Structural Engineering Analysis
For 14’ x 14’ Arbors Direct Pergola with 10” columns

Analysis was performed based on ASCE 7-10 Code, for the 14’ x 14’ Arbors Direct Pergola with 10” round or square columns. The analyses were performed with four (4) anchors per column base plate and the design reflects ASCE 7-10 wind load rating of 160 MPH with the following assumptions:

1) (1) 10” Round or Square Anchor plate welded to 5/8” coupler as per Drawings dated 1JULY2014.
2) (4) Anchors – Wedge type stainless steel 5/8” diameter with 4” embedment and 3,000 psi concrete (True Bolt WW-5860, Kwik Bolt 3 – SS 5/8 (4) or equivalent).
3) (1) 5/8” threaded rod shall be B7 Alloy Steel Threaded Rod (std. Low Carbon Steel is not equivalent).
4) (16) Flat Washer, Large OD, 18-8 Stainless Steel washer at each (¼” -14 x 2 ½”) screw location; qty: 4 per column; 16 washers in total.
5) Threaded rod extends through column and bolted to aluminum top plate.

Result: The configuration characterized herein for this structure can resist 160 MPH wind load as per ASCE 7-10 Code with minimum footing size: 24” x 24” x 24” deep.

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