits in the shade cloth to fit around truss members. Clip the shade cloth on both sides of the cut to the screenprofile using Cloth Clips. Pull together and neatly staple, as required, the cut around the truss members.

25) Install "S-hook Type II" clips through cloth onto poly wires above cloth in line with wire 12" to 16" center (as needed). *QC-0609*

26) Install "Screen Hook" clips onto covered cable at edges 12" to 16" centers (be sure to maintain straight alignment so cloth travels square and true). *QC-0609*

27) Clip cloth onto lead edge tube with each lead edge tube clip at each poly wire.

28) After installation of cloth operate system carefully to check for any place where mechanism or cloth binds on anything also checking and adjusting limits as needed.

29) Edge seals can now be installed the ends may be clipped onto the screen profile then attached to the gable. The side edges may be attached to the last lower poly wire then attached to the side walls.

Created 11/14

BILL OF LADING – SHORT FORM – NOT NEGOTIABLE

SHIP FROM	Bill of Lading Number:
Winandy Greenhouse Co., Inc. 2211 Peacock Road Richmond, IN 47374 765-935-2111	3083
SHIP TO	**Carrier Name:**
Merced College 3600 M Street Merced, CA 95348 209-485-0347	Freight Monster
THIRD PARTY FREIGHT CHARGES BILL TO	**SCAC:** Pro Number:
Special Instructions: **Call the Site Contact, Ramon Avila, on his personal phone 209-485-0347 an hour prior to arrival so he can prepare for delivery.**	**Freight Charge Terms** (Freight charges are prepaid unless marked otherwise): Prepaid ☒ Collect ☐ 3rd Party ☐ ☐ Master bill of lading with attached underlying bills of lading.

CARRIER INFORMATION

Handling Unit					LTL Only	
Qty	Type	Weight	HM (X)	**Commodity Description** Commodities requiring special or additional care or attention in handling or stowing must be so marked and packaged as to ensure safe transportation with ordinary care. See Section 2(e) of NMFC item 360	NMFC No.	Class
1	Crate	5700		Aluminum 42" W X 48" H x 25' L	13560	
1	Crate	5650		Aluminum 42" W x 48" H x 24' L	13560	
1	Crate	5650		Aluminum 42" W x 48" H x 16' L	13560	
1	Gaylord	1375		Fasteners/Caulk/Foam 42" W x 46" H x 48" L	093490	
3	Doors	350		Aluminum 11" W x 38" H x 87" L	13560	
1	Skid	500		Aluminum 42" W x 28" H x 10' L	13560	
8		19,225				

Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property as follows: "The agreed or declared value of the property is specifically stated by the shipper to be not exceeding _____ per _____.

Note: Liability limitation for loss or damage in this shipment may be applicable. See 49 USC § 14706(c)(1)(A) and (B).

Received, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications, and rules that have been established by the carrier and are available to the shipper, on request, and to all applicable state and federal regulations.

The carrier shall not make delivery of this shipment without payment of charges and all other lawful fees.

Shipper Signature _____

Shipper Signature/Date

_____

This is to certify that the above named materials are properly classified, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the DOT.

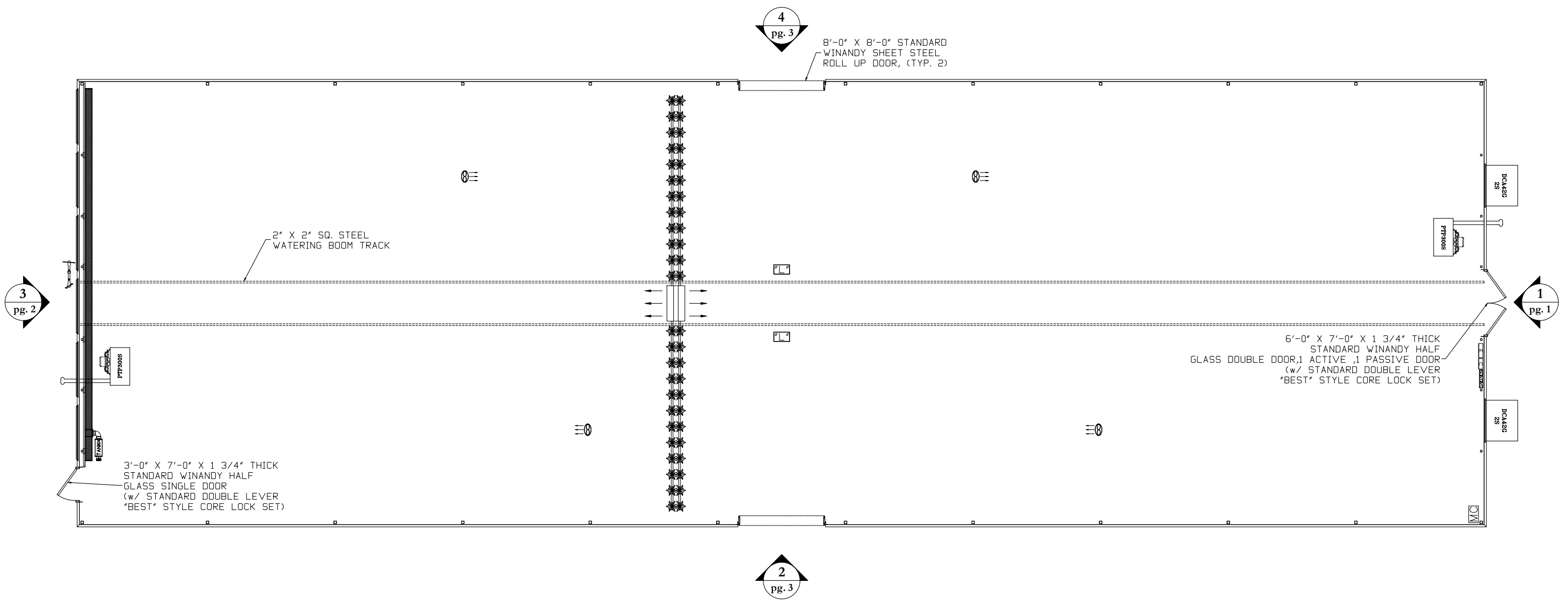
Trailer Loaded:
- ☐ By shipper
- ☐ By driver

Freight Counted:
- ☐ By shipper
- ☐ By driver/pallets said to contain
- ☐ By driver/pieces

Carrier Signature/Pickup Date

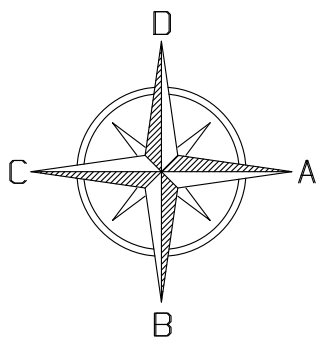
_____

Carrier acknowledges receipt of packages and required placards. Carrier certifies emergency response information was made available and/or carrier has the DOT emergency response guidebook or equivalent documentation in the vehicle. Property described above is received in good order, except as noted.



GREENHOUSE EQUIPMENT

	CHERRY CREEK WATERING BOOM w/ BALDOR DC MOTOR w/ CHAIN DRIVE - 1/4 HP, 2.5 AMPS, (2 ROWS) SINGLE WATER BAR SETUP w/ TEEJET SPRAYS (0.8 gpm) EVERY 18" , WHIP HOSE WATERING ASSEMBLY, COMPASS CAPTURE CONTROLLER w/ AREA CAPTURE PROGRAM		
"L"	EWA10 90Nm LOCK DRIVE ELECTRIC MOTORIZED ROOF VENT MACH. FOR RACK & PINION OPERATION, .13kW, 120V, 2.6 AMPS, (TYP. 2)	VC	"LOCK" VENT MACHINE CONTROL PANEL, (TYP. 2)
	SCHAEFER VS12 12" HAF FAN 115V, 1/10 HP, .9 AMPS, (TYP. 4)	MC	TGU ROOF SHADE SYSTEM DRIVE MOTOR, 1/5 HP, 2.5 AMPS, w/ 50% FLAME RETARDANT SHADE CLOTH (TYP. 1)
	MODINE NATURAL GAS FIRED UNIT HEATER, PTP300S w/ TUBULAR S.S. PRIMARY HEAT EXCHANGER & S.S. SECONDARY HEAT EXCHANGER, 1/2 HP, 115V, 8.11 AMPS	SC	MOTORIZED SHADE SYSTEM CONTROL PANEL, (TYP. 1)
FAN	ACME EXHAUST FAN, (2) DCA42J, 1 HP, W/WS, W/GS, W/ SLANT WALL HOUSING, w/ INLET & OUTLET GUARD, WITH SHUTTER, 115 V	E	WADSWORTH ENVIROSTEP GREENHOUSE CONTROLLER w/ STEP SAVER SOFTWARE, WIRED ALARM MANAGER, 115V, 2 AMPS (TYP. 1)
	ACME CAEG KOOL-CEL PAD SYSTEM (1) 35' LG. ,4" THICK PADS X 60" TALL, SUBMERSIBLE PUMP MODEL #20S, 1/3 HP, 115 V., 2.9 AMPS	C	WADSWORTH ENVIROSTEP CONTACTOR PANEL, 115V, 2 AMPS (TYP. 1)
	ACME WAAC6363MT MOTORIZED PAD INLET SHUTTER, 115V, 0.1 AMPS, (TYP. 6)		WADSWORTH ENVIROSTEP WEATHER STATION WITH MAST, (MOUNTING, PLACEMENT, & CONTROL WIRING BY OTHERS)



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/21/17

REV: 4/15/17

EQUIPMENT LAYOUT

DRAWN BY: BAW

CHECKED BY:

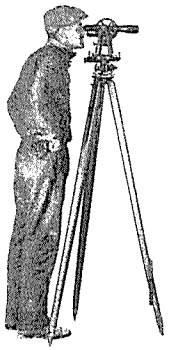
PAGE#

MERCED COLLEGE

MERCED, CA

GLAZING=

FINISH=



SERVICE SPEED SATISFACTION

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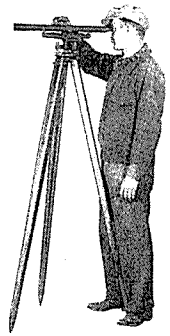
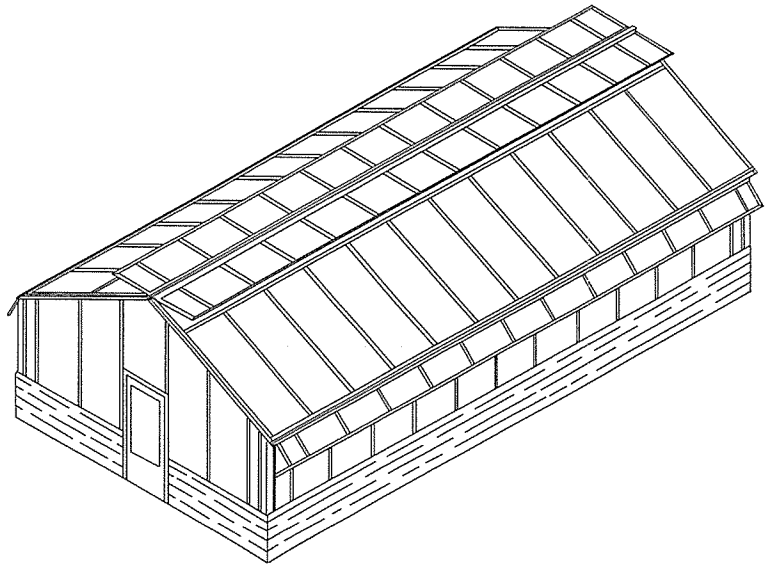
New "SUN-MATE" ReNew

RICHMOND, INDIANA 47374

Phone (765) 935-2111 2211 PEACOCK ROAD Fax (765) 935-2110

SINCE 1919





MERCED COLLEGE GREENHOUSE CALCULATIONS

PAGES: 1 - 70

MERCED College Greenhouse

Table of Contents

Merced College
Merced, CA.

Greenhouse has been designed in accordance with the specifications.
CBC/UBC/IBC Code Base
15 PSF Live Load
6 PSF Dead Load
Seismic Category D
85MPH Exp. C Wind Load

1] All aluminum extrusions are from 6061-T6 alloy or equivalent. Fy = 35ksi.

2] All Steel Tube is Hot Dipped Galvanized Coated

3] All Steel and Fittings are Hot Dipped Galvanized

4] All Steel Tubing is manufactured from 50 KSI min yield point steel, 55 KSI min yield point steel

5] All bolts are Hot Dipped Galvanized for corrosion resistance.

6] All bolts are Grade 5 equal to A-325 in strength rating.

7] All connections have been examined and judged to have sufficient fasteners.

8] Greenhouse has been designed in accordance with the specifications.

9] Greenhouse is to be installed onto foundation designed and installed by others. No floor load is imparted to the greenhouse structure.

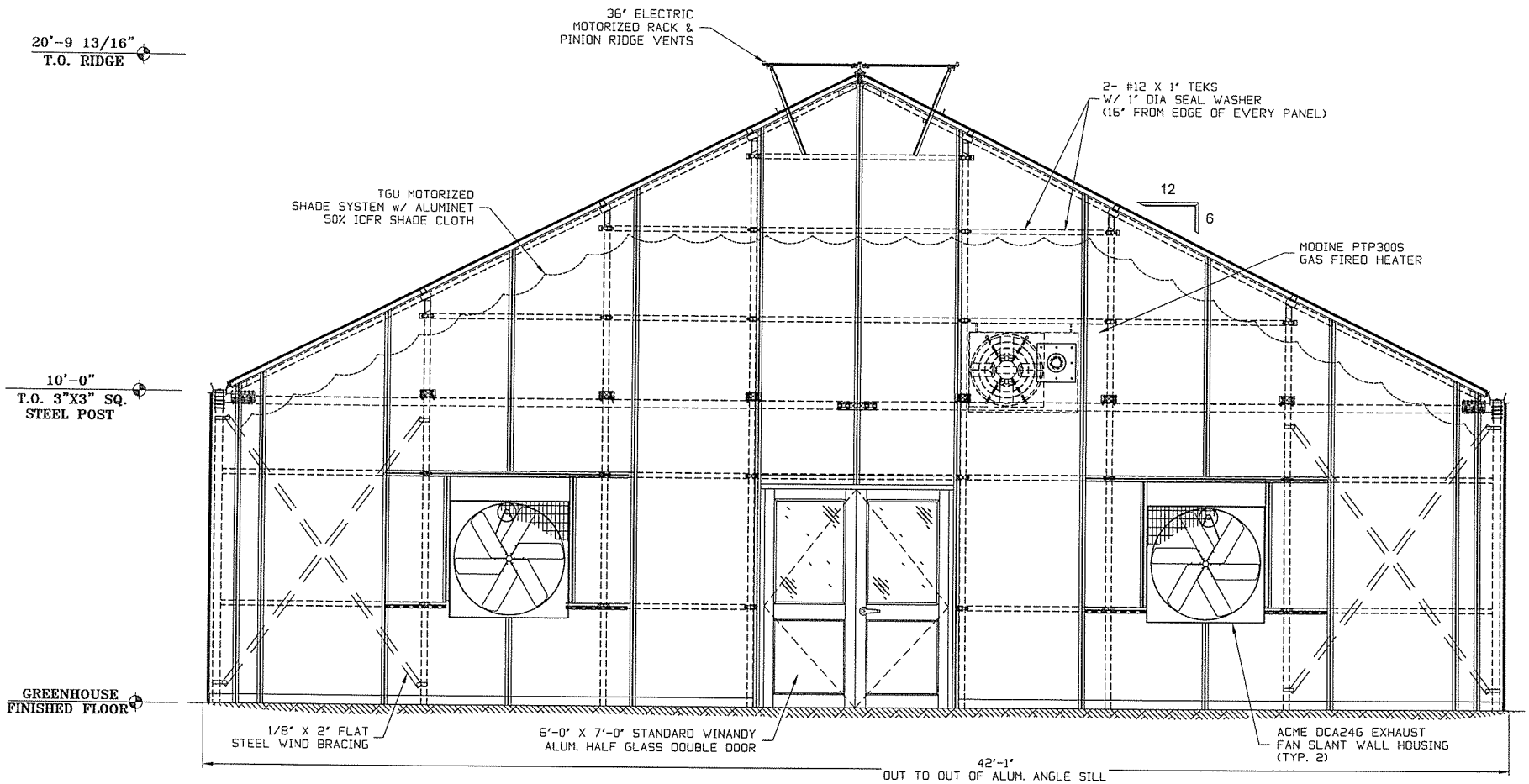
10] The wind load is greater than the seismic load.

11] This greenhouse has a sloped slippery roof covered structure.

12] All extrusions and fittings are designed to inter-lock as much as possible to minimize fasteners and have been specially designed for structural as well as specific greenhouse functions.

13] All greenhouse members have been checked for ability to withstand prescribed loads.

14] The main greenhouse is included in this design only No foundation designs have been included



1 Elevation A

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17 | REV: 4/14/17

ELEVATIONS

MERCED COLLEGE

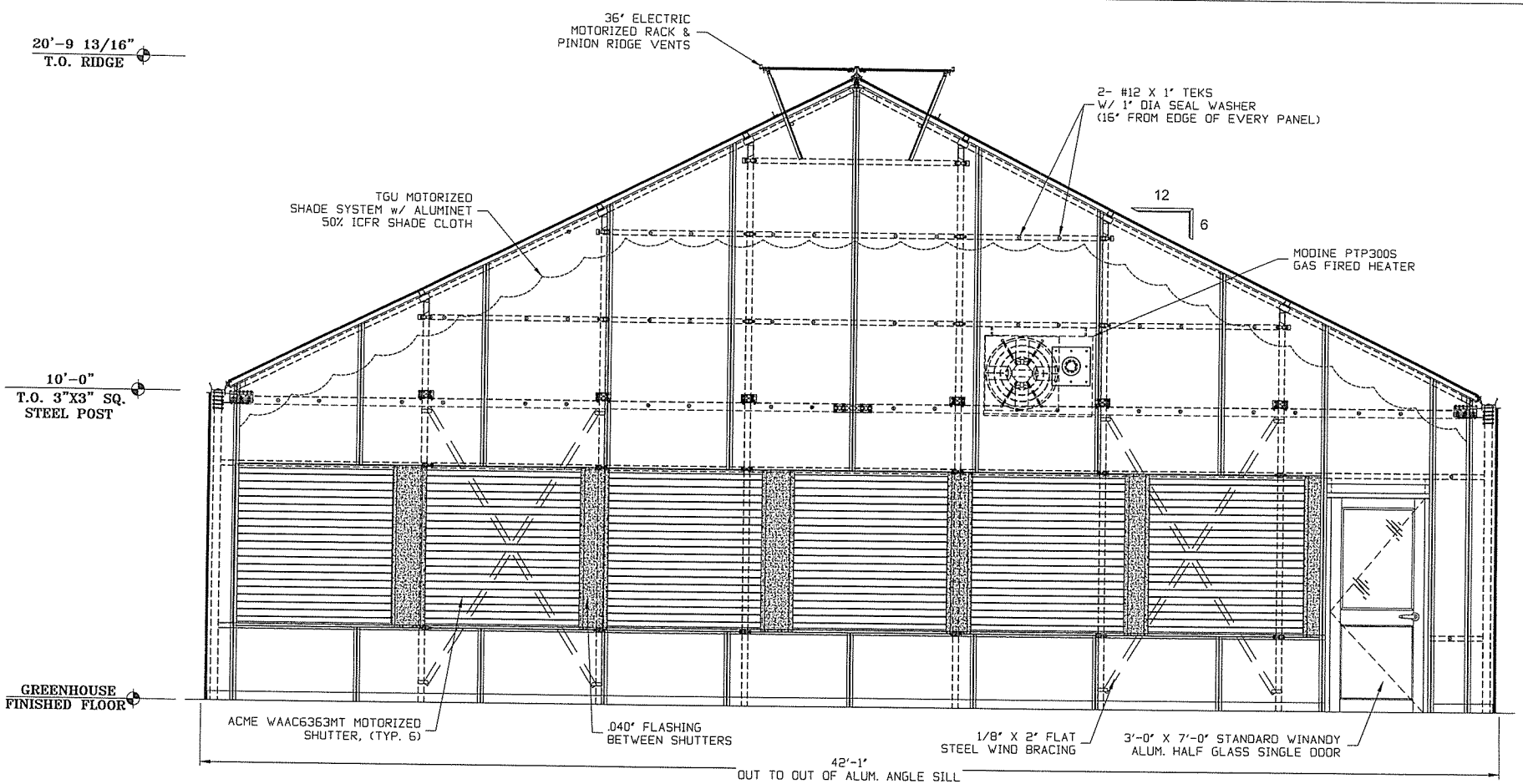
MERCED, CA

DRAWN BY: BAW

CHECKED BY:

PAGE# 1

GLAZING= POLYCARBONATE | FINISH= MILL



3 Elevation C

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

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WINANDY GHSE. CO.
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RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17 | REV: 4/14/17

ELEVATIONS

MERCED COLLEGE

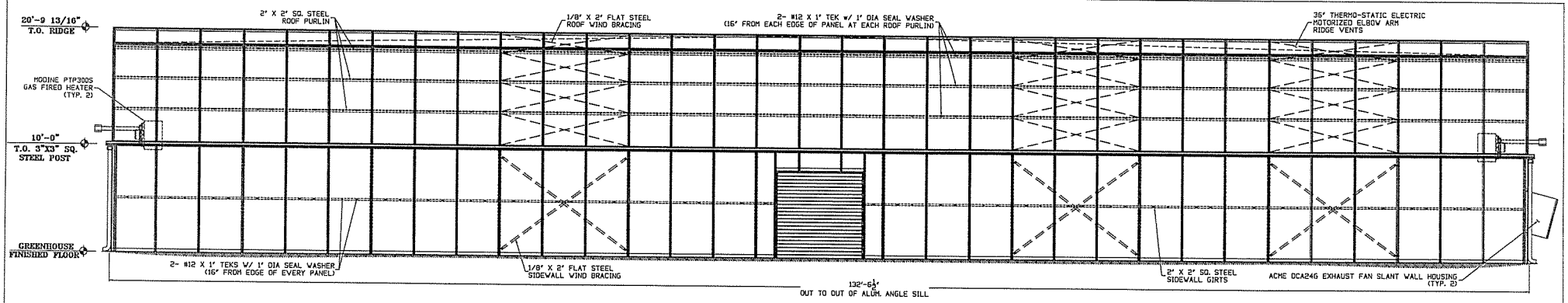
MERCED, CA

DRAWN BY: BAW

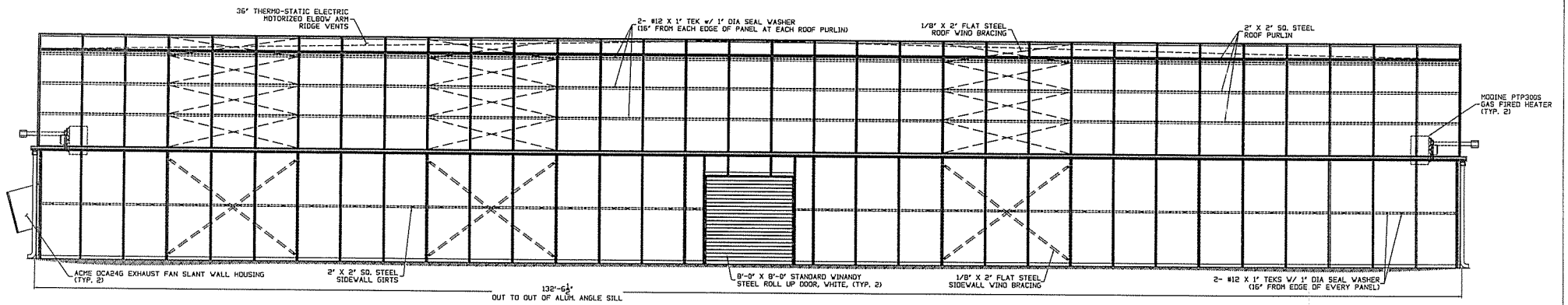
CHECKED BY:

PAGE# 2

GLAZING=POLYCARBONATE | FINISH=MILL



② Elevation B



④ Elevation D

- GABLE WALL GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) VARIOUS LENGTHS X 47 1/4"
- SIDE GLAZING WEST
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 118 1/2" X 47 1/4"
- ROOF GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 238 5/8" X 47 1/4"
- ROOF VENT GLAZING
  8MM CLEAR MULTI-WALL POLYCARBONATE
  1) 36" X 47 1/4"

4/14/17

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ELEVATIONS

DRAWN BY: BAW

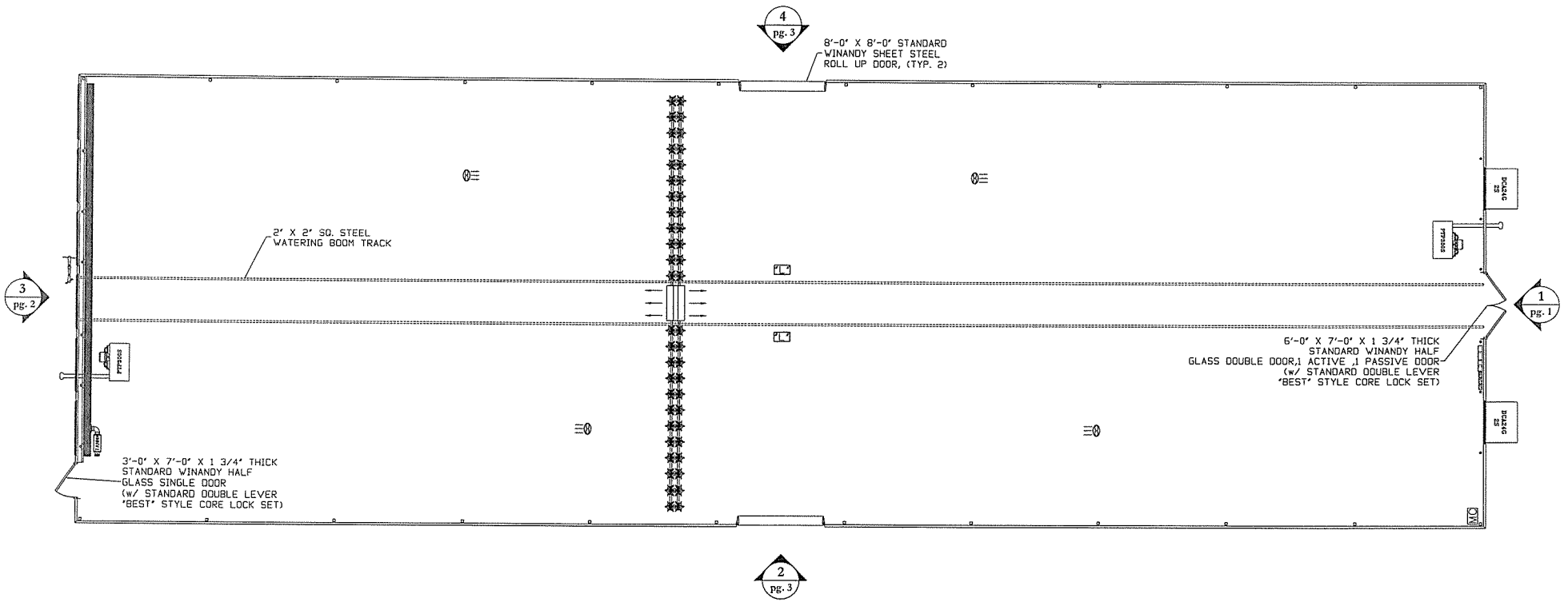
CHECKED BY:

MERCED COLLEGE

MERCED, CA

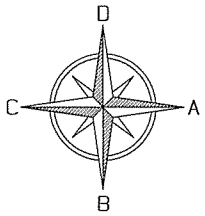
PAGE# 3

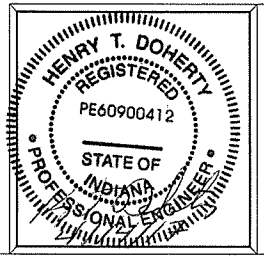
GLAZING=POLYCARBONATE | FINISH=MILL



GREENHOUSE EQUIPMENT

	CHERRY CREEK WATERING BOOM w/ BALDOR DC MOTOR w/ CHAIN DRIVE - 1/4 HP, 2.5 AMPS, (2 ROWS) SINGLE WATER BAR SETUP w/ TEEJET SPRAYS (0.8 gpm) EVERY 18" , WHIP HOSE WATERING ASSEMBLY, COMPASS CAPTURE CONTROLLER w/ AREA CAPTURE PROGRAM		
"L"	EWA10 90Nm LOCK DRIVE ELECTRIC MOTORIZED ROOF VENT MACH. FOR RACK & PINION OPERATION, .13kW, 120V, 2.6 AMPS, (TYP. 2)	VC	"LOCK" VENT MACHINE CONTROL PANEL, (TYP. 2)
	SCHAEFER VS12 12" HAF FAN 115V, 1/10 HP, .9 AMPS, (TYP. 4)	MC	TGU ROOF SHADE SYSTEM DRIVE MOTOR, 1/5 HP, 2.5 AMPS, w/ 50% FLAME RETARDANT SHADE CLOTH (TYP. 1)
	MODINE NATURAL GAS FIRED UNIT HEATER, PTP300S w/ TUBULAR S.S. PRIMARY HEAT EXCHANGER & S.S. SECONDARY HEAT EXCHANGER, 1/2 HP, 115V, 8.11 AMPS	SC	MOTORIZED SHADE SYSTEM CONTROL PANEL, (TYP. 1)
FAN	ACME EXHAUST FAN, (2) DCA42J, 1 HP, W/WS, W/GS, W/ SLANT WALL HOUSING, w/ INLET & OUTLET GUARD, WITH SHUTTER, 115 V	E	WADSWORTH ENVIROSTEP GREENHOUSE CONTROLLER w/ STEP SAVER SOFTWARE, WIRED ALARM MANAGER, 115V, 2 AMPS (TYP. 1)
	ACME CAEG KOOL-CEL PAD SYSTEM (1) 35" LG. ,4" THICK PADS X 60" TALL, SUBMERSIBLE PUMP MODEL #20S, 1/3 HP, 115 V., 2.9 AMPS, w/ 16 X 18 MESH SCREENS	C	WADSWORTH ENVIROSTEP CONTACTOR PANEL, 115V, 2 AMPS (TYP. 1)
	ACME WAAC6363MT MOTORIZED PAD INLET SHUTTER, 115V, 0.1 AMPS, (TYP. 6)		WADSWORTH ENVIROSTEP WEATHER STATION WITH MAST, **(MOUNTING, PLACEMENT, & CONTROL WIRING BY OTHERS)**





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EQUIPMENT LAYOUT

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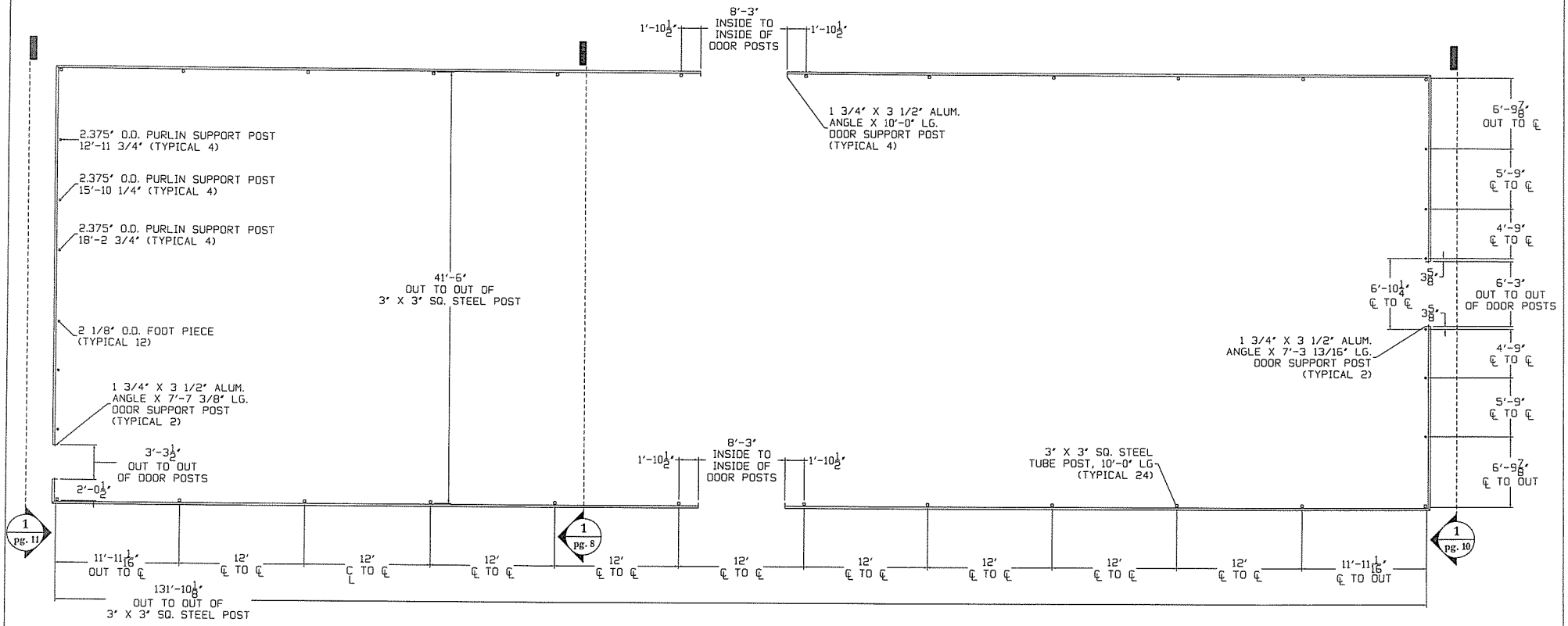
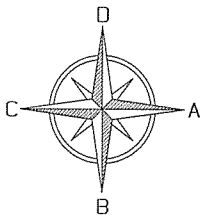
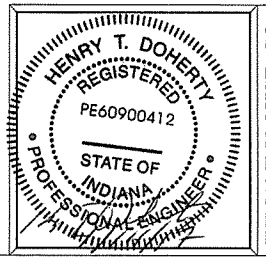
PAGE# 4

MERCED COLLEGE
MERCED, CA

GLAZING=
FINISH=







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POST LAYOUT

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CHECKED BY:

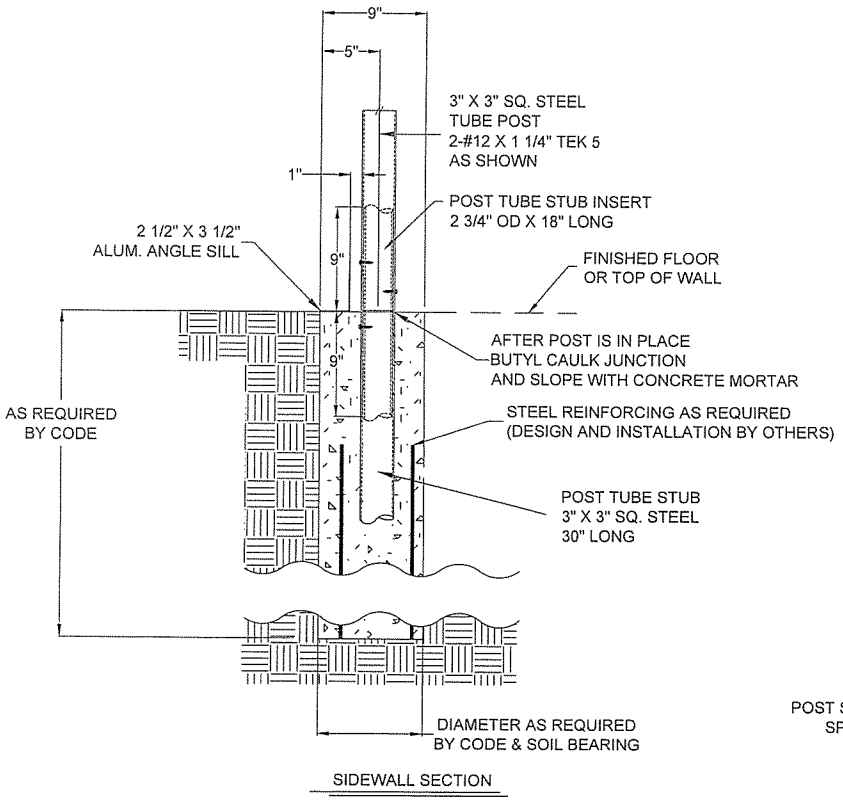
MERCED COLLEGE

MERCED, CA

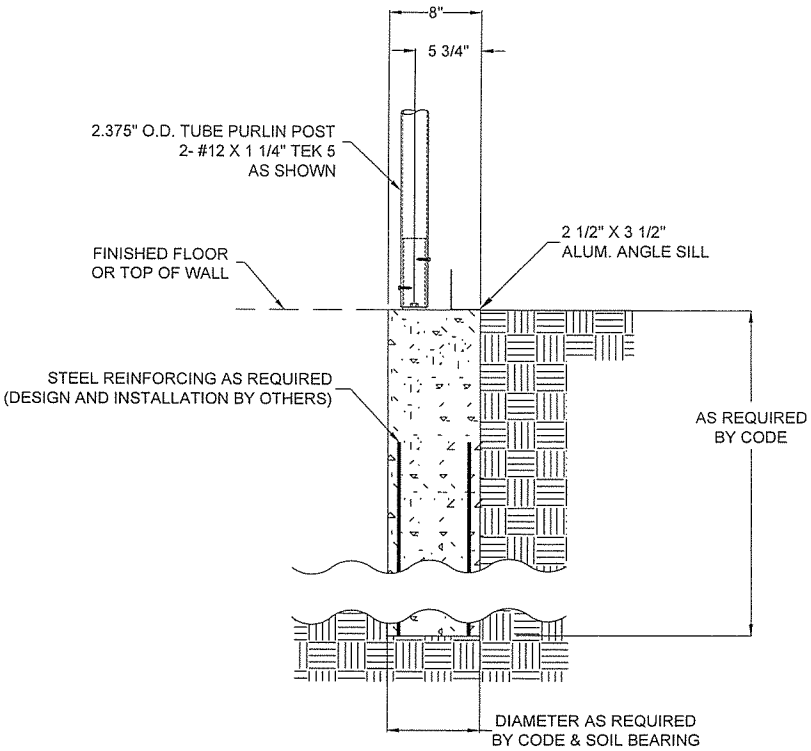
PAGE# 5

GLAZING=

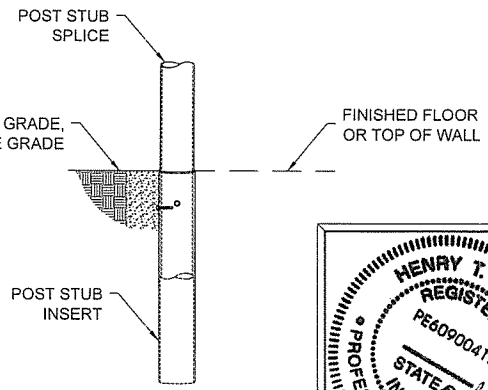
FINISH=



SIDEWALL SECTION



GABLE WALL SECTION



INSERTION DETAIL

HENRY T. DOHERTY
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PE60900412
PROFESSIONAL ENGINEER
STATE OF INDIANA

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE:03/16/16

STANDARD DETAIL #IU-0458

INSTALLATION DETAILS UNIVERSAL
POST TUBE STUB SETTING
WITH 18" POST TUBE STUB
GUTTER HOUSE

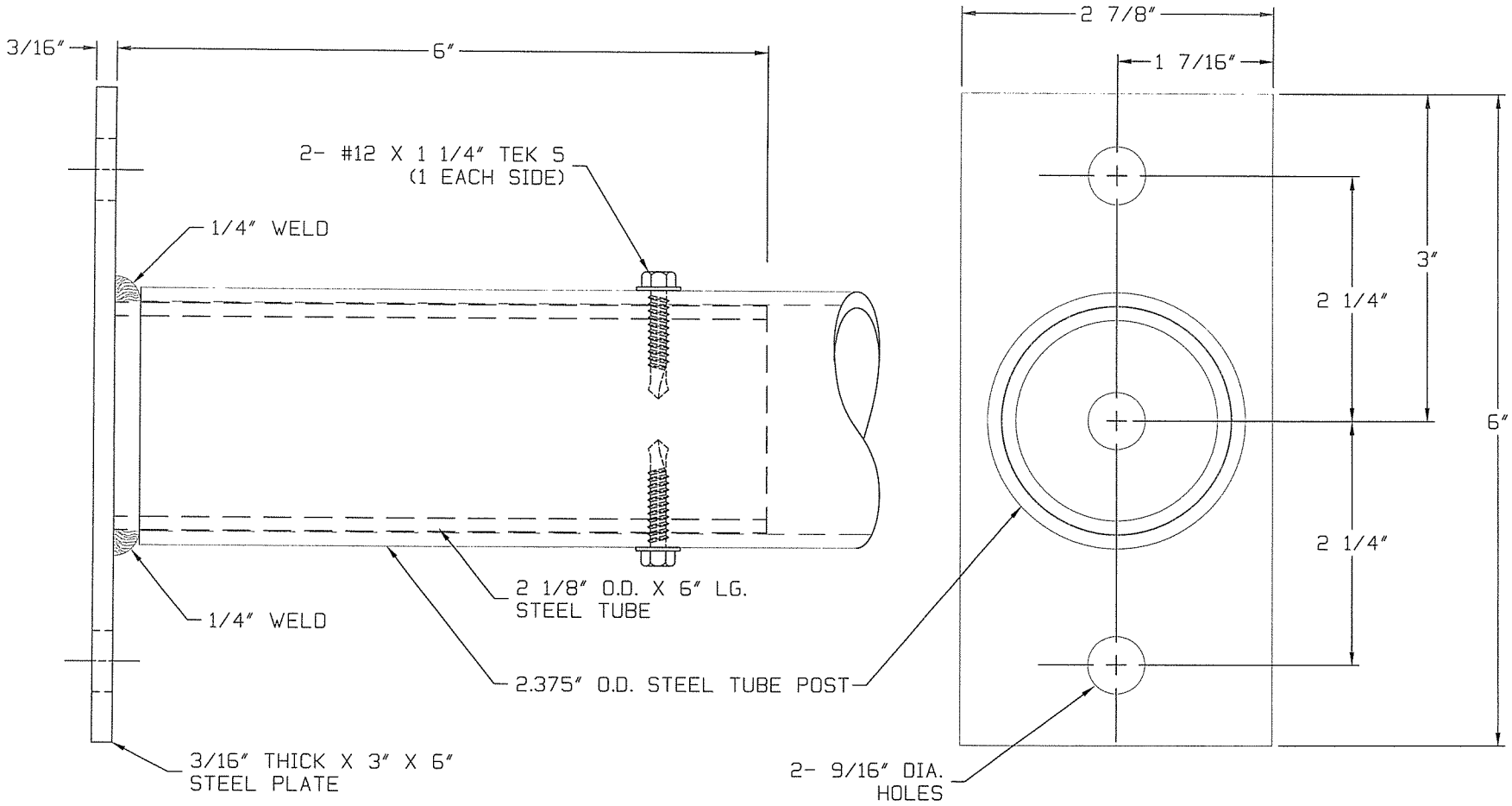
DRAWN BY: SRP

CHECKED BY:

PAGE#: 6

GLAZING=

FINISH=



HENRY T. DOHERTY
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PROFESSIONAL ENGINEER

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2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
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DATE:04/10/08 | REV: 12/08/10

STANDARD DETAIL # IU-0260

DRAWN BY: BAW

CHECKED BY:

INSTALLATION DETAILS UNIVERSAL,
2.375 O.D. ROUND TUBE POST ANCHOR

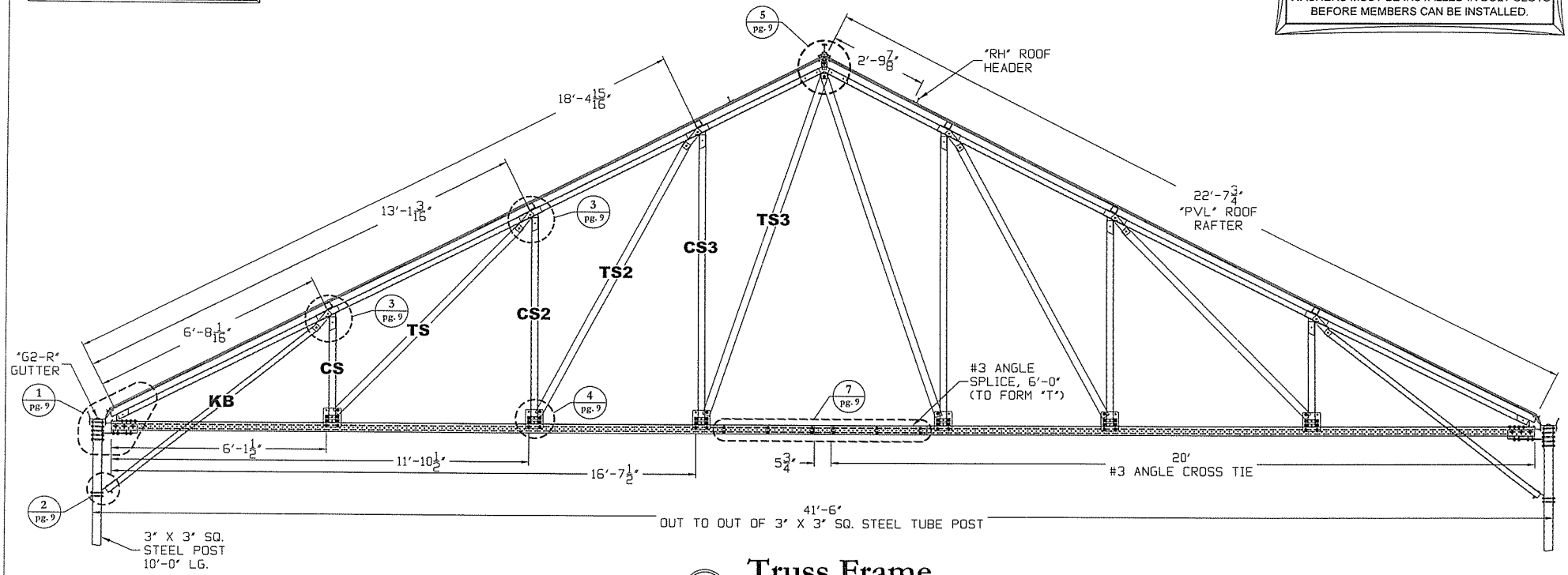
PAGE# 7

GLAZING=

FINISH=

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

IMPORTANT
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.



1 Truss Frame

NOTE: FOR CONNECTION DETAILS SEE TRUSS FRAMEWORK DETAIL

#3 ANGLE - 1 5/8" X 3 1/8"

KB	KNEE BRACE	2" X 2" SQ. STEEL TUBE X 7'-7 11/16"
CS	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 3'-0 3/8"
CS2	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 5'-10 7/8"
CS3	COMPRESSION STRUT	2.375" O.D. ROUND STEEL TUBE X 8'-3 3/8"
TS	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 7'-5 5/8"
TS2	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 8'-9 5/8"
TS3	TENSION STRUT	1/8" X 2 1/2" FLAT STEEL X 10'-3 7/16"

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DATE: 3/8/17
REV: 4/14/17

TRUSS

MERCED COLLEGE
MERCED, CA

DRAWN BY: BAW
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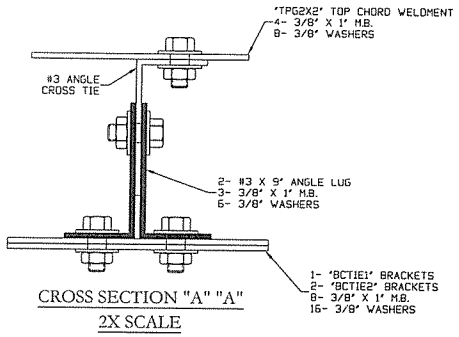
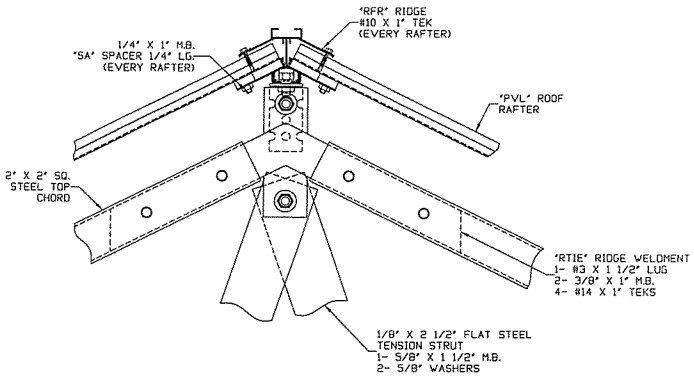
PAGE# 8

GLAZING=
FINISH=

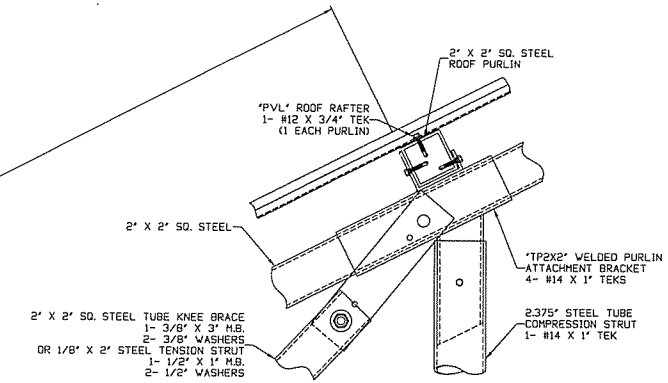


CROSS SECTION "A" "A"

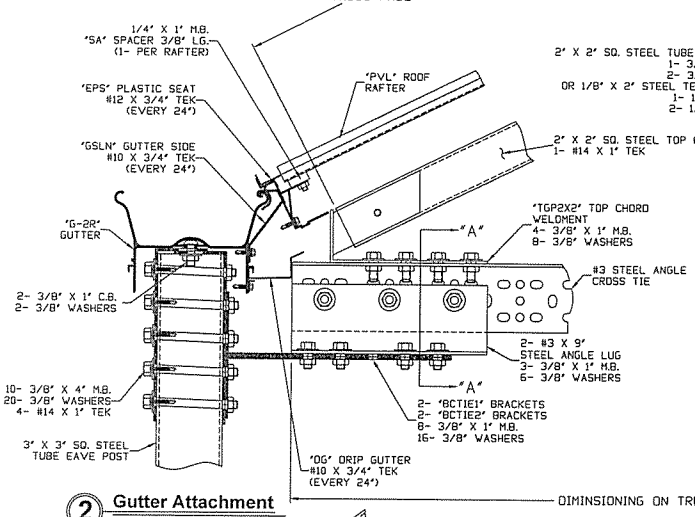
2X SCALE



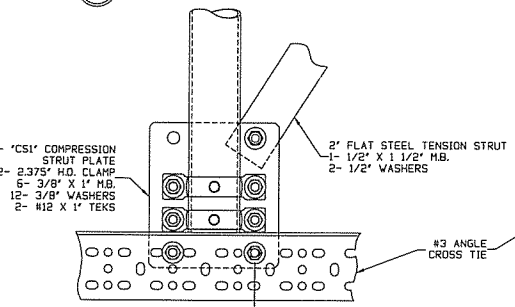
5 Ridge Attachment



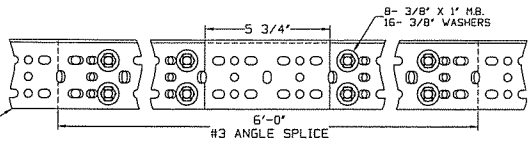
3 Purlin Attachment



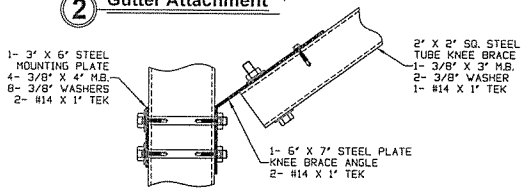
2 Gutter Attachment



4 Purlin Strut Attachment



7 Cross Tie Splice Attachment



1 Knee Brace Attachment

#1 ANGLE - 1 5/8" X 1 5/8"
#3 ANGLE - 1 5/8" X 3 1/8"

IMPORTANT
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

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DATE: 01/10/07 | REV:

STANDARD DETAIL # STP-1137

GALV. STEEL TUBE TRUSS
TOP CHORD ATTACHMENT
& CONNECTION DETAILS

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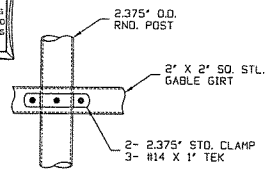
CHECKED BY:
PAGE# 9

GLAZING= | FINISH=

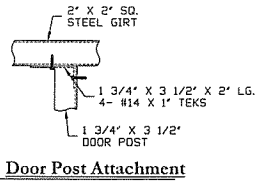
IMPORTANT
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED

SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS

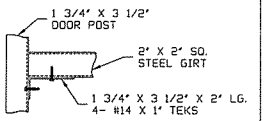
#3 ANGLE - 1 5/8" X 3 1/8"



5 Girt Attachment

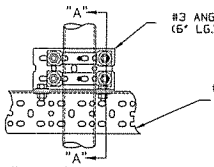


9 Door Post Attachment

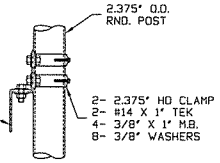


10 Door Post Attachment

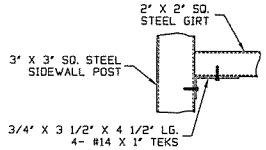
2 Gable Frame "A"



6 Purlin Post Attachment



Section A-A



7 Girt Attachment

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STATE OF INDIANA • PROFESSIONAL ENGINEER • REGISTERED HENRY T. DOWNEY PE60900412

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GABLE

MERCED COLLEGE

MERCED, CA

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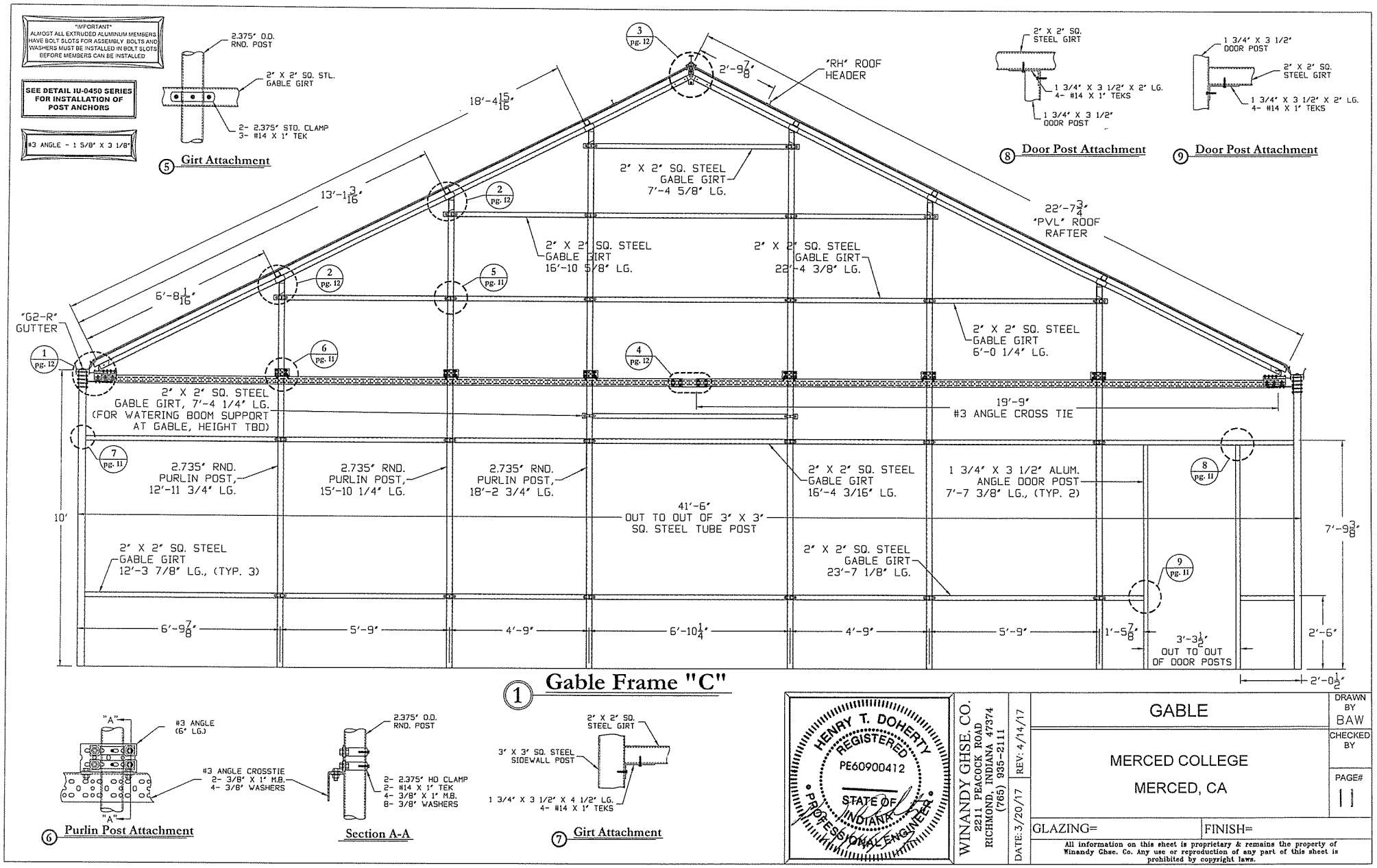
CHECKED BY:

PAGE# 10

GLAZING=

FINISH=


"IMPORTANT"
ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED
SEE DETAIL IU-0450 SERIES FOR INSTALLATION OF POST ANCHORS
#3 ANGLE - 1 5/8" X 3 1/8"
2.375" O.D. RND. POST
2" X 2" SQ. STL. GABLE GIRT
2- 2.375" STD. CLAMP
3- #14 X 1" TEK
5 Girt Attachment
18'-4 15/16"
13'-1 3/16"
6'-8 1/16"
2'-9 7/8"
"RH" ROOF HEADER
"G2-R" GUTTER
2" X 2" SQ. STEEL GABLE GIRT 7'-4 5/8" LG.
2" X 2" SQ. STEEL GABLE GIRT 16'-10 5/8" LG.
2" X 2" SQ. STEEL GABLE GIRT 22'-4 3/8" LG.
2" X 2" SQ. STEEL GABLE GIRT 6'-0 1/4" LG.
22'-7 3/4" "PVL" ROOF RAFTER
2" X 2" SQ. STEEL GABLE GIRT, 7'-4 1/4" LG. (FOR WATERING BOOM SUPPORT AT GABLE, HEIGHT TBD)
19'-9" #3 ANGLE CROSS TIE
2.735" RND. PURLIN POST, 12'-11 3/4" LG.
2.735" RND. PURLIN POST, 15'-10 1/4" LG.
2.735" RND. PURLIN POST, 18'-2 3/4" LG.
2" X 2" SQ. STEEL GABLE GIRT 16'-4 3/16" LG.
1 3/4" X 3 1/2" ALUM. ANGLE DOOR POST 7'-7 3/8" LG., (TYP. 2)
41'-6" OUT TO OUT OF 3" X 3" SQ. STEEL TUBE POST
10'
7'-9 3/8"
2" X 2" SQ. STEEL GABLE GIRT 12'-3 7/8" LG., (TYP. 3)
2" X 2" SQ. STEEL GABLE GIRT 23'-7 1/8" LG.
6'-9 7/8"
5'-9"
4'-9"
6'-10 1/4"
4'-9"
5'-9"
1'-5 7/8"
3'-3 1/2" OUT TO OUT OF DOOR POSTS
2'-6"
2'-0 1/2"
2" X 2" SQ. STEEL GIRT
1 3/4" X 3 1/2" X 2" LG. 4- #14 X 1" TEKS
1 3/4" X 3 1/2" DOOR POST
8 Door Post Attachment
1 3/4" X 3 1/2" DOOR POST
2" X 2" SQ. STEEL GIRT
1 3/4" X 3 1/2" X 2" LG. 4- #14 X 1" TEKS
9 Door Post Attachment
1 Gable Frame "C"
"A"
#3 ANGLE (6' LG.)
#3 ANGLE CROSSTIE 2- 3/8" X 1" M.B. 4- 3/8" WASHERS
6 Purlin Post Attachment
2.375" O.D. RND. POST
2- 2.375" HD CLAMP 2- #14 X 1" TEK 4- 3/8" X 1" M.B. 8- 3/8" WASHERS
Section A-A
2" X 2" SQ. STEEL GIRT
3" X 3" SQ. STEEL SIDEWALL POST
1 3/4" X 3 1/2" X 4 1/2" LG. 4- #14 X 1" TEKS
7 Girt Attachment
HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER
WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111
DATE: 3/20/17
REV: 4/14/17
GABLE
MERCED COLLEGE
MERCED, CA
DRAWN BY BAW
CHECKED BY
PAGE# 11
GLAZING=
FINISH=
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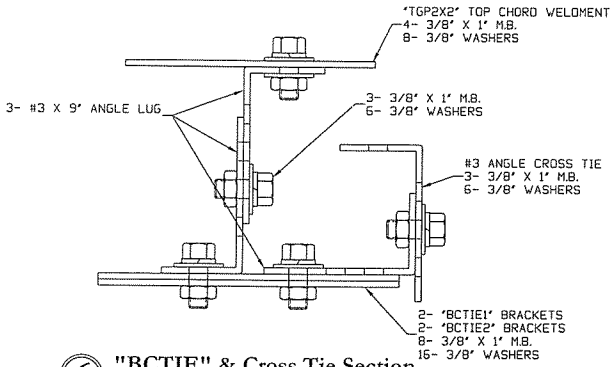
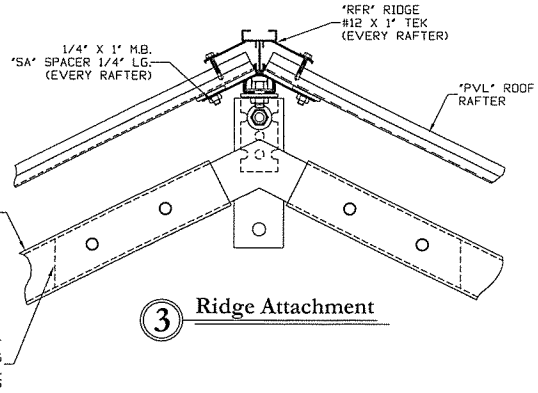
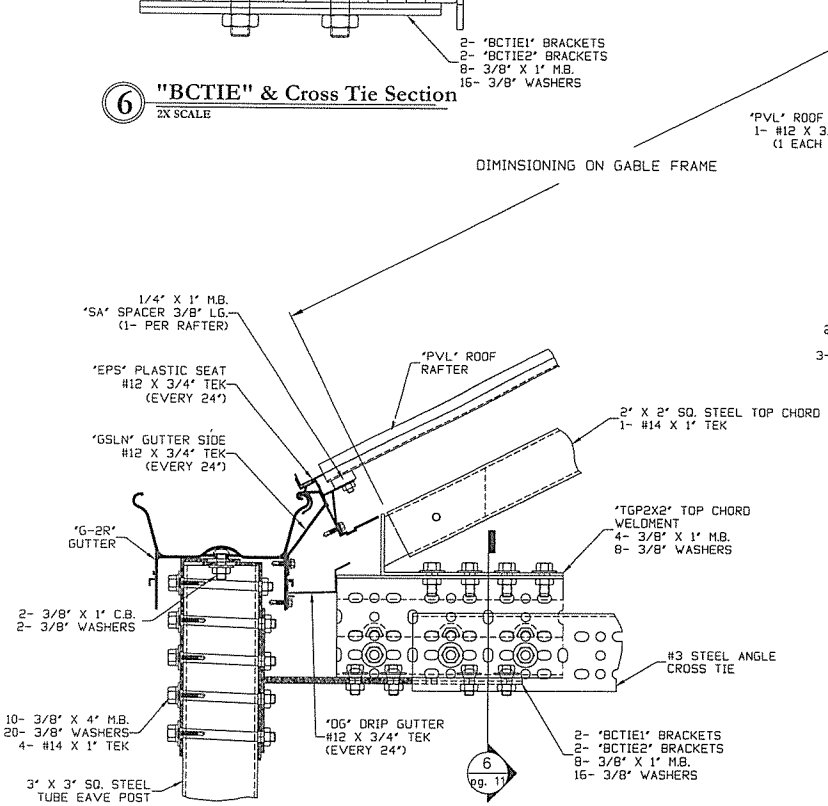


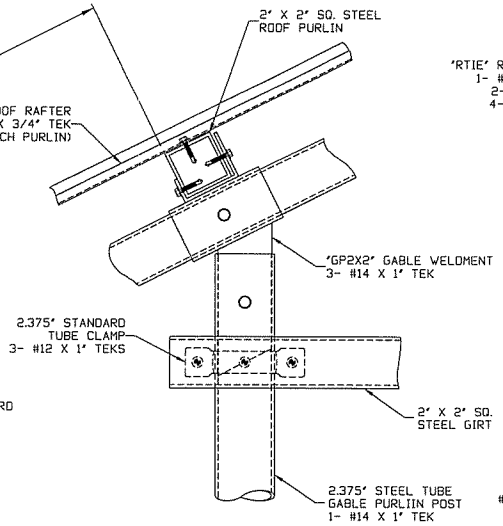
6 "BCTIE" & Cross Tie Section
2X SCALE



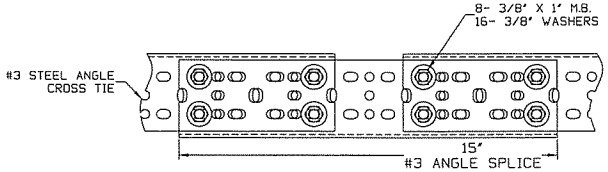
3 Ridge Attachment



1 Gutter Attachment



2 Purlin Post Attachment



4 Cross Tie Splice

#1 ANGLE - 1 5/8' X 1 5/8'
#3 ANGLE - 1 5/8' X 3 1/8'

IMPORTANT: ALMOST ALL EXTRUDED ALUMINUM MEMBERS HAVE BOLT SLOTS FOR ASSEMBLY. BOLTS AND WASHERS MUST BE INSTALLED IN BOLT SLOTS BEFORE MEMBERS CAN BE INSTALLED.

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

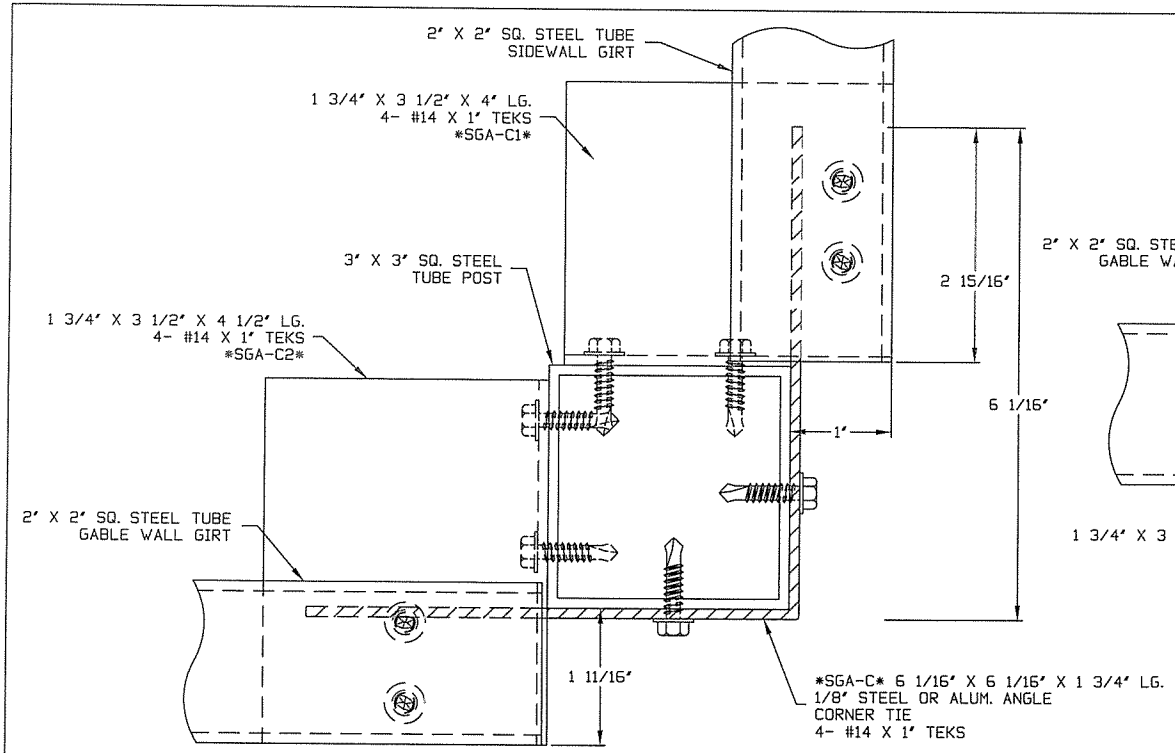
DATE: 01/10/07 | REV: 4/14/17

STANDARD DETAIL # STP-1138

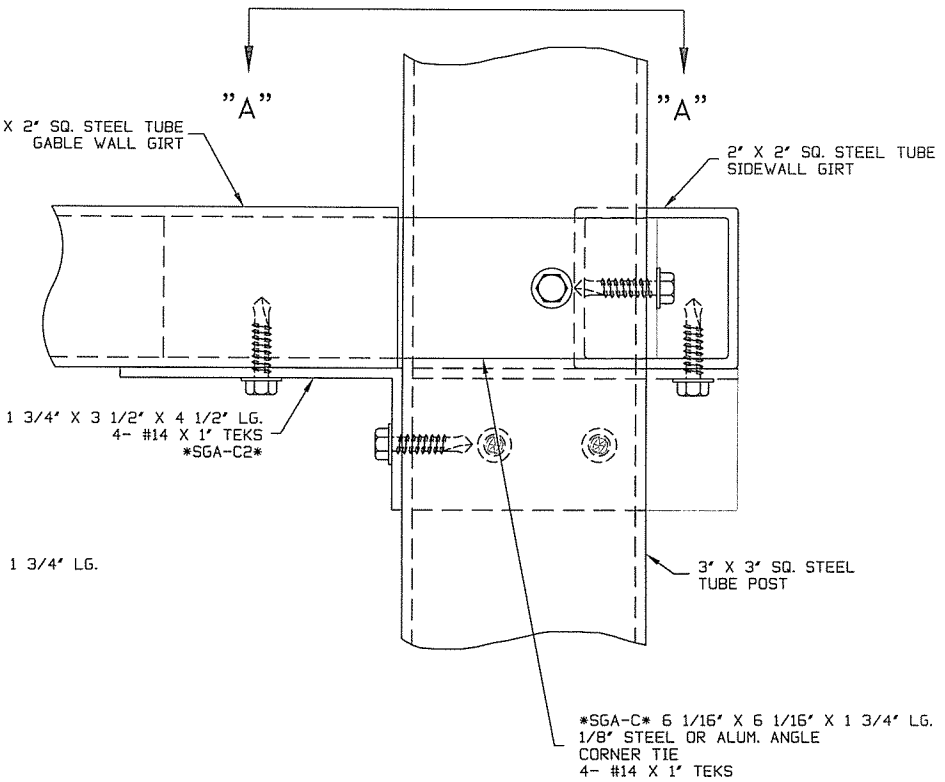
GALV. STEEL TUBE GABLE TOP CHORD ATTACHMENT & CONNECTION DETAILS

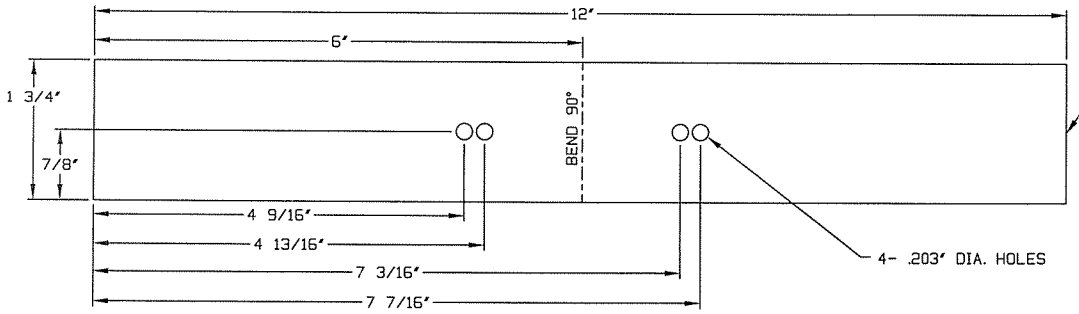
DRAWN BY: BAW
CHECKED BY:
PAGE# 12

GLAZING=
FINISH=



VIEW "A" "A"





HENRY T. DOHERTY
REGISTERED
PE60900412
STATE OF INDIANA
PROFESSIONAL ENGINEER
3/10/08

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE: 6/11/08

STANDARD DETAIL #STP-0053

"STP" SUPER STRUCTURE
OUT SIDE CORNER "GUTTER" WITH
2" X 2" SQ. STEEL TUBE GIRTS AND
3" X 3" SQ. STEEL TUBE POST

DRAWN BY: BAW

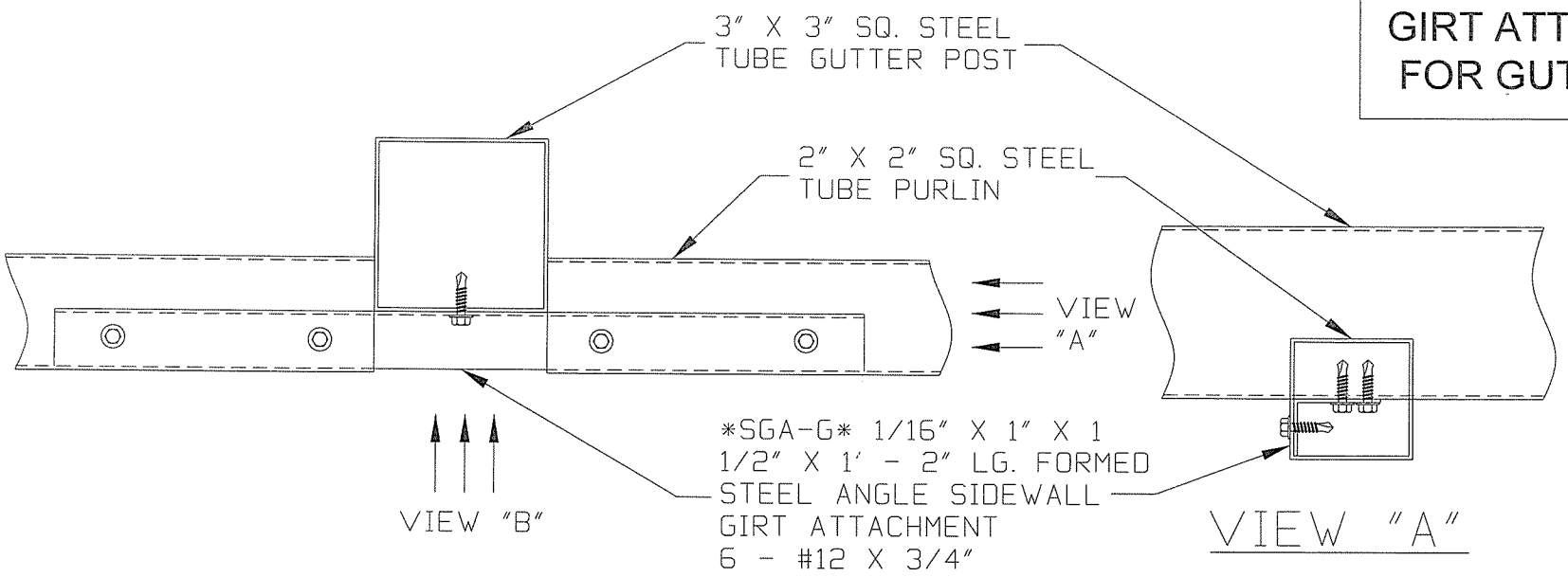
CHECKED BY:

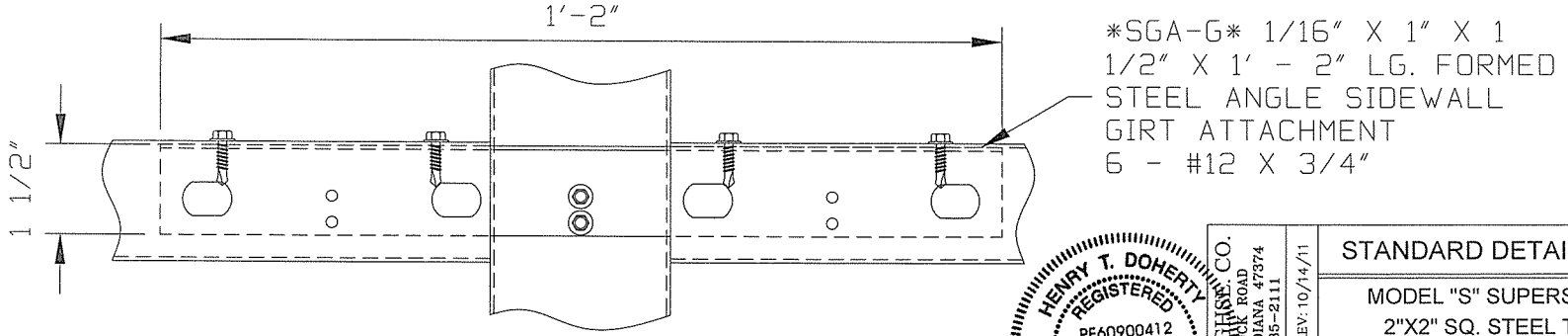
PAGE# 13

GLAZING=

FINISH=

SIDEWALL GIRT ATTATCHMENT FOR GUTTER POST





HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA NOT FOR CONSTRUCTION PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

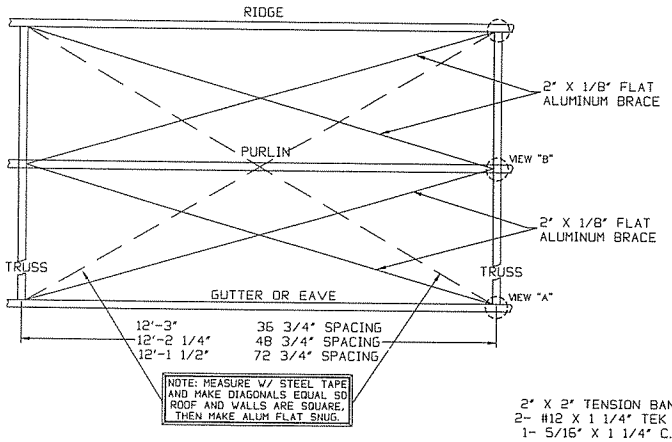
DATE: 11/13/09 | REV: 10/14/11

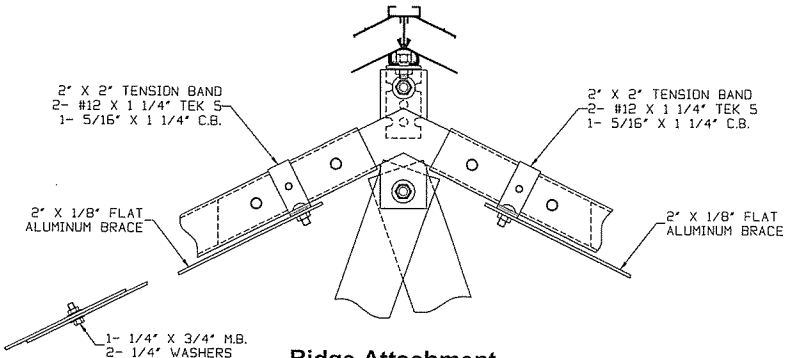
STANDARD DETAIL #STP-1155

MODEL "S" SUPERSTRUCTURE
2"X2" SQ. STEEL TUBE GIRT
W/ 3" X 3" SQ. STEEL TUBE
GUTTER POST ATTACHMENT SGA-G

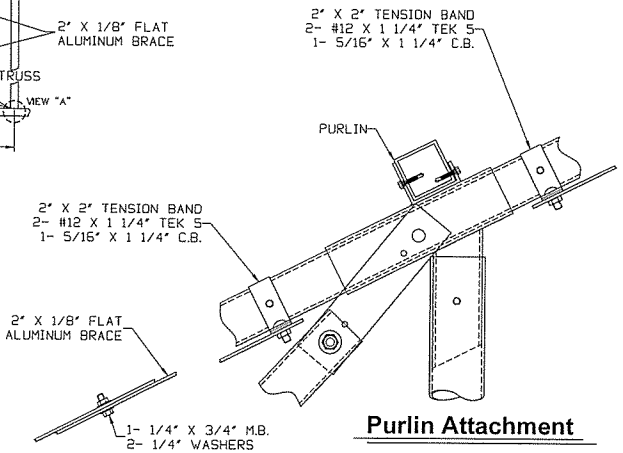
DRAWN BY: SRP
CHECKED BY:
PAGE#: 14

GLAZING=
FINISH=

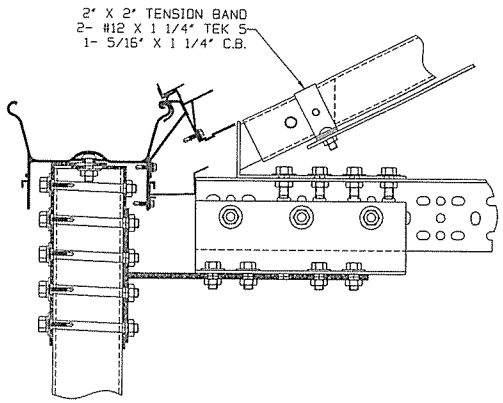




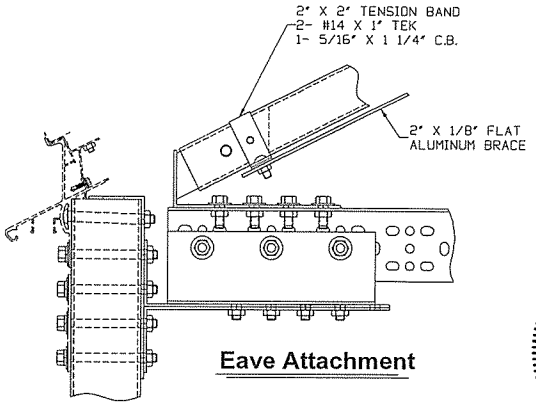
Ridge Attachment



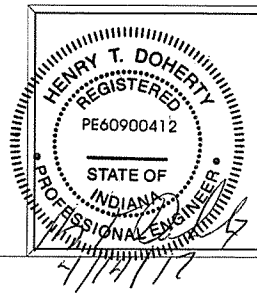
Purlin Attachment



Gutter Attachment



Eave Attachment



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV:

DATE: 04/17/17

STANDARD DETAIL # QW-0152

DRAWN BY: BAW

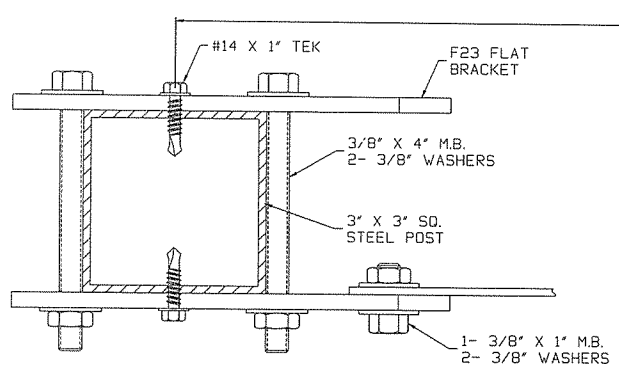
CHECKED BY:

ACCESSORIES WIND BRACES
ROOF "X" FLAT BRACING WITH
2" X 2" OR 3" X 3" SQ. STEEL
TUBE PURLINS

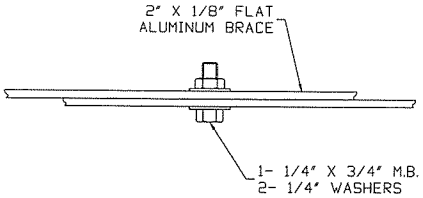
PAGE# 14A

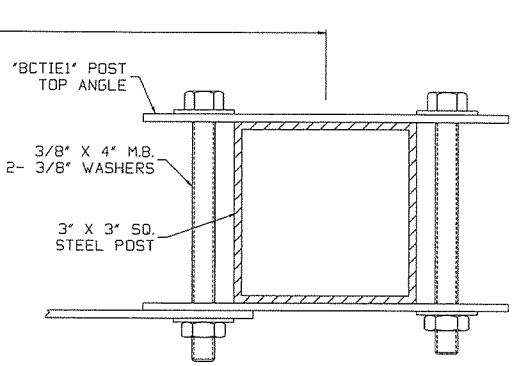
GLAZING=

FINISH=

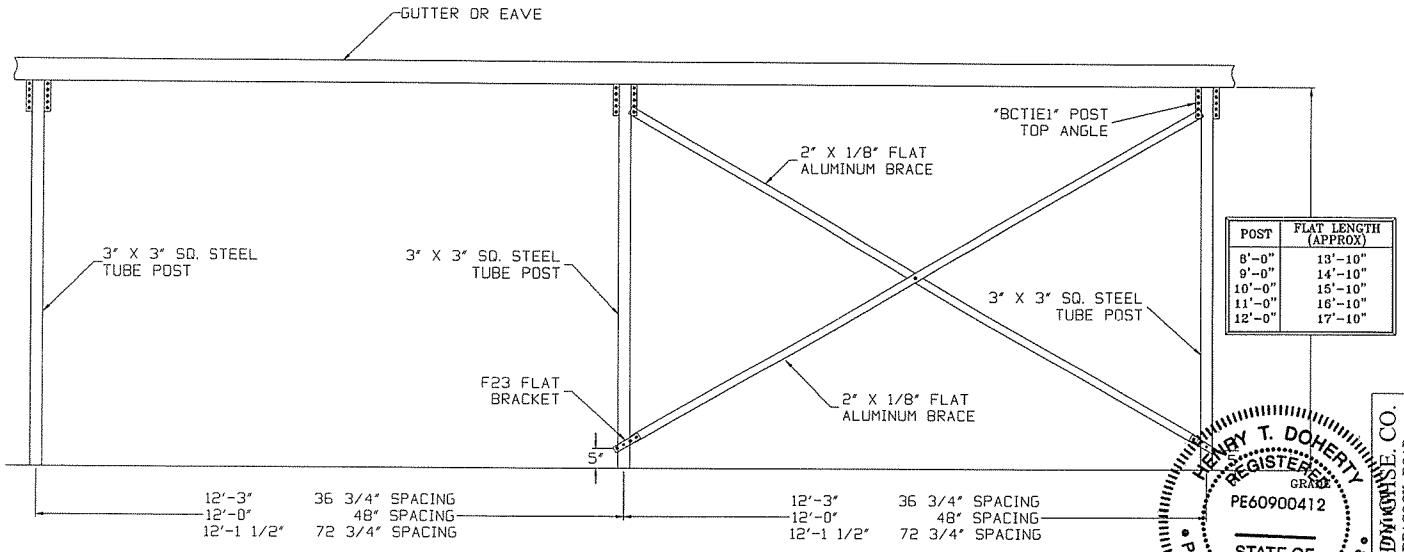


Flat Brace Attachment at Post Foot





Flat Brace Attachment at Post Top



POST	FLAT LENGTH (APPROX)
8'-0"	13'-10"
9'-0"	14'-10"
10'-0"	15'-10"
11'-0"	16'-10"
12'-0"	17'-10"

NOTE:
1) INSTALL CABLES SEMI-TIGHT
2) MEASURE WITH STEEL TAPE AND MAKE DIAGONALS EQUAL SO WALLS ARE SQUARE
3) MAKE ALUM FLAT SNUG

NOTE: WIND BRACING TO BE LOCATED IN APPROX CENTER OF GREENHOUSE

HENRY T. DOHERTY REGISTERED PE60900412 STATE OF INDIANA PROFESSIONAL ENGINEER

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE:1/29/08 REV:

STANDARD DETAIL # QW-0138

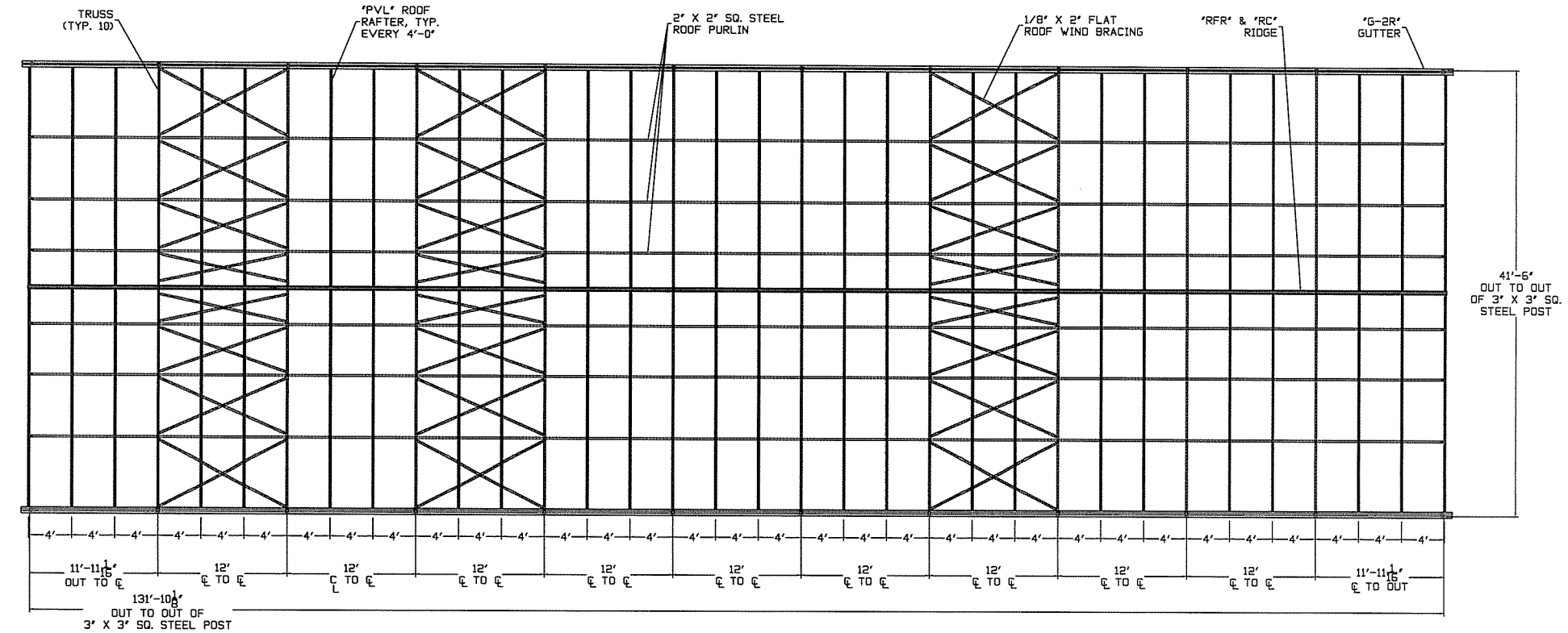
ACCESSORIES WIND BRACES FOR SIDEWALL WITH 3" X 3" SQ. STEEL TUBE POST ALUM. FLAT "X"BRACING

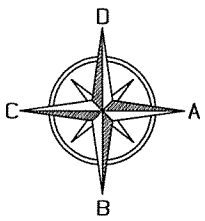
DRAWN BY BAW

CHECKED BY

PAGE# 14B

GLAZING= FINISH=





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RICHMOND, INDIANA 47374
(765) 935-2111

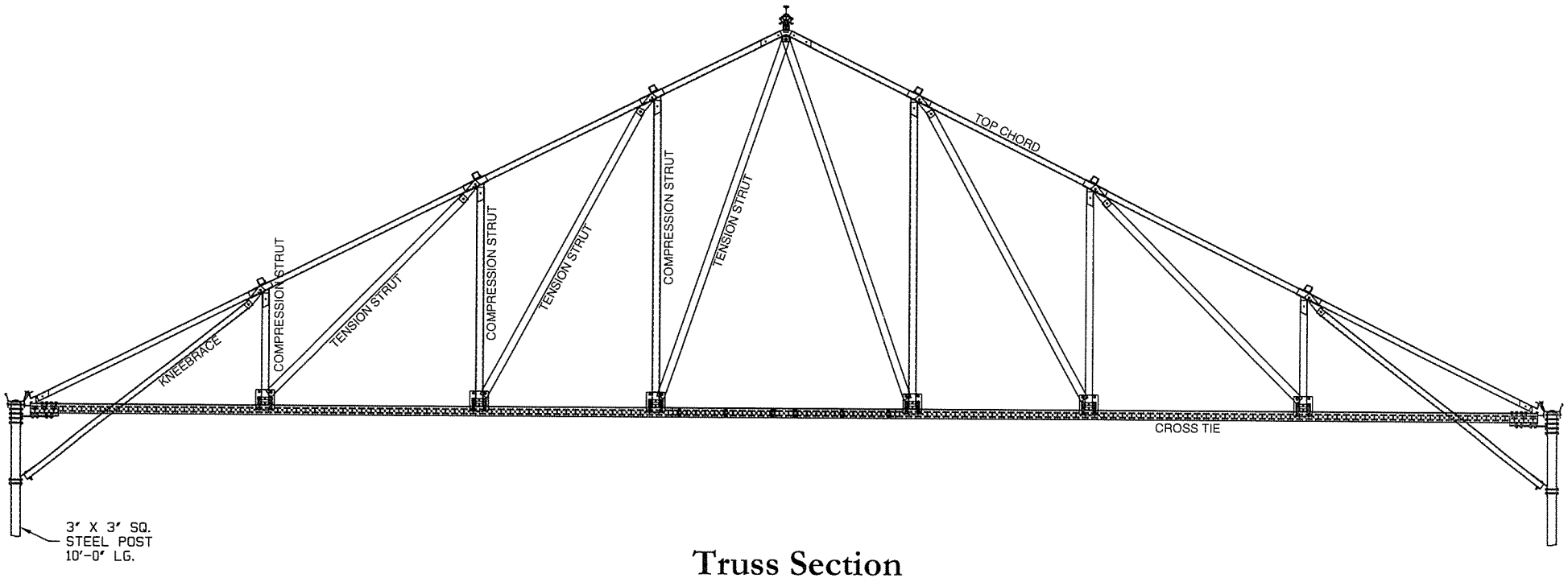
DATE: 4/17/17
REV: 4/13/17

ROOF FRAMING PLAN

DRAWN BY: BAW
CHECKED BY:
PAGE#

MERCED COLLEGE
MERCED, CA

GLAZING=
FINISH=



Truss Section

WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

REV: 4/14/17

DATE: 3/8/17

TRUSS SECTION

DRAWN BY: BAW

CHECKED BY:

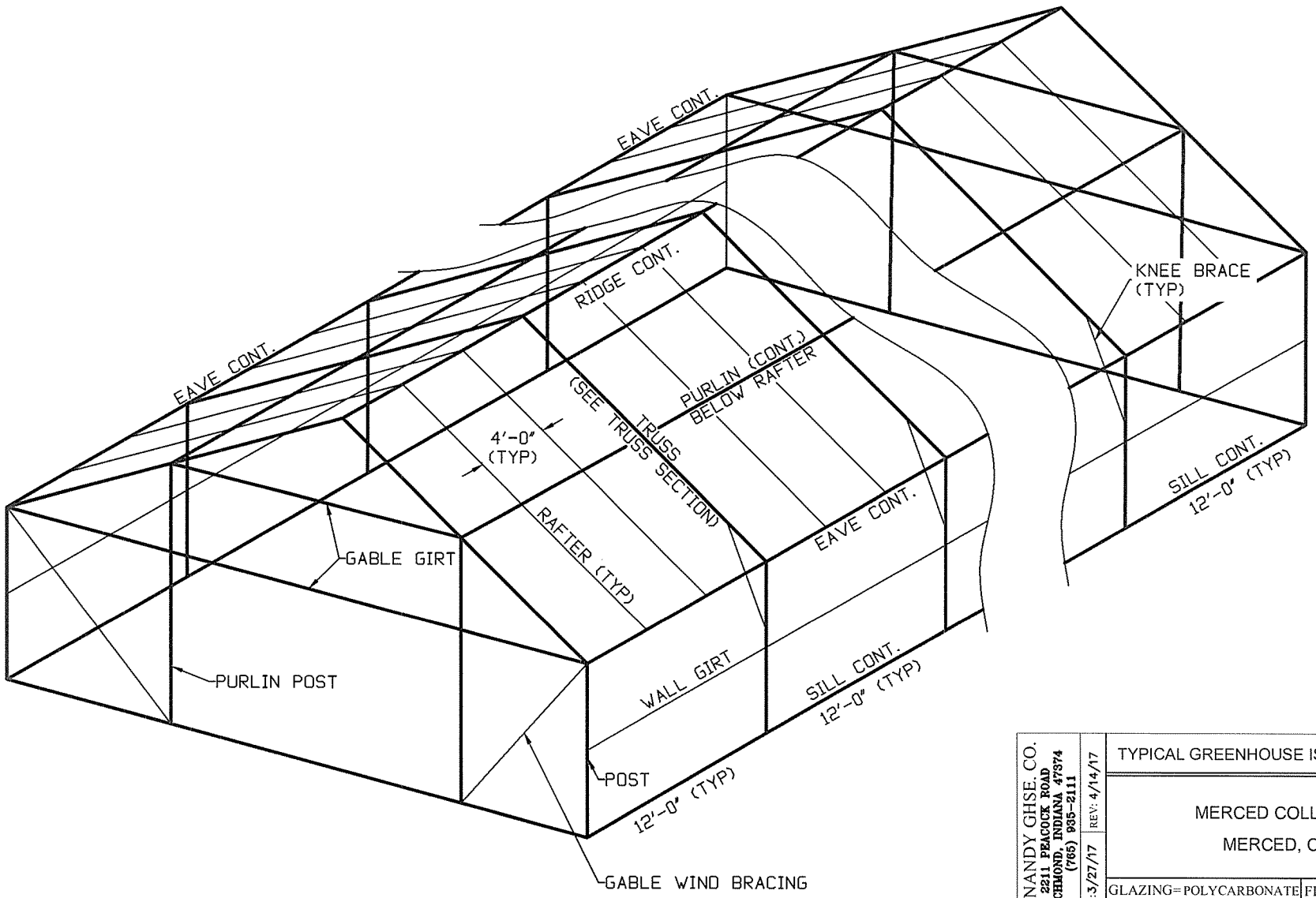
PAGE#

MERCED COLLEGE

MERCED, CA

GLAZING=

FINISH=



WINANDY GHSE. CO.
2211 PEACOCK ROAD
RICHMOND, INDIANA 47374
(765) 935-2111

DATE: 3/27/17 | REV: 4/14/17

TYPICAL GREENHOUSE ISOMETIC VIEW

DRAWN BY: BAW

CHECKED BY:

PAGE#:

MERCED COLLEGE

MERCED, CA

GLAZING= POLYCARBONATE | FINISH= MILL

Merced 3/31/17

Loads.

– full Bay –

DL = 6 PSF

3' * 12 * 6 = 216# @ Node 5, 6

Node 6' * 12 * 6 = 432# @ 13, 14, 16, 17

Element

½(20.75 – 11.875) * 12 * 4 = 319.5# Node 22, 23

Panel Load

LL

LL = 15 PSF

3' * 12 * 15 = 540# @ Node 5, 6

6' * 12 * 15 = 1080# @ Node 13, 14, 16, 17

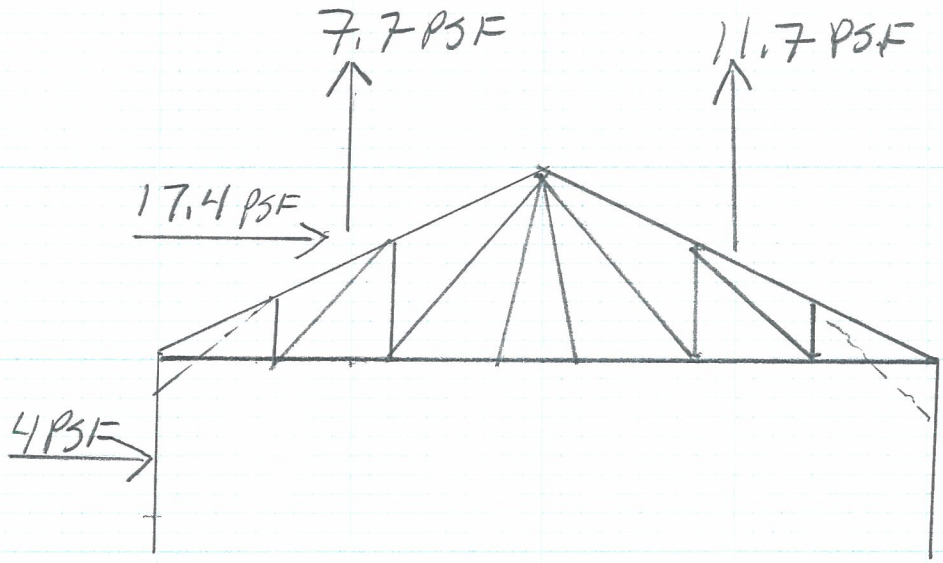
½(20.75 + 11.875) 12 X 15 = 799# @ Node 15

½ (20.75 – 11.875) * 12 * 15 = 799# Node 22, 23

Merced 3/31/17

WL

90 MPH 105 exp B -



Sidewall

17.4 * 12 * 3 = 626 # @ Nod 3

17.4 * 4 * 12 = 836 # @ 1/2 Elem 1

1.5 * 12 * 17.4 = 314 # @ Node 1 + 5

Roof Horiz

3 * 12 * 14.4 = 144 # ✓ Node 13, 14 + Elem 14 @ 6'2"

1.5 * 12 * 4 = 72 # ✓ Node 5, 15

Roof Vert

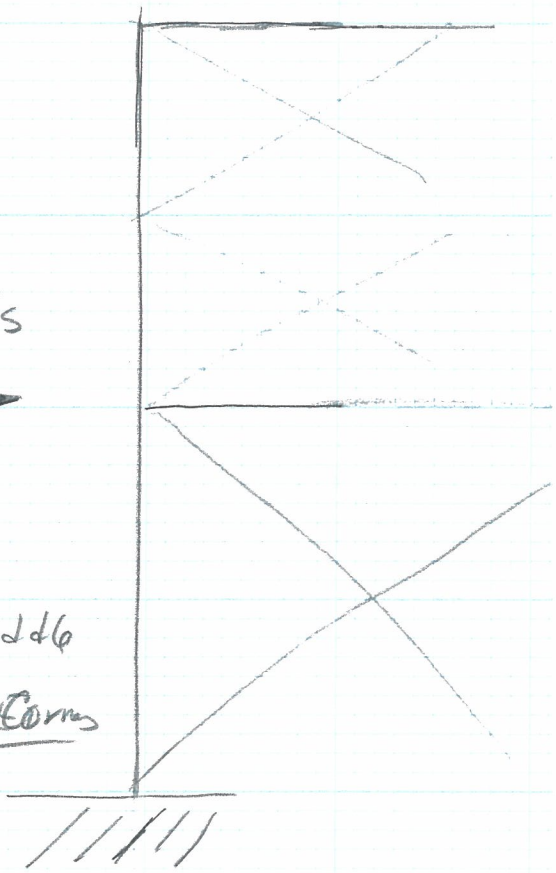
3 * 12 * 7.7 = 278 # ✓ Note 5, 15

6 * 12 * 7.7 = 555 # ✓ Note 13, Melm 14 @ 6'2"

3 * 12 * 11.7 = 429 # ✓ Note 15, 6 7

6 * 12 * 11.7 = 857 # ✓ Node 16, 17 Elem 15 @ 6'2"

Merced



$\frac{1}{2} \times 24.1 \text{ PSF} \times 11 = 1061\#$

17.4
24.1 @ Ends

1105 + 2210 + 530.5 ⟹

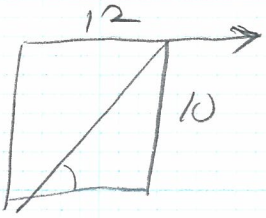
$\frac{20.75+12}{2} \times 17.4 \times 16 = 4420\#$

17.4 Middle
24.1 @ Corners

$1061\#/2 = 530.5$ @ Bottoms

$4420/2 = 2210$ @ Post Base

$1105 + 2210 + 531 = 3846$



$\frac{10}{12} = \tan\alpha$

$\alpha = 40°$

$X \cos 40° = 3846\#$

$= 5021\#$ Max WB Load

A1

Earthquake Load

Merced

Seismic Shear

Note: No Floor Loads Imparted to the Greenhouse structure ⇒ Floor is Slab on grade.

$$F = \frac{1.2\, S_{DS}}{R} * (W_x)$$

Seismic Use Group 1

$S_{DS} = 2/3\, S_{MS}$

$S_{MS} = F_a S_S$

$W_x = 5\,PSF$

$S_S = 150\% = 1.5$

$F_a = 1$

$$F = \frac{1.2(2/3 * 1 * 1.5)}{2.5} (5\,PSF)$$

$F = 2.5$ PSF Load

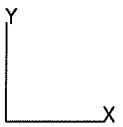
Smaller than WL - therefore Windload rules.

$2.5 * 12 * 20.5 * \frac{1}{2} = 312\#$

FA3

UNDEFORMED

SHAPE



MINIMA

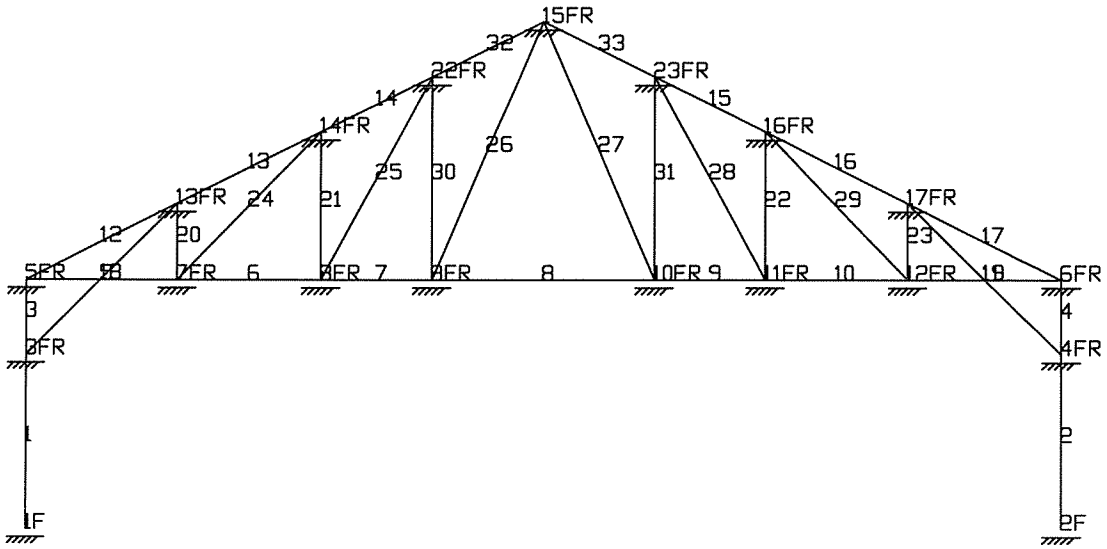
X 0.000E+000

Y 0.000E+000

MAXIMA

X 4.150E+001

Y 2.038E+001



NOTES :

JOB ID: MERCED

RUN ID: MERCED

N O D A L I N F O R M A T I O N

NODE NO	NODAL COORDINATES X	Y	SUPPORT CONDITIONS CODE	PX STIFF	PY STIFF	M STIFF
Units :	Ft	Ft		Lb/In	Lb/In	Lb-In /Deg
1	0.000	0.000	F			
2	41.500	0.000	F			
3	0.000	7.000	FR			
4	41.500	7.000	FR			
5	0.000	10.000	FR			
6	41.500	10.000	FR			
7	6.125	10.000	FR			
8	11.875	10.000	FR			
9	16.312	10.000	FR			
10	25.188	10.000	FR			
11	29.625	10.000	FR			
12	35.375	10.000	FR			
13	6.125	13.063	FR			
14	11.875	15.938	FR			
15	20.750	20.375	FR			
16	29.625	15.938	FR			
17	35.375	13.063	FR			
22	16.313	18.156	FR			
23	25.188	18.156	FR			

E L E M E N T I N F O R M A T I O N

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
		Units : Ft		Deg				
1	1	3	7.000	90.00	1	BEAM		
2	2	4	7.000	90.00	1	BEAM		
3	3	5	3.000	90.00	1	BEAM		
4	4	6	3.000	90.00	1	BEAM		
5	5	7	6.125	0.00	2	STRUT	Y	Y
6	7	8	5.750	0.00	2	STRUT	Y	Y
7	8	9	4.437	0.00	2	STRUT	Y	Y
8	9	10	8.876	0.00	2	STRUT	Y	Y
9	10	11	4.437	0.00	2	STRUT	Y	Y
10	11	12	5.750	0.00	2	STRUT	Y	Y
11	12	6	6.125	0.00	2	STRUT	Y	Y
12	5	13	6.848	26.57	4	BEAM		
13	13	14	6.429	26.57	4	BEAM		
14	14	22	4.961	26.55	4	BEAM		

ELEMENT INFORMATION

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
15	23	16	4.960	-26.56	4	BEAM		
16	16	17	6.429	-26.57	4	BEAM		
17	17	6	6.848	-26.57	4	BEAM		
18	3	13	8.618	44.71	4	BEAM	Y	Y
19	17	4	8.618	-44.71	4	BEAM	Y	Y
20	7	13	3.063	90.00	3	BEAM		
21	8	14	5.938	90.00	3	BEAM		
22	11	16	5.938	90.00	3	BEAM		
23	12	17	3.063	90.00	3	BEAM		
24	7	14	8.266	45.92	5	TRUSS	Y	Y
25	8	22	9.285	61.45	5	TRUSS	Y	Y
26	9	15	11.284	66.84	5	TRUSS	Y	Y
27	10	15	11.284	113.16	5	TRUSS	Y	Y
28	11	23	9.285	118.55	5	TRUSS	Y	Y
29	12	16	8.266	134.08	5	TRUSS	Y	Y
30	22	9	8.156	-90.01	3	BEAM		
31	23	10	8.156	-90.00	3	BEAM		
32	22	15	4.961	26.57	4	BEAM		
33	23	15	4.962	153.43	4	BEAM		

PROPERTY INFORMATION

PROP NO	SECTION NAME	MODULUS	AREA	I	DIST
	Units :	Lb/In 2	In2	In4	Ft
1	3 X 3	2.9e+007	1.1	1.55	
2	#3	2.9e+007	0.328	1.02	
3	2.375RND	2.9e+007	0.681	0.443	
4	2 X 2	2.9e+007	0.825	0.493	
5	2 1/2 FLAT	2.9e+007	0.25	0.163	

NODAL LOAD INFORMATION

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
		Units :	Lb Ft	Lb Ft	Ft-Lb Deg

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
Description : DL					
Node List : 5,6					
1	1	FORCE	0.00	-216.00	0.00
Description : DL					
Node List : 13,14,16,17					
2	1	FORCE	0.00	-432.00	0.00
Description : DL					
Node List : 15					
3	1	FORCE	0.00	-639.00	0.00
Description : LL					
Node List : 5,6					
4	2	FORCE	0.00	-540.00	0.00
Description : LL					
Node List : 13,14,16,17					
5	2	FORCE	0.00	-1080.00	0.00
Description : LL					
Node List : 15					
6	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 3					
7	3	FORCE	626.00	0.00	0.00
Description : WL					
Node List : 1,5					
8	3	FORCE	314.00	0.00	0.00
Description : WL					
Node List : 5,15					
9	3	FORCE	72.00	278.00	0.00
Description : WL					
Node List : 13,14					
10	3	FORCE	144.00	555.00	0.00
Description : WL					
Node List : 15,6					
11	3	FORCE	0.00	429.00	0.00

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
Description : WL					
Node List : 16,17					
12	3	FORCE	0.00	857.00	0.00
Description : EL					
Node List : 1,2					
13	4	FORCE	312.00	0.00	0.00
Description : DL					
Node List : 22,23					
14	1	FORCE	0.00	-319.50	0.00
Description : LL					
Node List : 22,23					
15	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 22					
16	3	FORCE	144.00	555.00	0.00

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	Units :	In	In	Deg

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

1	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
2	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
3	1	-0.3362	-0.0147	0.0000
	2	0.7781	-0.0035	0.0000
	3	0.8938	0.0016	0.0000
	4	-0.1047	-0.0045	0.0000
4	1	0.3362	-0.0147	0.0000
	2	0.8834	-0.0031	0.0000
	3	0.7677	0.0020	0.0000
	4	0.1047	-0.0045	0.0000
5	1	-0.1550	-0.0184	0.0000
	2	0.8236	-0.0045	0.0000
	3	0.8766	0.0018	0.0000

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	4	-0.0491	-0.0056	0.0000
6	1	0.1550	-0.0184	0.0000
	2	0.8697	-0.0034	0.0000
	3	0.8167	0.0030	0.0000
	4	0.0491	-0.0056	0.0000
7	1	-0.1026	-0.3811	0.0000
	2	0.8350	-0.0911	0.0000
	3	0.8699	0.0410	0.0000
	4	-0.0329	-0.1170	0.0000
8	1	-0.0565	-0.5238	0.0000
	2	0.8436	-0.1137	0.0000
	3	0.8627	0.0672	0.0000
	4	-0.0183	-0.1620	0.0000
9	1	-0.0257	-0.5369	0.0000
	2	0.8484	-0.1068	0.0000
	3	0.8570	0.0779	0.0000
	4	-0.0084	-0.1674	0.0000
10	1	0.0257	-0.5369	0.0000
	2	0.8550	-0.0990	0.0000
	3	0.8464	0.0857	0.0000
	4	0.0084	-0.1674	0.0000
11	1	0.0565	-0.5238	0.0000
	2	0.8598	-0.0852	0.0000
	3	0.8408	0.0957	0.0000
	4	0.0183	-0.1620	0.0000
12	1	0.1026	-0.3811	0.0000
	2	0.8658	-0.0455	0.0000
	3	0.8309	0.0866	0.0000
	4	0.0329	-0.1170	0.0000

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
13	1	0.0061	-0.3813	0.0000
	2	0.8614	-0.0915	0.0000
	3	0.8585	0.0407	0.0000
	4	0.0003	-0.1169	0.0000
14	1	0.0527	-0.5291	0.0000
	2	0.8661	-0.1158	0.0000
	3	0.8473	0.0671	0.0000
	4	0.0150	-0.1634	0.0000
15	1	0.0000	-0.5009	0.0000
	2	0.8430	-0.0904	0.0000
	3	0.8430	0.0811	0.0000
	4	0.0000	-0.1579	0.0000
16	1	-0.0527	-0.5291	0.0000
	2	0.8355	-0.0849	0.0000
	3	0.8544	0.0980	0.0000
	4	-0.0150	-0.1634	0.0000
17	1	-0.0061	-0.3813	0.0000
	2	0.8505	-0.0448	0.0000
	3	0.8534	0.0874	0.0000
	4	-0.0003	-0.1169	0.0000
22	1	0.0413	-0.5475	0.0000
	2	0.8577	-0.1100	0.0000
	3	0.8431	0.0786	0.0000
	4	0.0120	-0.1704	0.0000
23	1	-0.0413	-0.5475	0.0000
	2	0.8320	-0.1021	0.0000
	3	0.8466	0.0864	0.0000
	4	-0.0120	-0.1704	0.0000

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
		Units :	Lb	Lb	Lb-Ft	Lb-Ft /In	Ft

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

1	1	1	-5617.4703	-306.7130	1073.4957		
		3	-5617.4703	-306.7130	-1073.4957	-0.0323	1.48
	2	1	-1343.7121	709.9274	-2484.7460		
		3	-1343.7121	709.9274	2484.7460	0.0749	1.48
	3	1	605.5273	815.5157	-2854.3048		
		3	605.5273	815.5157	2854.3048	0.0860	1.48
	4	1	-1718.9915	-95.5366	334.3779		
		3	-1718.9915	-95.5366	-334.3779	0.0101	5.52
2	1	2	-5617.5297	306.7130	-1073.4957		
		4	-5617.5297	306.7130	1073.4957	-0.0323	5.52
	2	2	-1199.7879	806.0726	-2821.2540		
		4	-1199.7879	806.0726	2821.2540	-0.0850	5.52
	3	2	749.4727	700.4843	-2451.6952		
		4	749.4727	700.4843	2451.6952	0.0739	1.48
	4	2	-1719.0085	95.5366	-334.3779		
		4	-1719.0085	95.5366	334.3779	0.0101	1.48

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
3	1	3	-3235.7325	2099.3803	-3149.0704		
		5	-3235.7325	2099.3803	3149.0704	0.0174	0.63
	2	3	-904.0285	528.1072	-792.1608		
		5	-904.0285	528.1072	792.1608	0.0044	0.63
	3	3	220.6811	-199.2660	298.8990		
		5	220.6811	-199.2660	-298.8990	0.0017	2.37
	4	3	-986.3133	644.6340	-966.9510		
		5	-986.3133	644.6340	966.9510	-0.0054	2.37
4	1	4	-3235.7809	-2099.3915	3149.0872		
		6	-3235.7809	-2099.3915	-3149.0872	0.0174	2.37
	2	4	-243.8476	-159.6432	239.4647		
		6	-243.8476	-159.6432	-239.4647	0.0013	2.37
	3	4	880.8793	567.7340	-851.6010		
		6	880.8793	567.7340	851.6010	0.0047	0.63
	4	4	-986.3272	-644.6372	966.9557		
		6	-986.3272	-644.6372	-966.9557	-0.0054	0.63
5	1	5	6783.8630	0.0000	0.0000		
		7	6783.8630	0.0000	0.0000		
	2	5	1468.4942	0.0000	0.0000		
		7	1468.4942	0.0000	0.0000		
	3	5	-872.9695	0.0000	0.0000		
		7	-872.9695	0.0000	0.0000		
	4	5	2100.9355	0.0000	0.0000		
		7	2100.9355	0.0000	0.0000		
6	1	7	6358.2150	0.0000	0.0000		
		8	6358.2150	0.0000	0.0000		
	2	7	1185.5663	0.0000	0.0000		
		8	1185.5663	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	3	7	-992.5228	0.0000	0.0000		
		8	-992.5228	0.0000	0.0000		
	4	7	2002.0368	0.0000	0.0000		
		8	2002.0368	0.0000	0.0000		
7	1	8	5506.0733	0.0000	0.0000		
		9	5506.0733	0.0000	0.0000		
	2	8	864.2762	0.0000	0.0000		
		9	864.2762	0.0000	0.0000		
	3	8	-1005.4830	0.0000	0.0000		
		9	-1005.4830	0.0000	0.0000		
	4	8	1766.5548	0.0000	0.0000		
		9	1766.5548	0.0000	0.0000		
8	1	9	4585.0431	0.0000	0.0000		
		10	4585.0431	0.0000	0.0000		
	2	9	589.4953	0.0000	0.0000		
		10	589.4953	0.0000	0.0000		
	3	9	-948.6697	0.0000	0.0000		
		10	-948.6697	0.0000	0.0000		
	4	9	1508.7132	0.0000	0.0000		
		10	1508.7132	0.0000	0.0000		
9	1	10	5505.9809	0.0000	0.0000		
		11	5505.9809	0.0000	0.0000		
	2	10	859.9116	0.0000	0.0000		
		11	859.9116	0.0000	0.0000		
	3	10	-1009.8214	0.0000	0.0000		
		11	-1009.8214	0.0000	0.0000		
	4	10	1766.5148	0.0000	0.0000		
		11	1766.5148	0.0000	0.0000		

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
10	1	11	6358.3297	0.0000	0.0000		
		12	6358.3297	0.0000	0.0000		
	2	11	822.0550	0.0000	0.0000		
		12	822.0550	0.0000	0.0000		
	3	11	-1356.0750	0.0000	0.0000		
		12	-1356.0750	0.0000	0.0000		
	4	11	2002.0697	0.0000	0.0000		
		12	2002.0697	0.0000	0.0000		
11	1	12	6783.9702	0.0000	0.0000		
		6	6783.9702	0.0000	0.0000		
	2	12	501.7582	0.0000	0.0000		
		6	501.7582	0.0000	0.0000		
	3	12	-1839.7437	0.0000	0.0000		
		6	-1839.7437	0.0000	0.0000		
	4	12	2100.9663	0.0000	0.0000		
		6	2100.9663	0.0000	0.0000		
12	1	5	-5298.9069	122.6298	-419.8954		
		13	-5298.9069	122.6298	419.8954	0.0382	1.45
	2	5	-1497.6320	29.2707	-100.2255		
		13	-1497.6320	29.2707	100.2255	0.0091	1.45
	3	5	328.2951	-13.2423	45.3429		
		13	328.2951	-13.2423	-45.3429	0.0041	5.40
	4	5	-1647.0527	37.6037	-128.7586		
		13	-1647.0527	37.6037	128.7586	-0.0117	5.40
13	1	13	-7578.7157	57.1894	-183.8265		
		14	-7578.7157	57.1894	183.8265	-0.0147	5.07

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	2	13	-2053.3593	8.8951	-28.5920		
		14	-2053.3593	8.8951	28.5920	-0.0023	5.07
	3	13	561.0981	-10.6981	34.3873		
		14	561.0981	-10.6981	-34.3873	-0.0028	1.36
	4	13	-2349.8008	18.0030	-57.8679		
		14	-2349.8008	18.0030	57.8679	0.0046	1.36
14	1	14	-7403.5344	9.2078	-22.8418		
		22	-7403.5344	9.2078	22.8418	-0.0011	3.91
	2	14	-1970.6976	-7.2398	17.9597		
		22	-1970.6976	-7.2398	-17.9597	-0.0009	1.05
	3	14	565.5531	-9.8668	24.4766		
		22	565.5531	-9.8668	-24.4766	0.0012	3.91
	4	14	-2331.0329	3.9537	-9.8080		
		22	-2331.0329	3.9537	9.8080	0.0005	1.05
15	1	23	-7403.9859	-9.1830	22.7761		
		16	-7403.9859	-9.1830	-22.7761	0.0011	3.91
	2	23	-1815.5678	-13.8381	34.3219		
		16	-1815.5678	-13.8381	-34.3219	0.0016	3.91
	3	23	720.8393	-11.2199	27.8280		
		16	720.8393	-11.2199	-27.8280	0.0013	3.91
	4	23	-2331.1718	-3.9465	9.7883		
		16	-2331.1718	-3.9465	-9.7883	-0.0005	1.05
16	1	16	-7578.8373	-57.1886	183.8240		
		17	-7578.8373	-57.1886	-183.8240	0.0147	5.07
	2	16	-1416.9576	-15.8876	51.0682		
		17	-1416.9576	-15.8876	-51.0682	0.0041	5.07
	3	16	1197.5432	3.7053	-11.9103		
		17	1197.5432	3.7053	11.9103	0.0010	1.36

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	4	16	-2349.8357	-18.0028	57.8671		
		17	-2349.8357	-18.0028	-57.8671	-0.0046	1.36
17	1	17	-5299.0143	-122.6301	419.8967		
		6	-5299.0143	-122.6301	-419.8967	0.0382	5.40
	2	17	-389.5587	-14.0976	48.2715		
		6	-389.5587	-14.0976	-48.2715	0.0044	5.40
	3	17	1436.4067	28.4155	-97.2973		
		6	1436.4067	28.4155	97.2973	0.0088	1.45
	4	17	-1647.0836	-37.6038	128.7590		
		6	-1647.0836	-37.6038	-128.7590	0.0117	5.40
18	1	3	-3385.5516	0.0000	0.0000		
		13	-3385.5516	0.0000	0.0000		
	2	3	-624.9939	0.0000	0.0000		
		13	-624.9939	0.0000	0.0000		
	3	3	547.0446	0.0000	0.0000		
		13	547.0446	0.0000	0.0000		
	4	3	-1041.4748	0.0000	0.0000		
		13	-1041.4748	0.0000	0.0000		
19	1	17	-3385.5674	0.0000	0.0000		
		4	-3385.5674	0.0000	0.0000		
	2	17	-1358.8336	0.0000	0.0000		
		4	-1358.8336	0.0000	0.0000		
	3	17	-186.7896	0.0000	0.0000		
		4	-186.7896	0.0000	0.0000		
	4	17	-1041.4793	0.0000	0.0000		
		4	-1041.4793	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
20	1	7	-90.9862	337.5425	-516.9464		
		13	-90.9862	337.5425	516.9464	0.0105	0.65
	2	7	-207.5342	81.9644	-125.5285		
		13	-207.5342	81.9644	125.5285	0.0025	0.65
	3	7	-160.0280	-35.4081	54.2275		
		13	-160.0280	-35.4081	-54.2275	0.0011	2.42
	4	7	4.0262	102.7975	-157.4344		
		13	4.0262	102.7975	157.4344	-0.0032	2.42
21	1	8	-1480.5336	46.5252	-138.1333		
		14	-1480.5336	46.5252	138.1333	0.0105	1.25
	2	8	-572.8169	9.5979	-28.4961		
		14	-572.8169	9.5979	28.4961	0.0022	1.25
	3	8	-35.8695	-6.5578	19.4702		
		14	-35.8695	-6.5578	-19.4702	0.0015	4.68
	4	8	-406.6389	14.2138	-42.2007		
		14	-406.6389	14.2138	42.2007	0.0032	1.25
22	1	11	-1481.2502	-46.5240	138.1298		
		16	-1481.2502	-46.5240	-138.1298	-0.0105	1.25
	2	11	88.6100	-10.3487	30.7251		
		16	88.6100	-10.3487	-30.7251	-0.0023	1.25
	3	11	625.8025	5.8066	-17.2399		
		16	625.8025	5.8066	17.2399	-0.0013	4.68
	4	11	-406.8652	-14.2134	42.1996		
		16	-406.8652	-14.2134	-42.1996	0.0032	4.68
23	1	12	-90.9804	-337.5406	516.9434		
		17	-90.9804	-337.5406	-516.9434	0.0105	2.42
	2	12	379.8950	-47.5705	72.8543		
		17	379.8950	-47.5705	-72.8543	0.0015	2.42

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	3	12	427.3991	69.8013	-106.9006		
		17	427.3991	69.8013	106.9006	0.0022	0.65
	4	12	4.0279	-102.7969	157.4335		
		17	4.0279	-102.7969	-157.4335	-0.0032	0.65
24	1	7	126.6533	0.0000	0.0000		
		14	126.6533	0.0000	0.0000		
	2	7	288.8889	0.0000	0.0000		
		14	288.8889	0.0000	0.0000		
	3	7	222.7599	0.0000	0.0000		
		14	222.7599	0.0000	0.0000		
	4	7	-5.6046	0.0000	0.0000		
		14	-5.6046	0.0000	0.0000		
25	1	8	1685.5259	0.0000	0.0000		
		22	1685.5259	0.0000	0.0000		
	2	8	652.1282	0.0000	0.0000		
		22	652.1282	0.0000	0.0000		
	3	8	40.8360	0.0000	0.0000		
		22	40.8360	0.0000	0.0000		
	4	8	462.9415	0.0000	0.0000		
		22	462.9415	0.0000	0.0000		
26	1	9	2314.5413	0.0000	0.0000		
		15	2314.5413	0.0000	0.0000		
	2	9	694.9785	0.0000	0.0000		
		15	694.9785	0.0000	0.0000		
	3	9	-138.6732	0.0000	0.0000		
		15	-138.6732	0.0000	0.0000		
	4	9	647.2380	0.0000	0.0000		
		15	647.2380	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
27	1	10	2313.6495	0.0000	0.0000		
		15	2313.6495	0.0000	0.0000		
	2	10	677.9449	0.0000	0.0000		
		15	677.9449	0.0000	0.0000		
	3	10	-155.4035	0.0000	0.0000		
		15	-155.4035	0.0000	0.0000		
	4	10	646.9527	0.0000	0.0000		
		15	646.9527	0.0000	0.0000		
28	1	11	1686.2550	0.0000	0.0000		
		23	1686.2550	0.0000	0.0000		
	2	11	-100.8736	0.0000	0.0000		
		23	-100.8736	0.0000	0.0000		
	3	11	-712.4135	0.0000	0.0000		
		23	-712.4135	0.0000	0.0000		
	4	11	463.1753	0.0000	0.0000		
		23	463.1753	0.0000	0.0000		
29	1	12	126.6453	0.0000	0.0000		
		16	126.6453	0.0000	0.0000		
	2	12	-528.8161	0.0000	0.0000		
		16	-528.8161	0.0000	0.0000		
	3	12	-594.9422	0.0000	0.0000		
		16	-594.9422	0.0000	0.0000		
	4	12	-5.6068	0.0000	0.0000		
		16	-5.6068	0.0000	0.0000		
30	1	22	-2128.0232	11.0094	-44.8963		
		9	-2128.0232	11.0094	44.8963	-0.0064	6.43

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	2	22	-638.9736	1.5325	-6.2494		
		9	-638.9736	1.5325	6.2494	-0.0009	6.43
	3	22	127.4980	-2.2905	9.3405		
		9	127.4980	-2.2905	-9.3405	-0.0013	1.72
	4	22	-595.0801	3.3636	-13.7166		
		9	-595.0801	3.3636	13.7166	-0.0020	6.43
31	1	23	-2127.2047	-11.0067	44.8854		
		10	-2127.2047	-11.0067	-44.8854	0.0064	6.43
	2	23	-623.3129	-3.7886	15.4500		
		10	-623.3129	-3.7886	-15.4500	-0.0022	1.72
	3	23	142.8804	0.0334	-0.1360		
		10	142.8804	0.0334	0.1360		
	4	23	-594.8182	-3.3628	13.7133		
		10	-594.8182	-3.3628	-13.7133	0.0020	6.43
32	1	22	-6462.7109	-48.9032	121.3030		
		15	-6462.7109	-48.9032	-121.3030	-0.0058	1.05
	2	22	-1775.6488	-19.6241	48.6771		
		15	-1775.6488	-19.6241	-48.6771	0.0023	3.91
	3	22	419.9218	-1.8974	4.7064		
		15	419.9218	-1.8974	-4.7064	0.0002	3.91
	4	22	-2071.5698	-13.4497	33.3616		
		15	-2071.5698	-13.4497	-33.3616	0.0016	3.91
33	1	23	-6462.0615	48.8440	-121.1778		
		15	-6462.0615	48.8440	121.1778	-0.0058	3.91
	2	23	-1852.1315	12.5193	-31.0594		
		15	-1852.1315	12.5193	31.0594	-0.0015	3.91
	3	23	343.2187	-5.1866	12.8675		
		15	343.2187	-5.1866	-12.8675	-0.0006	1.05

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
4	23		-2071.3609	13.4321	-33.3240		
	15		-2071.3609	13.4321	33.3240	-0.0016	3.91

R E A C T I O N S

NODE NO	LOAD COMB	PX	PY	MOMENT
	Units :	Lb	Lb	Lb-Ft

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

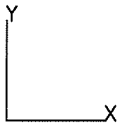
COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

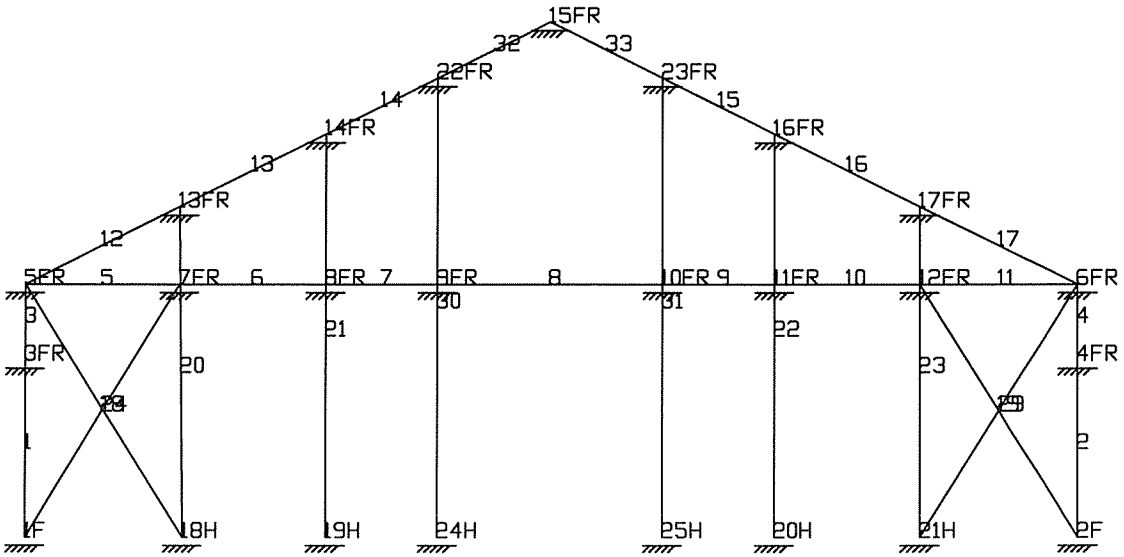
1	1	306.7130	5617.4703	-1073.4957
	2	-1023.9274	1343.7121	2484.7460
	3	-1129.5157	-605.5273	2854.3048
	4	-216.4634	1718.9915	-334.3779
2	1	-306.7130	5617.5297	1073.4957
	2	-806.0726	1199.7879	2821.2540
	3	-700.4843	-749.4727	2451.6952
	4	-407.5366	1719.0085	334.3779

FA3

UNDEFORMED

SHAPE





MINIMA

X 0.000E+000

Y 0.000E+000

MAXIMA

X 4.150E+001

Y 2.038E+001

NOTES :

JOB ID: MERCED

RUN ID: MERCEDGABLE

N O D A L I N F O R M A T I O N

NODE NO	NODAL COORDINATES X	Y	CODE	SUPPORT CONDITIONS PX STIFF	PY STIFF	M STIFF
Units :	Ft	Ft		Lb/In	Lb/In	Lb-In /Deg
1	0.000	0.000	F			
2	41.500	0.000	F			
3	0.000	7.000	FR			
4	41.500	7.000	FR			
5	0.000	10.000	FR			
6	41.500	10.000	FR			
7	6.125	10.000	FR			
8	11.875	10.000	FR			
9	16.312	10.000	FR			
10	25.188	10.000	FR			
11	29.625	10.000	FR			
12	35.375	10.000	FR			
13	6.125	13.063	FR			
14	11.875	15.938	FR			
15	20.750	20.375	FR			
16	29.625	15.938	FR			
17	35.375	13.063	FR			
18	6.250	0.000	H			100
19	11.875	0.000	H			100
20	29.625	0.000	H			100
21	35.375	0.000	H			100
22	16.313	18.156	FR			
23	25.188	18.156	FR			
24	16.313	0.000	H			100
25	25.188	0.000	H			100

E L E M E N T I N F O R M A T I O N

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
Units :			Ft	Deg				
1	1	3	7.000	90.00	1	BEAM		
2	2	4	7.000	90.00	1	BEAM		
3	3	5	3.000	90.00	1	BEAM		
4	4	6	3.000	90.00	1	BEAM		
5	5	7	6.125	0.00	2	STRUT	Y	Y
6	7	8	5.750	0.00	2	STRUT	Y	Y
7	8	9	4.437	0.00	2	STRUT	Y	Y
8	9	10	8.876	0.00	2	STRUT	Y	Y

E L E M E N T I N F O R M A T I O N

ELEM NO	NE NODE	PE NODE	ELEM LENGTH	BETA ANGLE	PROP TYPE	ELEM TYPE	NE HINGE	PE HINGE
9	10	11	4.437	0.00	2	STRUT	Y	Y
10	11	12	5.750	0.00	2	STRUT	Y	Y
11	12	6	6.125	0.00	2	STRUT	Y	Y
12	5	13	6.848	26.57	4	BEAM		
13	13	14	6.429	26.57	4	BEAM		
14	14	22	4.961	26.55	4	BEAM		
15	23	16	4.960	-26.56	4	BEAM		
16	16	17	6.429	-26.57	4	BEAM		
17	17	6	6.848	-26.57	4	BEAM		
18	5	18	11.792	-57.99	6	BEAM	Y	Y
19	6	21	11.727	-121.49	6	BEAM	Y	Y
20	18	13	13.064	90.55	3	BEAM		
21	19	14	15.938	90.00	3	BEAM		
22	20	16	15.938	90.00	3	BEAM		
23	21	17	13.063	90.00	3	BEAM		
24	1	7	11.727	58.51	6	BEAM	Y	Y
25	8	22	9.285	61.45	5	TRUSS	Y	Y
26	9	15	11.284	66.84	5	TRUSS	Y	Y
27	10	15	11.284	113.16	5	TRUSS	Y	Y
28	11	23	9.285	118.55	5	TRUSS	Y	Y
29	12	2	11.727	-58.51	6	BEAM	Y	Y
30	22	24	18.156	-90.00	3	BEAM		
31	23	25	18.156	-90.00	3	BEAM		
32	22	15	4.961	26.57	4	BEAM		
33	23	15	4.962	153.43	4	BEAM		

P R O P E R T Y I N F O R M A T I O N

PROP NO	SECTION NAME	MODULUS	AREA	I	DIST
	Units :	Lb/In 2	In2	In4	Ft
1	3 X 3	2.9e+007	1.1	1.55	
2	#3	2.9e+007	0.328	1.02	
3	2.375RND	2.9e+007	0.681	0.443	
4	2 X 2	2.9e+007	0.825	0.493	
5	2 1/2 FLAT	2.9e+007	0.25	0.163	
6	2 1/2 FLAT	2.9e+007	0.25	0.163	

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
		Units :	Lb Ft	Lb Ft	Ft-Lb Deg
Description : DL					
Node List : 5,6					
1	1	FORCE	0.00	-216.00	0.00
Description : DL					
Node List : 13,14,16,17					
2	1	FORCE	0.00	-432.00	0.00
Description : DL					
Node List : 15					
3	1	FORCE	0.00	-639.00	0.00
Description : LL					
Node List : 5,6					
4	2	FORCE	0.00	-540.00	0.00
Description : LL					
Node List : 13,14,16,17					
5	2	FORCE	0.00	-1080.00	0.00
Description : LL					
Node List : 15					
6	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 3					
7	3	FORCE	626.00	0.00	0.00
Description : WL					
Node List : 1,5					
8	3	FORCE	314.00	0.00	0.00
Description : WL					
Node List : 5,15					
9	3	FORCE	72.00	278.00	0.00
Description : WL					
Node List : 13,14					
10	3	FORCE	144.00	555.00	0.00

N O D A L L O A D I N F O R M A T I O N

REC NO	LOAD CASE	LOAD TYPE	PX DX	PY DY	M BETA
Description : WL					
Node List : 15,6					
11	3	FORCE	0.00	429.00	0.00
Description : WL					
Node List : 16,17					
12	3	FORCE	0.00	857.00	0.00
Description : EL					
Node List : 1,2					
13	4	FORCE	312.00	0.00	0.00
Description : DL					
Node List : 22,23					
14	1	FORCE	0.00	-319.50	0.00
Description : LL					
Node List : 22,23					
15	2	FORCE	0.00	-799.00	0.00
Description : WL					
Node List : 22					
16	3	FORCE	144.00	555.00	0.00

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	Units :	In	In	Deg

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

1	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
2	1	0.0000	0.0000	0.0000
	2	0.0000	0.0000	0.0000
	3	0.0000	0.0000	0.0000
	4	0.0000	0.0000	0.0000
3	1	-0.0251	-0.0047	0.0000
	2	0.1069	0.0029	0.0000
	3	0.1140	0.0043	0.0000
	4	-0.0109	-0.0018	0.0000
4	1	0.0246	-0.0046	0.0000
	2	0.0453	-0.0032	0.0000
	3	0.0384	-0.0017	0.0000
	4	0.0108	-0.0018	0.0000
5	1	-0.0271	-0.0067	0.0000
	2	0.0613	0.0041	0.0000
	3	0.0689	0.0062	0.0000

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	4	-0.0117	-0.0025	0.0000
6	1	0.0266	-0.0066	0.0000
	2	0.0489	-0.0045	0.0000
	3	0.0414	-0.0025	0.0000
	4	0.0117	-0.0025	0.0000
7	1	-0.0192	0.0117	0.0000
	2	0.0594	-0.0364	0.0000
	3	0.0649	-0.0397	0.0000
	4	-0.0083	0.0051	0.0000
8	1	-0.0117	-0.0278	0.0000
	2	0.0577	0.0011	0.0000
	3	0.0611	0.0096	0.0000
	4	-0.0050	-0.0107	0.0000
9	1	-0.0060	-0.0950	0.0000
	2	0.0564	0.0067	0.0000
	3	0.0581	0.0335	0.0000
	4	-0.0025	-0.0413	0.0000
10	1	0.0055	-0.0950	0.0000
	2	0.0537	0.0029	0.0000
	3	0.0522	0.0298	0.0000
	4	0.0025	-0.0413	0.0000
11	1	0.0112	-0.0277	0.0000
	2	0.0524	-0.0073	0.0000
	3	0.0493	0.0012	0.0000
	4	0.0050	-0.0107	0.0000
12	1	0.0186	0.0114	0.0000
	2	0.0507	0.0311	0.0000
	3	0.0455	0.0279	0.0000
	4	0.0082	0.0050	0.0000

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
13	1	-0.0298	-0.0122	0.0000
	2	0.0654	-0.0032	0.0000
	3	0.0735	0.0011	0.0000
	4	-0.0136	-0.0035	0.0000
14	1	-0.0337	-0.0146	0.0000
	2	0.0660	-0.0047	0.0000
	3	0.0751	0.0005	0.0000
	4	-0.0156	-0.0042	0.0000
15	1	-0.0003	-0.0975	0.0000
	2	0.0595	0.0054	0.0000
	3	0.0596	0.0329	0.0000
	4	0.0000	-0.0423	0.0000
16	1	0.0331	-0.0146	0.0000
	2	0.0538	-0.0012	0.0000
	3	0.0450	0.0040	0.0000
	4	0.0155	-0.0042	0.0000
17	1	0.0293	-0.0120	0.0000
	2	0.0523	-0.0009	0.0000
	3	0.0445	0.0034	0.0000
	4	0.0136	-0.0034	0.0000
18	1	0.0000	0.0000	0.0161
	2	0.0000	0.0000	-0.0352
	3	0.0000	0.0000	-0.0396
	4	0.0000	0.0000	0.0074
19	1	0.0000	0.0000	0.0148
	2	0.0000	0.0000	-0.0290
	3	0.0000	0.0000	-0.0330
	4	0.0000	0.0000	0.0069
20	1	0.0000	0.0000	-0.0146
	2	0.0000	0.0000	-0.0237

N O D A L D I S P L A C E M E N T S

NODE NO	LOAD COMB	DX	DY	ROTATION
	3	0.0000	0.0000	-0.0198
	4	0.0000	0.0000	-0.0068
21	1	0.0000	0.0000	-0.0158
	2	0.0000	0.0000	-0.0282
	3	0.0000	0.0000	-0.0240
	4	0.0000	0.0000	-0.0073
22	1	-0.0383	-0.0133	0.0000
	2	0.0644	-0.0025	0.0000
	3	0.0748	0.0021	0.0000
	4	-0.0174	-0.0040	0.0000
23	1	0.0377	-0.0133	0.0000
	2	0.0517	-0.0077	0.0000
	3	0.0416	-0.0030	0.0000
	4	0.0174	-0.0040	0.0000

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
		Units :	Lb	Lb	Lb-Ft	Lb-Ft /In	Ft

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
\+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
\+ 0.50 X CASE 2
\+ 1.00 X CASE 3

COMB 3 : 1.00 X CASE 1
\+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
\+ 1.00 X CASE 4

E L E M E N T R E P O R T S

SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
1	1	1	-1777.4299	-22.9055	80.1691		
		3	-1777.4299	-22.9055	-80.1691	-0.0024	1.48
	2	1	1101.6903	97.4950	-341.2324		
		3	1101.6903	97.4950	341.2324	-0.0103	5.52
	3	1	1652.6893	103.9971	-363.9898		
		3	1652.6893	103.9971	363.9898	-0.0110	5.52
	4	1	-675.4319	-9.9012	34.6543		
		3	-675.4319	-9.9012	-34.6543	-0.0010	1.48
2	1	2	-1755.1540	22.4674	-78.6360		
		4	-1755.1540	22.4674	78.6360	0.0024	1.48
	2	2	-1202.5355	41.3460	-144.7110		
		4	-1202.5355	41.3460	144.7110	-0.0044	5.52
	3	2	-660.1096	35.0397	-122.6389		
		4	-660.1096	35.0397	122.6389	-0.0037	5.52
	4	2	-670.3023	9.8548	-34.4917		
		4	-670.3023	9.8548	34.4917	-0.0010	5.52
3	1	3	-1777.4299	-22.9055	34.3582		
		5	-1777.4299	-22.9055	-34.3582	0.0002	2.37
	2	3	1101.6903	-528.5050	792.7576		
		5	1101.6903	-528.5050	-792.7576	0.0044	2.37
	3	3	1652.6893	-522.0029	783.0044		
		5	1652.6893	-522.0029	-783.0044	-0.0043	0.63
	4	3	-675.4319	-9.9012	14.8518		
		5	-675.4319	-9.9012	-14.8518		
4	1	4	-1755.1540	22.4674	-33.7012		
		6	-1755.1540	22.4674	33.7012	0.0002	0.63
	2	4	-1202.5355	41.3460	-62.0190		
		6	-1202.5355	41.3460	62.0190	0.0003	0.63

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	3	4	-660.1096	35.0397	-52.5595		
		6	-660.1096	35.0397	52.5595	0.0003	0.63
	4	4	-670.3023	9.8548	-14.7821		
		6	-670.3023	9.8548	14.7821		
5	1	5	1024.5998	0.0000	0.0000		
		7	1024.5998	0.0000	0.0000		
	2	5	-236.3828	0.0000	0.0000		
		7	-236.3828	0.0000	0.0000		
	3	5	-525.6203	0.0000	0.0000		
		7	-525.6203	0.0000	0.0000		
	4	5	446.1249	0.0000	0.0000		
		7	446.1249	0.0000	0.0000		
6	1	7	1024.5998	0.0000	0.0000		
		8	1024.5998	0.0000	0.0000		
	2	7	-236.3828	0.0000	0.0000		
		8	-236.3828	0.0000	0.0000		
	3	7	-525.6203	0.0000	0.0000		
		8	-525.6203	0.0000	0.0000		
	4	7	446.1249	0.0000	0.0000		
		8	446.1249	0.0000	0.0000		
7	1	8	1024.5998	0.0000	0.0000		
		9	1024.5998	0.0000	0.0000		
	2	8	-236.3828	0.0000	0.0000		
		9	-236.3828	0.0000	0.0000		
	3	8	-525.6203	0.0000	0.0000		
		9	-525.6203	0.0000	0.0000		
	4	8	446.1249	0.0000	0.0000		
		9	446.1249	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL DIST
8	1	9	1024.5998	0.0000	0.0000	
		10	1024.5998	0.0000	0.0000	
	2	9	-236.3828	0.0000	0.0000	
		10	-236.3828	0.0000	0.0000	
	3	9	-525.6203	0.0000	0.0000	
		10	-525.6203	0.0000	0.0000	
	4	9	446.1249	0.0000	0.0000	
		10	446.1249	0.0000	0.0000	
9	1	10	1024.5998	0.0000	0.0000	
		11	1024.5998	0.0000	0.0000	
	2	10	-236.3828	0.0000	0.0000	
		11	-236.3828	0.0000	0.0000	
	3	10	-525.6203	0.0000	0.0000	
		11	-525.6203	0.0000	0.0000	
	4	10	446.1249	0.0000	0.0000	
		11	446.1249	0.0000	0.0000	
10	1	11	1024.5998	0.0000	0.0000	
		12	1024.5998	0.0000	0.0000	
	2	11	-236.3828	0.0000	0.0000	
		12	-236.3828	0.0000	0.0000	
	3	11	-525.6203	0.0000	0.0000	
		12	-525.6203	0.0000	0.0000	
	4	11	446.1249	0.0000	0.0000	
		12	446.1249	0.0000	0.0000	
11	1	12	1024.5998	0.0000	0.0000	
		6	1024.5998	0.0000	0.0000	

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	2	12	-236.3828	0.0000	0.0000		
		6	-236.3828	0.0000	0.0000		
	3	12	-525.6203	0.0000	0.0000		
		6	-525.6203	0.0000	0.0000		
	4	12	446.1249	0.0000	0.0000		
		6	446.1249	0.0000	0.0000		
12	1	5	-1435.9892	1.1594	-3.9700		
		13	-1435.9892	1.1594	3.9700	0.0004	1.45
	2	5	119.8738	2.6030	-8.9128		
		13	119.8738	2.6030	8.9128	0.0008	1.45
	3	5	521.3413	2.0299	-6.9506		
		13	521.3413	2.0299	6.9506	0.0006	1.45
	4	5	-633.0542	0.0133	-0.0455		
		13	-633.0542	0.0133	0.0455		
13	1	13	-1419.6983	0.1425	-0.4582		
		14	-1419.6983	0.1425	0.4582		
	2	13	-34.1775	0.6003	-1.9295		
		14	-34.1775	0.6003	1.9295	-0.0002	5.07
	3	13	361.4057	0.4718	-1.5165		
		14	361.4057	0.4718	1.5165	-0.0001	5.07
	4	13	-628.5319	-0.1144	0.3678		
		14	-628.5319	-0.1144	-0.3678		
14	1	14	-1418.4090	-2.6229	6.5067		
		22	-1418.4090	-2.6229	-6.5067	0.0003	3.91
	2	14	-193.3428	-2.1647	5.3700		
		22	-193.3428	-2.1647	-5.3700	-0.0003	1.05
	3	14	201.7521	-1.2686	3.1471		
		22	201.7521	-1.2686	-3.1471	-0.0002	1.05

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	4	14	-628.2192	-0.8308	2.0610		
		22	-628.2192	-0.8308	-2.0610		
15	1	23	-1418.4728	2.6281	-6.5184		
		16	-1418.4728	2.6281	6.5184	0.0003	1.05
	2	23	-438.1501	-5.5021	13.6466		
		16	-438.1501	-5.5021	-13.6466	0.0007	3.91
	3	23	-43.0370	-6.3997	15.8729		
		16	-43.0370	-6.3997	-15.8729	-0.0008	1.05
	4	23	-628.2468	0.8329	-2.0657		
		16	-628.2468	0.8329	2.0657		
16	1	16	-1419.7529	-0.2381	0.7655		
		17	-1419.7529	-0.2381	-0.7655		
	2	16	-434.9884	0.1577	-0.5070		
		17	-434.9884	0.1577	0.5070		
	3	16	-39.3902	0.3102	-0.9972		
		17	-39.3902	0.3102	0.9972		
	4	16	-628.5566	0.0668	-0.2148		
		17	-628.5566	0.0668	0.2148		
17	1	17	-1419.8944	-1.1178	3.8275		
		6	-1419.8944	-1.1178	-3.8275	-0.0003	1.45
	2	17	-433.7316	1.4680	-5.0266		
		6	-433.7316	1.4680	5.0266	-0.0005	5.40
	3	17	-38.0054	2.0354	-6.9695		
		6	-38.0054	2.0354	6.9695	-0.0006	5.40
	4	17	-628.4420	0.0170	-0.0581		
		6	-628.4420	0.0170	0.0581		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
18	1	5	445.8914	0.0000	0.0000		
		18	445.8914	0.0000	0.0000		
	2	5	-1483.9678	0.0000	0.0000		
		18	-1483.9678	0.0000	0.0000		
	3	5	-1602.9790	0.0000	0.0000		
		18	-1602.9790	0.0000	0.0000		
	4	5	207.8690	0.0000	0.0000		
		18	207.8690	0.0000	0.0000		
19	1	6	425.7675	0.0000	0.0000		
		21	425.7675	0.0000	0.0000		
	2	6	1117.3820	0.0000	0.0000		
		21	1117.3820	0.0000	0.0000		
	3	6	1006.0708	0.0000	0.0000		
		21	1006.0708	0.0000	0.0000		
	4	6	203.1452	0.0000	0.0000		
		21	203.1452	0.0000	0.0000		
20	1	18	-1503.7870	-0.3149	0.1344		
		13	-1503.7870	-0.3149	-3.9788	0.0057	7.60
	2	18	-484.1384	0.6876	-0.2935		
		13	-484.1384	0.6876	8.6886	-0.0124	7.60
	3	18	52.8328	0.7731	-0.3300		
		13	52.8328	0.7731	9.7698	-0.0139	7.60
	4	18	-429.8447	-0.1438	0.0614		
		13	-429.8447	-0.1438	-1.8166	0.0026	7.60
21	1	19	-1508.7209	-0.1975	0.1237		
		14	-1508.7209	-0.1975	-3.0242	0.0064	9.29
	2	19	-485.6765	0.3864	-0.2420		
		14	-485.6765	0.3864	5.9171	-0.0125	9.29

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	3	19	53.1250	0.4396	-0.2753		
		14	53.1250	0.4396	6.7309	-0.0142	9.29
	4	19	-431.1180	-0.0912	0.0571		
		14	-431.1180	-0.0912	-1.3966	0.0029	9.29
22	1	20	-1508.7494	0.1939	-0.1214		
		16	-1508.7494	0.1939	2.9685	-0.0063	9.29
	2	20	-121.4411	0.3148	-0.1972		
		16	-121.4411	0.3148	4.8208	-0.0102	9.29
	3	20	417.3708	0.2633	-0.1649		
		16	417.3708	0.2633	4.0312	-0.0085	9.29
	4	20	-431.1256	0.0907	-0.0568		
		16	-431.1256	0.0907	1.3893	-0.0029	9.29
23	1	21	-1511.0670	0.3084	-0.1316		
		17	-1511.0670	0.3084	3.8964	-0.0056	7.60
	2	21	-116.7086	0.5507	-0.2350		
		17	-116.7086	0.5507	6.9584	-0.0099	7.60
	3	21	422.8399	0.4681	-0.1998		
		17	422.8399	0.4681	5.9147	-0.0084	7.60
	4	21	-431.9700	0.1432	-0.0611		
		17	-431.9700	0.1432	1.8089	-0.0026	7.60
24	1	1	0.0000	0.0000	0.0000		
		7	0.0000	0.0000	0.0000		
	2	1	0.0000	0.0000	0.0000		
		7	0.0000	0.0000	0.0000		
	3	1	0.0000	0.0000	0.0000		
		7	0.0000	0.0000	0.0000		
	4	1	0.0000	0.0000	0.0000		
		7	0.0000	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
25	1	8	0.0000	0.0000	0.0000		
		22	0.0000	0.0000	0.0000		
	2	8	0.0000	0.0000	0.0000		
		22	0.0000	0.0000	0.0000		
	3	8	0.0000	0.0000	0.0000		
		22	0.0000	0.0000	0.0000		
	4	8	0.0000	0.0000	0.0000		
		22	0.0000	0.0000	0.0000		
26	1	9	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	2	9	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	3	9	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	4	9	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
27	1	10	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	2	10	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	3	10	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
	4	10	0.0000	0.0000	0.0000		
		15	0.0000	0.0000	0.0000		
28	1	11	0.0000	0.0000	0.0000		
		23	0.0000	0.0000	0.0000		

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	2	11	0.0000	0.0000	0.0000		
		23	0.0000	0.0000	0.0000		
	3	11	0.0000	0.0000	0.0000		
		23	0.0000	0.0000	0.0000		
	4	11	0.0000	0.0000	0.0000		
		23	0.0000	0.0000	0.0000		
29	1	12	0.0000	0.0000	0.0000		
		2	0.0000	0.0000	0.0000		
	2	12	0.0000	0.0000	0.0000		
		2	0.0000	0.0000	0.0000		
	3	12	0.0000	0.0000	0.0000		
		2	0.0000	0.0000	0.0000		
	4	12	0.0000	0.0000	0.0000		
		2	0.0000	0.0000	0.0000		
30	1	22	-1205.8393	-0.1530	2.6555		
		24	-1205.8393	-0.1530	-0.1230	-0.0072	7.56
	2	22	-229.9412	0.2570	-4.4601		
		24	-229.9412	0.2570	0.2066	0.0122	7.56
	3	22	193.5088	0.2988	-5.1840		
		24	193.5088	0.2988	0.2402	0.0141	7.56
	4	22	-358.9392	-0.0696	1.2077		
		24	-358.9392	-0.0696	-0.0560	-0.0033	7.56
31	1	23	-1205.5087	0.1506	-2.6126		
		25	-1205.5087	0.1506	0.1210	0.0071	7.56
	2	23	-699.2280	0.2065	-3.5833		
		25	-699.2280	0.2065	0.1660	0.0098	7.56
	3	23	-275.8697	0.1659	-2.8780		
		25	-275.8697	0.1659	0.1333	0.0078	7.56

E L E M E N T R E P O R T S
SIGN CONVENTION : BEAM DESIGNERS

ELEM NO	LOAD COMB	NODE NO	AXIAL	SHEAR	MOMENT	MAX MOM/DEFL	DIST
	4	23	-358.7922	0.0693	-1.2021		
		25	-358.7922	0.0693	0.0557	0.0033	7.56
32	1	22	-1457.6115	75.0402	-186.1349		
		15	-1457.6115	75.0402	186.1349	0.0089	1.05
	2	22	-351.3992	-7.5354	18.6914		
		15	-351.3992	-7.5354	-18.6914	0.0009	3.91
	3	22	54.4455	-27.9345	69.2906		
		15	54.4455	-27.9345	-69.2906	0.0033	3.91
	4	22	-645.9222	34.2421	-84.9365		
		15	-645.9222	34.2421	84.9365	0.0041	1.05
33	1	23	-1457.5187	-74.9996	186.0678		
		15	-1457.5187	-74.9996	-186.0678	-0.0089	1.05
	2	23	-429.4929	12.3144	-30.5510		
		15	-429.4929	12.3144	30.5510	-0.0015	3.91
	3	23	-23.6739	32.7024	-81.1320		
		15	-23.6739	32.7024	81.1320	0.0039	1.05
	4	23	-645.8807	-34.2235	84.9058		
		15	-645.8807	-34.2235	-84.9058	-0.0041	1.05

R E A C T I O N S

NODE NO	LOAD COMB	PX	PY	MOMENT
	Units :	Lb	Lb	Lb-Ft

LOAD COMBINATIONS:

COMB 1 : 1.00 X CASE 1
+ 1.00 X CASE 2

COMB 2 : 1.00 X CASE 1
+ 0.50 X CASE 2
+ 1.00 X CASE 3

R E A C T I O N S

COMB 3 : 1.00 X CASE 1
+ 1.00 X CASE 3

COMB 4 : 1.00 X CASE 1
+ 1.00 X CASE 4

NODE NO	LOAD COMB	PX	PY	MOMENT
1	1	22.9055	1777.4299	-80.1691
	2	-411.4950	-1101.6903	341.2324
	3	-417.9971	-1652.6893	363.9898
	4	-302.0988	675.4319	-34.6543
2	1	-22.4674	1755.1540	78.6360
	2	-41.3460	1202.5355	144.7110
	3	-35.0397	660.1096	122.6389
	4	-321.8548	670.3023	34.4917
18	1	222.2477	1125.6059	-0.1344
	2	-791.8214	1742.5118	0.2935
	3	-849.8447	1306.4858	0.3300
	4	106.2011	253.5538	-0.0614
19	1	0.1975	1508.7209	-0.1237
	2	-0.3864	485.6765	0.2420
	3	-0.4396	-53.1250	0.2753
	4	0.0912	431.1180	-0.0571
20	1	-0.1939	1508.7494	0.1214
	2	-0.3148	121.4411	0.1972
	3	-0.2633	-417.3708	0.1649
	4	-0.0907	431.1256	0.0568
21	1	-222.6919	1147.9918	0.1316
	2	-584.1728	-836.1438	0.2350
	3	-525.9510	-1280.7713	0.1998
	4	-106.2484	258.7370	0.0611

3X3 Square

$f_a = 5617.5\ ^{\#}/_{1.11^2} = 5061$ PSI

$f_b = 2821\ ^{\#} * 12/1.04 = 32550$ PSI

$f_s = 2100\ ^{\#}/1.11 = 1892$ PSI

$C_{mx} = .75$

$\frac{Kl}{r} = \frac{.8(84)}{1.19}$

$= 56.5$

$F_a = 23.31$ KSI

$F_b = .66(50) = 33$ KSI
+ 1/3 for DL+WL = 44 KSI
(1.5.6)

$F_e' = \frac{12(3.14)^2 29{,}000{,}000}{23(56.5)^2}$

$= 46779$

$\frac{5061}{33{,}000} + \frac{33161}{44{,}000} + 0 < 1$

$\frac{5061}{23310} + \frac{.75(32550)}{\left(1 - \frac{5061}{46779}\right)44{,}000} \leq .835$ sect OK for load

.217

2X2 5g Top Chord

$f_a = 7579\ \# / .83\ in^2 = 9131\ PSI$

$f_b = 419\ \#* 12'' / .50 = 10056\ PSI$ $\frac{kl}{r} = \frac{.7(73)}{.723}$

$= 69.7$

$f_s = 122 / .83 = 147\ PSI$

$F_a = 21{,}066\ PSI$ $F_e' = \frac{12(3.14)^2(2900000)}{23(69.7)^2}$

$= 30739\ PSI$

$F_b = .6(50) = 33{,}000\ PSI$
$+ 1/3$ for WL+DL

$\frac{9131}{33{,}000} + \frac{10056}{33{,}000} + 0 \leq 1$

$\frac{9131}{21{,}066} + \frac{.75(10056)}{\left(1 - \frac{9131}{30739}\right)(33{,}000)} = .73$

Sect OK

#3
Cross Tie

$$F_a = 6784 / .328" = 20683$$

$$F_a = .6(50{,}000) = 30000$$

$$\frac{20683}{30000} \leq 1 \quad \text{Sect ok}$$

Tension Strut.

$$.125 * (2.5 - .5625) = .242"^2$$

$$f_a = 2313 / .242 = 9558 \text{ PSI}$$

$$F_a = 25000 * .66 = 16500 \text{PSI}$$

$$\frac{9558}{16500} \leq 1$$

Sect OK

2.375 Strut

$f_a = 2128\#/.681"^2 = 3125 psi$

$\frac{Kl}{r} = \frac{.8(94)}{.81} =$

$f_b = 45'\#\ 12"/.373 = 1448 psi$

$= 93$

$F_e' = \frac{12(\pi^2)29000000}{23(93)^2}$

$F_e' = 17266$

$FA = 16.29 ksi = 16290 psi$

$F_b = .66(50) = 33000 psi$

$\frac{3125}{33000} + \frac{1448}{33000} \leq 1$

$\frac{3125}{16290} + \frac{.8(1448)}{\left(1 - \frac{3125}{17266}\right)33000} < 1$

See * OK for Load

X Brace

use Flat 2½ x ⅛ @ 16500 * .242 =
3993 # Max Load

Max Applied = 5021 #

use ¼" double plate w/ ⅜ Bolt

⅜ bolt = 2310 #

.25 * (1½ - .625) * 16500 = 3610 #

use 3 Wind Brace Sets

Cable Post

$f_a = 1206\#/.681"^2 = 1771 PSI$

$\frac{Kl}{r} =$

$F_a = 6.420 KSI$ $\quad \frac{(.7)(216)}{.681} = 187$

$\frac{1771 PSI}{6420} < 1$ Sect OK

X Brace

use 1/8 X 2 1/2 @ 16500 * .242 = 3992 # max

Applied load = 5021

use double 1/4" Plate at Base w/ 3/8 bolt

Max shear = 2310 #

1/4" * (1.5 - .625) * 16500 = 3610 #

use 3 sets Wind Braces

1/2" Bolts are 4257# Single Shear
8514# double Shear

3/8 Bolts are 2310# Single Shear
4620# double Shear

All Connections have
More than Sufficient Bolts
for All pled Loads