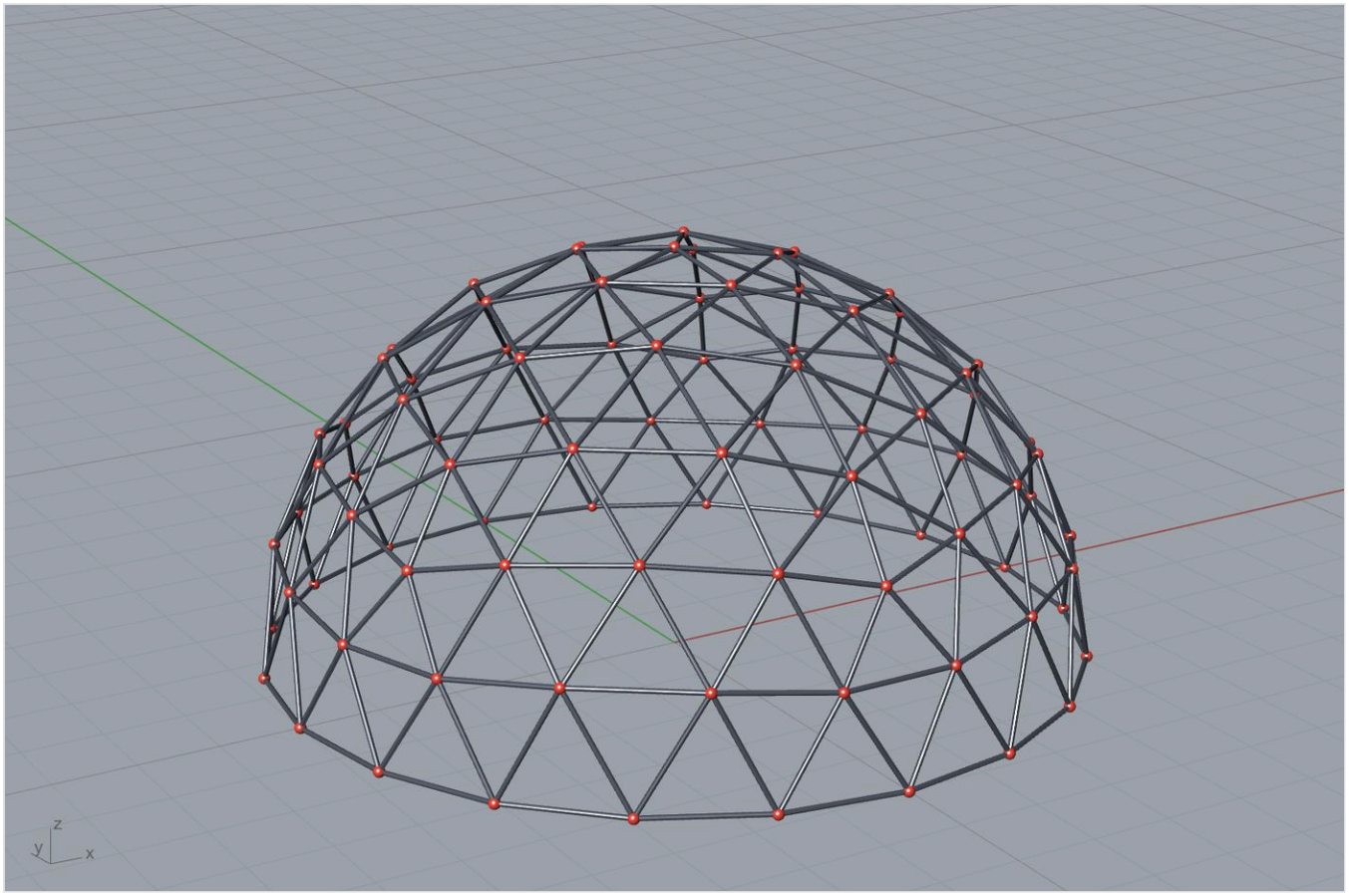
STRUCTURE

GEODESIC DOME

Geodesic dome of any frequency with strut schedule by length



FREE | RHINO 7 · RHINO 8 | NATIVE + KANGAROO2 (INCLUDED) | VERSION 1.0 · NOVEMBER 2026

Each face of an icosahedron is subdivided by the frequency and pushed onto the sphere; the dome is cut at the height you choose. Struts are grouped by length into types A, B, C... with their count, and nodes are listed.

Free to use in your own projects, commercial ones included. Please do not resell or re-upload the files: share the link instead.

HOW TO USE

1. Open the file: a 4V half dome of 5 m radius appears.
2. Set the radius.
3. Set the frequency: higher means more, shorter struts and a smoother dome.
4. Set the dome height as a fraction of the sphere.
5. Read 'Dome data' and 'Strut schedule', then bake 'Dome mesh', 'Struts' and 'Nodes'.

BAKE

Dome mesh | Struts | Nodes

GOOD TO KNOW

- The six strut lengths of the default 4V dome match the published chord factors.
- Uses one Kangaroo2 utility (included with Rhino 7 and 8) to weld the mesh.

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INPUTS

PARAMETER	RANGE	DEFAULT
Radius (m)	1.00 – 30.00	5.00
Frequency	1 – 12	4
Dome height (fraction of sphere)	0.200 – 1.000	0.500

RESULTS AT DEFAULT VALUES

STRUT SCHEDULE

```
Strut A: 1.266 m  x 30
Strut B: 1.473 m  x 60
Strut C: 1.476 m  x 30
Strut D: 1.493 m  x 30
Strut E: 1.564 m  x 70
Strut F: 1.625 m  x 30
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DOME DATA

```
4V dome, radius 5.00 m: 91 nodes, 250 struts in 6 lengths
Total strut length 373.7 m
```


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INSIDE THE DEFINITION

STAGES, LEFT TO RIGHT AND TOP TO BOTTOM

1 INPUT

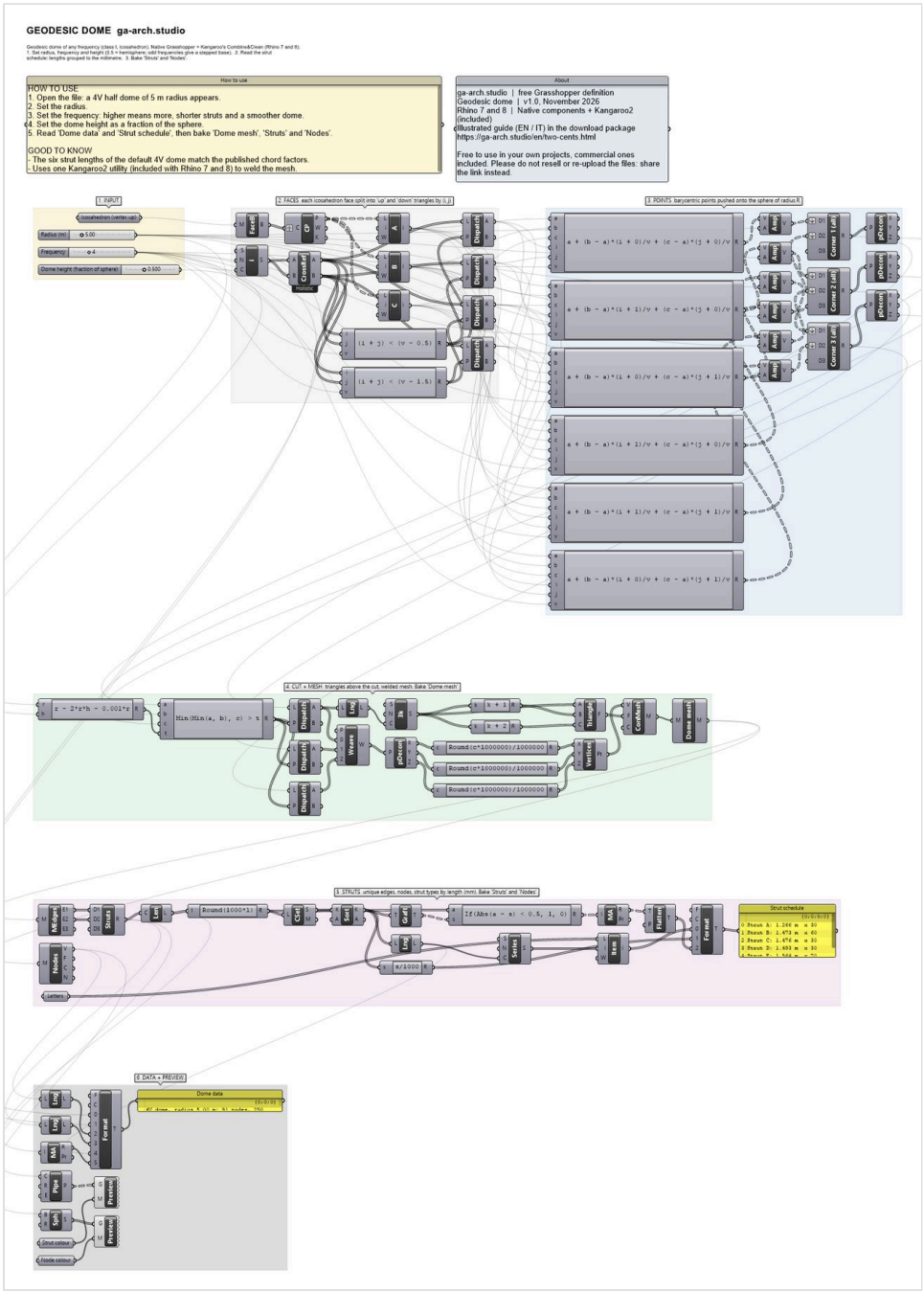
2 FACES each icosahedron face split into 'up' and 'down' triangles by (i, j)

3 POINTS barycentric points pushed onto the sphere of radius R

4 CUT + MESH triangles above the cut, welded mesh. Bake 'Dome mesh'

5 STRUTS unique edges, nodes, strut types by length (mm). Bake 'Struts' and 'Nodes'

6 DATA + PREVIEW



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