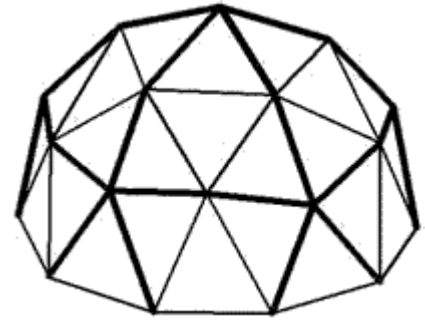


## 10' diameter dome

The drawing shows how the struts of this dome are to be connected. Two different lengths are needed: The short ones are the heavy lines – you will need 30 of them, and the longer ones are the light lines, of which you will need 35.

The lengths of the struts in domes are determined by “chord factors.” The radius of the dome times a strut’s chord factor determines the length of the strut. For domes with the layout shown here, the chord factor for the short strut is 0.5465, and for the longer struts it is 0.6180.



For a 10' diameter dome (5' radius):

Short struts =  $5' \times 0.5465 = 2.733$  feet between centers of holes

Long struts =  $5' \times 0.6180 = 3.090$  feet between centers of holes

We will have to add  $\frac{1}{2}$  inch to each end to support the bolts, so they will actually come out to 1 inch longer. For this dome, we can round off this 1 inch to 0.1 foot to simplify calculations. So our actual values will be:

$2.733 + 0.1 = 2.833$  feet  $\times 12 = 34.00$  inches

$3.090 + 0.1 = 3.109$  feet  $\times 12 = 37\text{--}5/16$  inches

It is convenient that you can cut two of the long struts plus one of the short ones from a single 10' piece of metal electrical conduit.

Let's consider these chord factors (0.5465 and 0.6180) again: With these two numbers, you can conveniently calculate the strut lengths for any size of a dome like this that you may desire.

As a shower dome:

A 10' diameter bolt-together dome was assembled and installed atop a ring of 5' high posts. The structure was then covered with pieces of tarp.

A 5' deep sump was dug out from the center to drain the water, filled with gravel, and then covered with a palate with a few extra boards added to provide a place to stand.

An old hot water heater was then hacked so it could be powered by firewood to provide hot showers. In this case water was fed into it by 150 yards of small plastic tubing from the nearest watering trough, but an elevated tank could also have provided the pressure.

Other options for heating water would include solar, and other formats of wood-fired heating.

