



PIEDMONT
COMPOSITES & TOOLING

Piedmont Composites & Tooling Cupola Installation Guide

Important: The Cupola and/or base is for ornamental purposes only. It is not designed to replace or act as water tight roofing material. Therefore, the Cupola or base should sit on top of an enclosed roof (shingle savers are recommended and can be provided at an additional cost). The only roof penetration needed is for the anchor rod(s) that are supplied by others and should be sealed according to this installation guide. Do not seal around the base of the Cupola, as this allows water to be evacuated, should it enter the Cupola.

For: Rafter or Truss Systems

1. Refer to [Appendix F](#) on page 9 for general installation drawings and information.
2. Determine roof pitch by process shown in [Appendix A](#), [Appendix B](#), and [Appendix C](#) on pages 2-4.
3. Locate the rear of the base (side with access panel).
4. Locate the center of the base wall by process shown in [Appendix D](#) on pages 5 & 6.
5. Follow procedure in [Appendix D](#) on pages 5 & 6 to mark the base. Refer to [Appendix C](#) on page 4 if your church has a sagging roof.
6. With a cut-off or masonry type blade, cut along the mark made in Step 4. Note: DO NOT use a wood cutting or tooth-type blade.
7. Repeat Steps 3 through 5 on the opposite wall.
8. Set base on roof at desired location (make sure mounting holes will be between the rafters or trusses). Refer to [Appendix E](#) on pages 7 & 8 to view the proper way to lift 1 piece Cupola or Cupola base and spire.
9. Measure and cut the threaded rods that are supplied by others to correct length (should extend 4" past top anchor plate and 4" below bottom mounting brace).
10. Slide the threaded rod through the hole provided in the anchor plate on the base (hole may need to be enlarged).
11. Align rod with roof and mark.
12. Repeat Step 10 at all mounting locations.
13. Remove rods and drill hole through roofing material and decking.
14. Place rods through anchor plate and hole in roof.
15. Measure and cut an 2" x 3" x 3/16" steel angle mounting brace for each side.
16. Drill holes in the 2" x 3" steel angle where mounting rods will pass through.
17. Slide steel angle onto mounting rods and install washers and nuts.
18. Check alignment of base to roof.
19. Tighten all nuts evenly until base edges make a slight indentation into roofing material. Add jam nut to top and bottom of each anchor rod.
20. Caulk mounting rod holes with silicone caulking.
21. Anchor rods and bolts should be checked for tightness annually or after a period of high winds.
22. The unit should be removed when the roof requires replacement. The unit does not act as waterproof roofing material. The roof should be replaced beneath the unit base not roofed around the base with flashing.

Note: Optional shingle saver will protect the shingles the Cupola sits on.

Appendix A

How to make a home-made pitch gauge

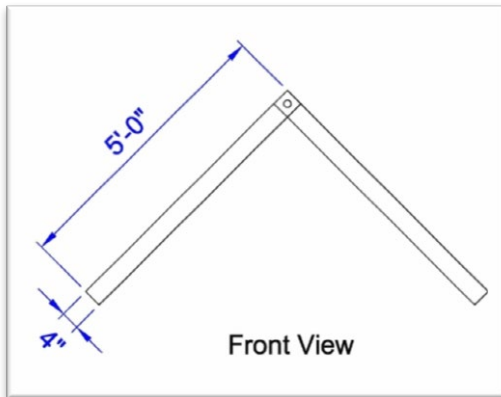


Figure A1: Front view of home-made pitch gauge

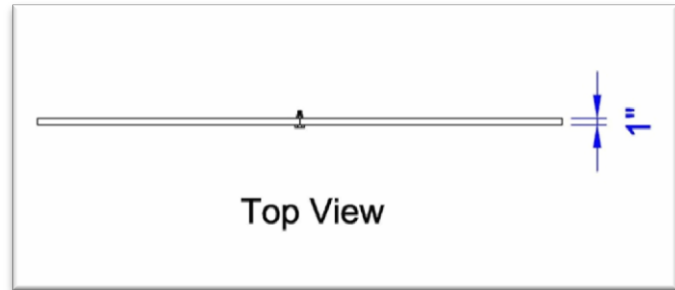


Figure A2: Top view of home-made pitch gauge.

Procedure:

Step 1: Cut 1" x 4" into two 5' lengths. Make sure these boards aren't bent or bowed.

Step 2: Drill 3/8" hole in one end of each 1" x 4" x 5' board. Drill hole in location shown in figure A3.

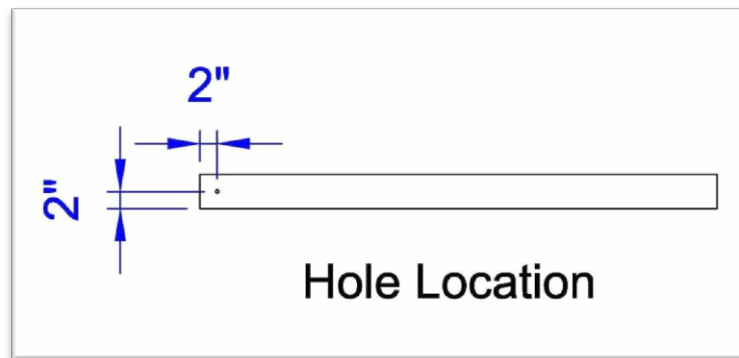


Figure A3: Hole location for each 1" x 4" x 5' board.

Step 3: Use 3/8" x 2 1/2" long bolt to join two 1" x 4" boards together.

Step 4: Loosen bolt to adjust pitch gauge and measure pitch, tighten bolt to retain pitch measurement and draw pitch onto Cupola base.

Appendix B

How to measure roof pitch using a pitch gauge

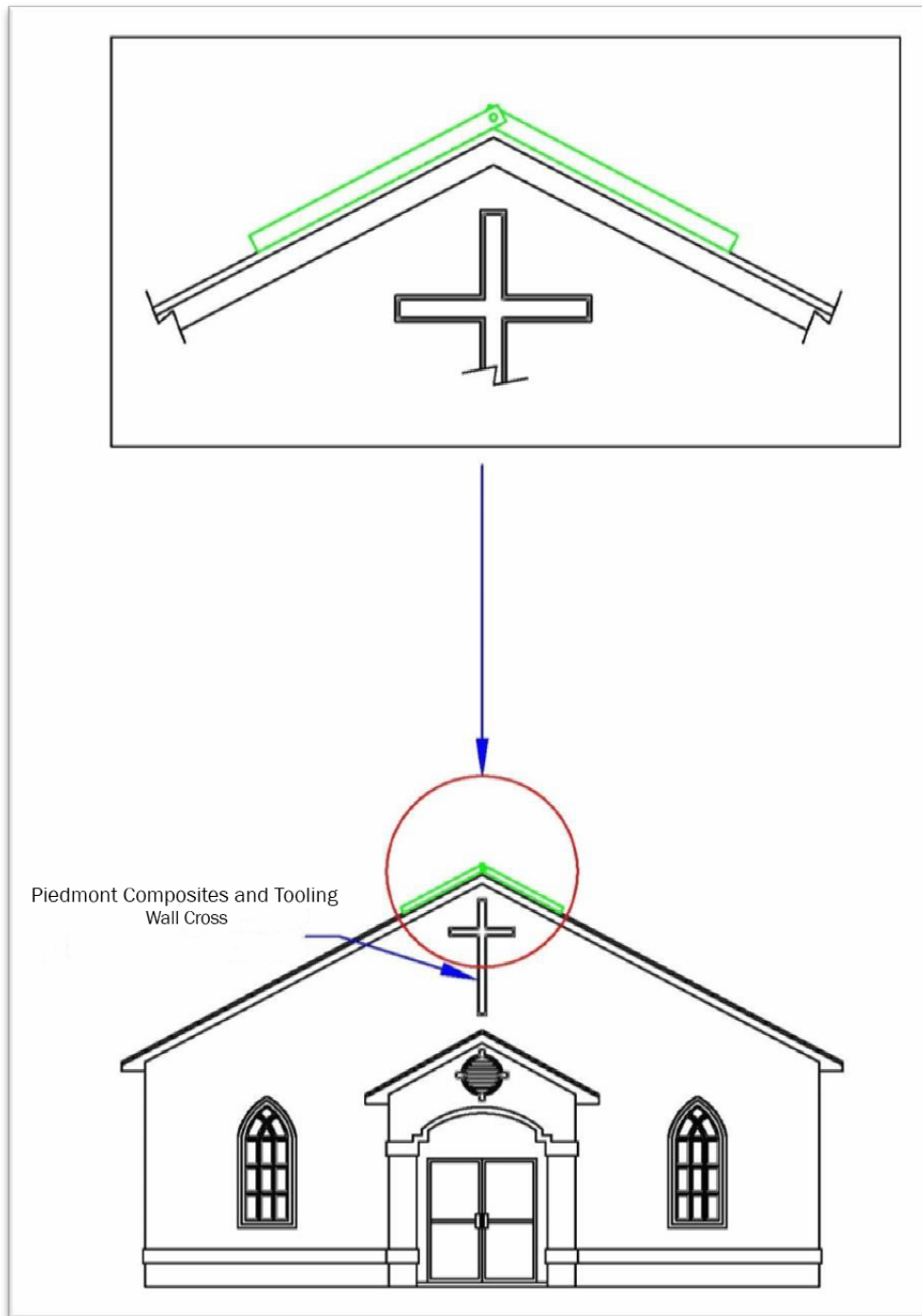


Figure B1: Using pitch gauge to measure pitch of church roof.

Appendix C

Does your church have a sagging roof?

- Step 1:** Before climbing onto the roof of the church, stand back from the church and look at the roof to see if the roof is sagging in the middle from front to back. Refer to Figure C1 to see a drawing of a church with a sagging roof.
- Step 2:** After climbing onto the roof of the church, the first thing you will want to do is determine where the Cupola will be located. Once you determine the proximity of where the Cupola is to be located, find the rafters around that location and mark them. Make sure the front and back sides of the Cupola base will be located between two rafters.

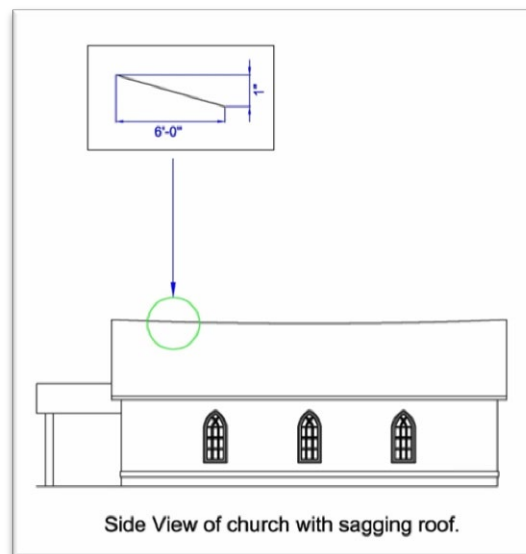


Figure C1: Church with sagging roof.

- Step 3:** If your church has a sag in the roof from front to back, lay the level on the ridge cap where the base of the Cupola will set. Use the level to find the amount the roof swags over this area. If your church has a swag of 1" over the length of the roof where the base will set, when you cut the pitch out of the Cupola base, make the front 1" higher than the back and cut the sides off at an angle to make up for the swag in the roof. This will allow the Cupola to sit level on the church.

Figure C2 shows how to cut the pitch in the Cupola base when you are mounting this Cupola on a church with a 1" sag in the roof.

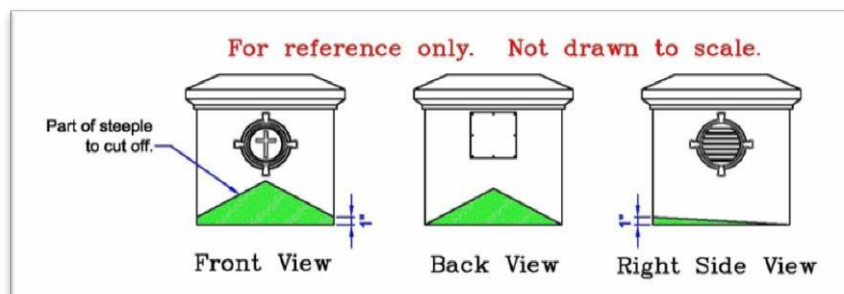


Figure C2: Drawing of Cupola pitch cut for a sagging roof.

Appendix D

How to mark roof pitch on the Cupola base using a pitch gauge

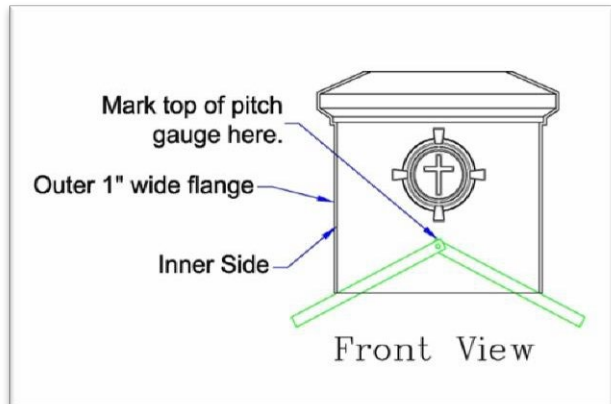


Figure D1: Measuring top of pitch cut.

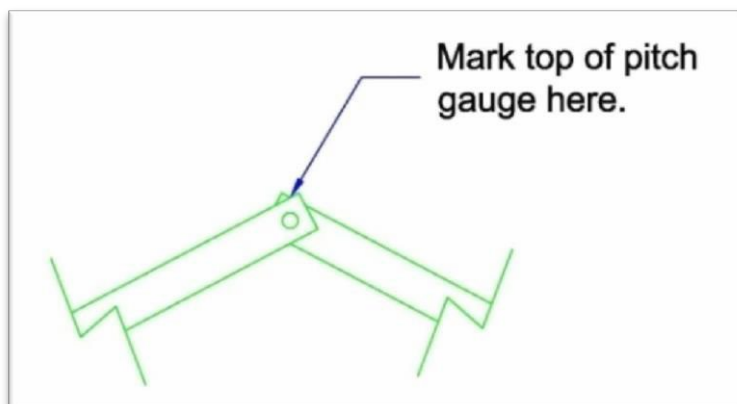


Figure D2: Where to mark top of homemade pitch gauge.

Step 1: Locate inner sides of base. Refer to figures D3 through D5 to determine location of inner sides. The base in the pictures has the pitch already cut into it for visual aid.



Figure D3: Cupola Base with Pitch Cut into it for Reference.



Figure D4: Left Side View of Cupola Base

Align top of pitch gauge with these corners to mark pitch in base.



Figure D5: Right Side View of Cupola Base.

Appendix D Continued

Step 2: Mark front of base at the locations of the inner sides.

Step 3: Line the top edge of the pitch gauge with the inner side marks.

Step 4: Make a mark at the top of the pitch gauge. If you are using a homemade pitch gauge make the mark at the intersection between the two boards. Refer to figure D6 to see where to make the mark.

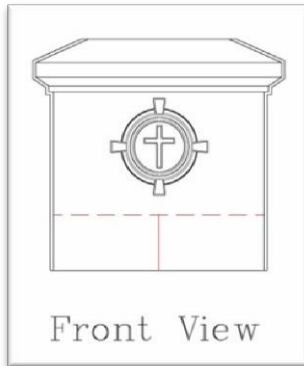


Figure D6: Marking center of base.

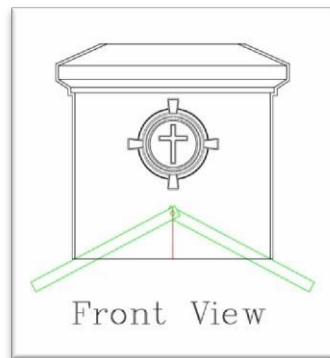


Figure D7: Lining pitch gauge with base.

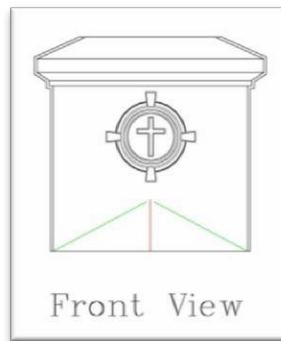


Figure D8: Marking pitch cut.

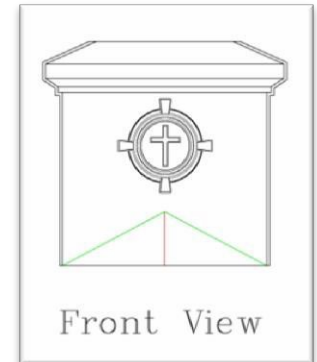


Figure D9: Finishing mark for pitch cut.

Step 5: Locate the center of the base at the mark you made in step 4. Refer to figure D6.

Step 6: Draw a line from the center of the base at the top of the pitch cut to the bottom of the base. Refer to figure D6.

Step 7: Line the top of the pitch gauge with the top of the center line you drew in step 6. Line the top edge of the pitch gauge with the inner side marks you made in step 2. Refer to figure D7.

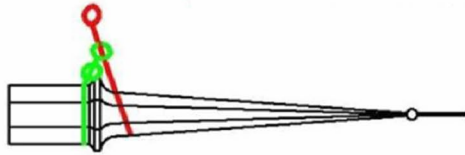
Step 8: Draw a line on the top of the pitch gauge. Draw the line from the inner side marks to the top of the pitch gauge. If you are using a homemade pitch gauge, stop the line, where the 1" x 4" boards intersect at the top. Refer to figure D8.

Step 9: If using a homemade pitch gauge, use a straight edge to connect the end of each line to the top of the center line you drew in step 6. Refer to figure D9.

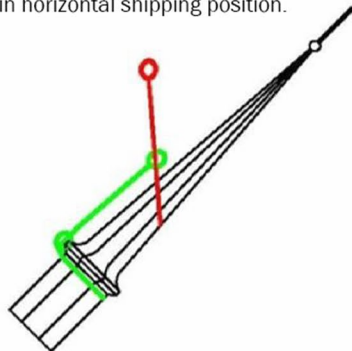
Appendix E

Lifting spire / 1 piece Cupola & base

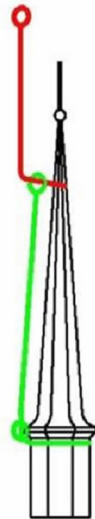
DO NOT LIFT ANY UNIT FROM THE BALL OR CROSS



1. Connecting strap 1 to strap 2 with steeple in horizontal shipping position.



2. Beginning to lift the steeple



3. Steeple in vertical position fully supported by 2 straps.

Strap #1 (Green Strap)

This strap should be long enough to extend around the unit below the eave and extend to the upper portion of the unit. As the strap is wrapped around the unit, one end of the strap should slide through the other end to create a tight slip below the base.

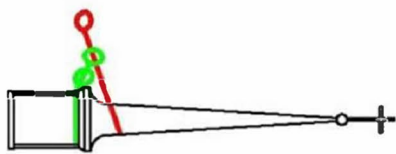
Strap #2 (Red Strap)

This strap should extend around the upper sections of the unit with both ends feeding through the end loop of Strap #1. The crane should then hook into the end loop of strap #2.

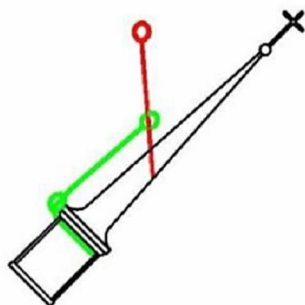
Note: Steeple shown as example

Figure E1: Lifting octagon spire or 1 piece octagon Cupola.

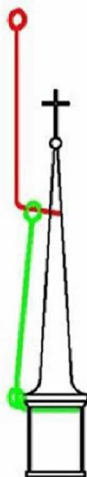
*** DO NOT LIFT ANY UNIT FROM THE BALL OR CROSS***



1. Connecting strap 1 to strap 2 with steeple in horizontal shipping position.



2. Beginning to lift the steeple



3. Steeple in Vertical Position, fully supported by 2 straps.

Strap #1 (Green Strap)

This strap should be long enough to extend around the unit below the eave and extend to the upper portion of the unit. As the strap is wrapped around the unit, one end of the strap should slide through the other end to create a tight slip below the base.

Strap #2 (Red Strap)

This strap should extend around the upper sections of the unit with both ends feeding through the end loop of Strap #1. The crane should then hook into the end loop of strap #2.

Note: Steeple shown as example

Figure E2: Lifting square spire or 1 piece square Cupola.

Appendix E Continued

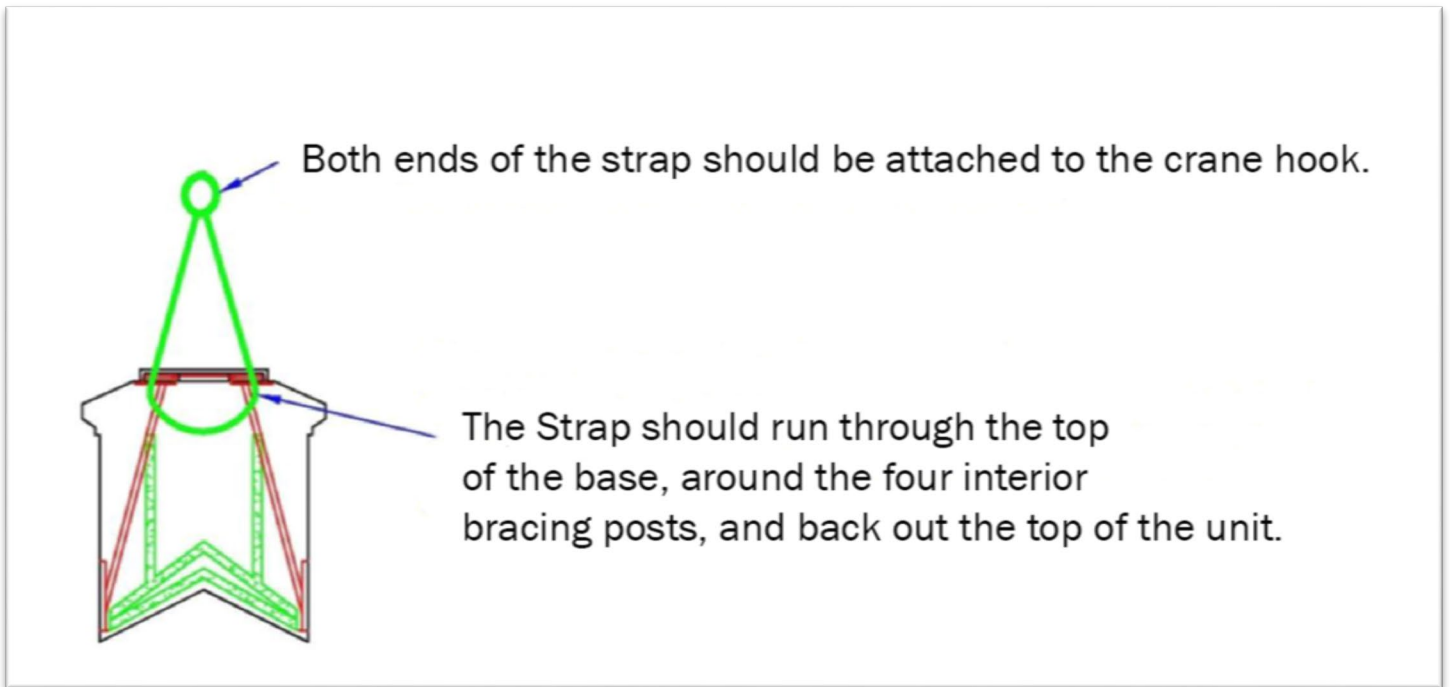
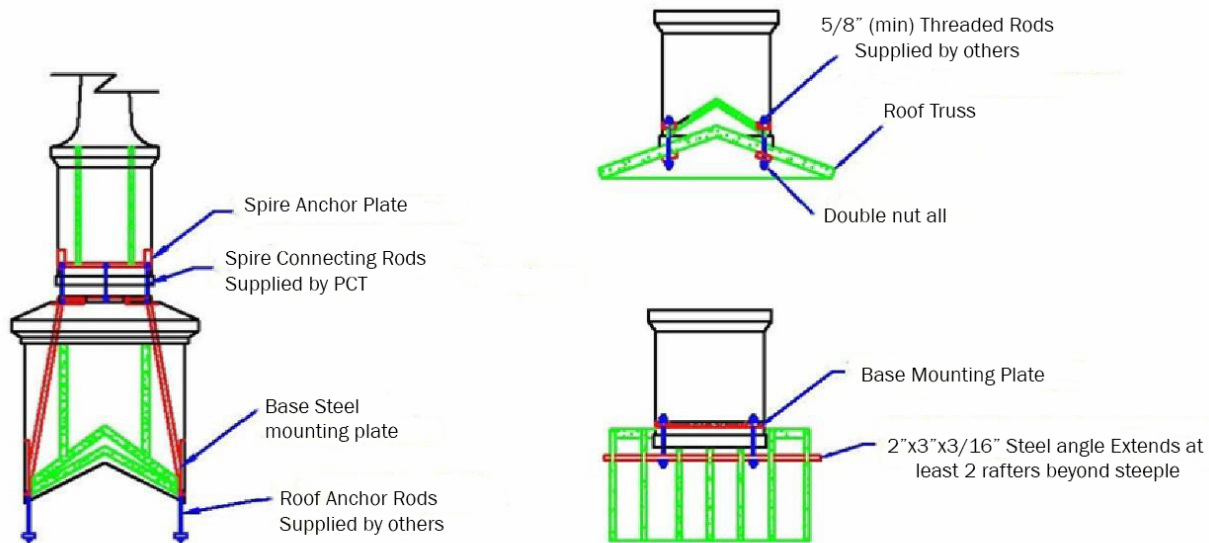


Figure E3: Lifting Cupola base or cupola section.

Appendix F

General Mounting Detail Drawings

Note: This information is to aid the installer. Piedmont Composites and Tooling LLC will not be responsible for damage caused as a result of the misinterpretation of this information. Consult your local building codes for specific requirements.



Installation for:
Steeple Models L and S.
Cupola Models 200, 300, 400, and 30LR

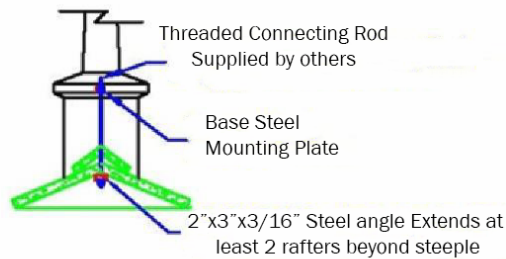


Figure F1: General Installation Drawings.