Buildings Cut Down to Ring Size

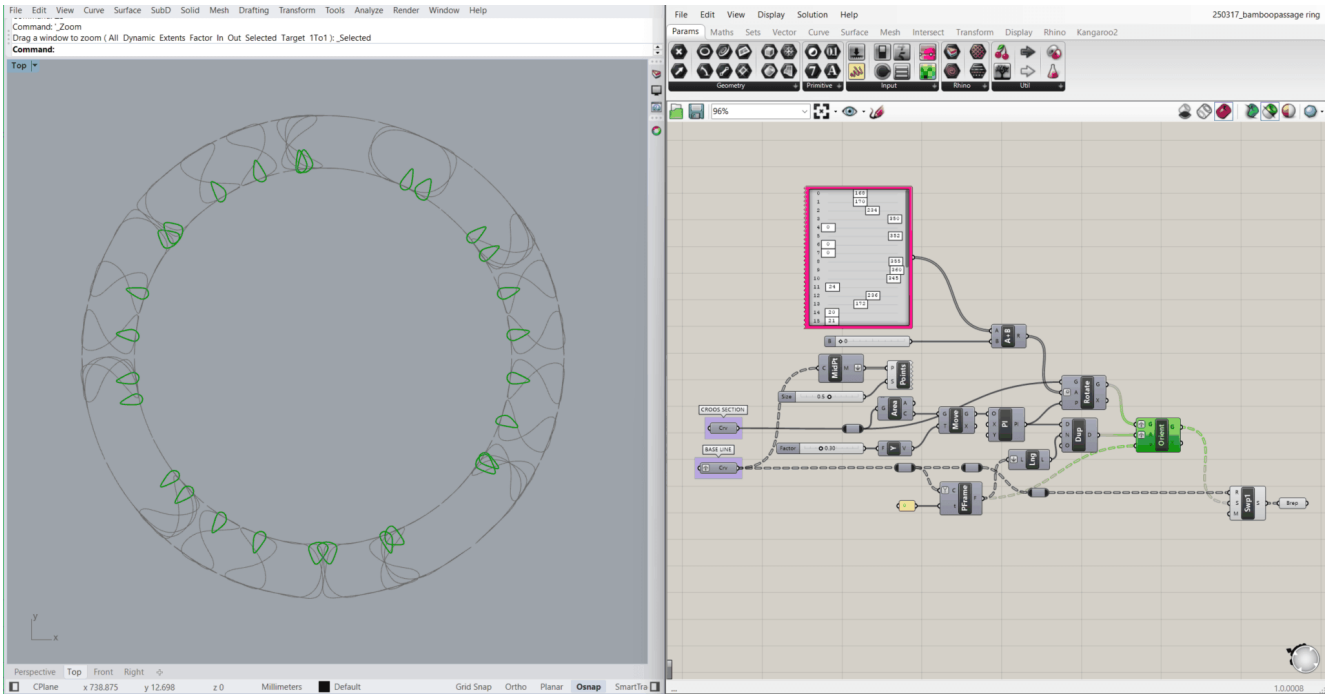
A building’s form is justified by its span and the loads it carries. At twenty millimetres, those forces are gone. That loss is where Carpediem Sculpture, the one-person Tokyo studio of Aldi Ibrahim, starts. Each ring in the collection takes a single structural idea from a single building and resolves it at the scale of the hand. Every piece is modeled in Rhino and Grasshopper, printed in wax and cast in sterling silver. Aldi built the studio while working at Kengo Kuma & Associates, where his days were spent on parametric, generative and optimisation projects, alongside a great deal of physical model making. Printing miniatures in resin was one of the first things that set the work in motion, and the habit of reading buildings structurally came from the same period



Thin members of a single section, stacked and crossing around the band, a direct reference to the Yure pavilion. Cast solid, the ring keeps the pavilion’s arrangement but not its ability to move.

ONE IDEA PER BUILDING

For Aldi, miniaturising a building was never the goal. The question was which idea inside it could survive the drop in scale. The Yure pavilion, installed in the Jardin des Tuileries in 2015, stood 12 metres tall and was made of identical timber members stacked and joined without screws, bolts or glue. Its structure was designed to move. A solid casting can’t, so the Yure Ring keeps the arrangement and lets the movement go.



The Passage Ring in Rhino’s Top view alongside its Grasshopper definition. The softened triangular sections are oriented along the baseline, rotated individually through the angle values in the Gene Pool, and swept into a closed Brep.

The Engawa Ring draws on the canopy of the Centro de Arte Moderna Gulbenkian in Lisbon, roughly 100 metres of overlapping ceramic tiles with timber underneath. Repetition that reads as texture at building scale turns into noise on a ring, so the piece keeps the layered condition and drops the count. The Passage Ring comes from a bamboo passage assembled from more than ten thousand strips of 15 by 3 millimetres. There, the subject is the interval between the strips. An interval is a ratio, so it scales down more faithfully than a quantity does.

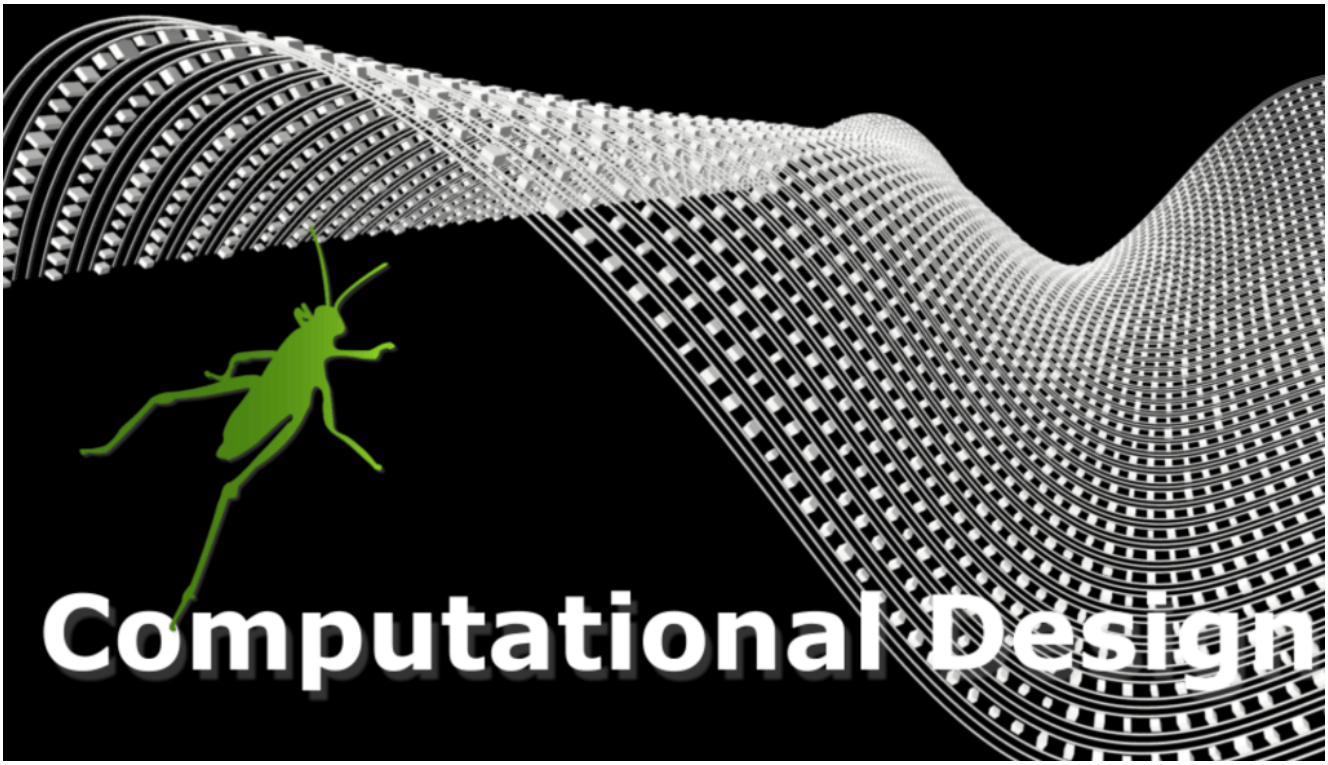


Close-up of an openwork lattice ring. Each member was thickened until the silver could reliably fill it during casting, and the voids were sized so the investment would not get trapped.

A SHORT DEFINITION, TUNED BY HAND

The Passage Ring definition was built entirely from native Grasshopper components. It takes two curves from Rhino: a base line that traces the band, and a softened triangular cross section. The definition centres the section and places copies of it on frames distributed along the base line.

Each copy can then be rotated independently using a row of angle values held in a Gene Pool. A single sweep transforms the rotated sections into a closed solid. No strip is ever drawn; instead, the rhythm of the band emerges from how the sections turn as they travel around the ring.



See Also

COMPUTATIONAL DESIGN WITH GRASSHOPPER

Rather than handing the values to an optimization solver, Aldi set them himself. He oriented each triangle by eye and refined the section dimensions through successive casting tests, bringing the profile down to the thinnest the silver could reliably hold. The goal was a band that feels as soft and ephemeral as the material allows, and the definition kept that process quick, letting each change in rotation or thickness be checked in seconds rather than remodeled.



A band of repeating vertical members, with the S925 sterling silver stamp visible on the inner surface.

WHERE THE METAL DECIDES

That loop is the core of the studio’s method. A model that resolves on screen won’t necessarily cast. Below a certain thickness, silver won’t fill the mould, and openwork that reads well in the viewport can trap investment. Aldi treats these limits as part of the design. Having to thicken a strand until it filled forced him to decide which strands mattered, reducing the pieces to their essential ideas. In his view, a model isn’t finished when it looks finished on screen. It’s finished when it survives the casting.

Production was outsourced to a specialist partner. The models were printed in wax on an industrial 3D printer with soluble support material, which leaves the fine openwork free of supports that would otherwise have to be cut away. They were then cast in sterling silver using the conventional lost-wax process and finished with electroplating.



Three bands from the collection side by side, comparing different ways of building a ring from repeated members: solid elements separated by gaps, and a lattice organized around voids.

The finished rings carry an S925 stamp inside the band and read more as structures than as ornaments. Some are made of solid members separated by gaps, and others are lattices built around voids. Across the collection, each piece keeps only what the building’s idea and the casting allows.

CREDITS

Project: Architectural Rings (Yure, Engawa, Passage)
Design and Modelling: Aldi Ibrahim, Carpediem Sculpture