

NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200 FAX (717) 767-4100 www.nctlinc.com

MOCK-UP TEST REPORT

NCTL-110-19973-2

ACURLITE STRUCTURAL SKYLIGHTS

MOCKUP TEST UNIT

TEST DATES 10/02/17, 10/03/17

REPORT DATE10/31/17





NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200 FAX (717) 767-4100

www.nctlinc.com

Report Number NCTL-110-19973-2

Report Date 10/31/17

Report To Acurlite Structural Skylights

1017 North Vine Street Berwick, PA 18603

Project Mockup Test Unit

Test Date(s) 10/02/17, 10/03/17

Test Method(s) ASTM E283-04(12)

Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences

Across the Specimen

ASTM E331-00(09)

Standard Test Method for Water Penetration of Exterior Windows, Skylights,

Doors, and Curtain Walls by Uniform Static Air Pressure Difference

ASTM E330-02(14)

Standard Test Method for Structural Performance of Exterior Windows, Doors,

Skylights and Curtain Walls by Uniform Static Air Pressure Difference

AAMA 501.1-05

Standard Test Method For Water Penetration Of Windows, Curtain Walls And

Doors Using Dynamic Pressure

DRAWING REFERENCE

Acurlite Structural Skylights's Drawings Titled, "Acurlite Performance Mockup Testing", Dated 07/05/17, Sheet Numbers 1.00, 2.00, 2.01, 2.02, 2.03, 2.04, 2.05, 3.00, 3.01, 3.02 and 3.03.

PROJECT SUMMARY

National Certified Testing Laboratories, Inc. was contracted by Acurlite Structural Skylights to conduct performance testing on a mock-up for the above-referenced project at their facility in Berwick, PA.

The test specimen successfully met all criteria outlined in the testing procedure.

SPECIMEN DESCRIPTION

The test specimen was a double pitch skylight with (1) gable end and (1) hipped end. The double pitch side each employed (5) fixed lites, the hipped end employed (4) fixed lites and the gable end employed (4) fixed lites. The units were installed onto an aluminum sill receptor/flashing system. The mock-up was anchored to a simulated skylight "curb" condition. See attached drawings for a full description of the mock-up.

TEST RESULTS

Note: Unless otherwise no	oted, all dimensions are in the order (Width	x Height	x Thickness) and all designations are from an interior view			
Date	Test					
10/02/17	Preliminary Load Test					
	+22.5 psf - Pre-Load	=	Pass			
	Allowed	=	Not Applicable			
10/02/17	Air Infiltration 6.24 psf (49 mph)					
	Result Allowed	= =	0.02 cfm/ft ² 0.06 cfm/ft ²			
10/02/17	Water Penetration 12.0 psf (68.47 mph)					
	Result	=	Pass/ No Leakage			
	Allowed	=	No Leakage			
10/02/17	Dynamic Water Resistance 12.0 psf					
	Result Allowed	= =	Pass/ No Leakage No Leakage			
	Note: Testing perform	ed (2)	times in order to facilitate testing on all elevations.			
10/03/17	Uniform Load Deflection DP45					
	+ 45.0 psf - Design Allowed	= =	0.033"/ Pass 0.726"			
	- 45.0 psf - Design Allowed	= =	0.379"/ Pass 0.726"			
10/03/17	Repeat Air Infiltration 6.24 psf (49 mph)					
	Measured Allowed	= =	0.02 cfm/ft ² 0.06 cfm/ft ²			
10/03/17	Water Penetration 12.0 psf (68.47 mph)					
	Result Allowed	=	Pass/ No Leakage No Leakage			
	,					
10/03/17	Dynamic Water Resist 12.0 psf	ance				
	Result	=	Pass/ No Leakage			
	Allowed	=	No Leakage			

10/03/17 Uniform Load Structural DP45

+ 67.5 psf - Design = 0.019"/ Pass Allowed = 0.254"

Allowed = 0.234

-67.5 psf - Design = 0.006"/ Pass Allowed = 0.254"

Note: See Appendix B and C for full results of the Uniform Load tests

Witness Log: (All or Partial)

Keith Mazzie Acurlite Structural Skylights
Matt Snyder Acurlite Structural Skylights
Kyle Maylath Acurlite Structural Skylights

Robert DeFayette NCTL George Edleblute NCTL

This test report was prepared by National Certified Testing Laboratories (NCTL), for the exclusive use of the above named client and it does not constitute certification, or approval of this product or materials. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The results in this report are actual tested values and are applicable to the specimen tested only. The test specimen was supplied to NCTL by the above named client. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed.

A copy of this report will be retained by NCTL for a period of four (4) years. This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. This report is the joint property of National Certified Testing Laboratories, Inc. and the Client to whom it is issued. Permission to reproduce this report by anyone other than National Certified Testing Laboratories, Inc. and the Client must be granted in writing by both of the above parties. This report may not be reproduced, except its entirety, without the written consent of NCTL.

National Certified Testing Laboratories

Robert Wm. DeFayette Field Testing Manager

RWD/ dro Encls:

Encis:

Appendix A - Photographs Appendix B - Drawings

Revision Summary

 Identification
 Date
 Page & Revision

 Original Issue
 10/31/17
 Not Applicable

APPENDIX A

Photographs



Photo No. 1



Photo No. 2



Photo No. 3



Photo No. 4



Photo No. 5



Photo No. 6



Photo No. 7

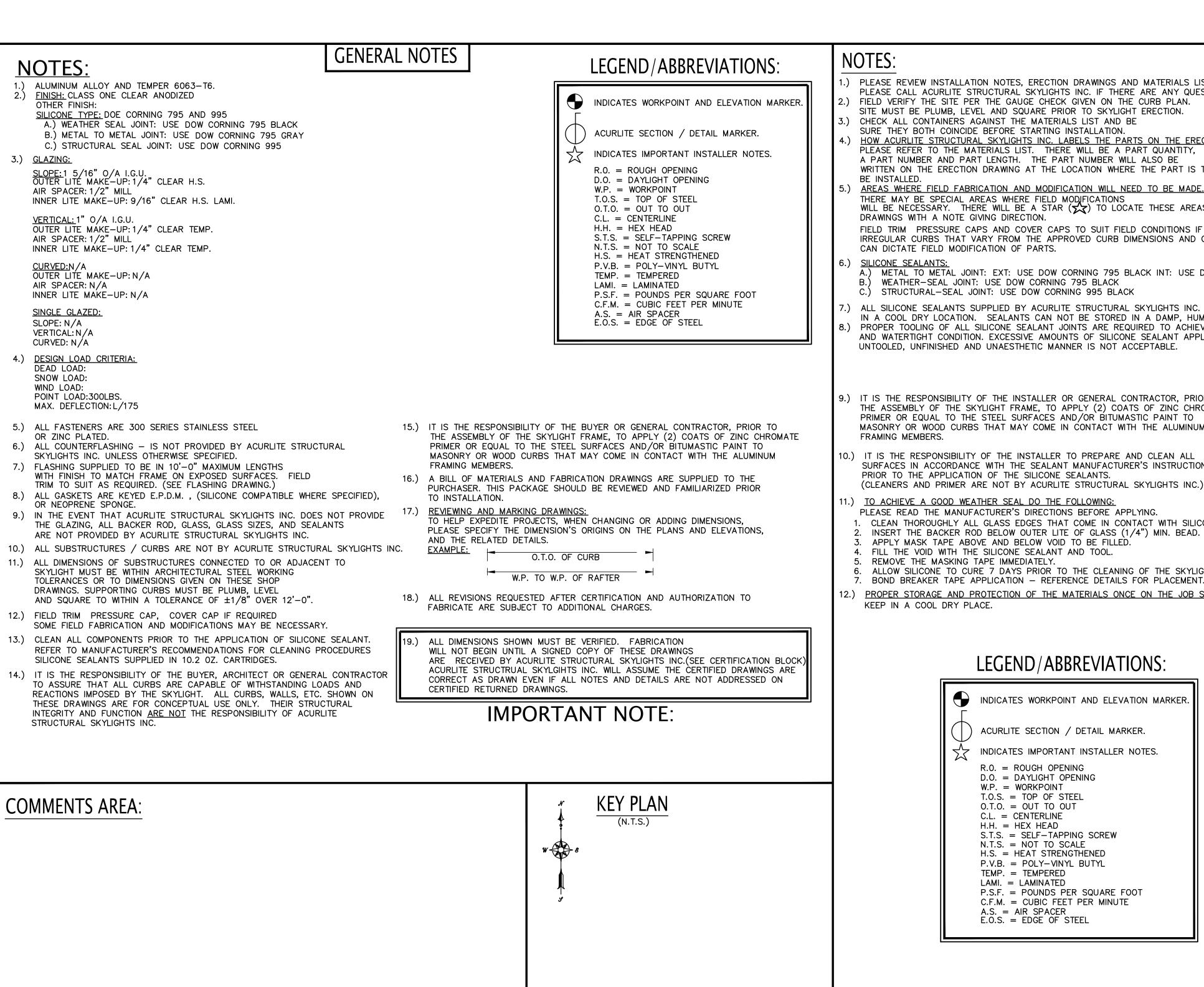
APPENDIX B

Drawings

PROJECT: ACURLITE PERFORMANCE MOCKUP TESTING

PURCHASED BY: ACURLITE STRUCTURAL SKYLIGHTS

UNIT TYPE: (1) CUSTOM DOUBLE PITCH SKYLIGHT WITH (1) HIPPED END AND (1) GABLE END



INSTALLATION NOTES

PLEASE REVIEW INSTALLATION NOTES, ERECTION DRAWINGS AND MATERIALS LIST THOROUGLY PLEASE CALL ACURLITE STRUCTURAL SKYLIGHTS INC. IF THERE ARE ANY QUESTIONS PRIOR TO INSTALLATION.

FIELD VERIFY THE SITE PER THE GAUGE CHECK GIVEN ON THE CURB PLAN. SITE MUST BE PLUMB, LEVEL AND SQUARE PRIOR TO SKYLIGHT ERECTION.

CHECK ALL CONTAINERS AGAINST THE MATERIALS LIST AND BE SURE THEY BOTH COINCIDE BEFORE STARTING INSTALLATION.

HOW ACURLITE STRUCTURAL SKYLIGHTS INC. LABELS THE PARTS ON THE ERECTION DRAWINGS. PLEASE REFER TO THE MATERIALS LIST. THERE WILL BE A PART QUANTITY,

A PART NUMBER AND PART LENGTH. THE PART NUMBER WILL ALSO BE WRITTEN ON THE ERECTION DRAWING AT THE LOCATION WHERE THE PART IS TO

AREAS WHERE FIELD FABRICATION AND MODIFICATION WILL NEED TO BE MADE THERE MAY BE SPECIAL AREAS WHERE FIELD MODIFICATIONS
WILL BE NECESSARY. THERE WILL BE A STAR () TO LOCATE THESE AREAS ON THE ERECTION

DRAWINGS WITH A NOTE GIVING DIRECTION. FIELD TRIM PRESSURE CAPS AND COVER CAPS TO SUIT FIELD CONDITIONS IF REQUIRED. IRREGULAR CURBS THAT VARY FROM THE APPROVED CURB DIMENSIONS AND CONSTRUCTION CAN DICTATE FIELD MODIFICATION OF PARTS.

A.) METAL TO METAL JOINT: EXT: USE DOW CORNING 795 BLACK INT: USE DOW CORNING 795 WHITE WEATHER-SEAL JOINT: USE DOW CORNING 795 BLACK

ALL SILICONE SEALANTS SUPPLIED BY ACURLITE STRUCTURAL SKYLIGHTS INC. MUST BE STORED IN A COOL DRY LOCATION. SEALANTS CAN NOT BE STORED IN A DAMP, HUMID LOCATION. PROPER TOOLING OF ALL SILICONE SEALANT JOINTS ARE REQUIRED TO ACHIEVE A CLEAN

AND WATERTIGHT CONDITION. EXCESSIVE AMOUNTS OF SILICONE SEALANT APPLIED IN AN UNTOOLED, UNFINISHED AND UNAESTHETIC MANNER IS NOT ACCEPTABLE.

9.) IT IS THE RESPONSIBILITY OF THE INSTALLER OR GENERAL CONTRACTOR, PRIOR TO THE ASSEMBLY OF THE SKYLIGHT FRAME, TO APPLY (2) COATS OF ZINC CHROMATE PRIMER OR EQUAL TO THE STEEL SURFACES AND/OR BITUMASTIC PAINT TO MASONRY OR WOOD CURBS THAT MAY COME IN CONTACT WITH THE ALUMINUM

10.) IT IS THE RESPONSIBILITY OF THE INSTALLER TO PREPARE AND CLEAN ALL SURFACES IN ACCORDANCE WITH THE SEALANT MANUFACTURER'S INSTRUCTIONS PRIOR TO THE APPLICATION OF THE SILICONE SEALANTS. (CLEANERS AND PRIMER ARE NOT BY ACURLITE STRUCTURAL SKYLIGHTS INC.)

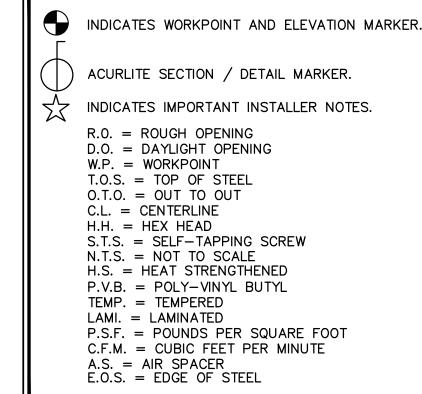
TO ACHIEVE A GOOD WEATHER SEAL DO THE FOLLOWING: PLEASE READ THE MANUFACTURER'S DIRECTIONS BEFORE APPLYING. CLEAN THOROUGHLY ALL GLASS EDGES THAT COME IN CONTACT WITH SILICONE.

APPLY MASK TAPE ABOVE AND BELOW VOID TO BE FILLED. FILL THE VOID WITH THE SILICONE SEALANT AND TOOL. REMOVE THE MASKING TAPE IMMEDIATELY.

ALLOW SILICONE TO CURE 7 DAYS PRIOR TO THE CLEANING OF THE SKYLIGHT BOND BREAKER TAPE APPLICATION - REFERENCE DETAILS FOR PLACEMENT.

12.) PROPER STORAGE AND PROTECTION OF THE MATERIALS ONCE ON THE JOB SITE. KEEP IN A COOL DRY PLACE.

LEGEND/ABBREVIATIONS:



GENERAL TORQUE SPECIFICATION CHART FOR INCH FASTENERS

HEX HEAD BOLT

TAP DRILL SIZES

BOLT THREAD TAP DRILL DIA.

1/4" -20 13/64" (.203

5/16" -18 1/4" (.250

3/8" -16 5/16" (.312

7/16" –14 3/8" (.375

1/2" -13 27/64" (.421)

5/8" -11 17/32 (.531

3/4" -10 21/32" (.656

SHEET METAL SCREW

PILOT HOLE SIZES

SCREW DIA. PILOT HOLE DIA.

#8 (.164) 9/64" (.140

#10 (.190) 5/32" (.156)

#12 (.216) 3/16" (.187

#14 (.242) 13/64" (.203

MATERIAL		E 2 STEEL	SAE 5		SAE 8		
Minimum tensile (p.s.i.) strength	74,000	60,000	120,000	105,000	150,000	160,000	
Proof load (p.s.i.)	55,000	33,000	85,000	74,000	120,00	136,000	
Steel grade symbols		\supset	$\langle \langle \rangle$				
Bolt diameter (inches)	Torque (lbs. ft.)						
1/4"	7		10		14	16	
5/16"	14		21		30	33	
3/8"	24		37		52	59	
7/16"	39		60		84	95	
1/2"	59		90		128	145	
9/16"	85		130		184	210	
5/8"	117		180		255	290	
3/4"	205		320		450	510	
7/8"		200	515		730	825	
1"		300	775		1090	1235	
1 1/8"		425		955	1545	1750	
1 1/4"		600		1345	2180	2000	

NOTE: Use only when manufacturer's specifications are not available. These values are for stiff metal-to-metal joints and are based on 90% of proof load. Do not use for gasketed joints or joints of soft metal.

GENERAL FASTENER DATA

NOTE: THIS CHART IS FOR GENERAL PURPOSES. USAGE, DIAMETER, AND LENGTH OF FASTENERS MAY VARY PER PROJECT. SPECIAL FASTENERS MAY NOT BE

SHOWN ON THIS CHART. PLEASE REFERENCE THE ERECTION DRAWINGS TO SEE THEIR USAGE AND SIZE.						
FASTENER	FASTENER CALL-OUT	USE	GENERAL INFORMATION			
	#10 x 1/2" PAN HEAD SELF—TAPPING SCREW STAINLESS STEEL	FASTENS ALL CLOSURE FLASHING. UNLESS OTHERWISE SPECIFIED ON ERECTION DRAWINGS.	USE 12" O.C. PILOT HOLE=5/32" CLEARANCE=.203" UNLESS OTHERWISE SPECIFIED.			
	#12 x 1/2" PAN HEAD S.S. SHEET METAL SCREWS. STAINLESS STEEL	ATTACH ALL HORIZONTAL PURLINS TO RAFTERS. UNLESS OTHERWISE SPECIFIED.	4 — PER PURLIN AT ENDS. PURLINS WILL BE PRE—DRILLED.			
	#10 X 1/2" HEX HEAD S.T. TEK SCREW STAINLESS STEEL	ATTACH ALL ANGLE SPACER TO PURLINS. TYPICALLY PRE—APPLIED.				
	ALUMINUM POP-RIVET	ATTACH FLASHINGS. CLOSURE				
	#10 x (VARIES) PAN HEAD SELF-TAPPING (PHILLIPS) SCREW.	ATTACH (2125) PRESSURE CAPS TO RAFTERS.	LENGTH OF SCREW WILL VARY DEPENDENT ON INSULATED GLASS THICKNESS. PRESSURE CAPS ARE PRE-DRILLED AT			
	STAINLESS STEEL					
	(VARIES)DIA. × (VARIES) LG. HEX HEAD TAP BOLT WITH LOCK NUT. MATERIAL BASED ON SPECIFICATIONS	MULTIPLE PURPOSES DEPENDENT ON PROJECT. GENERAL PURPOSE: SILL FASTENER TO SUBSTRUCTURE.	DIA. AND LENGTH WILL VARY DEPENDENT ON PROJECT. INSTALLER TO FIELD DRILL AND TAP SUB— STRUCTURE. IN SOME CASES, LOCK NUT CAN- NOT BE USED, DUE TO ACCESSIBILITY.			
		MASONRY SILL ANCHOR.				
	(VARIES)DIA. × (VARIES) LG. HEX HEAD THUNDERSTUD OR THUNDERBOLT.		DIA. AND LENGTH WILL VARY DEPENDENT ON PROJECT. PILOT HOLE DIAMETER IS THE SAME AS THE DIAMETER OF THE ANCHOR.			
	MATERIAL BASED ON SPECIFICATIONS					
	(VARIES)DIA. x (VARIES) LG. HEX HEAD LAG SCREW. MATERIAL BASED ON SPECIFICATIONS	2× WOOD SILL OR RIDGE ANCHOR.	DIA. AND LENGTH WILL VARY DEPENDENT ON PROJECT.			
	5/16" DIA. x 1" LG. TRUSS HEAD SELF— TAPPING	USE MAY VARY DEPENDENT ON PROJECT. GENERAL PURPOSE: GUSSET ASSEMBLIES	TYPICALLY PRE—ATTACHEI PILOT HOLES PRE—DRILLEI			

GUSSET ASSEMBLIES.

SCREWS.

STAINLESS STEEL

S

OR

 \simeq

PE

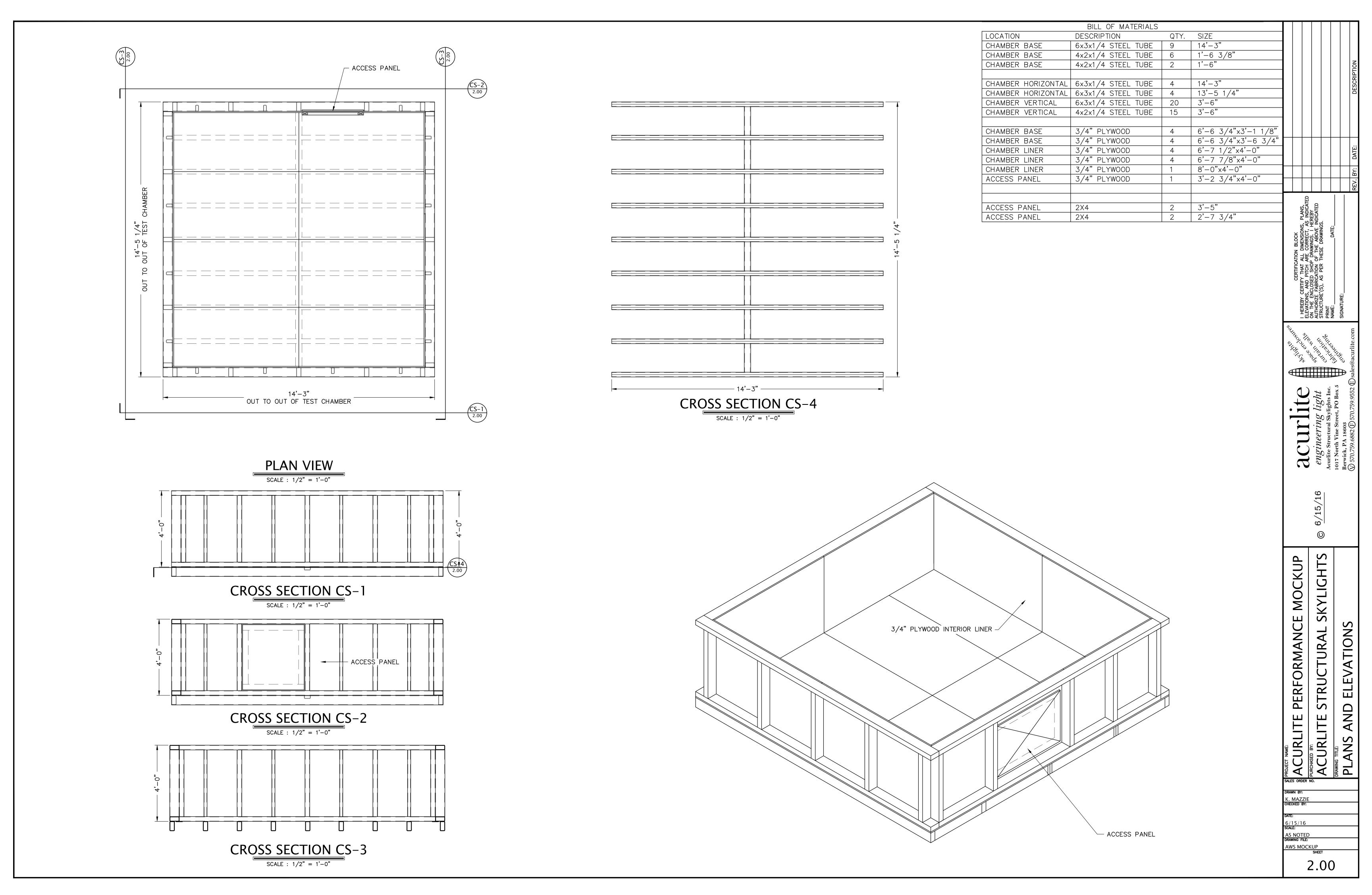
Ž

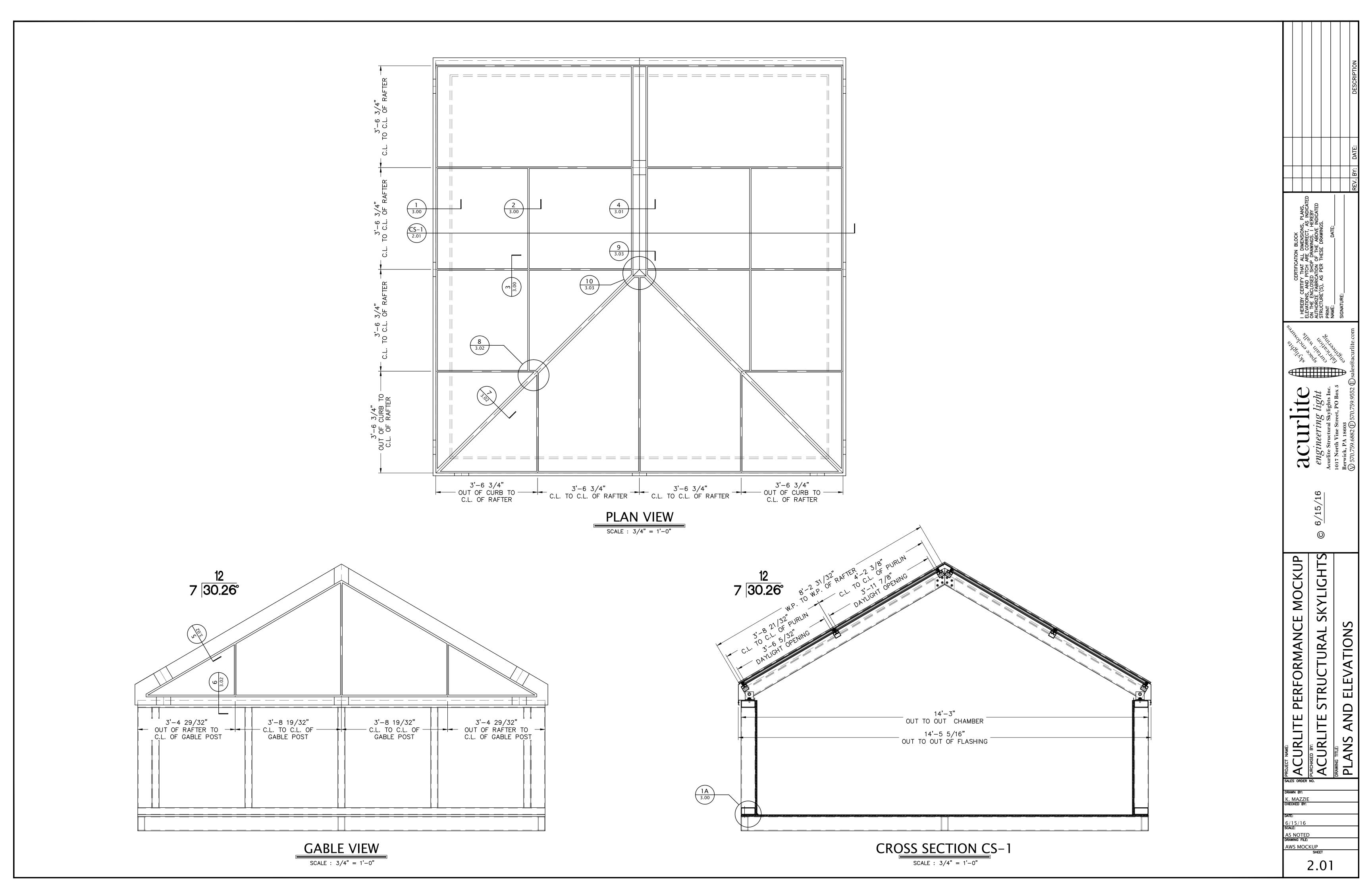
K. MAZZIE

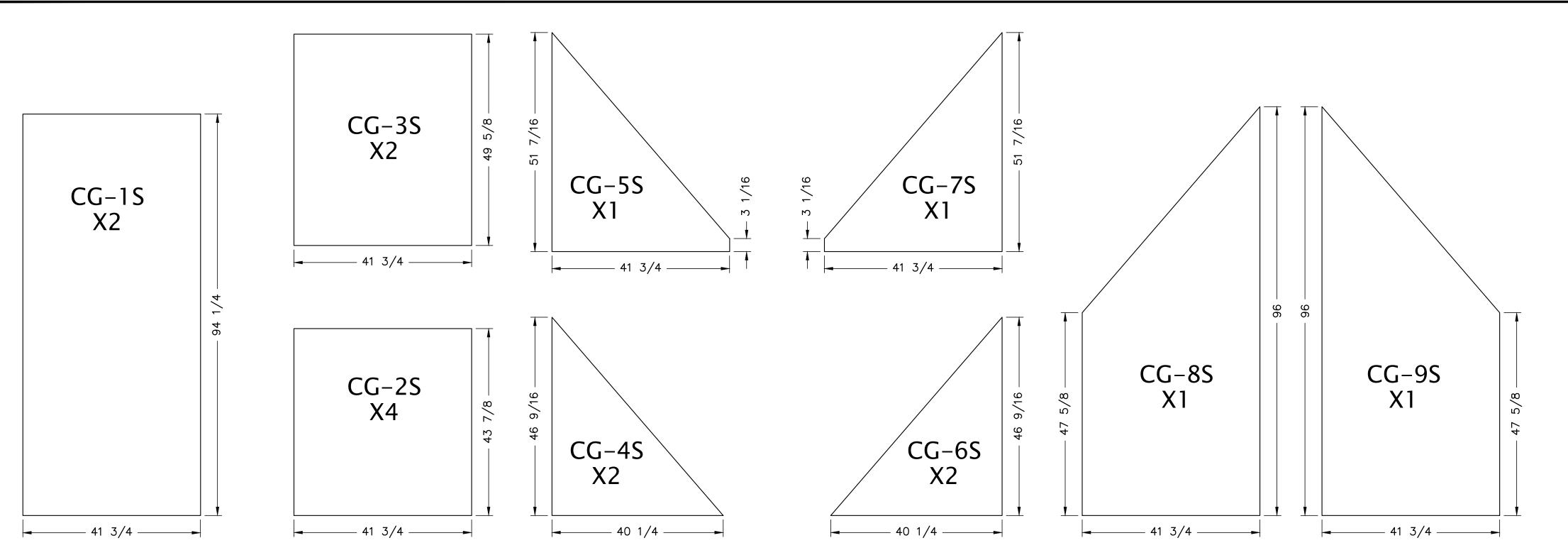
AWS MOCKUP

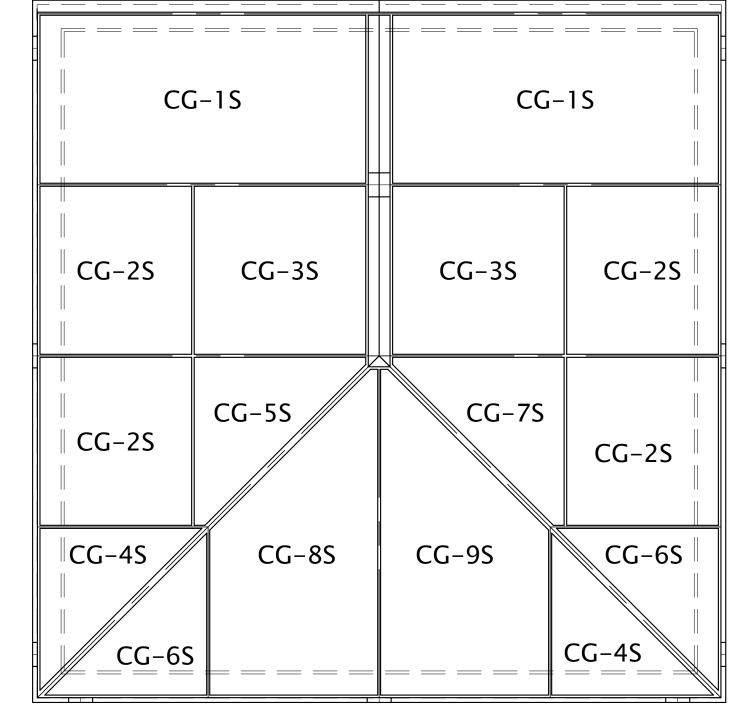
RU

 \triangleleft









SLOPE GLAZING

1 5/16" I.G.U.

1/4" CLEAR HEAT STRENGTHENED

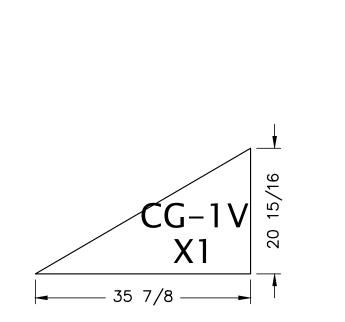
1/2" MILL AIRSPACE WITH BLACK SILICONE SECONDARY SEAL

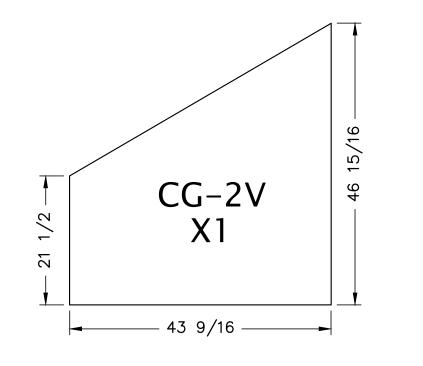
9/16" CLEAR HEAT STRENGTHENED LAMINATED

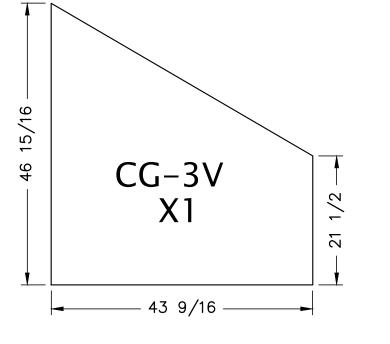
1/4" CLEAR HEAT STRENGTHENED

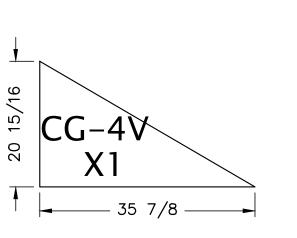
.060 PVB

1/4" CLEAR HEAT STRENGTHENED







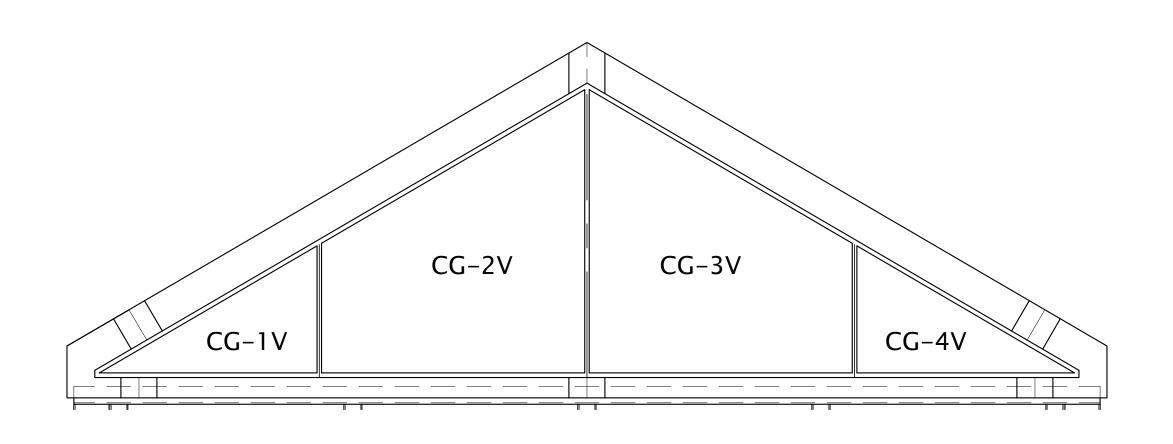


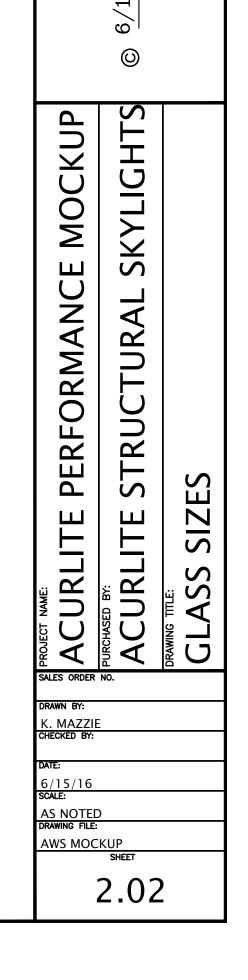
VERTICAL GLAZING 1" I.G.U.

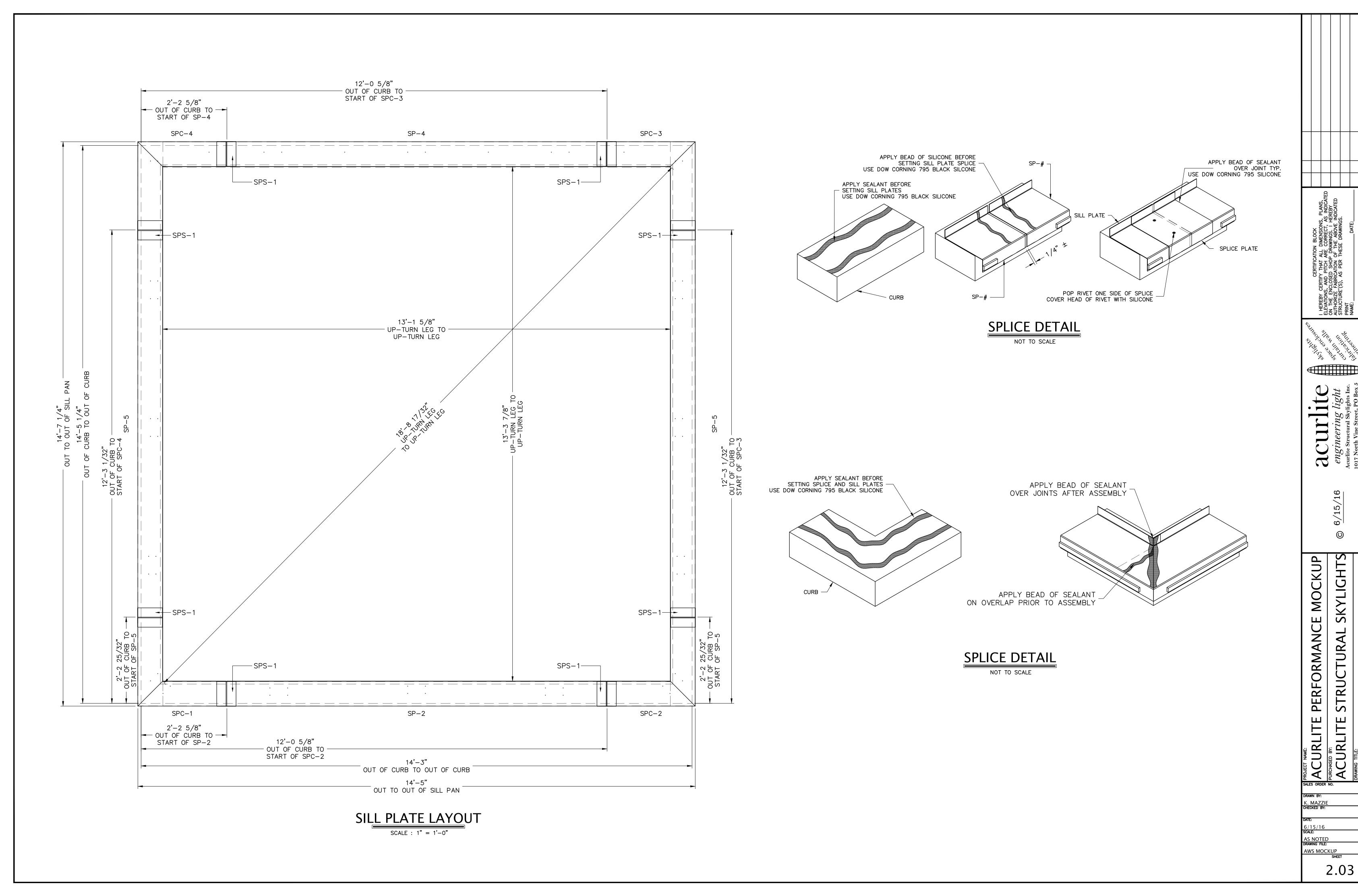
1/4" CLEAR TEMPERED

1/2" MILL AIRSPACE WITH BLACK SILICONE SECONDARY SEAL

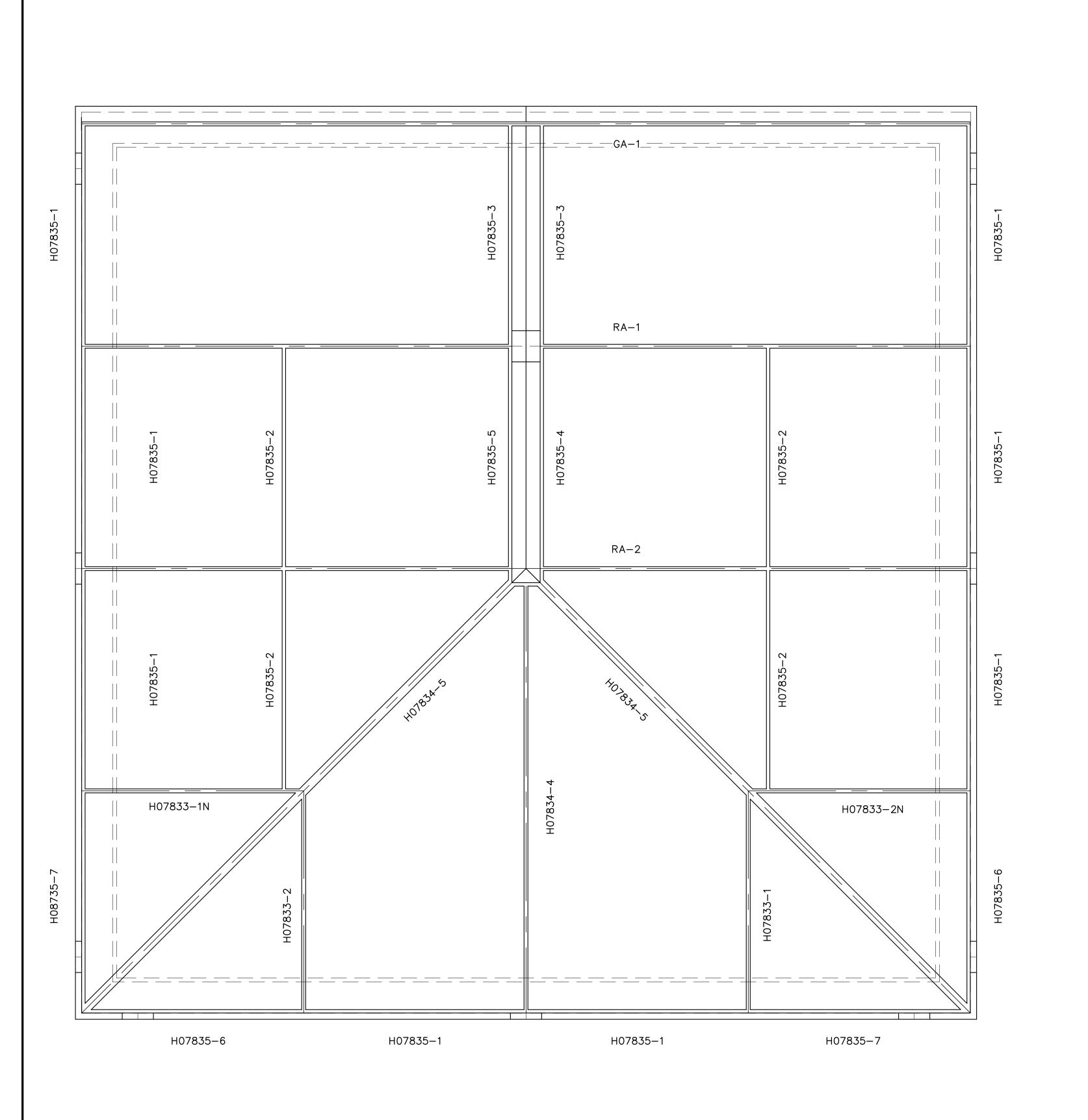
1/4" CLEAR TEMPERED

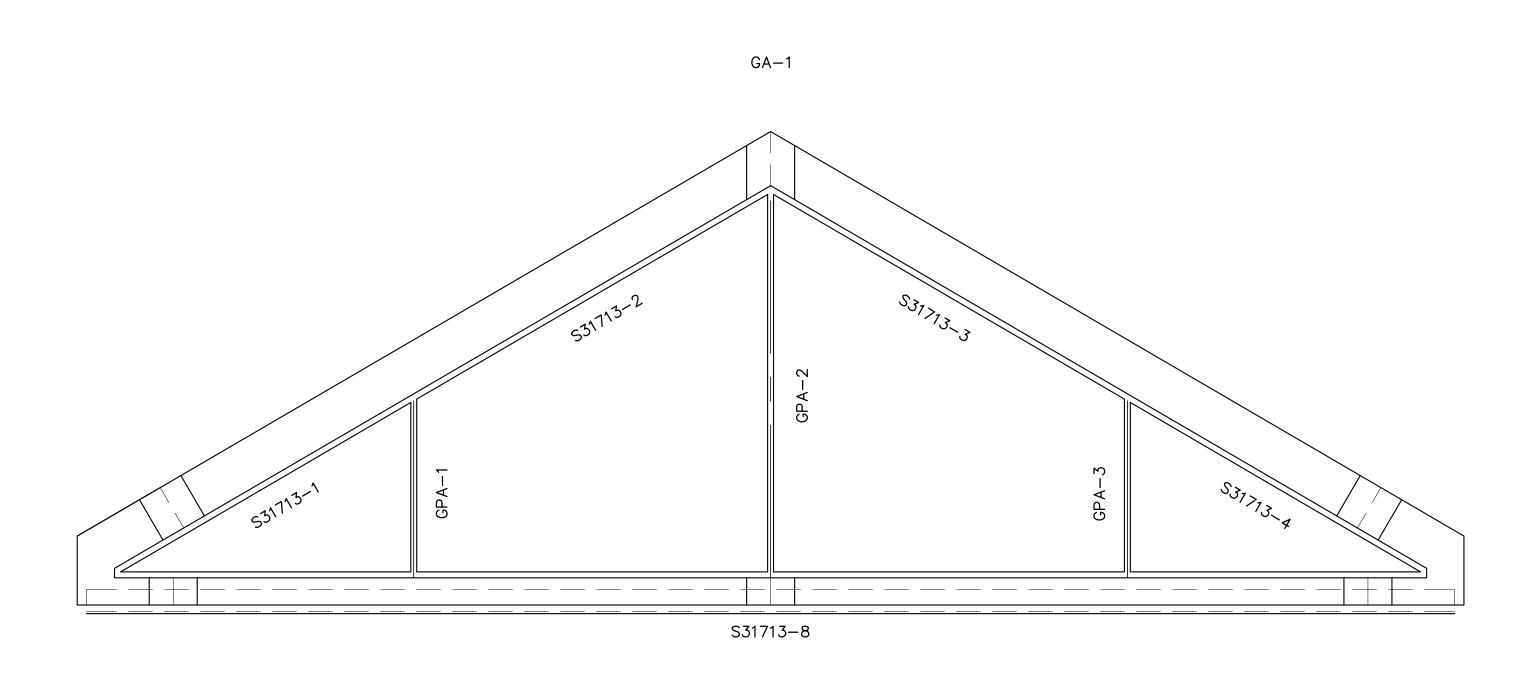






PLANS AND ELEVATIONS





RAFTER & PURLIN LAYOUT

SCALE: 1" = 1'-0"

RAFTER & PURLIN LAYOUT

SCALE: 1" = 1'-0"

DRAWN BY:

K. MAZZIE
CHECKED BY:

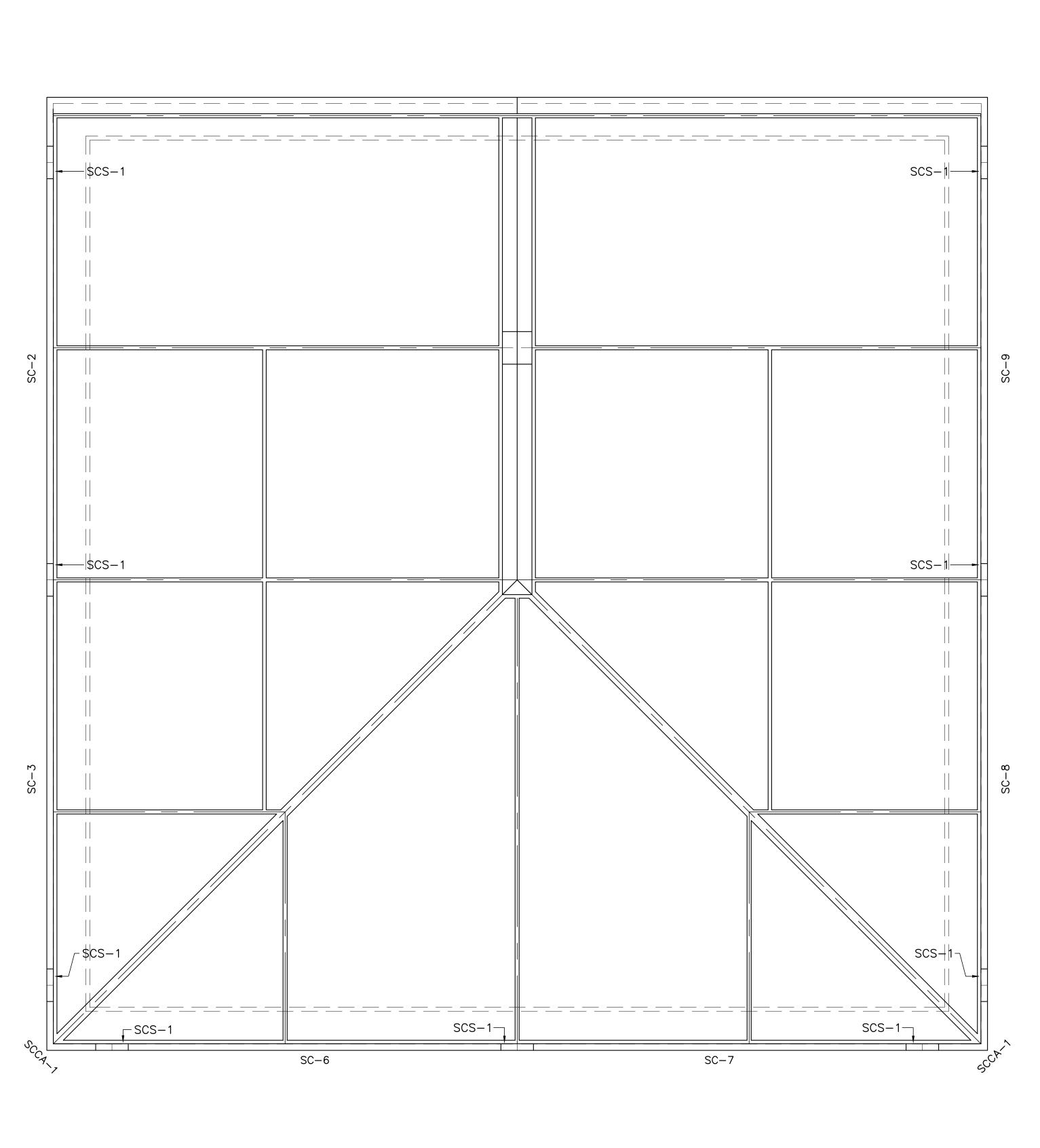
DATE:
6/15/16
SCALE:
AS NOTED
DRAWING FILE:
AWS MOCKUP
SHEET

2.04

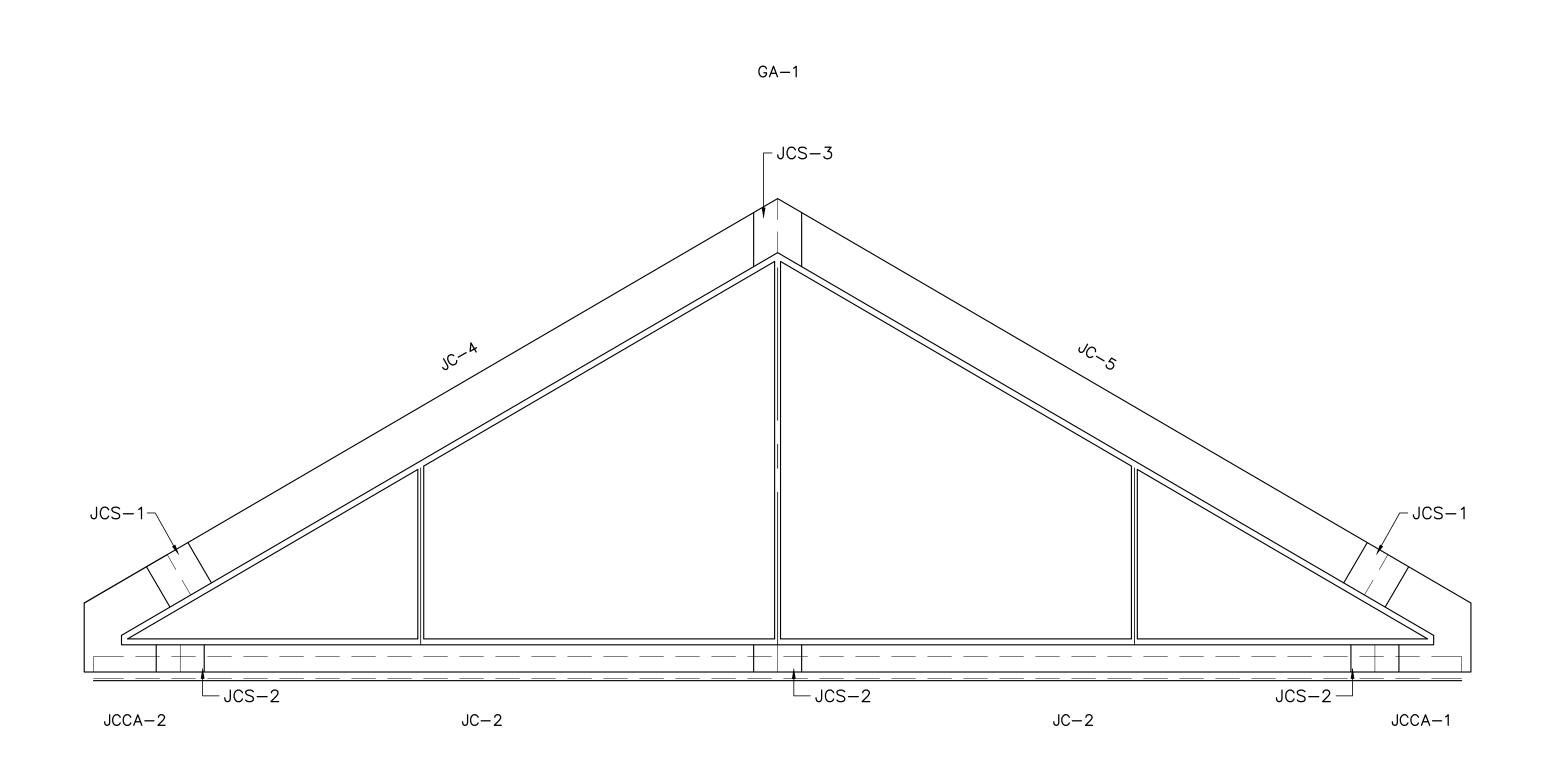
6/15/16

SKYLIGHTS

PLANS AND ELEVATIONS

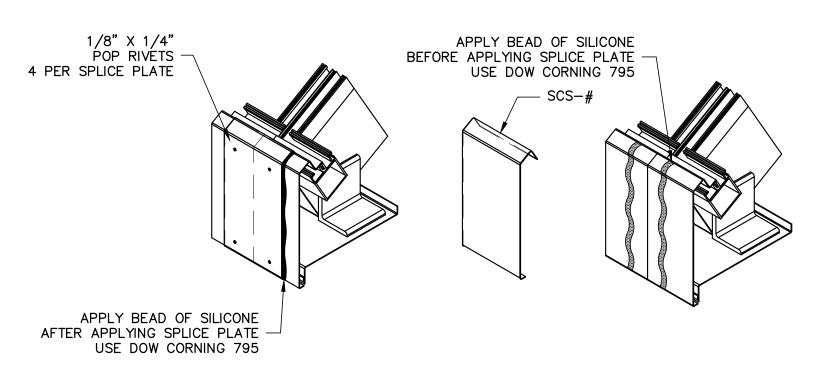


FLASHING LAYOUT SCALE : 1" = 1'-0"



FLASHING LAYOUT SCALE : 1" = 1'-0"





SPLICE DETAIL NOT TO SCALE

PLANS AND ELEVATIONS ACURLITE

2.05

6/15/16

 \odot

SKYLIGHTS

STRUCTURAL

PERFORMANCE MOCKUP

