

File : Kieffer1033a.mcd

Site : Hampton Inn & Suites  
5740 North State Road 7  
Coconut Creek, Florida 33073

Sign Type : 5'-2" x 7'-9" x 1'-9" deep six sided ID sign for installation into 10'-0" overall height x 11'-9" wide x 1'-5" deep twin pole monument, by others.  
Drawing No. 1404056 rev. A

Design loads are based on the 2010 Florida Building Code ( ASCE 7-10 ) using Exposure C and 170 mph winds.

Design Wind Speed : ( mph. )  $V := 170.0$  Based on Risk Category II

Velocity Pressure Coefficient at a Height of Less Than 15', Exposure C :  $K_z := 0.85$  Based on Table 30.3-1

Topographic Factor :  $K_{zt} := 1.00$  Based on Table 26.8-1

Wind Directionality Factor :  $K_d := 0.85$  Based on Table 26.6-1

Velocity Pressure : ( PSF )  $q_z := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V^2$   $q_z = 53.453$  Based on 30.3-1

Force Coefficient :  $C_f := 1.80$  Based on Figure 29.4-1

Gust Effect Factor :  $G := 0.85$  Based on 26.9.4 for Other Structures

Load Combination Factor :  $LCF := 0.60$  Based on 2.4.1, Case 7

Design Pressure : ( PSF )  $F := q_z \cdot C_f \cdot G \cdot LCF$   $F = 49.07$  Use :  $WL := 49.1$

Reference : Manual of Steel Construction, AISC 13th Edition.

Mounting Bolts : 18-8 Stainless Steel  $F_u = 60.0$  ksi. ;  $F_t = 20.00$  ksi. ;  $F_v = 10.00$  ksi.  
( Threads included in shear plane. )

#### Design Loads :

##### Dead Load :

Based on 12.5 lbs./sq.ft. :  $ShrDL := (5.17 \cdot 7.75) \cdot 12.5$   $ShrDL = 500.844$  lbs.

##### Wind Load :

Suction :  $ShrWL := (5.17 \cdot 7.75) \cdot WL$   $ShrWL = 1967.314$  lbs.

#### Design of Mounting Bolts :

Mounting Bolt Diameter : ( in. )  $MntBltdia := 0.375$

Stress Area : ( in.<sup>2</sup> )  $MntBltdia := \frac{\pi \cdot MntBltdia^2}{4}$   $MntBltdia = 0.11$   
( Based on nominal diameter per AISC 4-3 )

Allowable Tension : ( lbs. )  $AllwTen := 20000 \cdot MntBltdia$   $AllwTen = 2209$

Allowable Shear : ( lbs. )  $AllwShr := 10000 \cdot MntBltdia$   $AllwShr = 1104$

Number of Mounting Bolts in Shear :  $NoShr := 8$   
( There are four mounting bolts top and bottom. )

Shear per Mounting Bolt : ( lbs. )  $ShrMntBltdia := \frac{ShrWL}{NoShr}$   $ShrMntBltdia = 245.914$

Number of Mounting Bolts in Tension :    NoTen := 4

Tension Load per Mounting Bolt : ( lbs. )     $TenMntBlt := \frac{ShrDL}{NoTen}$     TenMntBlt = 125.21

Unity Check :     $UCMntBlt := \frac{ShrMntBlt}{AllwShr} + \frac{TenMntBlt}{AllwTen}$     UCMntBlt = 0.279 < 1.00    OK  
Mounting Bolts

Note :    Use 3/8" diameter 18-8 Stainless Steel self drilling, self tapping hex washer head TEK screws.