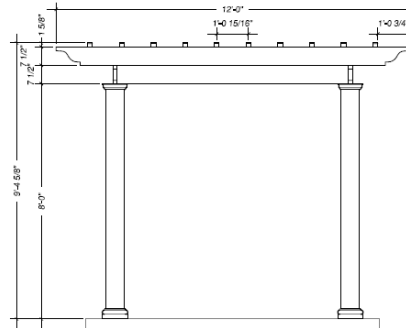
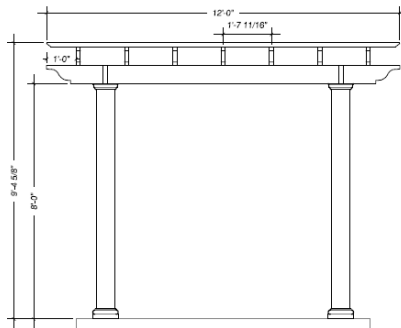


### Structural Engineering Analysis – 90 MPH Wind Velocity For 12' x 12' Arbors Direct™ Pergola with 8" columns

Analysis was performed based on ASCE 7-10 Code, for the 12' x 12' **Arbors Direct™** Pergola with 8" round or square columns. The analyses were performed with one (1) anchor per column base plate and the design reflects ASCE 7-10 wind load rating of 90 MPH with the following assumptions:

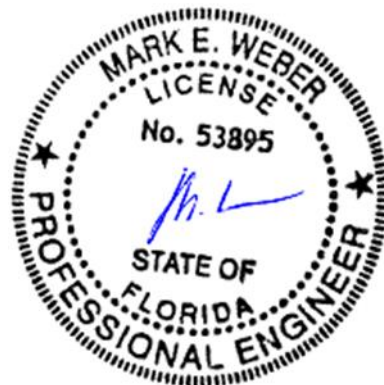
- 1) (1) Anchor – Wedge type stainless steel 5/8" diameter with 4" embedment (True Bolt WW-5860, Kwik Bolt 3 – SS 5/8 (4) or equivalent).
- 2) (1) 5/8" threaded rod (std. Low Carbon Steel).
- 3) (16) Flat Washer, Large OD, 18-8 Stainless Steel washer at each (1/4" -14 x 2 1/2") screw location; qty: 4 per column; 16 washers in total.
- 4) Threaded rod extends through column and bolted to aluminum top plate.

Result: The configuration characterized herein for this structure can resist 90 MPH wind load as per ASCE 7-10 Code with minimum footing size: 12" x 12" x 30" deep or equivalent, 3000 psi concrete.



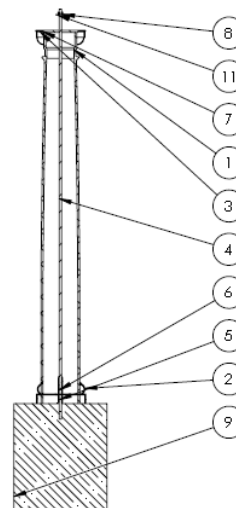
Respectfully Submitted by:

MW Engineering, Inc.



8/29/2014

Mark E. Weber, PE 53895  
Florida Registered Professional Engineer



ITEM NO.	PART NUMBER	QTY.
1	8" Column	1
2	8" Column Base	1
3	8" Column Cap	1
4	9/16" Threaded Rod	1
5	Short Threaded Rod	1
6	Threaded Coupler	1
7	10" Column Aluminum Top Plate	1
8	HHNUT 0.6250-11-B-N	1
9	24 in concrete footing	1
11	Selected Wide FW 0.688	1