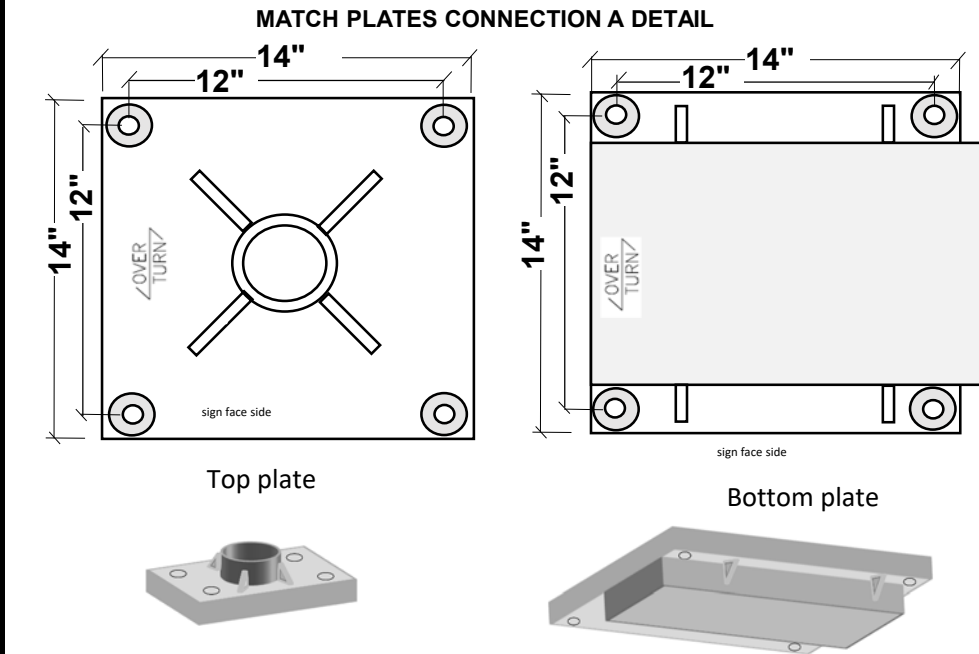
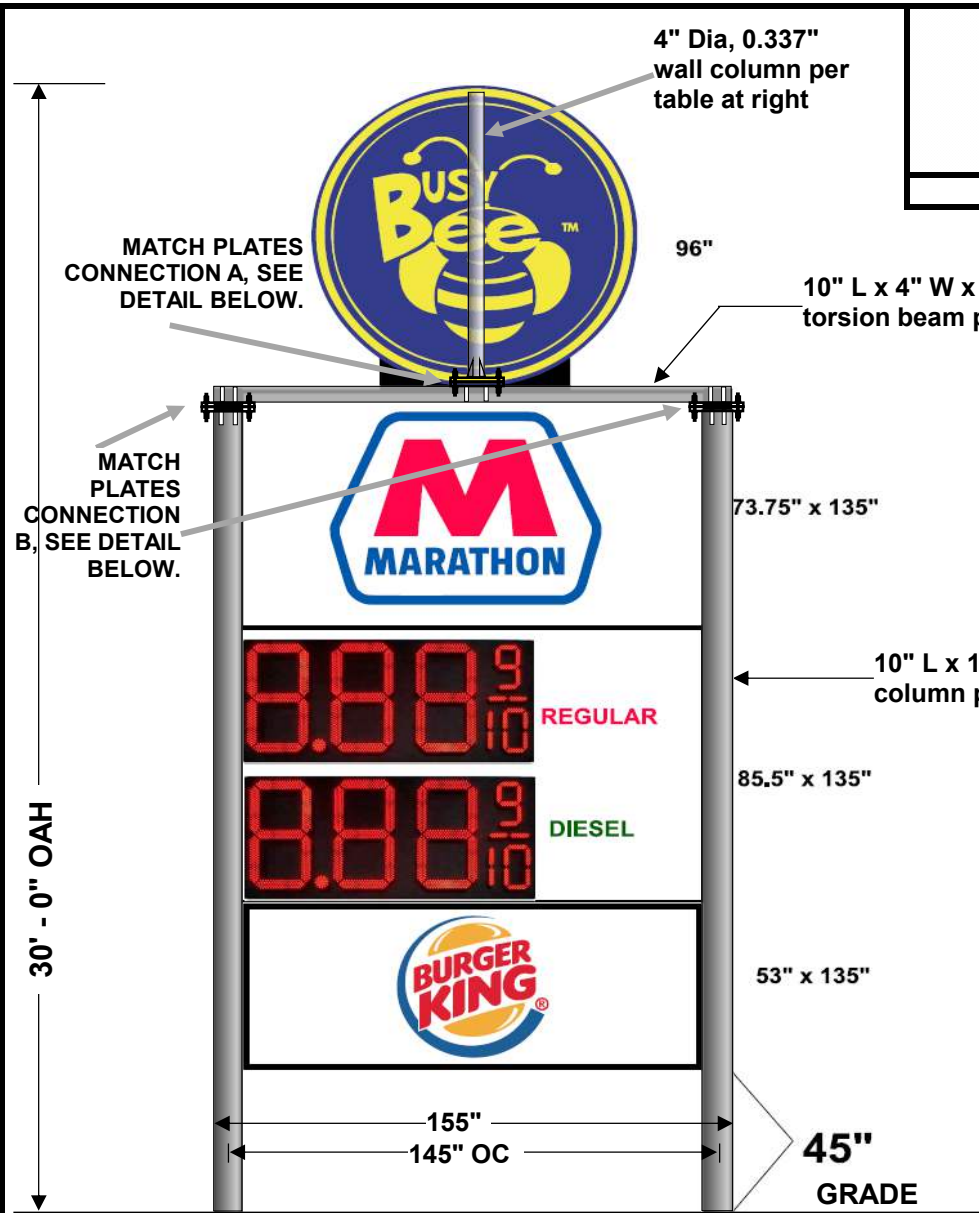


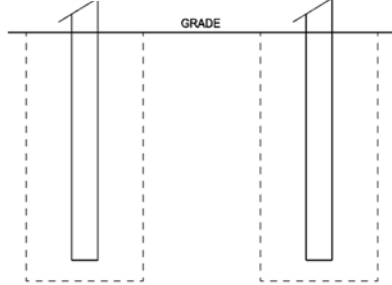


10" L x 10" W x 0.375" wall, A500 46ksi HSS Steel Column, S=40.4 M=92.9

10" L x 4" W x 0.375" wall, A500 46ksi HSS Steel Column, S=20.8 M=47.8

4" Dia, 0.337" wall, A500 42ksi HSS Steel Column, S=3.12 M=6.552

Acceptable Sign Support Columns	
direct_embed type foundation	
Grade offset (ft)	
1.47 kip	Total Shear at 21.5 ft Grade, V
6.30 kip.ft	Total Moment at 21.5 ft Grade, M

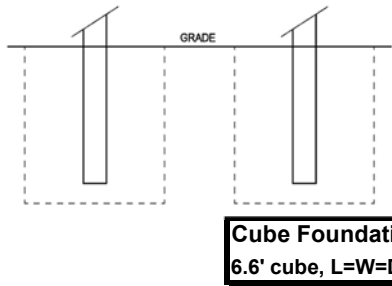


Drilled Shaft Foundation

3' dia x 10.1' deep

or 4' dia x 9.1' deep

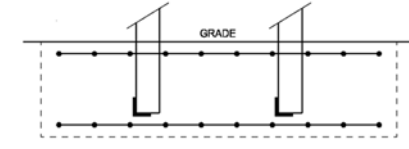
or 5' dia x 8.3' deep



Cube Foundation

6.6' cube, L=W=D

(2) 14" x 14" x 7/8" STEEL MATCH PLATES. BOLT HOLES 12" OC EACH WAY. WELD 4" DIA. 0.337" WALL COLUMN TO TOP OF TOP MATCH PLATE w/ 3/8" FILLET WELD ALL AROUND AND (4) 3" W x 3" H x 1/2" STEEL GUSSETS w/ 1/4" FILLET WELD ALL AROUND. WELD 10" L X 4" H X 3/8" CROSSBEAM TO BOTTOM OF BOTTOM MATCH PLATE w/ 3/8" FILLET WELD ALL AROUND, AND (4) 1.5" W x 3" H x 1/2" STEEL GUSSETS w/ 1/4" FILLET WELD ALL AROUND. BOLT MATCH PLATES TOGETHER WITH (4) 5/8" DIA. BOLTS.



Spread Foundation (Long is perpendicular to face)

12' long x 17' wide x 2.5' deep

#5, 12" OC each way, 2 mats, 3" from top and bottom, gentle bend around column

Weld 4' long 4" x 4" x 3/8" angle to bottom and side of column with 3/8" fillet weld all around

In 2500 psi or higher concrete, embed support columns, anchor bolts, and/or vertical rebar to 6" from bottom in drilled shaft and cube foundations, and to 3" from bottom in spread foundations.

Florida, FBC 7th Ed (2020), Sect 1609 wind

ref ASCE 7-16

120 Wind Speed, Vult, mph, from ASCE 7-16, Figure 26.5

II Risk Category; I, Low; II, Normal; III, Substantial Hazard; IV, Essential/Critical

C Wind Exposure; C, House size obstructions > 600 ft; D, no obstructions > 5000 ft

Sand, silty sand, clayey sand, silty gravel, clayey gravel ← Presumptive soil type

WIND LOAD CALC: ASCE 7-16 Section 29.3.1, Solid Freestanding Signs

Terrain $K_{zt}=1$, no hill, ridge, or escarpment >15' high; Directionality $K_d=0.85$; Gust $G=0.85$ rigid structure;

$K_z=2.01*(H/900)^{(2/9.5)}ExpC$, $(700&11.5)ExpD$; $q_{h,ult}=0.00256*K_z*K_d*V_{ult}^2$; load = $0.6W+D$, $D \leq 15$ psf

A	B	C	D	E	F	Sign Segment ID	OAH
30.0	21.9	21.5	3.8			Segment Top Above Grade, Top, ft	30.0
8.0	4.7	12.9	1.7			Segment Width, W, ft	9.6
8.1	0.3	17.8	3.8			Segment Height, H, ft	30.0
50.27	1.56	229.54	6.25			Segment Area, ft ² (adjusted for grade height)	
0.98	0.92	0.92	0.85			Velocity Pressure Exposure Coeff, K_z	
30.8	28.8	28.7	26.6			Velocity Pressure, $q_{h,ult}$, psf (per segment)	
1.80	1.85	1.65	1.58			Force coefficient C_f (per segment)	1.67
47.1	45.3	40.3	35.8			Segment Wind Pressure, P_{ult} , psf = $q_{h,ult}*G*C_f$	
28.3	27.2	24.2	21.5			Segment Wind Pressure, P_{asd} , psf = $P_{ult}*0.6$	
1.420	0.042	5.544	0.134			Segment Shear Force, F_{seg} , kips = $P_{asd}*Area_{seg}$	
36.822	0.916	70.045	0.252			Moment _{seg} kip*ft = $F_{seg}*centroid_{seg}$	
23.287	0.529	49.997	0.133			$M_{col,seg} = (F_{seg}/2 + F_{seg}*0.2*W_{seg}/spacing)*centroid_{seg}$	
		12.1 ft OC				Column Spacing	
		7.14 kip				Total Shear at Grade, V = Sum (F_{seg})	
15.130		108.04 kip.ft				Total Moment at Grade, M = Sum ($F_{seg} * centroid$ of segment)	
		4.95 kip				Column Shear, $V_c = sum((F_{seg}/2 + sum((F_{seg}*0.2)*width)/Spacing$	
14.938	0.68	73.9 kip.ft				Column Moment at Grade $M_c = sum(column moment_{seg})$	

- Sign manufacturer/installer's design, detailing, fabrication, and erection shall conform to the following specifications: Building Code, ASTM specifications, ACI-318 for reinforced concrete, American Welding Society Code for Welding in Building Construction, AISC Specification for Design, Fabrication, and Erection of Structural Steel for Buildings.
- Materials of construction: (Unless noted otherwise)
 - Structural steel (angles, shapes, plates, gussets): ASTM A-36, $F_y = 36$ ksi.
 - HSS round steel tubing: A-500, Grade B, $F_y = 42$ ksi; Rectangular: 46ksi.
 - Structural aluminum tubing: 6061-T6, or equivalent, $F_y = 18$ ksi at weld.
 - Structural pipe: A-53, Grade B, Type E or S, $F_y = 35$ ksi.
 - Anchor bolts: ASTM F1554 Grade 36 with heavy hex at bottom, not "L or J" bolts.
 - Connection bolts: A-325, snug tight.
 - Rebar: ASTM 615, #6 or larger - Grade 60, #5 or smaller - Grade 40, 3" cover.
 - Concrete: 2500 psi, 28 days.
 - Provide coatings to prevent any possibility of corrosion.
- Welding design and fabrication according to AWS D1.1.
- AWS certification required for all structural welders.
- E70XX electrodes for SMAW processes. F7X-EXXX electrodes for SAW processes.
- Embedded column acts as vertical reinforcement for drilled and cube foundations.
- Soil bearing capacity is Section 1806.2 Presumptive Load Bearing Value. Lateral bearing is doubled for sign poles per 1806.3.4. Soil choice types per Table 1806.2. Presumptive soil type shown must be verified by sign installer.

Cube	Drilled Shaft Foundation, Code Section 1807.3.2				laterally unconstrained at grade	
L=W=D	6.6	3.0	4.0	5.0	Diameter, b, ft	(or length and width of cube)
6.6	10.1	9.0	8.3		Depth, D, ft	$D = 0.5*A\{1 + [(4.36*H_{cent}/A)]^{.5}\}$
1.9	3.8	3.2	2.8		A term	$A = 2.34*F/(S1*b)$
657	1005	901	828		S1 or S3	$S1 = 2*S_{soil}*D/3$
					150 psf/ft	Ssoil psf/ft for Sand, silty sand, clayey sand, silty gravel, clayey gravel

Spread Foundation Q psf for Sand, silty sand, clayey sand, silty gravel, clayey gravel = 2000

12.0 Length, L, ft

16.9 Width, W, ft

2.2 Depth, D, ft

2676 Soil Bearing at Bottom of Foundation, Q_{bot} , psf, $Q_{bot} = 1.3*(Q + 100pcf*(D-1))$

66.0 Total Weight, Wt, kips, $Wt = L * W * D * .15$ kips/ft3

2.9 Toe Length, Toe, ft, $Toe = Wt / (W * Q_{bot})$

5.0 Bearing Eccentricity, e, ft, $e = L / 2 - Toe / 3$

221.2 Overturning Capacity Calc, OT, kip.ft, $OT = Wt / e / 1.5$ safety

MARK DISOSWAY, PE

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Lake City, Florida 32025

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FLPE53915

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SCOPE OF WORK: Design sign support column and foundation to meet structural requirements of building code based on stated (not verified) site factors and size & shape based on sign installer's drawing, attached.

By using this engineering the owner, manufacturer, and installer accept responsibility to: Design, build, and install sign cabinet, face, attachment, electrical, etc according to sign code, building code, and UL. Verify site conditions match stated wind speed, risk, exposure, topo, and soil factors.



SHEET 1 OF 2

Signcraft & More, Inc.

JOB # 211051

PYLON SIGN

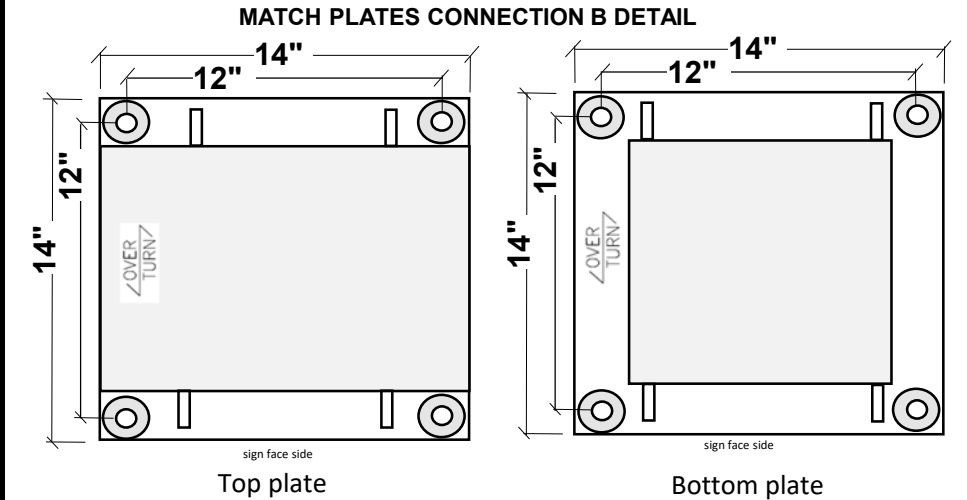
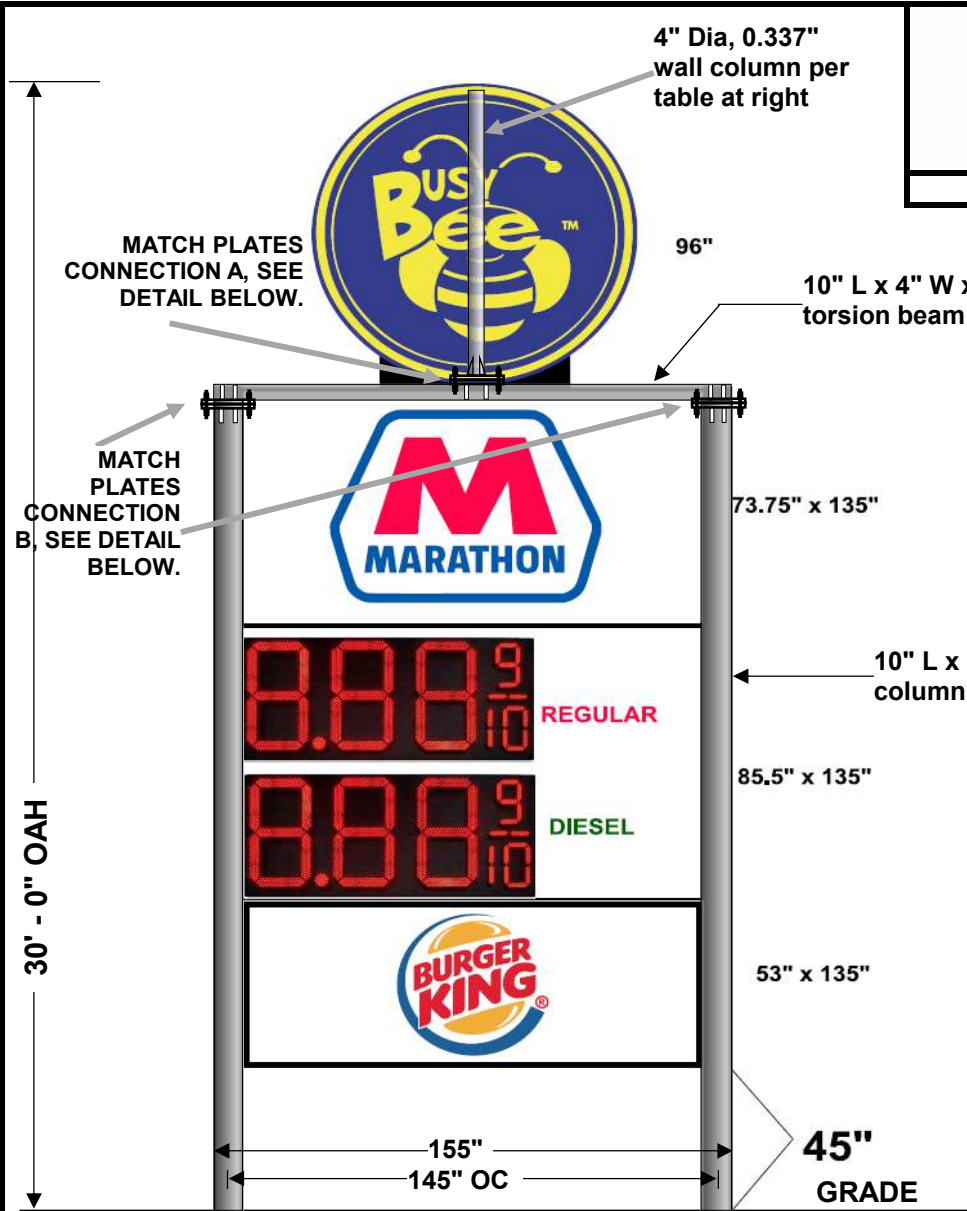
2 Columns, Centered & Embedded in Foundation

Busy Bee

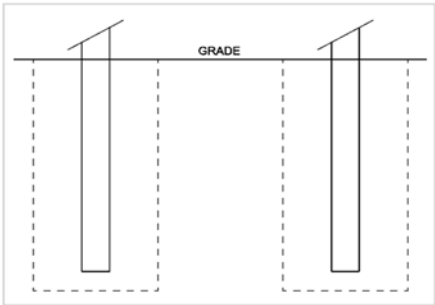
4772 NW US Hwy 41

Lake City, FL 32055

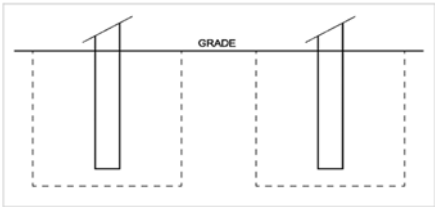
UNO valid for one sign at this location.



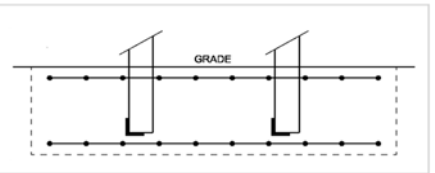
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6.6' cube, L=W=D



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		12.1 ft OC	Column Spacing				
"grade" = 0 ft		7.14 kip	Total Shear at Grade, V = Sum (F_{seg})				
15.130		108.04 kip.ft	Total Moment at Grade, M = Sum ($F_{seg} * centroid$ of segment)				
		4.95 kip	Column Shear, V_c = sum($F_{seg}/2$ +sum($(F_{seg}*0.2)*width$)/Spacing				
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66.0	Total Weight, Wt, kips, $Wt = L * W * D * .15$ kips/ft3
2.9	Toe Length, Toe, ft, $Toe = Wt / (W * Q_{bot})$
5.0	Bearing Eccentricity, e, ft, $e = L / 2 - Toe / 3$
221.2	Overturning Capacity Calc, OT, kip.ft, $OT = Wt / e / 1.5$ safety

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7/30/2021
This seal for structural engineering (Foundation & Support Column ONLY)

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SHEET 2 OF 2

Signcraft & More, Inc.

JOB # 211051

PYLON SIGN
2 Columns, Centered & Embedded in Foundation

Busy Bee
4772 NW US Hwy 41
Lake City, FL 32055
UNO valid for one sign at this location.