

**Sign Design Based On 2015 MBC**

Job # JTS\_28623  
 Project Chipotle Mexican Grill #4593 - Blade Sign  
 Job Location 630 Woodward Ave  
 Detroit, MI

**INPUT DATA**

Exposure Category (E, C or D)	z	G
Risk Category	1	1.0
Ultimate Design (Wind Speed)	115	SK3
Topographic Factor	1.0	Flat
Height of the Sign	14.07	FT
Average Vertical Dimension (for wall signs)	1.67	FT
Horizontal Dimension	2.90	FT
Dimension of letters/character	0.33	FT

**ANALYSIS**

**Velocity Pressure**  
 $q = 0.00256 K_z K_t K_d K_e V^2$   
 where  
 $q =$  velocity pressure at height  $z$  (Fig. 29.4-1, page 249)  
 $K_z =$  velocity pressure exposure coefficient (evaluated at height above ground level) (Table 29.3-1, page 251)  
 $K_t =$  wind directionality factor (Table 29.6-1, page 254)

$q =$	24.46	lbf/ft <sup>2</sup>
$K_z =$	0.85	
$K_t =$	0.85	

**Wind Force Case A - resultant force for rough, aerodynamic center**

where  
 $p = q, G, C_e =$  pressure coefficient (Fig. 29.4-1, page 252)  
 $A_g =$  gross area (ft<sup>2</sup>)  
 $F =$  resultant force (lbf)

$p = q, G, C_e =$	37	lbf/ft <sup>2</sup>
$A_g =$	1.80	ft <sup>2</sup>
$F =$	333	lbf
$F =$	31	lbf/ft

**DESIGN SUMMARY**

Allowable Stream Design Wind Factor =	0.60
Design Wind Pressure =	0.6 x p = 22.48
Design Windforce, F =	22.48 x A <sub>g</sub> = 0.07
Moment Arm =	1.44
Design Moment =	F x Moment Arm = 0.11

**Outigger Design**

See Mod. Req'd	USE	ALUM. SQ. TUBE	6061 T6 W	5 x 0.45	(OK)
$T =$	0.09	RT 1.5" x 1.5" x 0.25"			

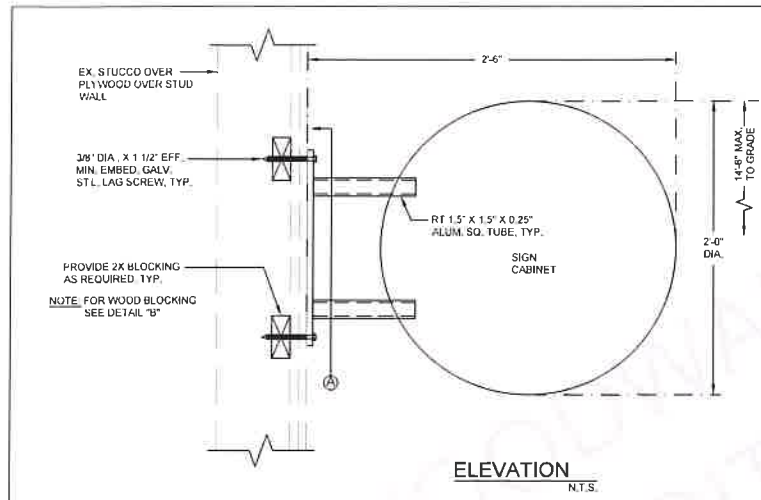
**Mounting Plate**

Thickness Req'd	USE	ALUM. PLATE	6061 T6	1 x 0.50	(OK)
$T =$	0.09	PL 16" x 4" x 1/2"			

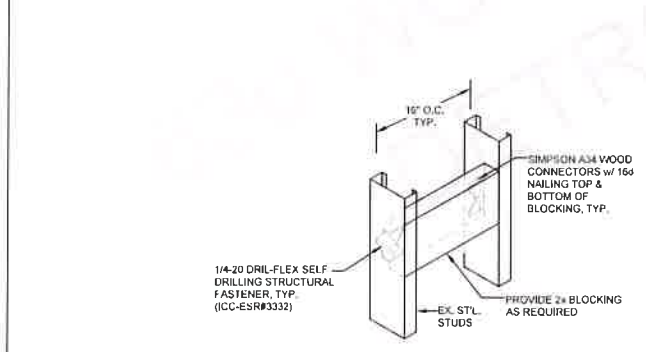
**Anchor Design**

Pullout Req'd	USE	GALV. STL. LAG SCREW	A307	4 x 48	
$P =$	270	3/8" DIA. x 1 1/2" EFF. MIN. EMBED.			
Shear Req'd	$V =$	24		4 x 90	
$V =$	24				

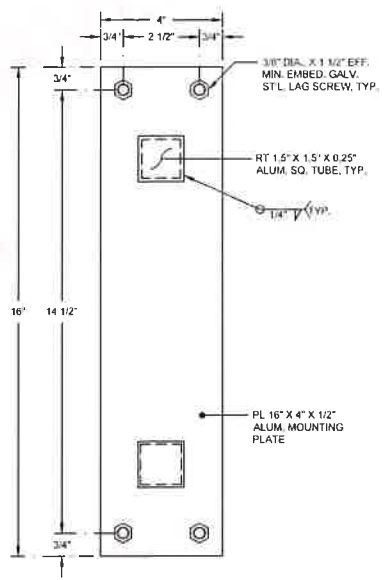
Check per AISI Eqn 12-4-1: Total Allowable = 144 (OK)



**ELEVATION**  
N.T.S.



**(B) BLOCKING DETAIL**  
N.T.S.



**(A) MOUNTING PLATE**  
N.T.S.

**NOTES:**

GENERAL:	STEEL:	WELDING:
<ul style="list-style-type: none"> <li>SIGN DESIGN IS BASED ON ADEQUATE EXISTING SUPPORT ELEMENTS.</li> <li>PROVIDE ISOLATION OF DISSIMILAR MATERIALS.</li> <li>COAT ALUMINUM IN CONTACT WITH CONCRETE WITH ZINC RICH PAINT.</li> <li>THERE IS NO PROTECTION ZONE AS DEFINED IN AISC 341-10.</li> <li>PROVIDE FULLY WELDED END CAPS AT EXPOSED OPEN ENDS OF STEEL / ALUM. TUBES, MATCH THICKNESS LIKE FOR LIKE.</li> <li>SLOPE TOP OF EXPOSED FOOTING AWAY FROM DIRECT BURIAL POSTS</li> <li>ALL EXPOSED STEEL TO BE PRIMED &amp; PAINTED (POWDER COAT AS AN OPTION) OR ALTERNATIVELY USE GALVANIZED STEEL.</li> </ul>	<ul style="list-style-type: none"> <li>DESIGN AND FABRICATION ACCORDING TO 2015 MBC</li> <li>PLATE, ANGLE, CHANNEL TEE: ASTM A36</li> <li>WIDE FLANGE: ASTM A992</li> <li>ROUND PIPE: ASTM A53 GRADE B OR EQUIVALENT.</li> <li>HSS ROUND, SQUARE, AND RECTANGULAR TUBE: ASTM A500 GRADE B OR EQUIVALENT.</li> <li>STAINLESS STEEL ROUND, SQUARE, AND RECTANGULAR TUBE: ASTM A276 T304 OR EQUIVALENT.</li> <li>ALL ANCHORS BOLTS SHOULD BE: ASTM F1554 OR ASTM F593 T304</li> <li>ALL STEEL MACHINED BOLTS SHOULD BE: ASTM A307 OR ASTM A449</li> <li>ALL STAINLESS STEEL MACHINED BOLTS SHOULD BE: ASTM F593 T304</li> <li>ALL BOLTS TO BE ZINC COATED: ASTM B633</li> <li>DEFORMED REINFORCING REBAR: ASTM A615 GRADE 60.</li> </ul>	<ul style="list-style-type: none"> <li>DESIGN AND FABRICATION ACCORDING TO AWS D1.1 / D1.3 &amp; D1.9</li> <li>AWS CERTIFICATION REQUIRED FOR ALL STRUCTURAL WELDS:</li> <li>E70 XX ELECTRODE FOR SMAW PROCESS.</li> <li>E70S XX ELECTRODE FOR GMAW PROCESS.</li> <li>E70 XX ELECTRODE FOR GTAW PROCESS.</li> <li>E70T XX ELECTRODE FOR FCAW PROCESS.</li> <li>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 ° AS DETERMINED BY THE APPROPRIATE AWS A5 CLASSIFICATION TEST METHOD OR MFG'S. CERTIFICATION.</li> <li>ALUMINUM</li> <li>DESIGN AND FABRICATION ACCORDING TO AWS D1.2. ALL WELDING IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS A.5.10. FILLER ALLOYS PER TABLES M.9.1 &amp; M.9.2 OF 2015 ALUMINUM DESIGN MANUAL.</li> </ul>
<p><b>ANCHORS:</b></p> <ul style="list-style-type: none"> <li>BRAND NAME APPROVED POST INSTALLED ANCHORS SPECIFIED ON PLANS MAY BE SUBSTITUTED BY APPROVED EQUAL.</li> </ul>	<p><b>ALUMINUM:</b></p> <ul style="list-style-type: none"> <li>DESIGN AND FABRICATION ACCORDING TO 2015 ALUM. DESIGN MANUAL PLATES, ANGLES, CHANNELS, TEE, AND SQUARE TUBING: ALUMINUM</li> <li>ALLOY 6061-T6 WITH 0.0015 LBS PER CUBIC INCH.</li> </ul>	



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SHEET TITLE

**CHIPOTLE MEXICAN GRILL #4593**  
**BLADE SIGN**

DRWEN	J.L.	DATE LAST REVISED	Dec 26, 2023	REV. NO.	1	REV. DATE	REVISED BY
CHK BY	T.L.	PROJ. START DATE	Dec. 20, 2023	2			
REV BY	T.L.	SCALE	AS SHOWN	2			
PLOTTED BY	Natalie Chavez	ON	12/28/2023 11:34:27 AM	3			

PROJECT JOB #	JTS_28623, Chipotle Mexican Grill 4593 Signage Woodward Ave Detroit MI dwg	SHEET #	1 of 1
PROJECT LOCATION	CHIPOTLE MEXICAN GRILL #4593 630 WOODWARD AVE. DETROIT, MI		