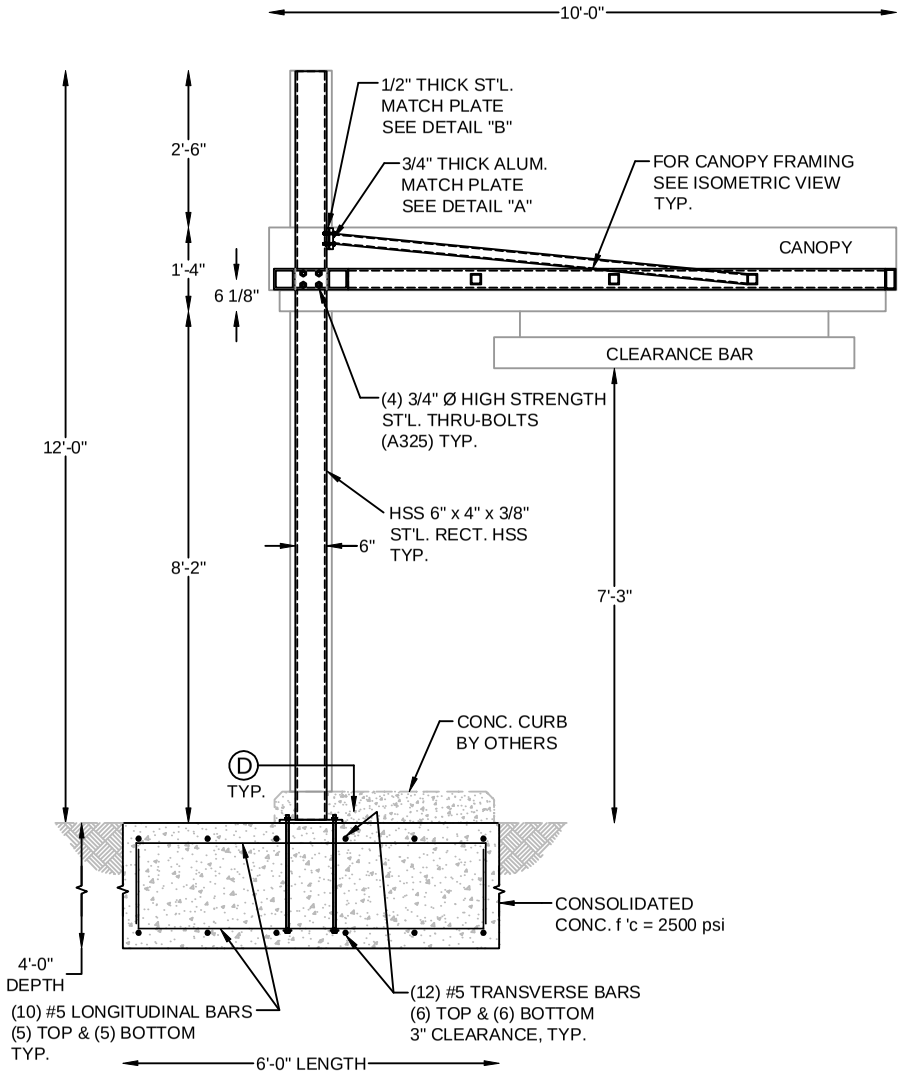
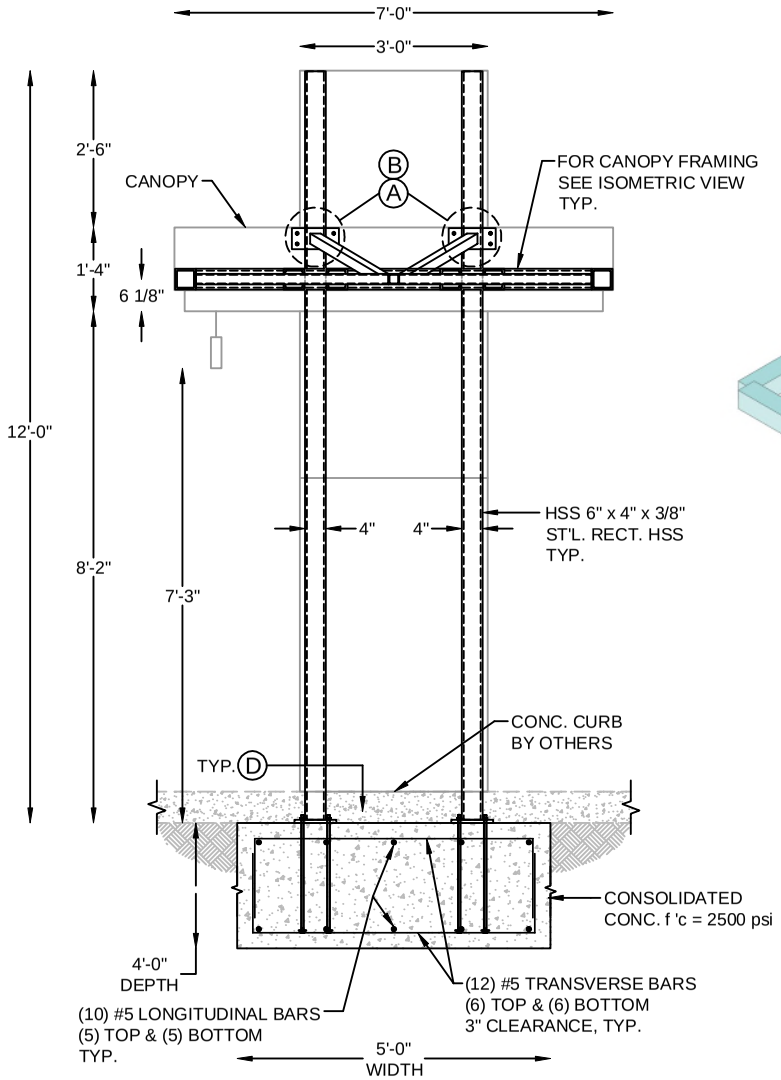
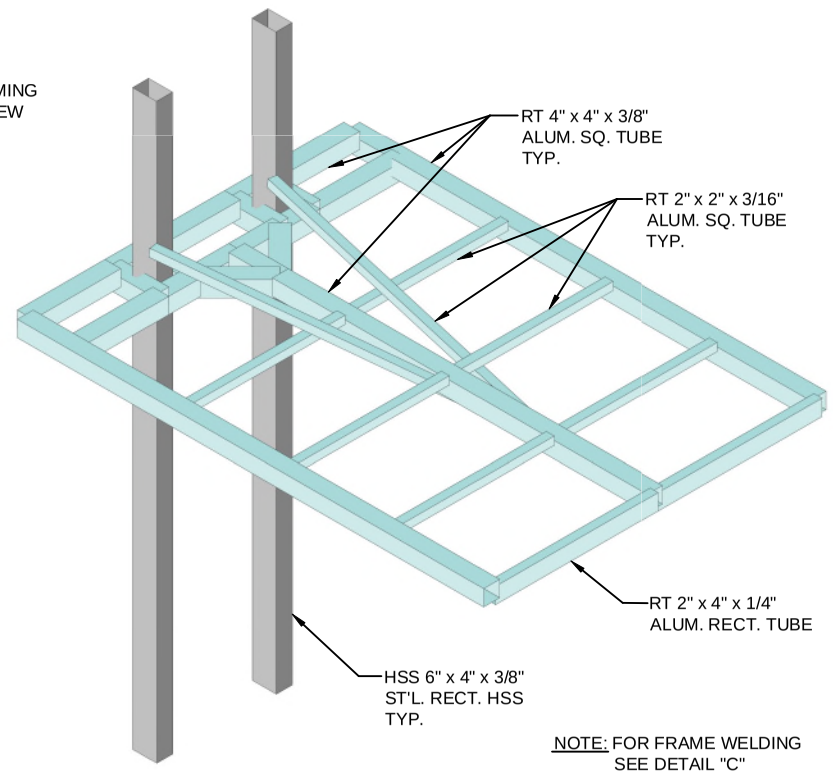


ELEVATION
N.T.S.

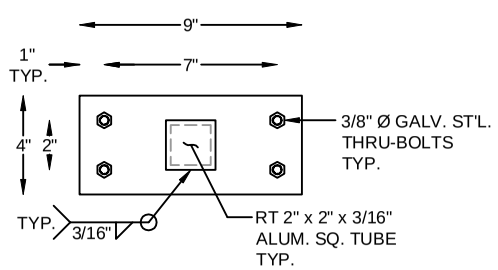


SIDE VIEW
N.T.S.

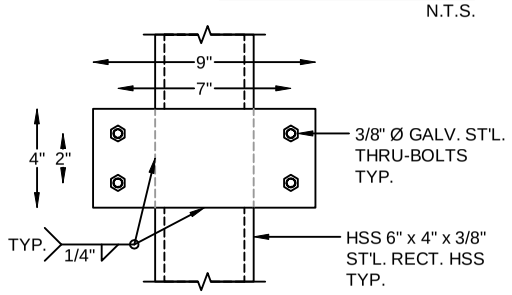


NOTE: FOR FRAME WELDING SEE DETAIL "C"

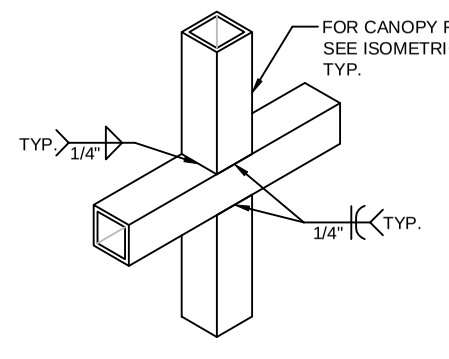
ISOMETRIC VIEW
N.T.S.



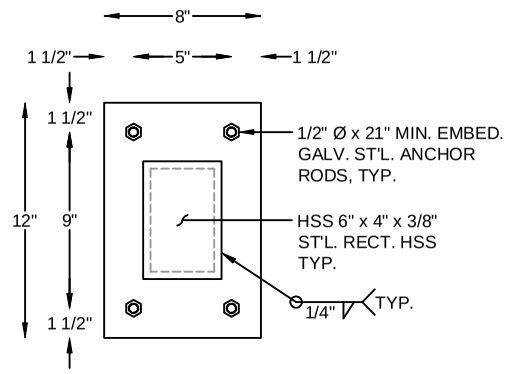
A MATCH PLATE
t = 3/4" (2 PLACES) N.T.S.



B MATCH PLATE
t = 1/2" (2 PLACES) N.T.S.



C WELDING DETAIL
N.T.S.



D BASE PLATE
t = 5/8" (2 PLACES) N.T.S.

NOTES :

GENERAL :
- SIGN DESIGN IS BASED ON ADEQUATE EXISTING SUPPORT ELEMENTS.
- PROVIDE ISOLATION OF DISSIMILAR MATERIALS.
- COAT ALUMINUM IN CONTACT WITH CONCRETE WITH ZINC RICH PAINT.
- THERE IS NO PROTECTION ZONE AS DEFINED IN AISC 341-10.
- PROVIDE FULLY WELDED END CAPS AT EXPOSED OPEN ENDS OF STEEL / ALUM. TUBES, MATCH THICKNESS LIKE FOR LIKE.
- CABINETS SHALL BE CONSTRUCTED OF NONCOMBUSTIBLE MATERIALS
- SLOPE TOP OF EXPOSED FOOTING AWAY FROM DIRECT BURIAL POSTS

ANCHORS :
- BRAND NAME APPROVED POST INSTALLED ANCHORS SPECIFIED ON PLANS MAY BE SUBSTITUTED BY APPROVED EQUAL.

STEEL :
DESIGN AND FABRICATION ACCORDING TO 2017 OBC
- PLATE, ANGLE, CHANNEL TEE, AND WIDE FLANGE: ASTM A36
- ROUND PIPE: ASTM A53 GRADE B OR EQUIVALENT.
- HSS ROUND, SQUARE, AND RECTANGULAR TUBE: ASTM A500 GRADE B OR EQUIVALENT
- ALL ANCHORS BOLTS SHOULD BE: ASTM F1554
- ALL STEEL MACHINED BOLTS SHOULD BE: ASTM A307, ASTM A325
- ALL STAINLESS STEEL MACHINED BOLTS SHOULD BE: ASTM F593
- ZINC COATED (HOT DIPPED) PER: ASTM A153 OR F2329
- BEARING TYPE CONNECTION REINFORCING REBAR: ASTM A615 GRADE 60 DEFORMED BARS

ALUMINUM :
DESIGN AND FABRICATION ACCORDING TO 2015 ALUM. DESIGN MANUAL
- PLATES, ANGLES, CHANNELS, TEE, AND SQUARE TUBING: ALUMINUM ALLOY 6061 - T6 WITH 0.098 LBS PER CUBIC INCH.

WELDING :
STEEL
DESIGN AND FABRICATION ACCORDING TO AWS D1.1.
- AWS CERTIFICATION REQUIRED FOR ALL STRUCTURAL WELDERS.
- WELDING PER AISC 341-10
- E70 XX ELECTRODE FOR SMAW PROCESS.
- E70S XX ELECTRODE FOR GMAW PROCESS.
- ER7 XX ELECTRODE FOR GTAW PROCESS.
- E70T XX ELECTRODE FOR FCAW PROCESS.

ALL WELDS SHALL BE MADE WITH A FILLER METAL THAT CAN PRODUCE WELDS THAT HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20FT-LB AT ZERO 0° AS DETERMINED BY THE APPROPRIATE AWS A5 CLASSIFICATION TEST METHOD OR MFG'S. CERTIFICATION.

ALUMINUM
ALL WELDING IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS A.5.10. FILLER ALLOYS PER TABLES M.9.1 & M.9.2 OF 2015 ALUMINUM DESIGN MANUAL.

CONCRETE :
DESIGN AND CONSTRUCTION ACCORDING TO ACI 318-14
- COMPRESSIVE STRENGTH AT 28 DAYS, f 'c=2500 PSI MINIMUM.
- CEMENT TYPE II OR IV. W/C RATIO 0.45 BY WEIGHT FOR PIER AND CAISSON FOOTINGS
- CONCRETE MUST BE POURED AGAINST UNDISTURBED EARTH.
- MAINTAIN A MINIMUM 3" CONCRETE COVER OVER ALL EMBEDDED STEEL.

SOIL:
LATERAL SOIL BEARING PER IBC CLASS 5 TABLE 1806.2 (100 PSF/FT).

Sign Design Based on 2017 OBC

Job #	JTS_93518_R
Project	Lexus - Canopy
Job Location	13600 Brookpark Road
	Cleveland, OH

INPUT DATA: Roof C&C Wind pressure

Exposure category (B, C or D)			=	C	
Risk Category			=	II	
Basic wind speed (3 sec. gust wind)	V	=	115	mph	
Topographic factor	K_{zt}	=	1	Flat	
Mean Roof Height	h	=	9.42	ft	
Canopy Width	W	=	10.00	ft	
Length	L	=	7	ft	
Roof Area	A	=	0	ft^2	

ANALYSIS

Velocity pressure

$q_h = 0.00256\ K_h K_{zt} K_d V^2$ = **24.46** psf

where:

q_h = velocity pressure evaluated at mean roof height h. using the exposure as defined in (sec 26.7.3) that results in the highest wind loads for anywind direction at the site.

K_h = velocity pressure exposure coefficient = **0.85**

evaluated at height above ground level, h (Tab. 29.3-1, pg 251)

K_d = wind directionality factor. (Tab. 26.6-1., page 194) = **0.85**

Design Wind Pressures. The net design wind pressure for component & cladding elements of **open** buildings of all heights with monoslope, pitched & troughed roofs shall be determined by the ff. equation :

$p = q_h G C_N$

where: G = gust-effect factor from (sec. 26.9) = **0.85**

C_n = net pressure coefficient given in:

Fig. 30.8-1 for monoslope roof
Fig. 30.8-2 for pitched roof
Fig. 30.8-3 for troughed roof

a = 3 ft

Effective wind area > 4.0 a^2

		C_N					
		Clear Wind Flow					
		Zone 3		Zone 2		Zone 1	
Roof Angle, θ	0	1.20	-1.10	1.20	-1.10	1.20	-1.10
Presssure, p		**24.95**	**-22.87**	**24.95**	**-22.87**	**24.95**	**-22.87**

Snow Load :

Ground Snow Load, p_g = **20** PSF

Flat Roof Snow Load, $p_f = 0.7\ C_e\ C_t\ I_s\ p_g$

Where: C_e = **0.90** C_t = **1.20** I_s = **1.00**

p_f = **15.12** PSF

C_s = **1.00**

p_s = **15.12** PSF

Roof Live Load= **20.00** PSF

Frame Design (See attached Risa calcs)

St'l. Rect. HSS

USE A500 Grade B

HSS 6 x 4 x 3/8

Alum. SQ. Tube

USE 6061-T6 W

RT 4 x 4 x 3/8

RT 2 x 2 x 3/16

Alum. RECT. Tube

USE 6061-T6 W

RT 2 x 4 x 1/4

Footing Design (See attached Enercalc calcs)

Unfactored Windforce, Z =	**0**	kips
Unfactored Moment = F x moment arm =	**13.52**	kip-ft
Unfactored Windforce, Y =	**1.66**	kips
Unfactored Windforce, X =-	**1.02**	kips
Unfactored Dead Load Z =	**0**	kips
Unfactored Dead Load Moment	2.192	kip-ft
Unfactored Dead Load Y =	1.228	kips

Length =6'-0" Width = 5'-0" Depth =48"

Max. Member Axial Force, LC2, M36 — Axial force= 2.150 kips; Mz= 0.077 K-Ft

Bolt Design — Galv. St'l . Thru-Bolts

Tension Req'd. USE A307

T = 769 **3/8" Dia.,** T=2,480

Match Plate 1 — St'l. Plate

Thickness Req'd. USE A36

t = 0.47 **PL 4"x9"x1/2"** t=0.50

Match Plate 2 — Alum. Plate

Thickness Req'd. USE 6061-T6

t = 0.71 **PL 4"x9"x3/4"** t=0.75

Max. Support Tension Reaction, LC2, Node N27 — Mz = 5.180 K-Ft; Shear, X =- 0.310 kips; Shear, Z = 0.010 kips; Resultant Shear= 0.310 kips

Base Plate Anchor Design — Galv. St'l . Anchor Rod

Tension Req'd. USE F 1554 Grade 36

T = 3108 **1/2" Dia., 21" Min. Embed.** T=4,260

Base Plate — St'l. Plate

Thickness Req'd. USE A36

t = 0.61 **PL 12"x8"x5/8"** t=0.63

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SHEET TITLE: CANOPY

DRN BY: K.S.P.	DATE LAST REVISED: Jul 10, 2018	REV. NO.	REV. DATE	REVISED BY	PROJECT JOB # : JTS_93518_Lexus_Canopy_Brookpark Rd_Cleveland OH.dwg
CHK BY: R.T.	PROJ. START DATE: May 16, 2018	1	06/14/2018	K.S.P.	PROJECT LOCATION : LEXUS 13600 BROOKPARK ROAD CLEVELAND, OH.
REV BY: T.J.	SCALE: AS SHOWN	2	--/--/--	---	SHEET # 1 OF 1
plotted by: Yousif Jacob on 7.10.2018 @ 11:16 AM		3	--/--/--	---	