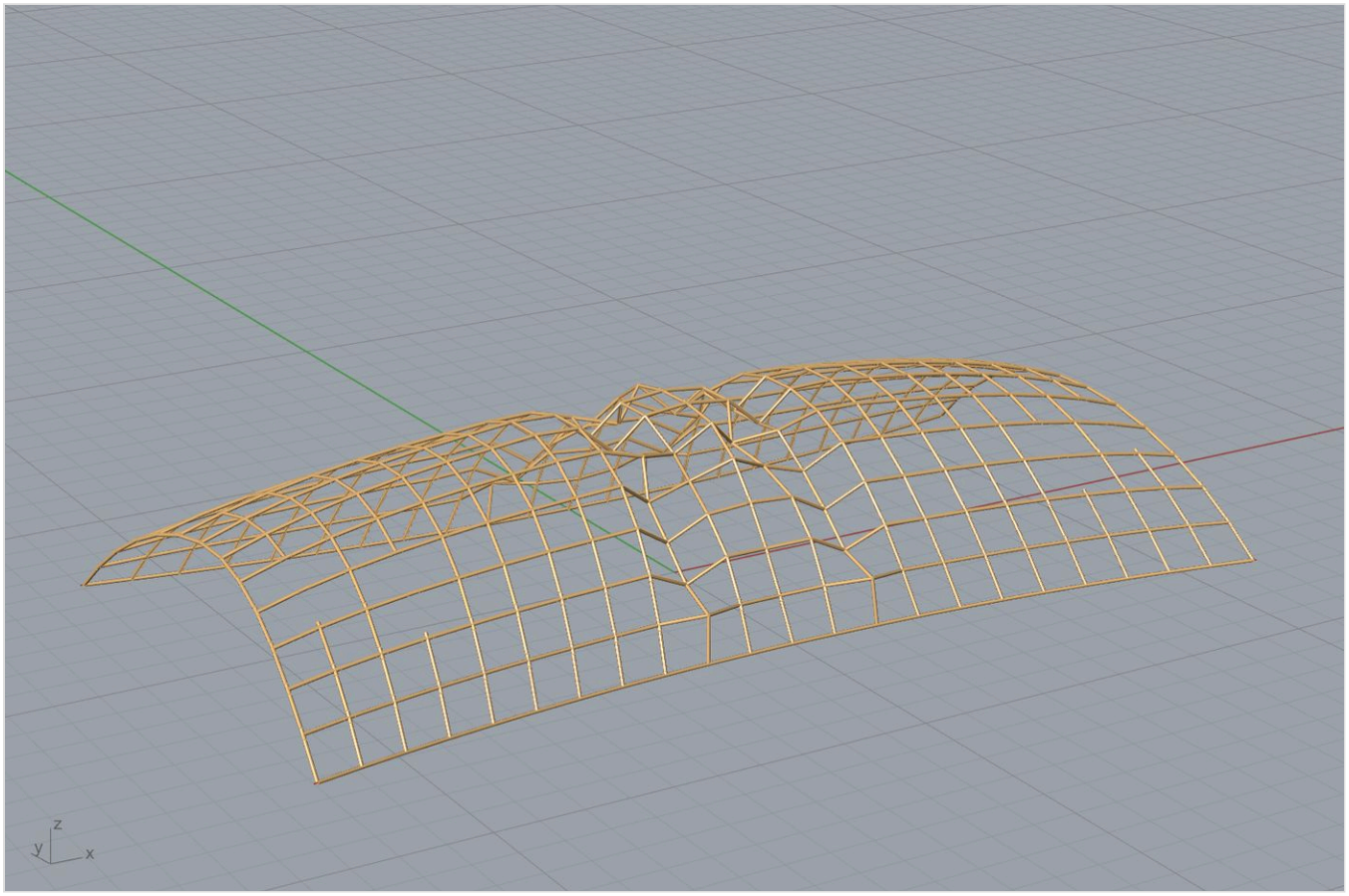
FORM FINDING

TIMBER GRIDSHELL

Active-bending lath gridshell form found with Kangaroo, with strain check



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

A flat grid of timber laths is pushed up while its long edges slide toward two narrower supports, as in a real gridshell erection. The laths keep their length, so the panel checks the strain, which must stay near zero, and lists every lath with its length.

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HOW TO USE

1. Open the file: a 24 m gridshell appears.
2. Set the length and the width of the flat grid.
3. Set the support width at the middle and at the ends: the narrower, the higher the rise.
4. Set the number of laths in each direction.
5. Read 'Gridshell data' (rise and strain) and bake 'Laths'.

BAKE

Laths

GOOD TO KNOW

- Keep the proportions realistic: a grid much wider than the arch it can form gives vertical sides and folds.
- Uses Kangaroo2, included with Rhino 7 and 8.

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INPUTS

PARAMETER	RANGE	DEFAULT
Length (m)	4.0 – 60.0	24.0
Flat grid width (m)	4.0 – 60.0	14.0
Support width at middle (m)	2.0 – 50.0	10.0
Support width at ends (m)	2.0 – 50.0	12.5
Laths along X	4 – 60	22
Laths along Y	4 – 60	13
Upward push per node	0.00 – 2.00	0.30
Start bump (m)	0.00 – 3.00	1.00
Lath stiffness (length)	10 – 100000	10000
Max iterations	100 – 30000	10000

RESULTS AT DEFAULT VALUES

GRIDSHELL DATA

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Laths: 37, from 14.00 to 24.00 m, total 658.0 m
Rise: 4.24 m   max lath strain 0.036 %
Iterations: 4880
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INSIDE THE DEFINITION

STAGES, LEFT TO RIGHT AND TOP TO BOTTOM

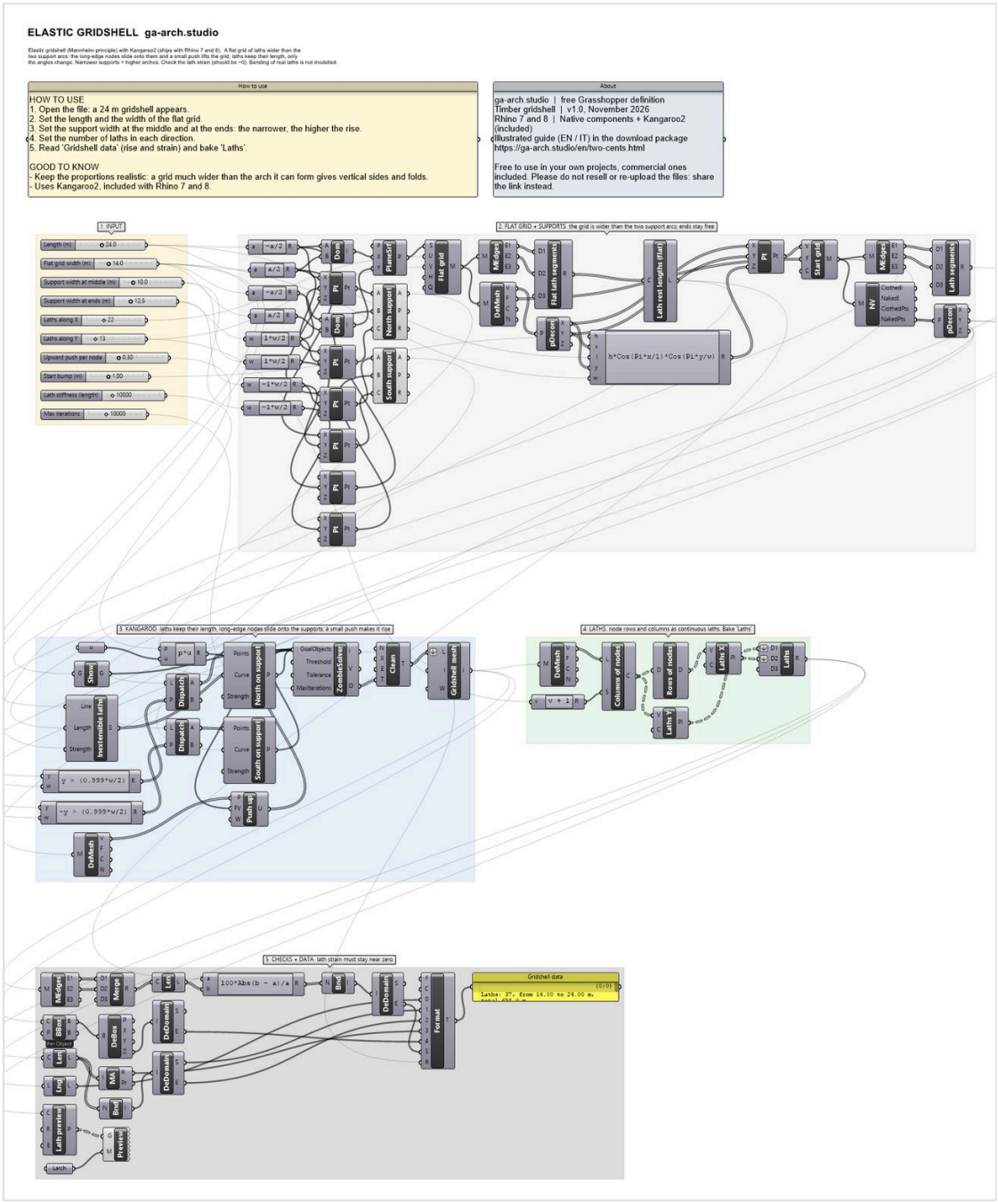
1 INPUT

2 FLAT GRID + SUPPORTS the grid is wider than the two support arcs; ends stay free

3 KANGAROO laths keep their length, long-edge nodes slide onto the supports, a small push makes it rise

4 LATHS node rows and columns as continuous laths. Bake 'Laths'

5 CHECKS + DATA lath strain must stay near zero



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