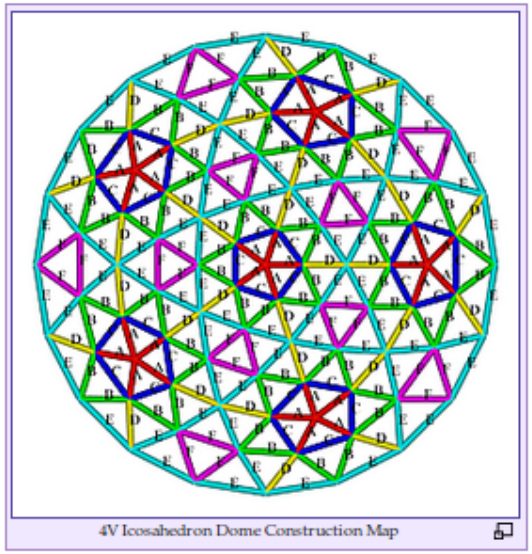
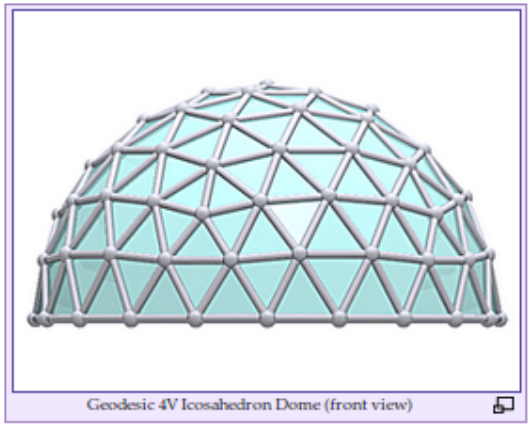
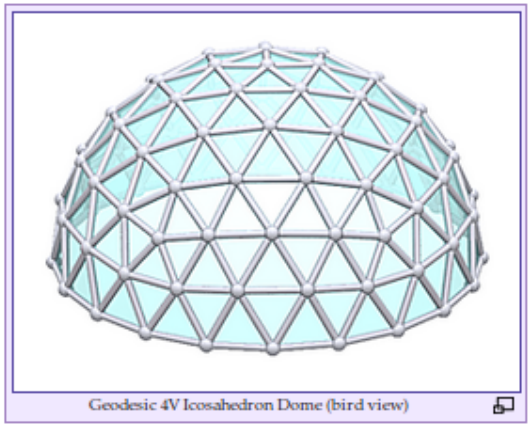
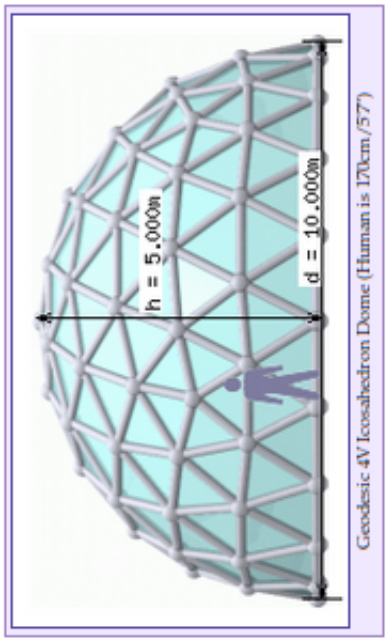
4V Icosahedron Dome

- vertices/connectors: 91
  - 20 x 4-way
  - 6 x 5-way
  - 65 x 6-way
- 
4V Icosahedron Dome Construction Map
- edges/struts & bending angles (α_{strut}):
  - A x 30: 0.25318 (7.27°)
  - B x 60: 0.29453 (8.47°)
  - C x 30: 0.29524 (8.49°)
  - D x 30: 0.29859 (8.59°)
  - E x 70: 0.31287 (9.00°)
  - F x 30: 0.32492 (9.35°)
  - total 250 struts (6 kinds)[1)]
  - strut variance 28.3%
- faces: 160 (3-sided)
  - A-A-C x 30 (54.34°, 54.34°, 71.32°)
  - B-B-C x 30 (59.92°, 59.92°, 60.16°)
  - B-D-E x 60 (57.52°, 58.80°, 63.68°)
  - E-E-F x 30 (58.72°, 58.72°, 62.55°)
  - F-F-F x 10 (60.00°, 60.00°, 60.00°)
  - 5 kinds of faces[2)]
- diameter: 2.000, radius: 1.000
- height: 1.000 or 50.00% of diameter


Geodesic 4V Icosahedron Dome (front view)


Geodesic 4V Icosahedron Dome (bird view)



Geodesic 4V Icosahedron Dome (Human is 170cm/5'7")

4V Icosahedron Dome Calculator

d = 10, l_{hole} = 0

(Edit numbers & hit TAB to recalculate)

- A_{lath} = 1.2659 x 30,
- B_{lath} = 1.4727 x 60,
- C_{lath} = 1.4762 x 30,
- D_{lath} = 1.493 x 30,
- E_{lath} = 1.5643 x 70,
- F_{lath} = 1.6246 x 30,
- h = 5

Cut optimization:

- normalize E_{lath}+E_{lath} = 1.0, therefore E_{lath}+E_{lath} = 3.1286
- cuts:
  - 60 x (B_{lath}+E_{lath}): 3.037
  - 5 x (E_{lath}+E_{lath}): 3.1286
  - 30 x (A_{lath}+F_{lath}): 2.8905
  - 30 x (C_{lath}+D_{lath}): 2.9692
  - total 125 laths to cut

1) strut lengths sorted by 1/10'000th or +/-0.00005 exact
2) clock wise (cw) and counter clock wise (ccw) orientation neglected