3 Frequency 3/8 Dome Assembly Instructions

Connector Kit Inventory List: 46 Hub Units Total

- 25 Hexagon hubs (6 point)
  x20 Base plates with multi-color edges
  x5 Base plates with green color edges
  x25 Hexagon Center Cups

- 6 Pentagon Hubs (5 point)
  x6 Pentagon base plates (All Red Edges)
  x6 Pentagon center cups (All Red Edges)

- 15 Quad hubs (4 point)
  x10 Base plates with blue/green/red color edges
  x5 Base plates with green color edges
  x15 Quad 4 sided Center Cups

Quick Overview of Hub Unit Assembly Procedure

Its a 2 phase process. The first phase you will just get everything assembled loosely in place with a single screw. The second phase after all the segments are in place is where the segments are locked into place with additional screws.

In the first phase you are just going to attach the 2x4s to the plates with a single screw and attach a center cup to a single 2x4 at each hub in this initial phase as well.

The center cup attached to a 2x4 will help guide the placement of the other 2x4s on the plate. This first phase is just to get all the 2x4 segments loosely in place.

The second phase is where the other 2x4s are attached to the center cups and then the second round of screws through the base plates are added. Attaching all the 2x4s to the center cups in the second phase will add strength and tension to the structure.

Additional Materials Required:

- 720 wood or drywall screws
- Cordless drill
- 3 to 4 hours Assembly Time
- Recommended rubber coated knit gloves and safety glasses.
- 60 eight ft 2x4s cut in half to the following lengths:
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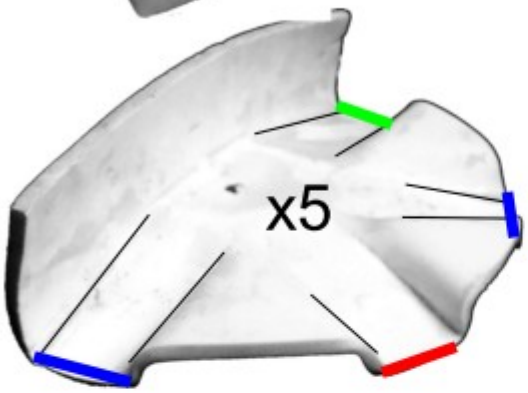
  x50 Green tip lengths at 45 inches

  x40 Blue tip lengths at 44 inches

  x30 Red tip lengths at 38 inches

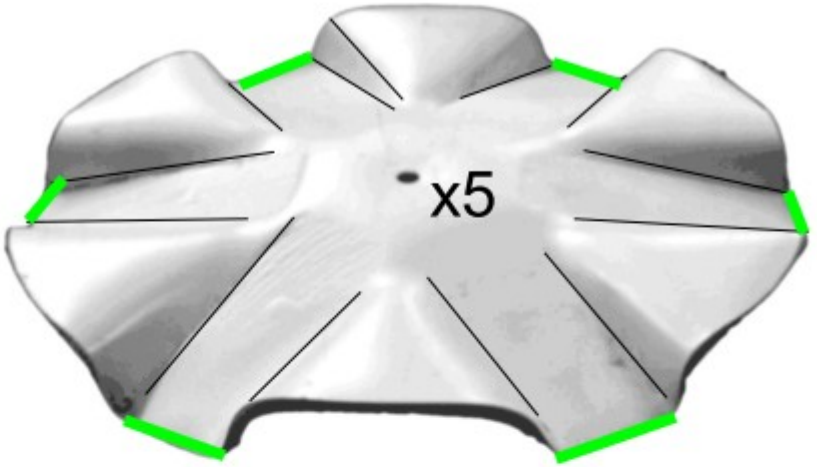
Parts Inventory

x15



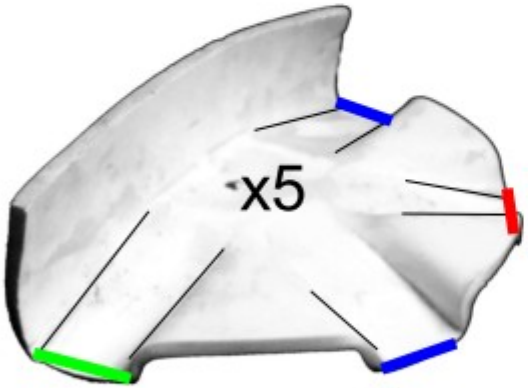
x5

x6

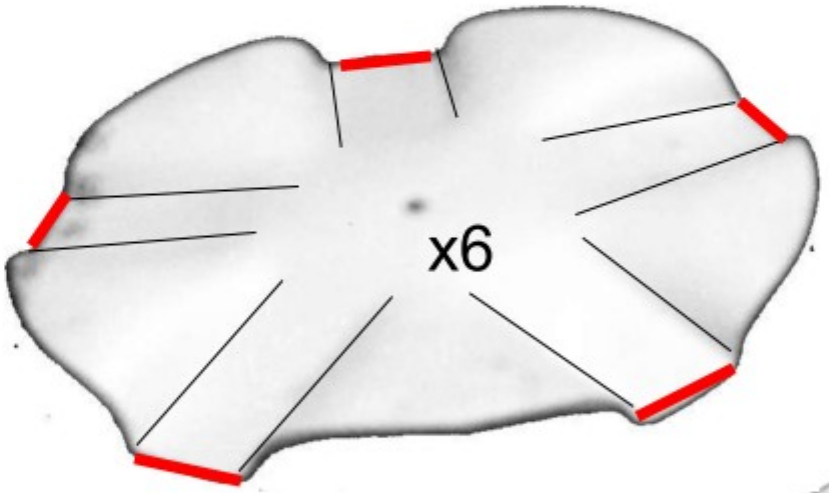


x5

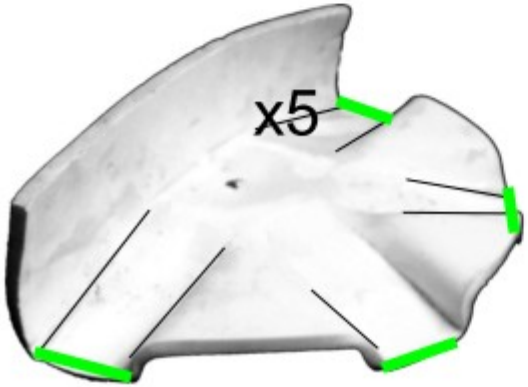
x25



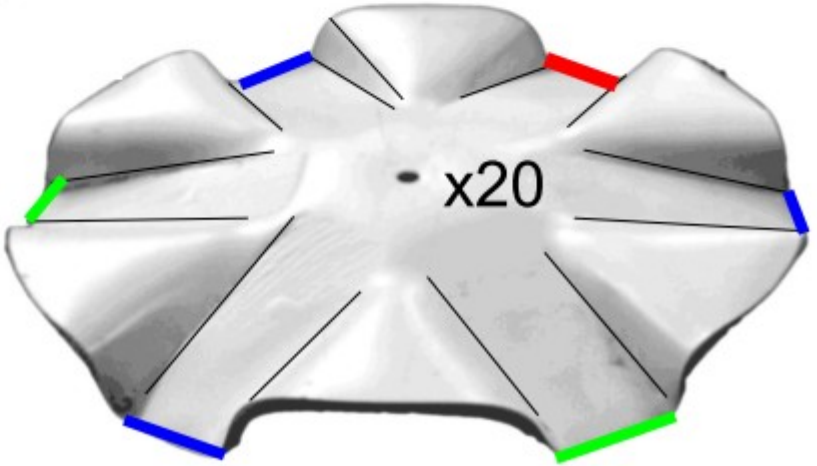
x5



x6



x5



x20

To build a **19.3** ft diameter Dome use this ratio set:

Red = A = 38 inches
Blue = B = 44 inches
Green = C = 45 inches

50 - Green 2x4s
40 - Blue 2x4s
30 - Red 2x4s

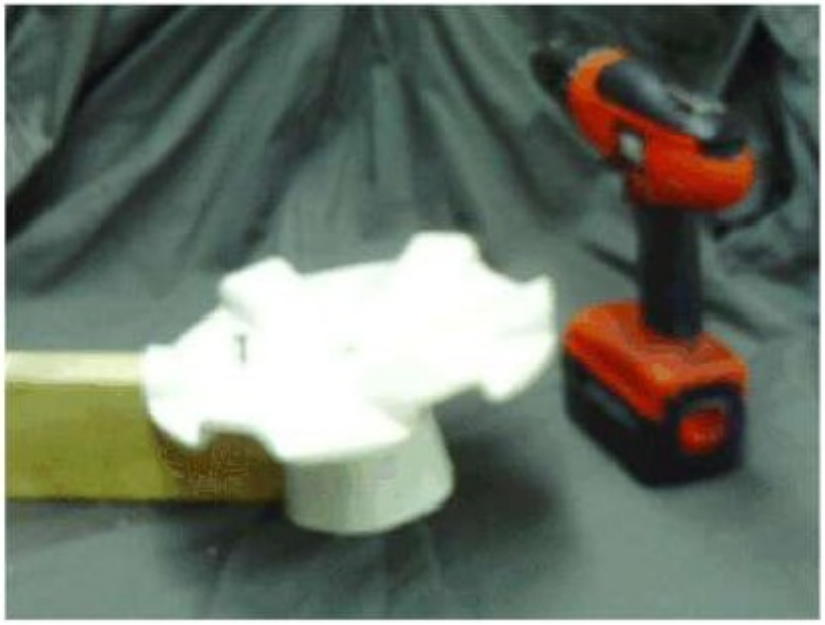
Ideally, if you keep the lengths below 48 inches, it will be easier to add rigid triangle panels that are usually only found in 4x8 ft lengths. For example, OSB lumber sheets or Coroplast plastic sheets make good rigid panels. These materials can be purchased for less then $10 a sheet that is 4x8 ft foot.

General Hub Assembly Procedure Introduction and Overview

This is a two phase assembly. In the first phase all the pieces are put together in place loosely with a single screw through the base plate into the 2x4 segments. The final phase of assembly locks the segments tight into place with the other screws for the center cup and base plate. Added tension will give the structure its overall strength

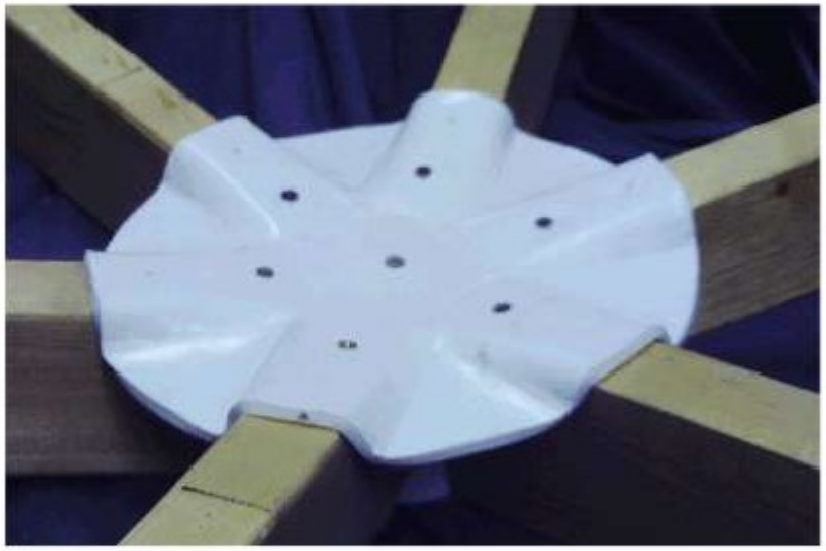
1. Attach center cup to one 2x4 segment with a screw and cordless drill

2. Attach 2x4 segment to base plate with a single screw



General Hub Assembly Procedure Introduction and Overview

3. Attach the other 2x4 segments for that hub to base plate with a single screw.

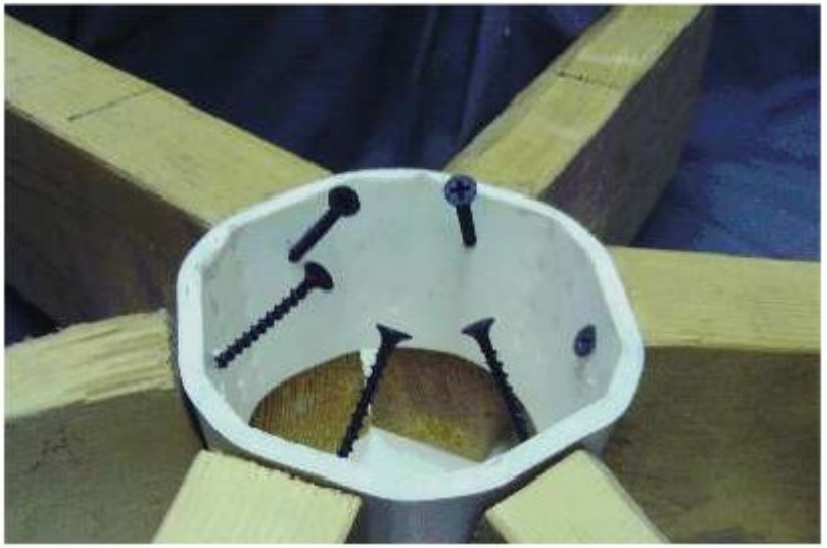


Only one screw in the each 2x4 tip from the base plate while the dome is being assembled.

Only one screw in each center cup while the dome is being assembled.

General Hub Assembly Procedure Introduction

5. Last step after all the 2x4 segments have been joined together and the dome structure in complete:
Drill screws through center cups into 2x4 segment all the joints.
Drill second screw through base plate into 2x4 segments for all joints.



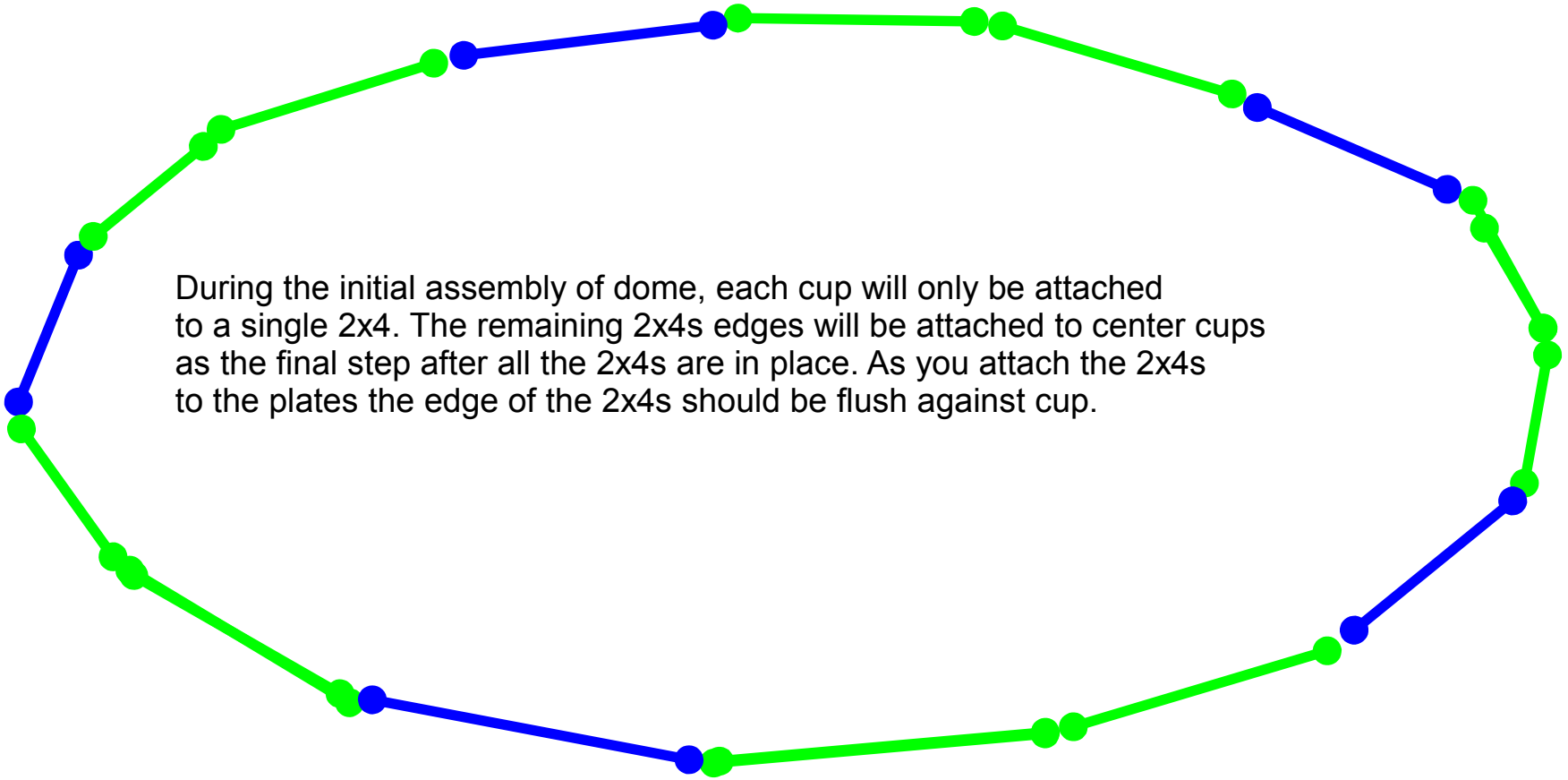
Step 1

a. Estimate and draw on ground 19.6 ft diameter circle. An approximation is fine.

b. Set aside:

- x15 -- 4pt hub plates
- x15 -- 4pt hub cups
- x5 -- blue tip 2x4s
- x10 -- green tip 2x4s

c. Assemble the hub connections. Attach 2x4 to plate with screw then attach cup to 2x4, then attach other 2x4 to plate and position it so that its is flush against center cup.



Step 2

a. Set aside:

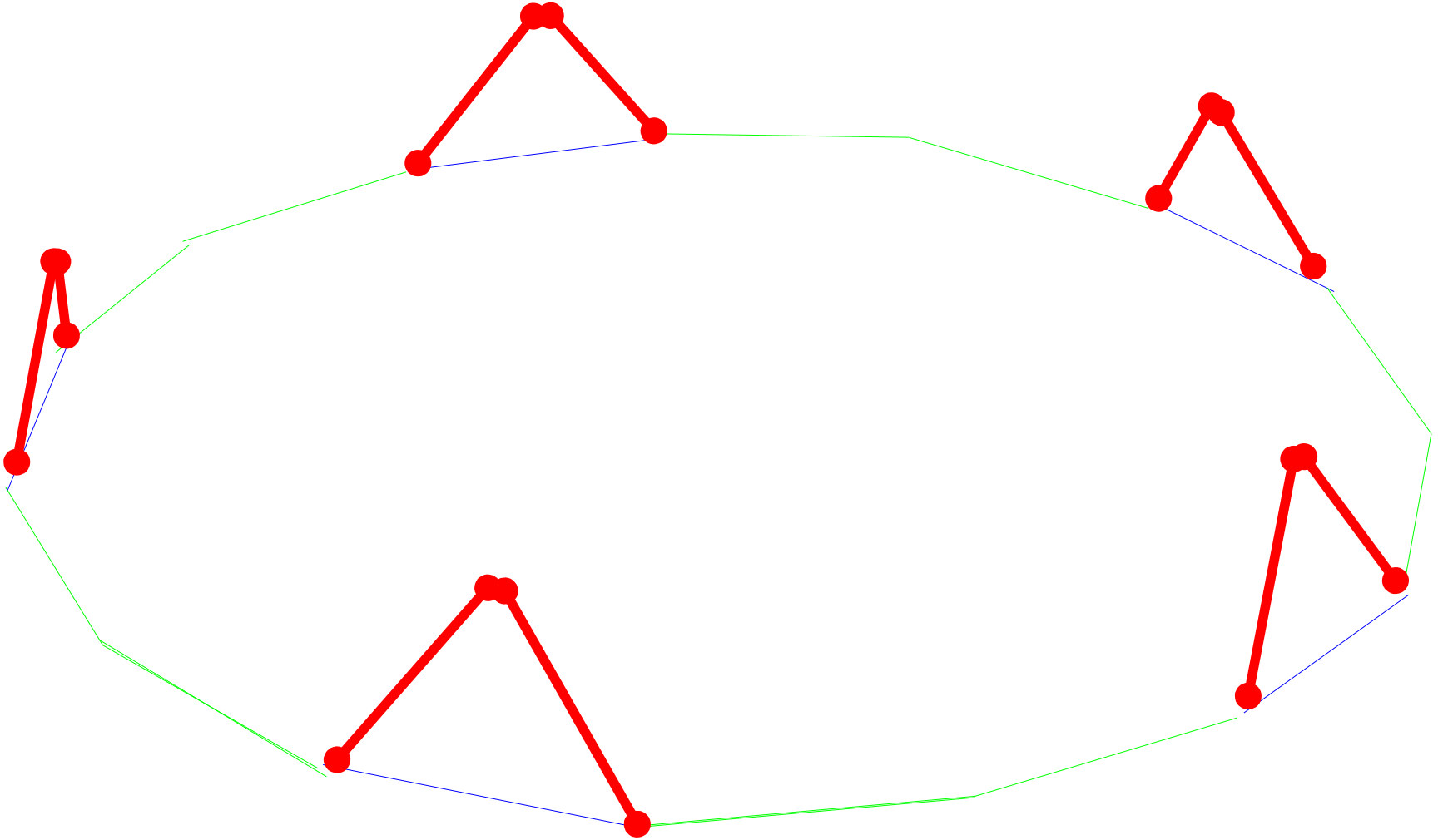
x10 -- red tip 2x4s

x5 -- 5pt cups

x5 -- 5pt hub plates

b. Attach 2x4s to plates where the 4pt plate segment is red.

Attach each 5pt cup to tip of red 2x4. Attach 5pt hubs plates to tips of 2x4s

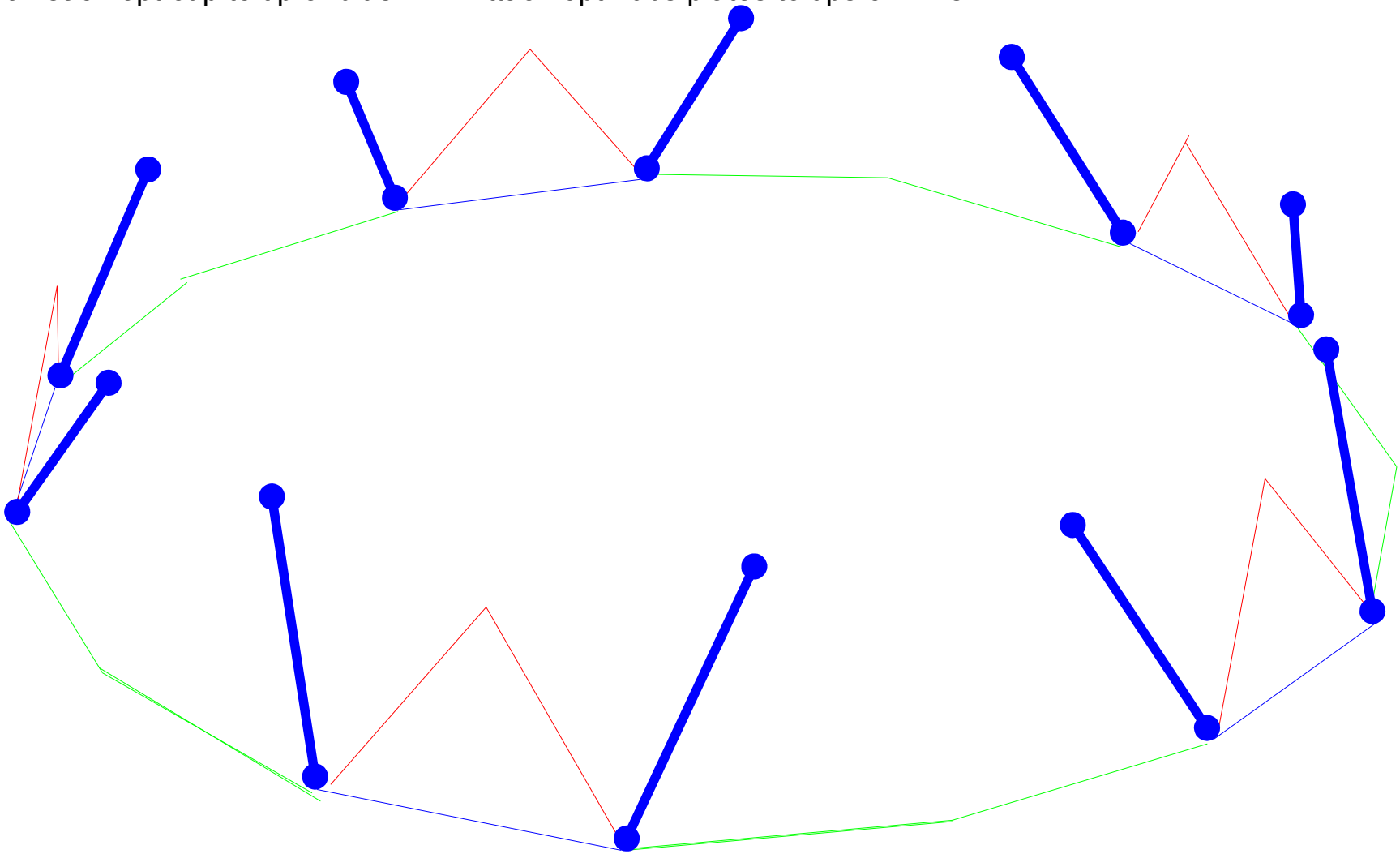


Step 3

a. Set aside:

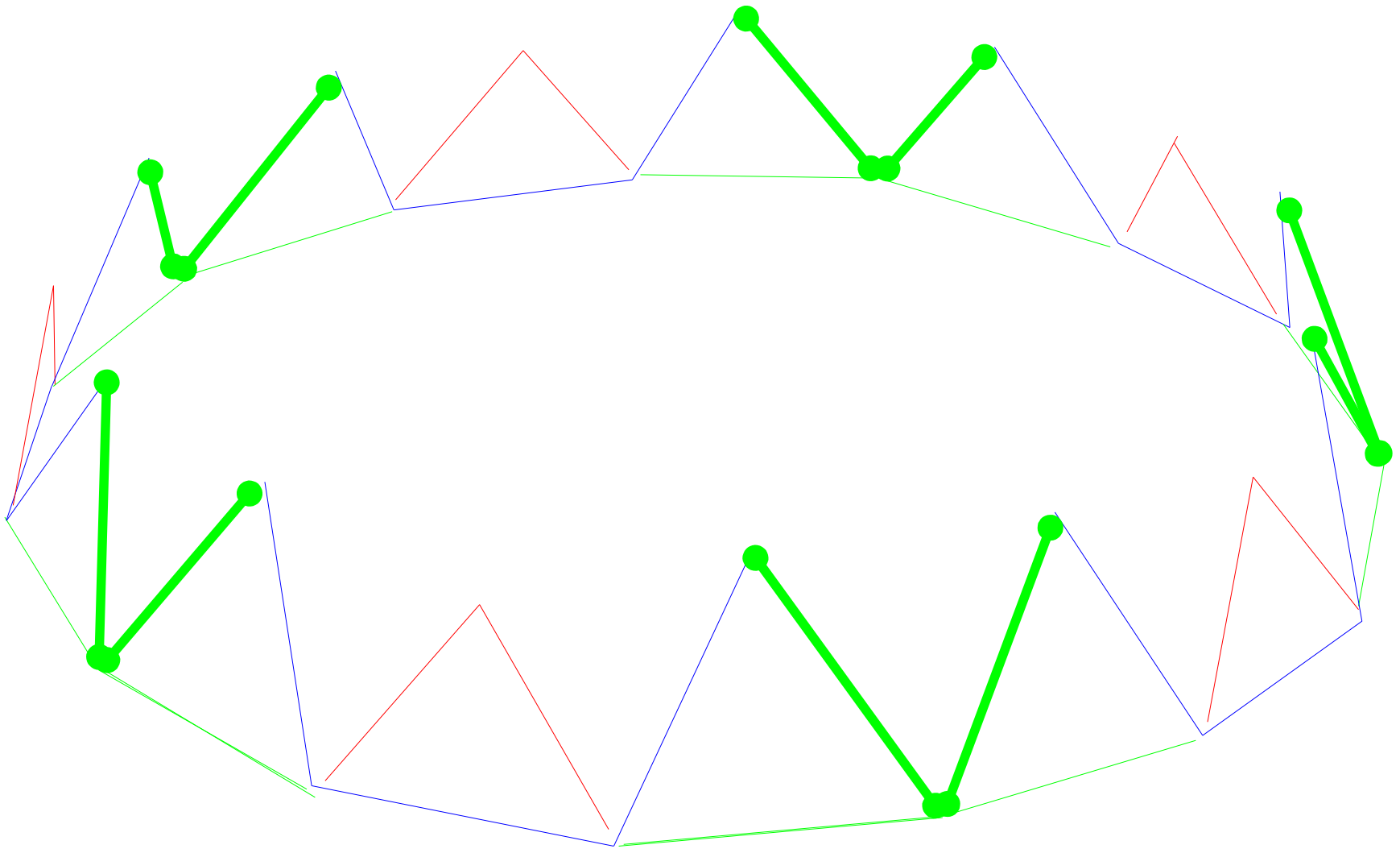
- x10 -- blue tip 2x4s
- x10 -- 6pt cups
- x10 -- 6pt hub plates

b. Attach 2x4s to plates where the 4pt plate segment is blue.
Attach each 6pt cup to tip of blue 2x4. Attach 6pt hubs plates to tips of 2x4s



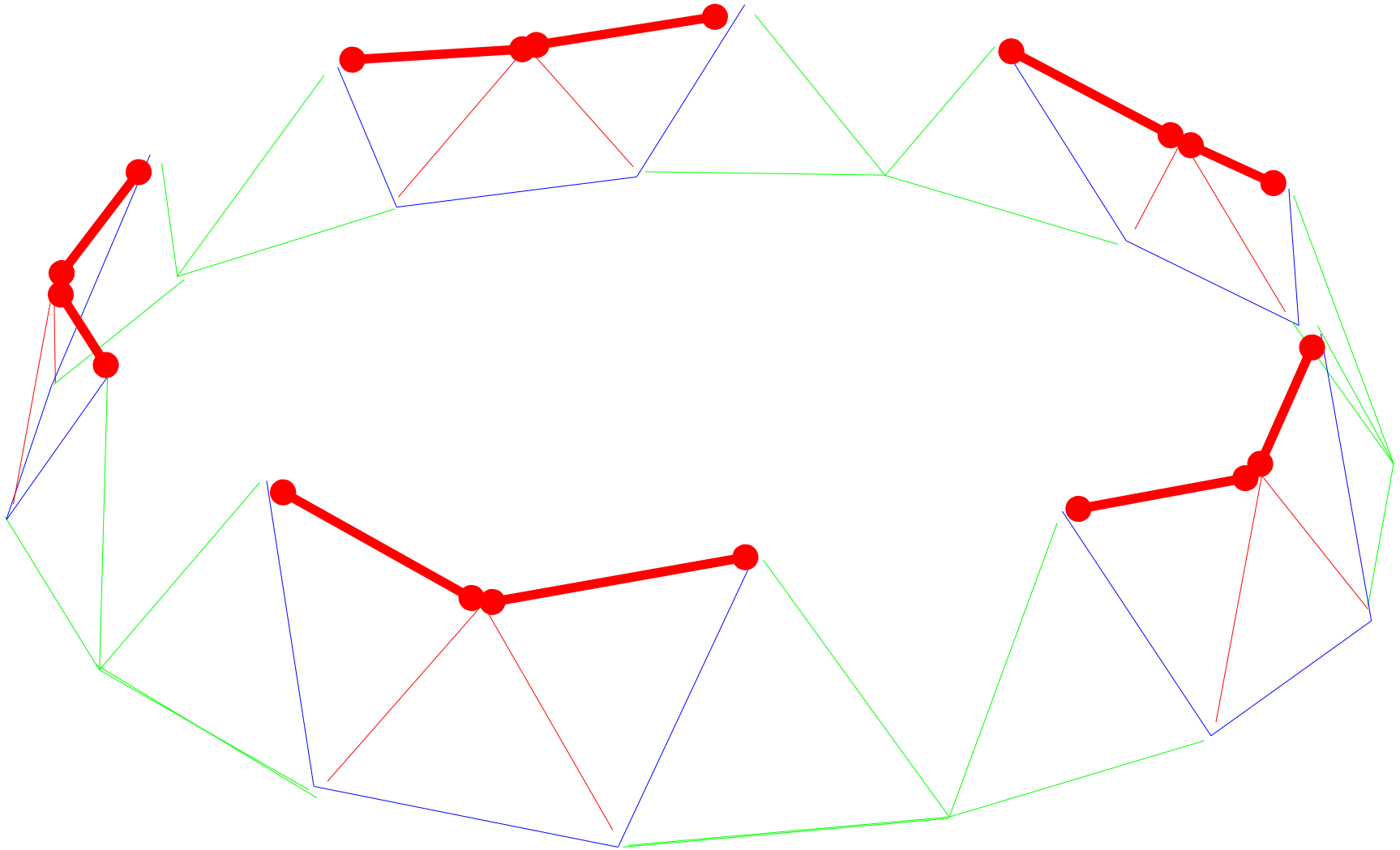
Step 4
a. Set aside: x10 -- green tip 2x4s,

b. Attach 2x4s to plates where the 6pt plate segment is green.



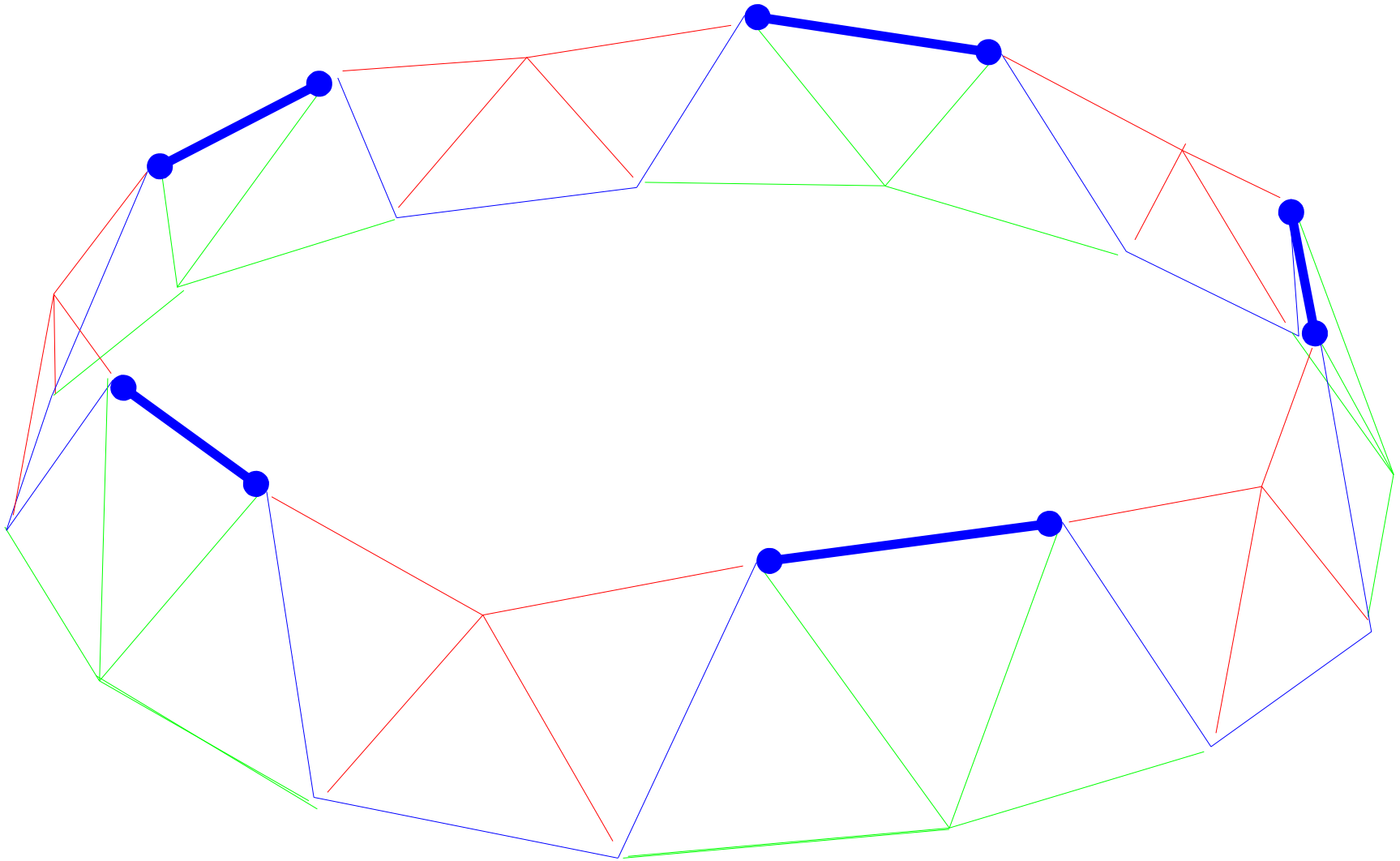
Step 5

Set aside: x10 -- red tip 2x4s, Attach 2x4s to plates where the 6pt plates are red.



Step 6

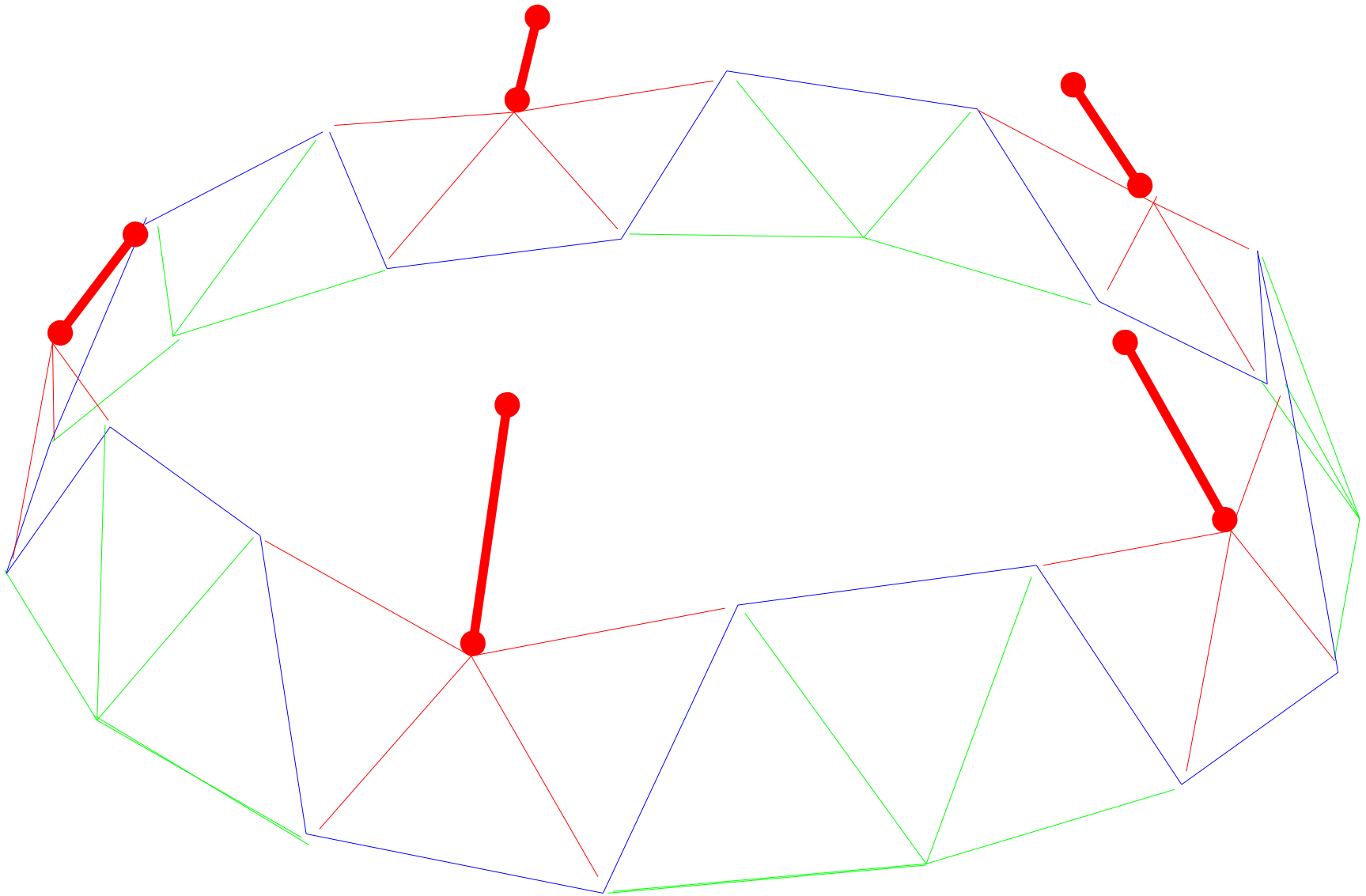
Set aside: x5 -- blue tip 2x4s, Attach 2x4s to plates where the 6pt plates are blue.



Step 7

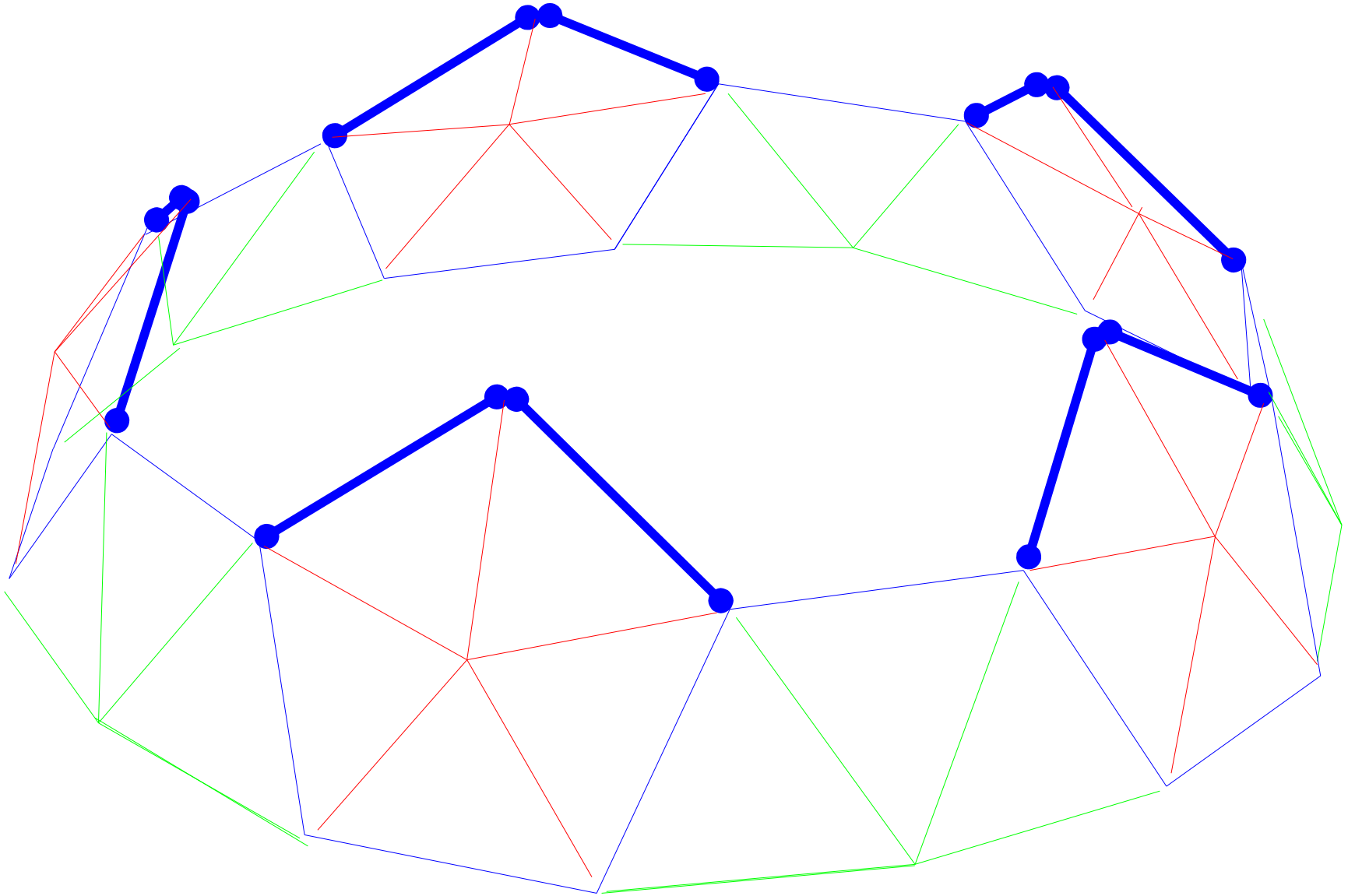
Set aside: x5 -- red tip 2x4s -- Attach 2x4s to plates where the 5pt plates are red.

Attach x5 -- 6pt cups to red tip 2x4s.



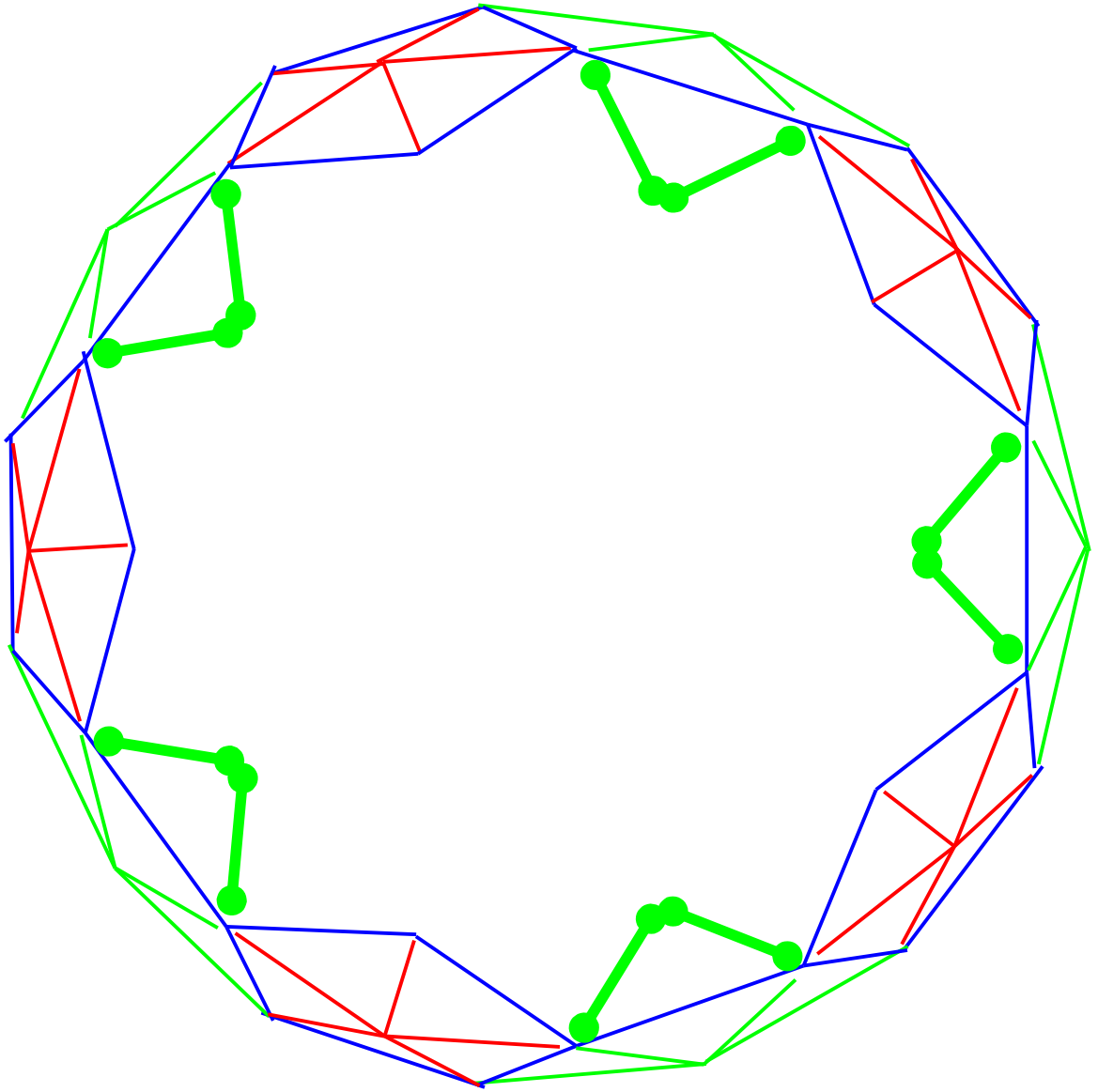
Step 8

Set aside: x10 -- blue tip 2x4s -- Attach 2x4s to plates where the 6pt plates are blue.



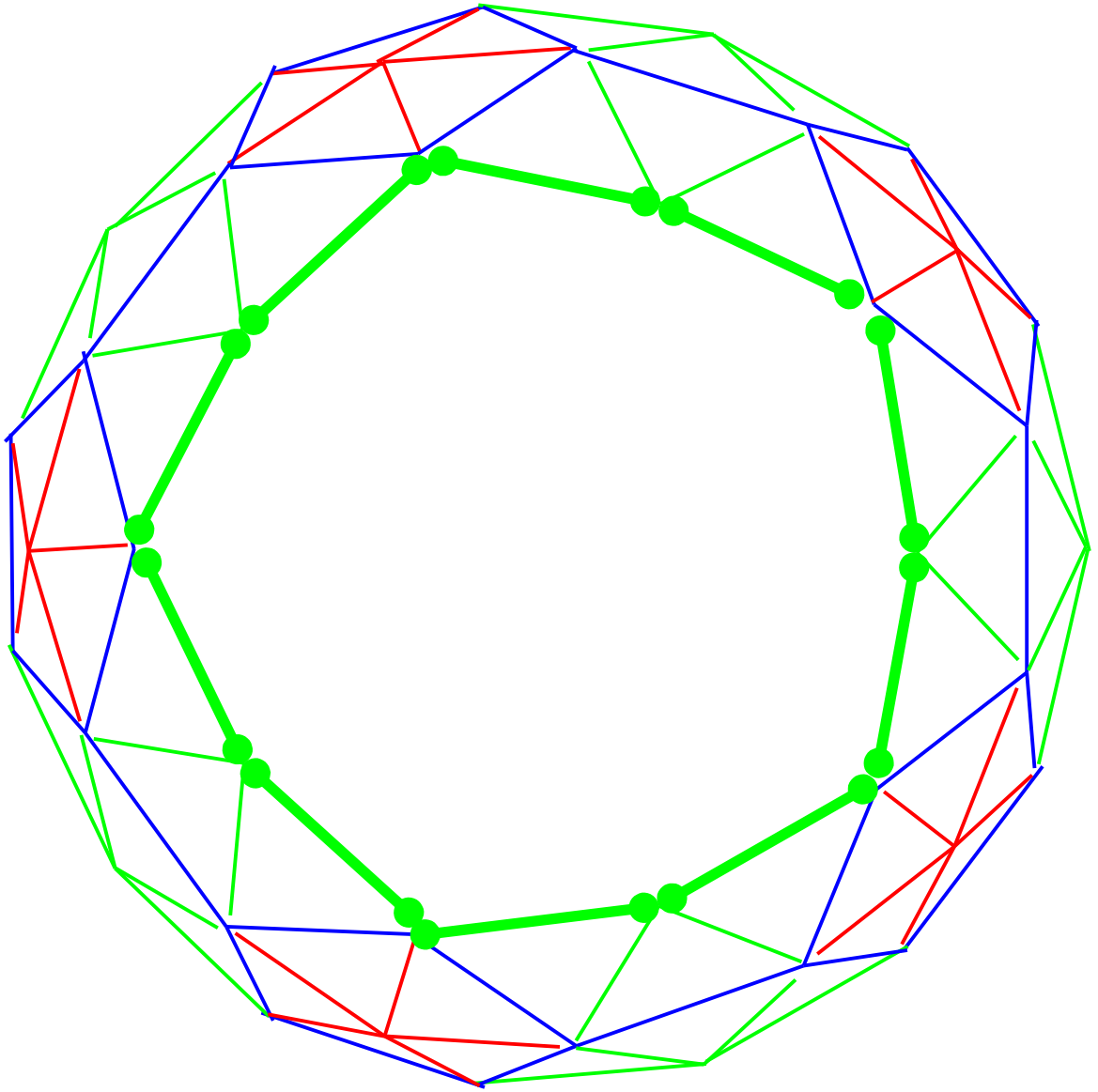
Step 9

Set aside: x10 -- green tip 2x4s -- Attach 2x4s to plates where the 6pt plates are green.
Attach x5 -- 6pt cups -- attach cups to edge of green 2x4s.



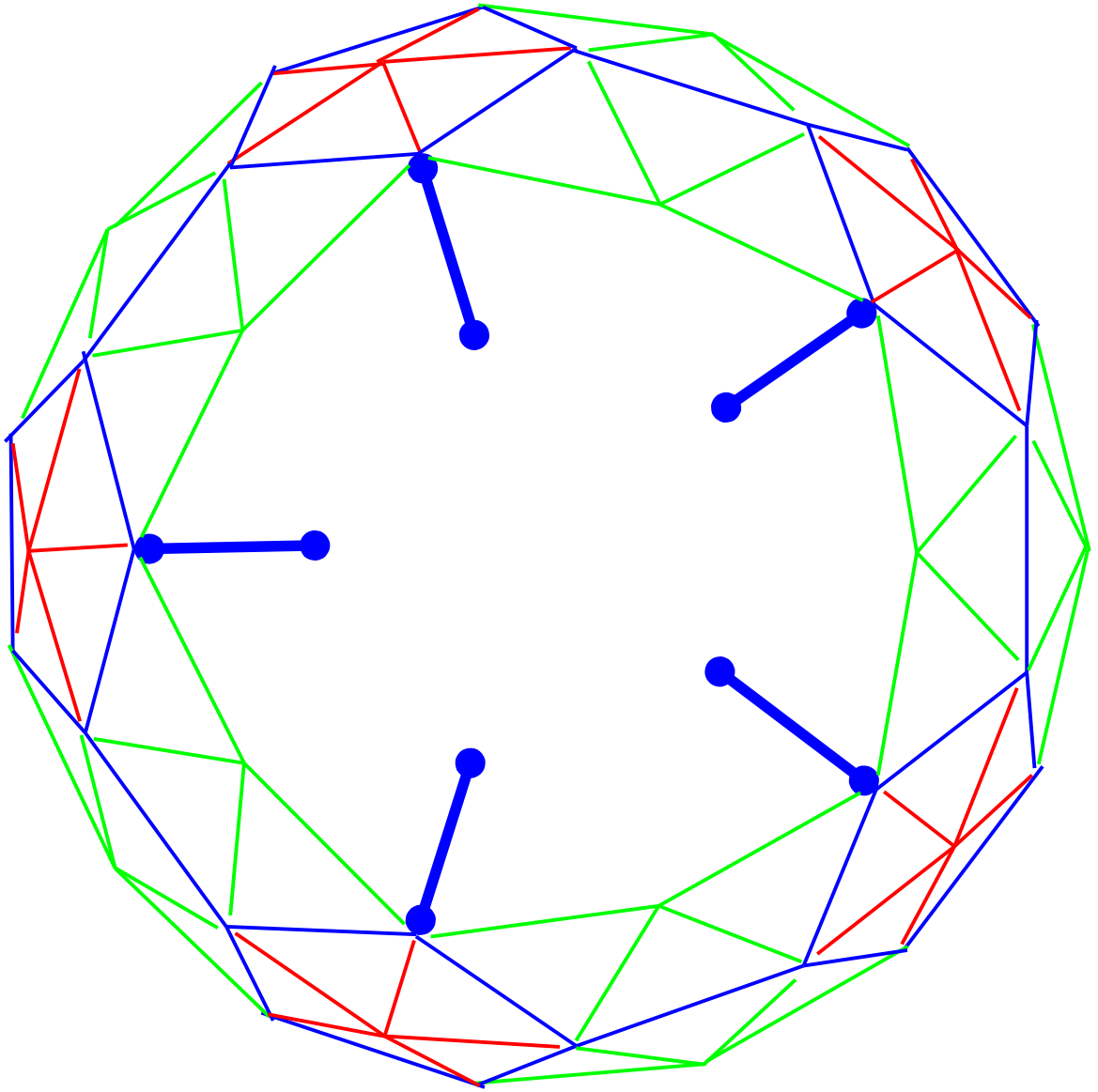
Step 10

Set aside: x10 -- green tip 2x4s -- Attach 2x4s to plates where the 6pt plates are green.



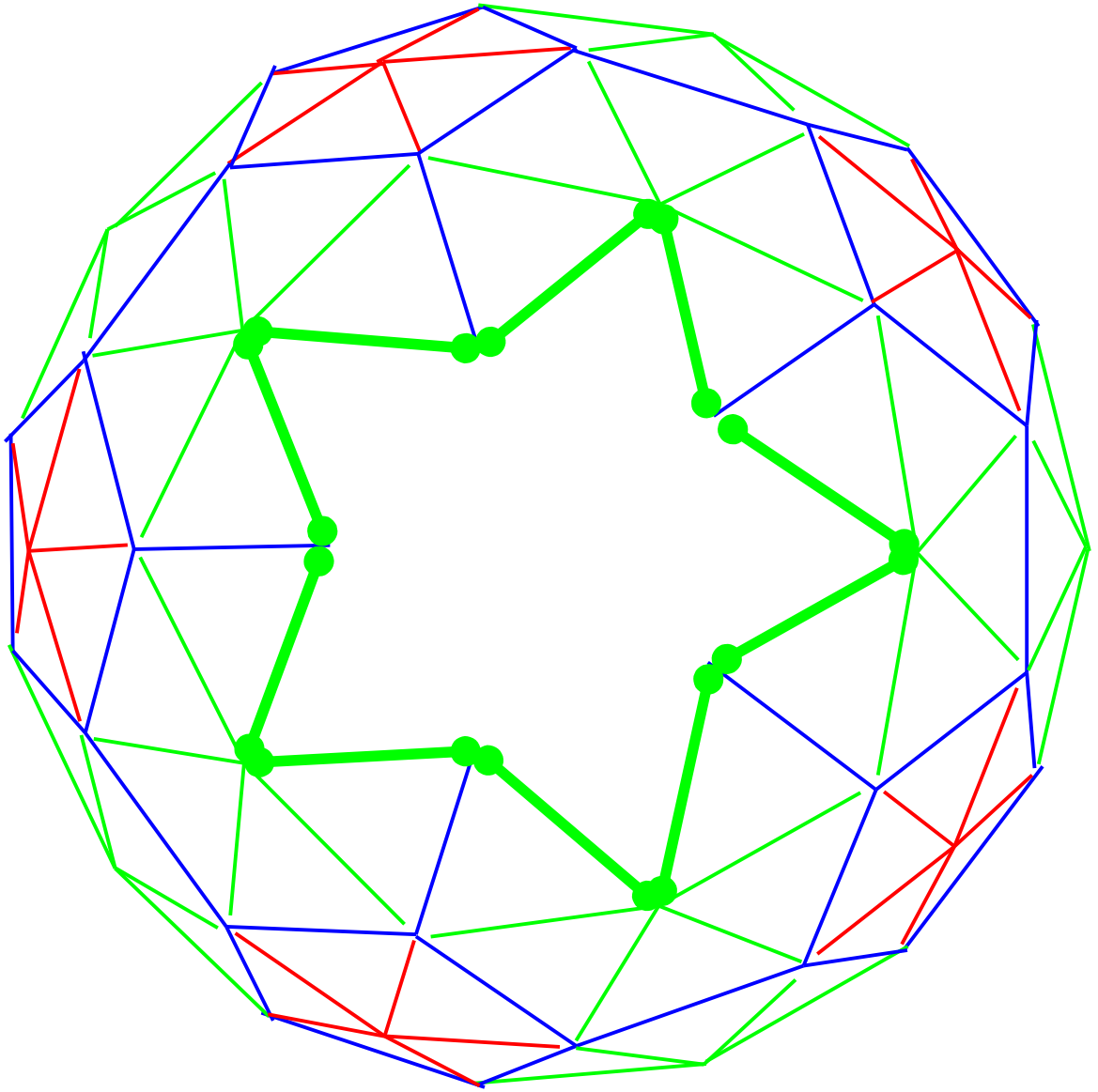
Step 11

Set aside: x5 -- blue tip 2x4s -- Attach 2x4s to plates where the 6pt plates are blue. Attach x5 -- 6pt cups -- attach cups to edge of blue 2x4s.



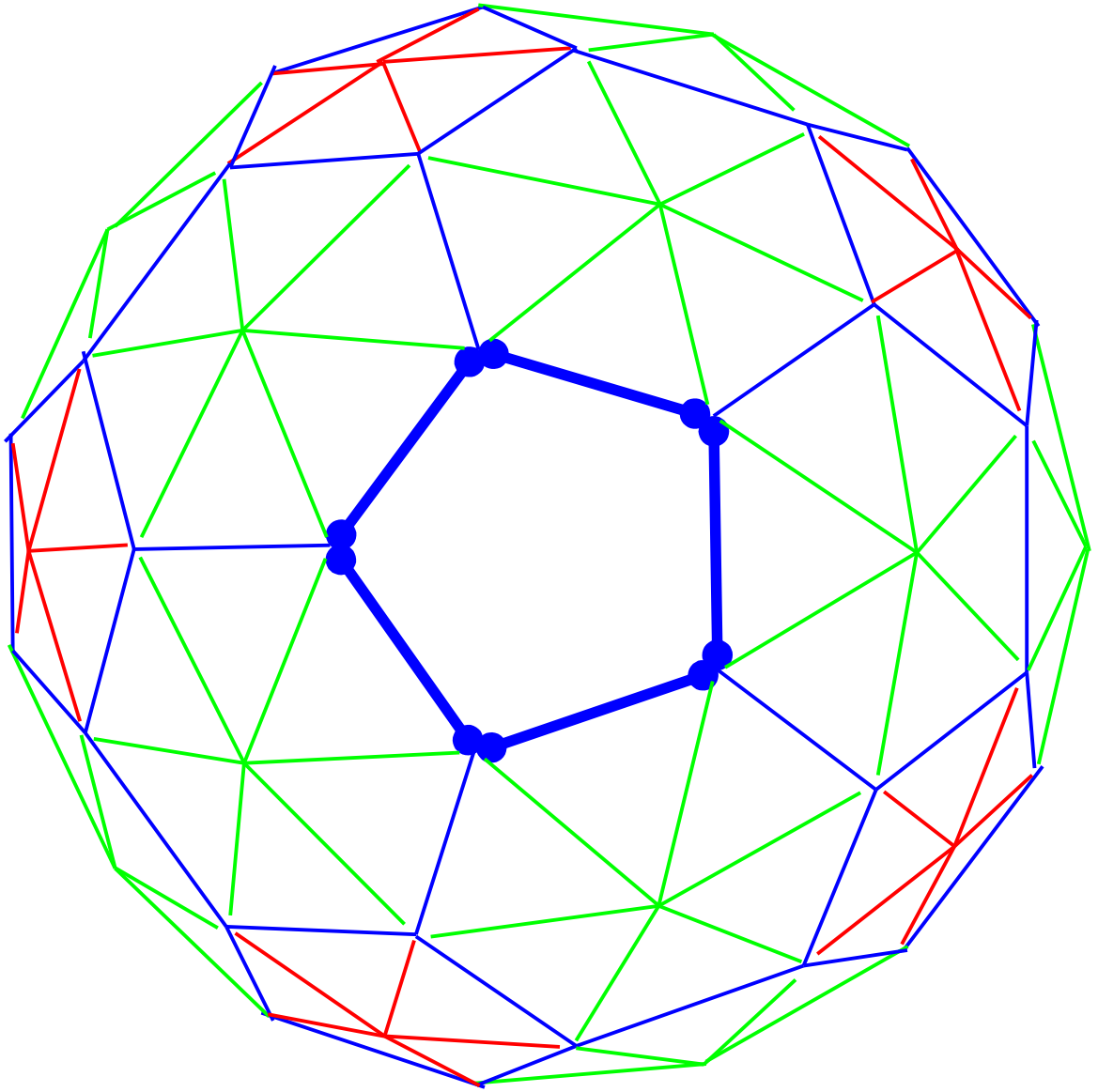
Step 12

Set aside: x10 -- green tip 2x4s -- Attach 2x4s to plates where the 6pt plates are green.



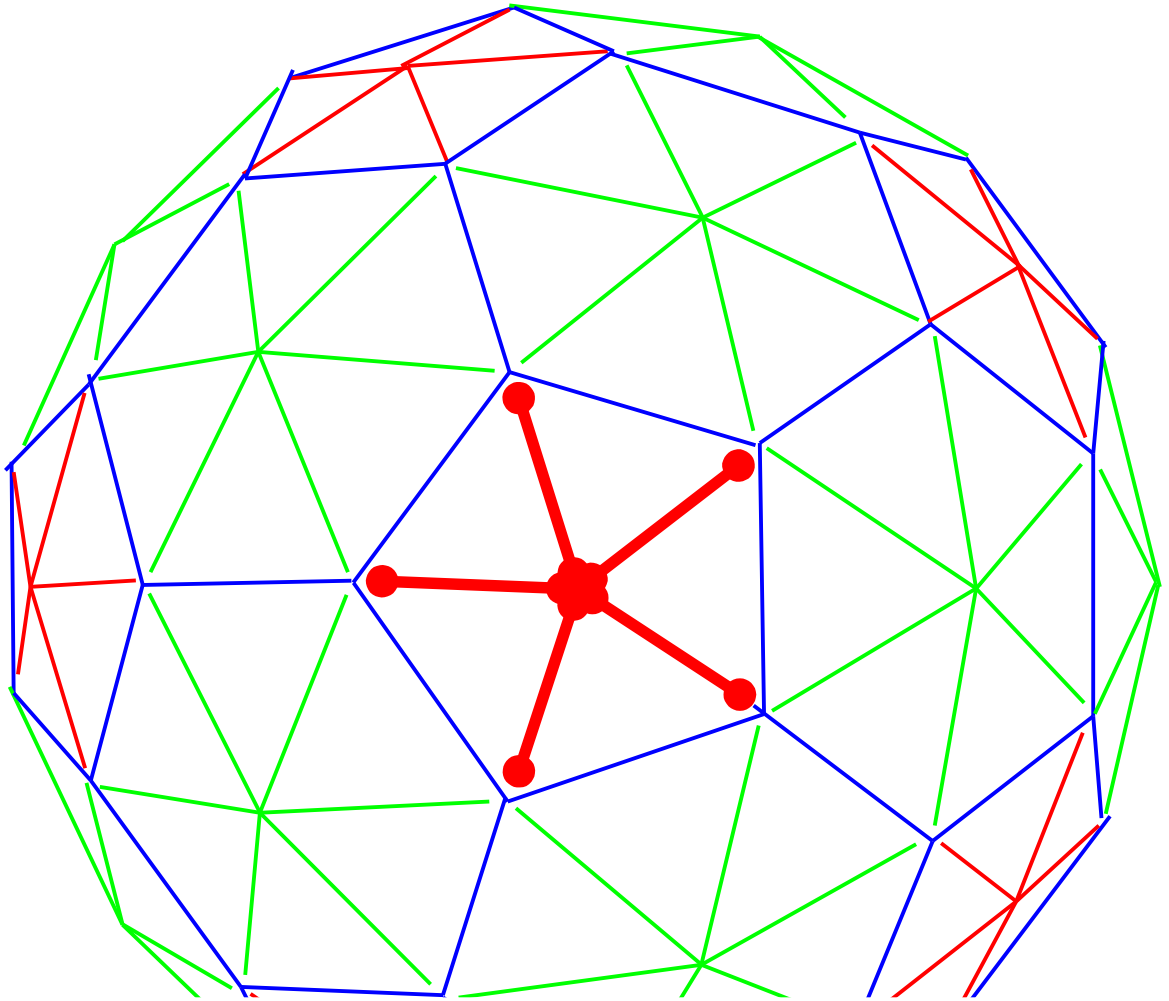
Step 13

Set aside: x5 -- blue tip 2x4s -- Attach 2x4s to plates where the 6pt plates are blue.



Step 14

Set aside: x5 -- red tip 2x4s -- Attach 2x4s to plates where the 6pt plates are red. Attach x1 -- 5pt cups -- attach cup to an edge of a red 2x4s. Attach 5 pt plate to all red 2x4s.



Step 15

Secure all hubs with tension by adding adding screws into edges of all remaining 2x4s through cups. Each cup should currently only be attached to one 2x4. So now attach the remaining 2x4s edges to center cups. Cups will stretch or bend. If gap is too big you can re-attach the 2x4 to the base plate so the 2x4 edge is flush against cup.

Suggested Instructions for 3/8ths Dome Cover Using Rigid 4x8 ft Sheets

Given Dome Radius =116 in. then ...

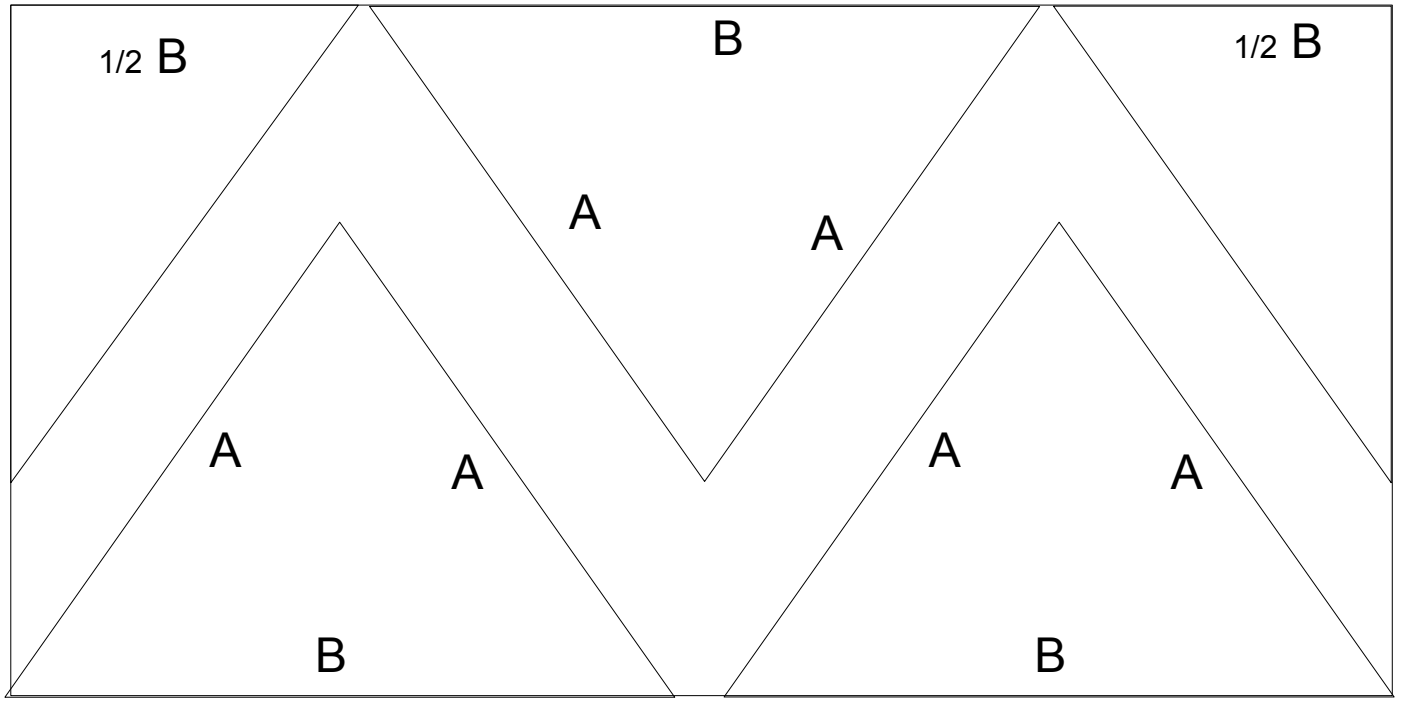
2x4 cut lengths are:
- a'=38 in.
- b'=44 in.
- c'=45 in.

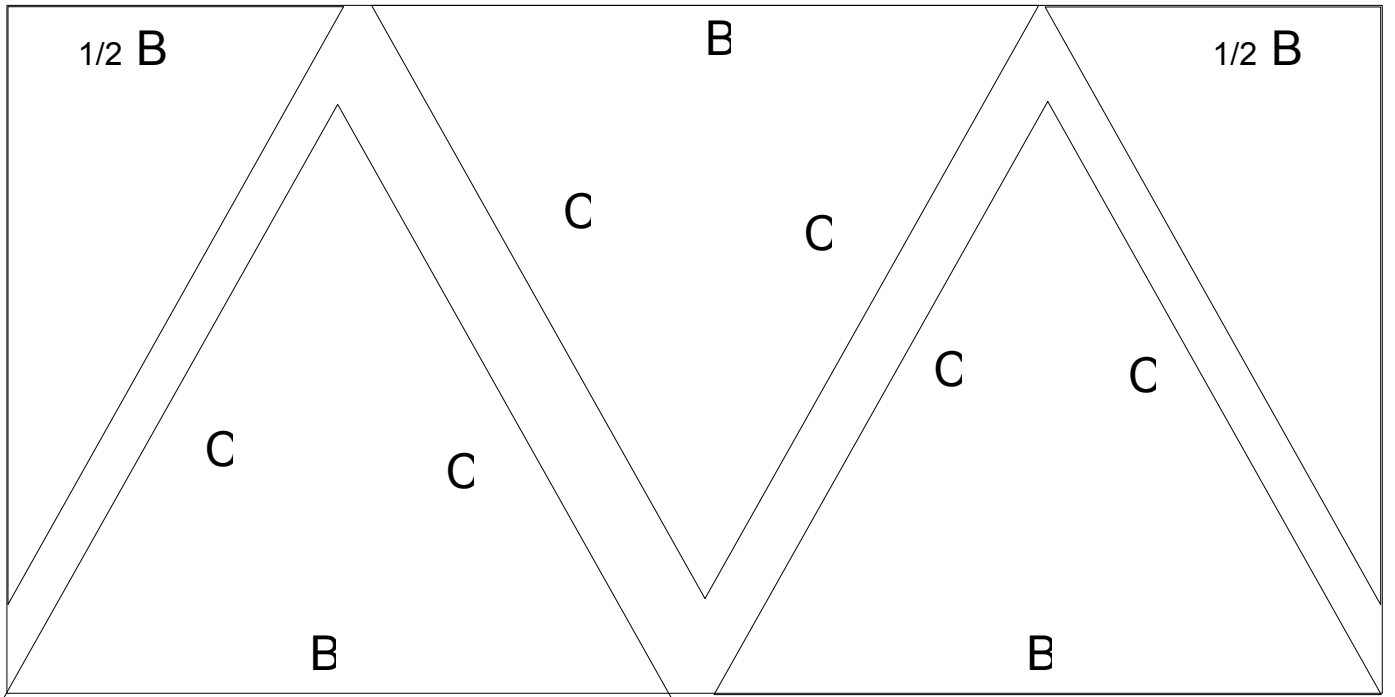
Panel cover triangle side lengths are:
- **A=40.25 in.**
- **B=46.5 in.**
- **C=47.5 in.**

x30 AB triangles required
4 triangles per 4x8ft sheet
so 8 to 10 sheets required
for AB triangles
height AB triangle=32.75 in.
width AB triangle=46.5 in.

45 BC triangles required
4 triangles per 4x8ft sheet
so 11 to 15 sheets required
for BC triangles
height of BC triangle=41.42 in.
width of BC triangle=46.5 in.

x19 to x25 sheets required for cover





Suggested Instructions for 3/8ths Dome Cover Using Thin Plastic or Canvas/Cloth Sheeting

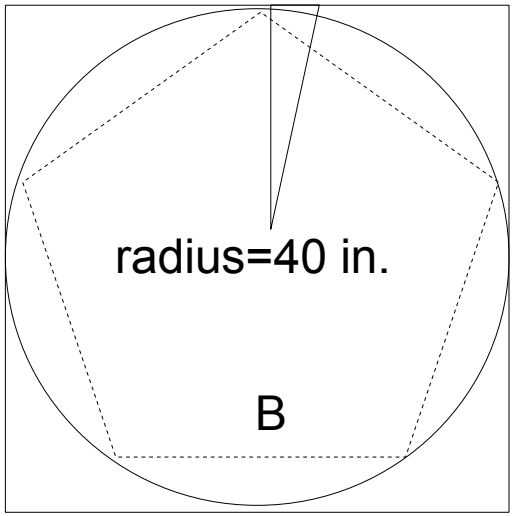
Given Dome Radius =116 in. then ...

2x4 cut lengths are:

a'=38 in.
b'=44 in.
c'=45 in.

Panel cover triangle side lengths are:

A=40.25 in.
B=46.5 in.
C=47.5 in.



Draw circles on sheeting to be cutout using string measure as radius with center point tack nail and pen on the other end.

x6 pentagon circle cutouts
40 inch radius

x5 hexagon circle cutouts
47 inch radius

x5 half hexagon cutouts
47 inch radius .. half