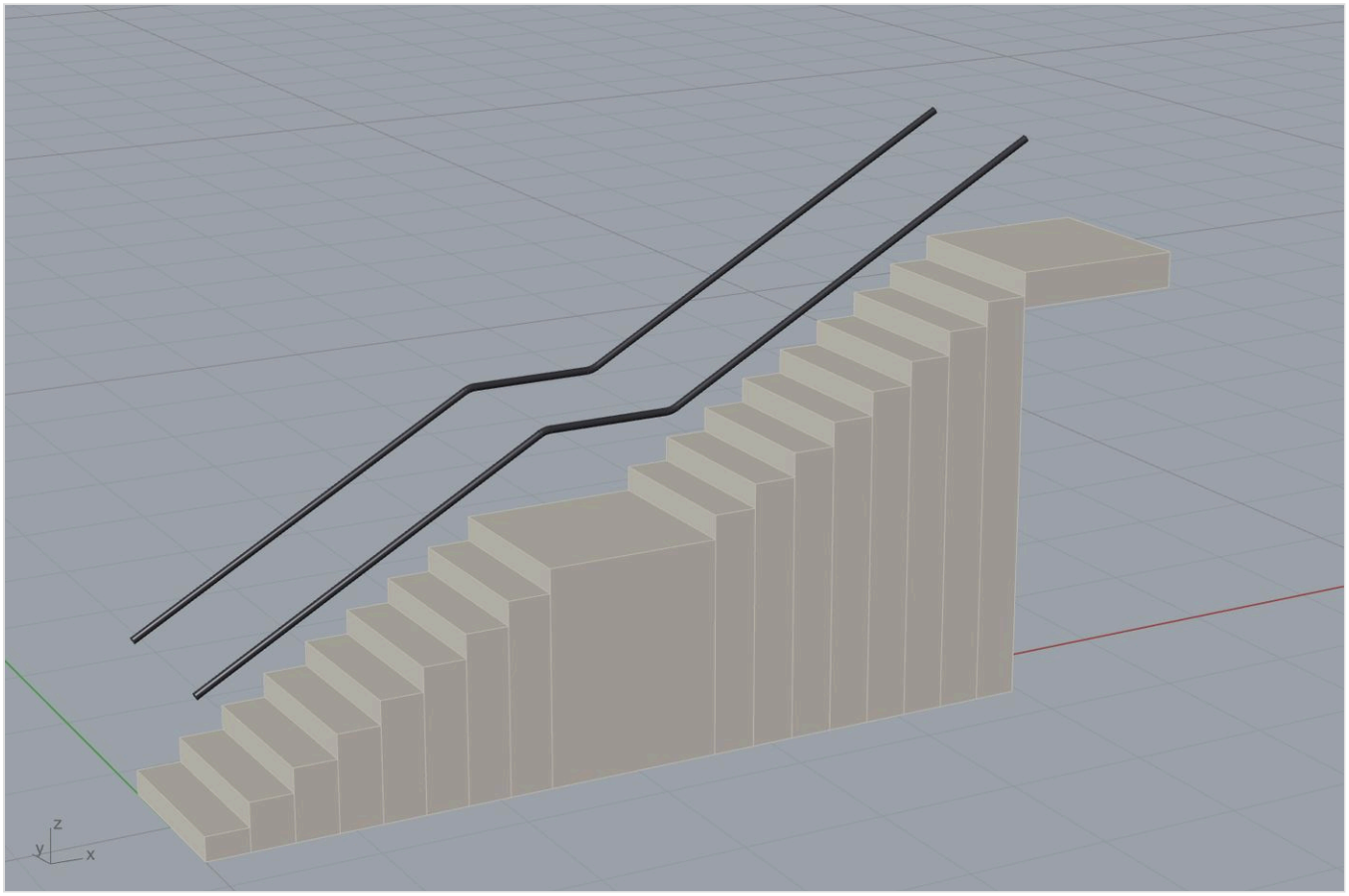
CIRCULATION

STAIR

Straight, L, U or free-form stair on any plan path, with code checks



FREE | RHINO 7 · RHINO 8 | NATIVE COMPONENTS ONLY | VERSION 1.0 · NOVEMBER 2026

Draw the walking line in plan and get a complete stair: risers from the floor-to-floor height, going from the 2a + p rule, a landing half way when one flight would be too long, winders wherever the path turns, the upper floor and handrails on both sides. The default is a normal straight stair: replace the line with an L, a U or any curve.

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 in Rhino 7 or 8 and Grasshopper: the default straight stair appears at the origin.
2. Draw your walking line in plan, from the bottom step up (a line, polyline or curve), right-click 'Path (plan)' > Set one Curve and pick it.
3. Set the floor-to-floor height, the target riser and the width; choose how the going is found in 'Going from'.
4. Read the Checks panel: every line should say OK. If a turn is too tight, raise 'Inner radius at corners'.
5. Bake 'Steps', 'Upper floor' and 'Handrails'.

OPTIONS

Going from: 2a + p rule
The going comes from 2 x riser + going = target (63 cm by default). If the path is longer than needed the stair stops where the run ends; if it is shorter, the stair continues straight and the panel says so.

Going from: Fit to path length
The going is stretched or shortened so that the stair fills the path exactly. The 2a + p check tells you whether the result is still comfortable.

BAKE

Steps | Upper floor | Handrails

GOOD TO KNOW

- A landing is added automatically half way when the risers exceed 'Max risers per flight'.
- On curves the going is measured on the walking line (the path); the panel also reports the narrowest going at the edges.
- Thresholds are common rules of thumb (riser 15-18 cm, going >= 25 cm, 2a + p 62-64 cm): check your local code.

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

INPUTS

PARAMETER	RANGE	DEFAULT
Floor to floor (m)	1.00 – 6.00	3.00
Target riser (cm)	12.0 – 20.0	17.0
2a + p target (cm)	60.0 – 66.0	63.0
Width (m)	0.60 – 3.00	1.20
Max risers per flight	3 – 25	15
Landing length (m)	0.80 – 3.00	1.20
Inner radius at corners (m)	0.05 – 3.00	0.50
Handrail height (m)	0.80 – 1.20	0.90
Going from	2a + p rule · Fit to path length	2a + p rule

GEOMETRY YOU CAN REPLACE

Path (plan) · Curve

RESULTS AT DEFAULT VALUES

CHECKS

```
Risers: 18 x 16.7 cm   riser 15-18 cm: OK
Going on the walking line: 29.7 cm   >= 25 cm: OK
2a + p = 63.0 cm   62-64: OK
Flights: 2   max 15 risers each: OK
Run 5.95 m on a path of 6.00 m: OK
Narrowest going at the edges (winders): 29.7 cm
Overlaps: none
```

CONCRETE

```
Steps volume: 10.70 m3
```


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

INSIDE THE DEFINITION

STAGES, LEFT TO RIGHT AND TOP TO BOTTOM

1 INPUT 'Path (plan)': your route

2 WALKING LINE corners filleted so the steps can turn

3 SIZING risers from floor height; going from 2a + p or fitted to the path

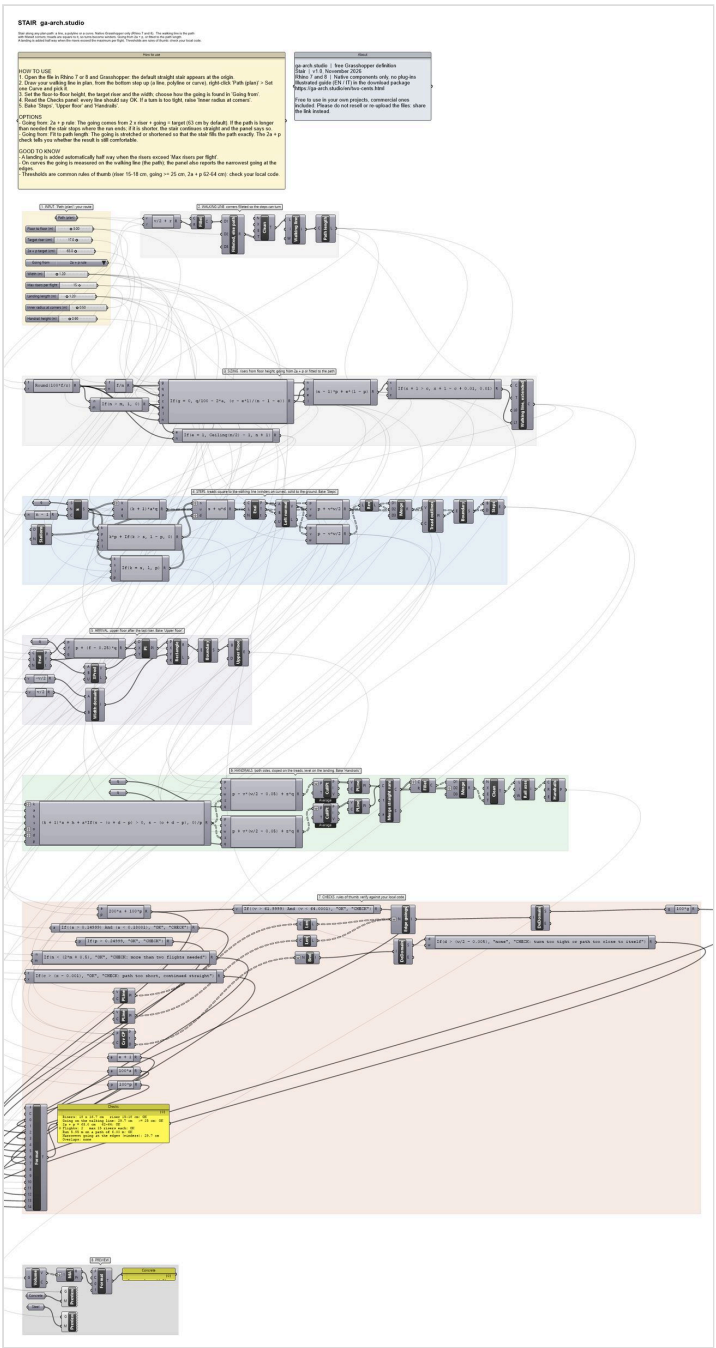
4 STEPS treads square to the walking line (winders on curves), solid to the ground. Bake 'Steps'

5 ARRIVAL upper floor after the last riser. Bake 'Upper floor'

6 HANDRAILS both sides, sloped on the treads, level on the landing. Bake 'Handrails'

7 CHECKS rules of thumb: verify against your local code

8 PREVIEW



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