



PORTFOLIO • 2026

Meqdad (Kian) Feizbahr

Computational design engineer. An architect who writes the software designers and furniture makers work in — from Grasshopper plugins to CNC output.

← architect

software engineer →

meqdad.feizbahr@gmail.com • feizbahr.com • github.com/kianarc
linkedin.com/in/meqdad-feizbahr-330a39141

ABOUT

I build the tools I used to wish I had.

For nearly two decades I have designed villas, apartment buildings and office interiors, and worked inside furniture companies where every order went from a designer's drawing to a sales sheet to a CNC operator — by hand, with errors at every step.

In 2019 I started writing software to close those gaps: first a SketchUp plugin at Sahlan, then BOND, a Rhino plugin I wrote for Philpa that carries a parametric product model from the designer's screen to the factory floor. Atrium, a parametric CAD application, is the next step.

I still think like an architect: start from the person using the tool, get the structure right, and keep the details honest.

80+

buildings and interiors designed

22

Grasshopper components in
BOND

12

designers using my plugins every
day

CONTENTS

BOND — Rhino/Grasshopper plugin for Philpa	03
BOND — inside Rhino and Grasshopper	04
Atrium — parametric CAD for furniture	05
Atrium — manufacturing in the model	06
Atrium — plan editor	07
In use, in pilot, open source	08
Architecture	09
Master's thesis — green nursing home	10
Wind- and sun-shaped tower	11
Villas	12
Villa Abbasi, facades and a commercial centre	13

C# / .NET 8

RhinoCommon

Grasshopper SDK

ASP.NET Core

PostgreSQL

React

Three.js

Python

OpenCASCADE

From the designer's model to the factory floor.

The problem. Office-furniture companies design in one tool, price in a spreadsheet and program their CNC machines by hand. Every hand-off retypes the same dimensions, and every retype is a chance for a costly mistake.

What BOND does. A product is modelled once, parametrically, inside Rhino and Grasshopper. From that one model the plugin produces the drawings, the technical analysis, the parts data and the CNC output.

How it started. I joined Philpa as an interior designer, found the weak points in its design-to-production chain and moved the design department from AutoCAD to Rhino. Then, on my own, I wrote BOND for the team.

Designer →

Rhino / Grasshopper →

BOND →

Drawings · parts · CNC

Parametric products

Dynamic parametric blocks for the product range, driven from Grasshopper.

Drawings & analysis

Drawing sheets, technical analysis and parts lists generated from the model, not redrawn.

Production

Inventory data and CNC-ready output for panel-processing machines, straight from the same model.

C#

.NET

RhinoCommon

Grasshopper SDK

WPF

MongoDB

22

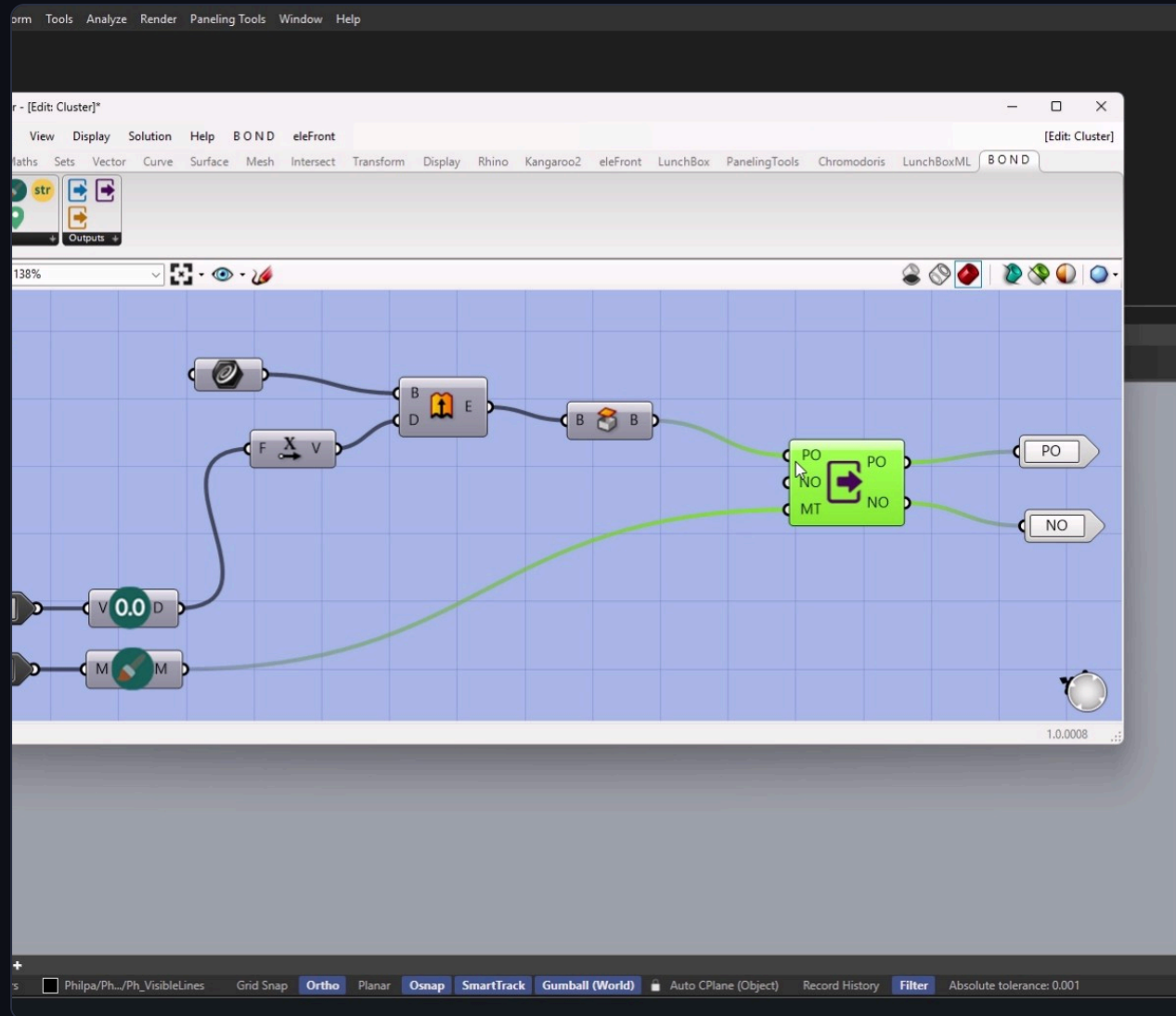
Grasshopper components

13

Rhino commands

8

designers using it every day



BOND's Grasshopper components driving a parametric product in Rhino.

Products as definitions, not drawings.

Designers keep working in the tools they know. BOND adds its own Rhino toolbar and Grasshopper tab, so a product is a parametric definition that produces geometry, drawing sheets and analysis.

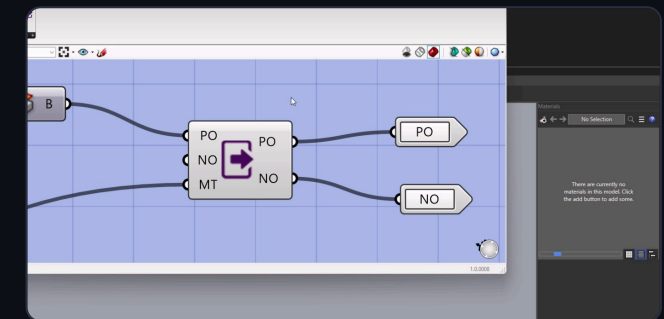
Materials, parts and suppliers come from one shared library, so a price or a board thickness changes once and every model follows.

22

Grasshopper components

13

Rhino commands



RhinoCommon

Grasshopper SDK

C#

WPF

A CAD application built for furniture.

General-purpose CAD makes furniture companies choose: solid modelling (SolidWorks), family hierarchies (Revit) or quick dynamic components (SketchUp). Atrium combines the three in one desktop application.

Every dimension can be a formula. A directed dependency engine resolves them in order, stores names for people and IDs underneath, and refuses circular references.

The same repository layer talks to a local SQLite file or to a company server with no change to the UI. Atrium is in pilot at Philpa, with production data being entered.

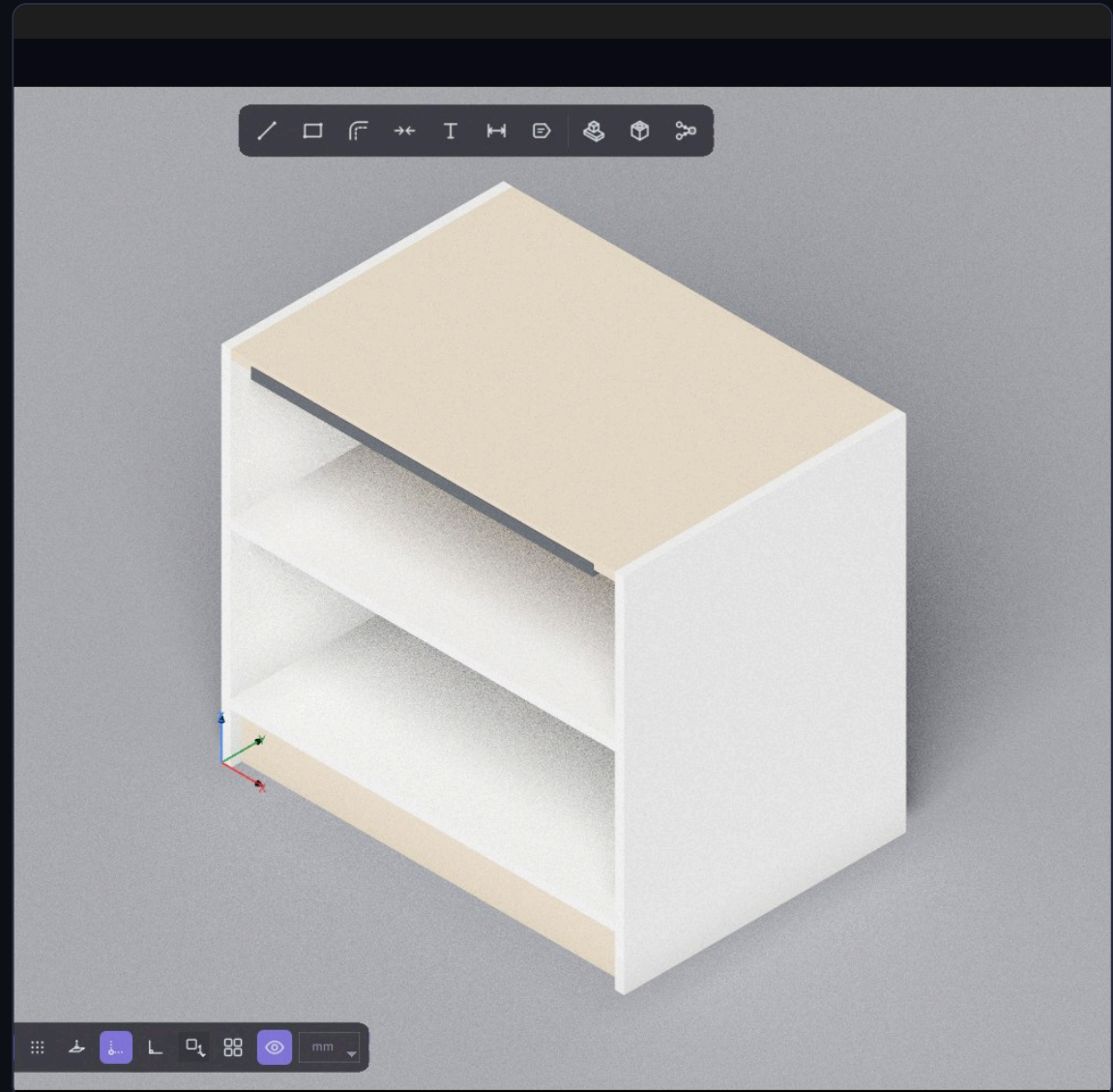
Python

PyQt5

OpenCASCADE (pythonocc)

SQLAlchemy

PBR materials

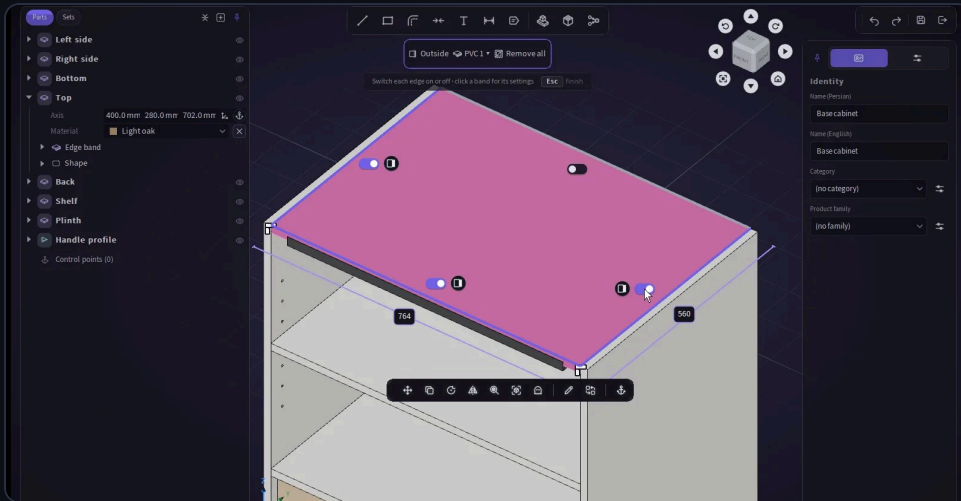


A parametric base cabinet in Atrium's custom OCCT viewport, presentation shading.

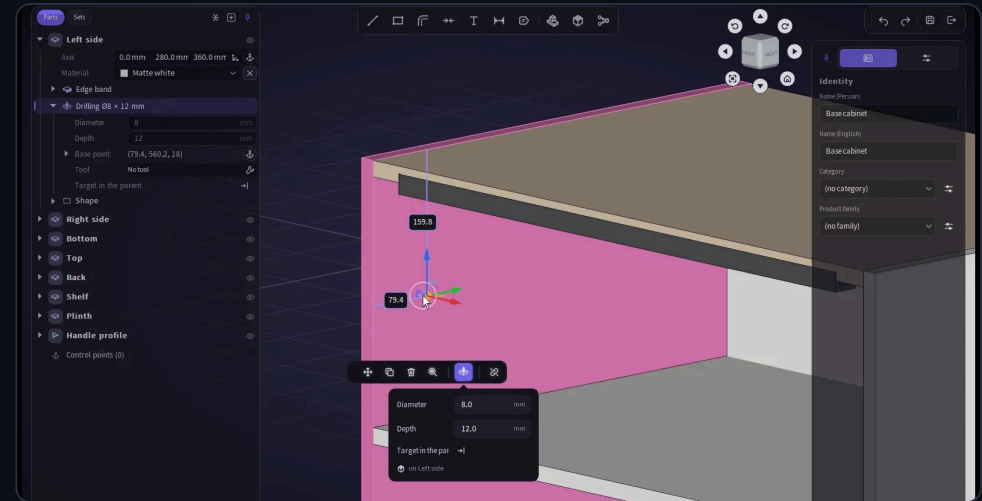
CASE STUDY 02 · ATRIUM · MANUFACTURING IN THE MODEL

Material → Tool → Process → Part → Assembly → Plan

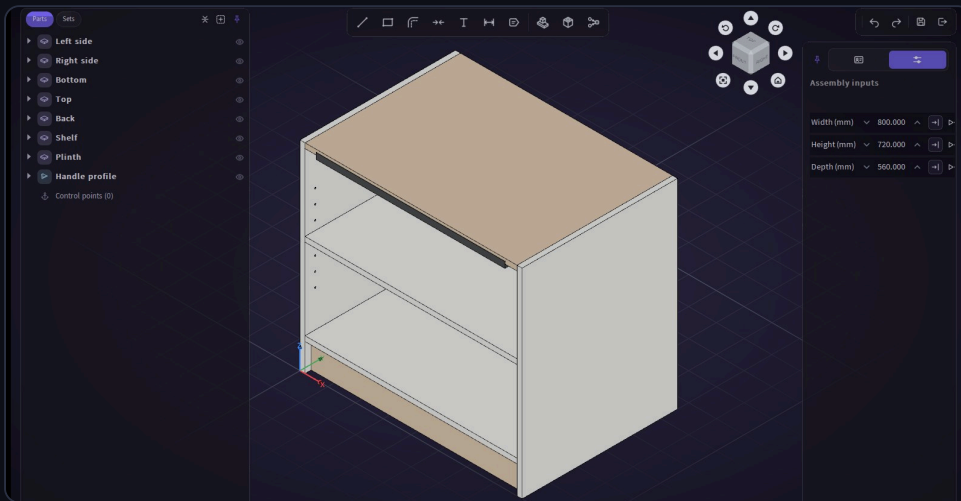
Drilling, edge banding and pocketing are part of the model, not notes on a drawing.



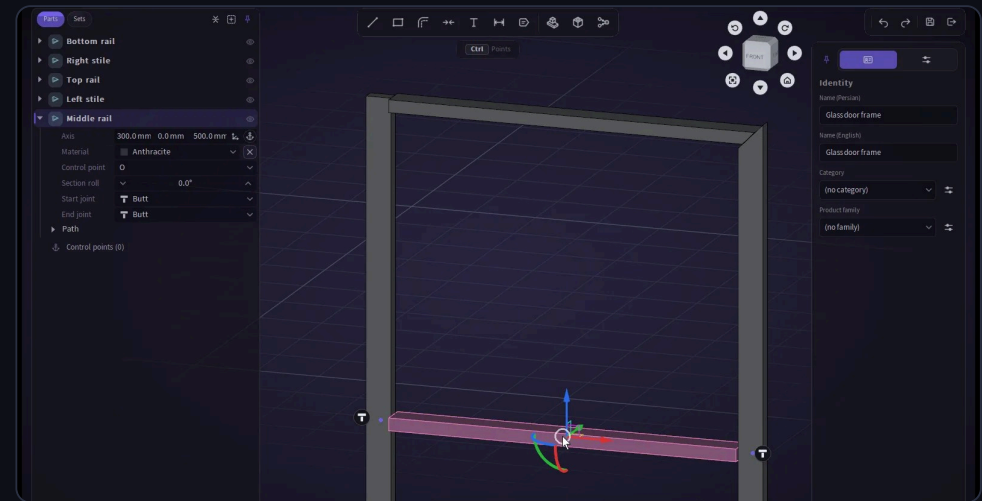
Edge banding assigned per edge of a panel.



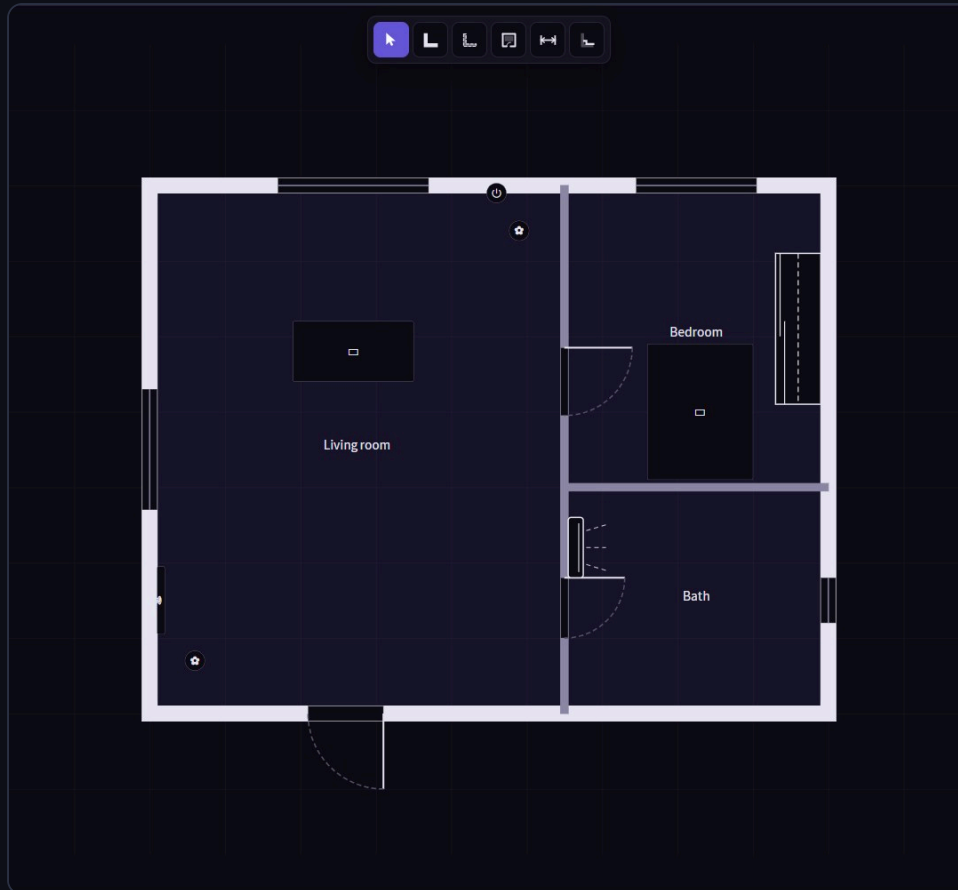
A drilling process with its tool, diameter and depth.



The design tree and the assembly's inputs: width, height, depth.

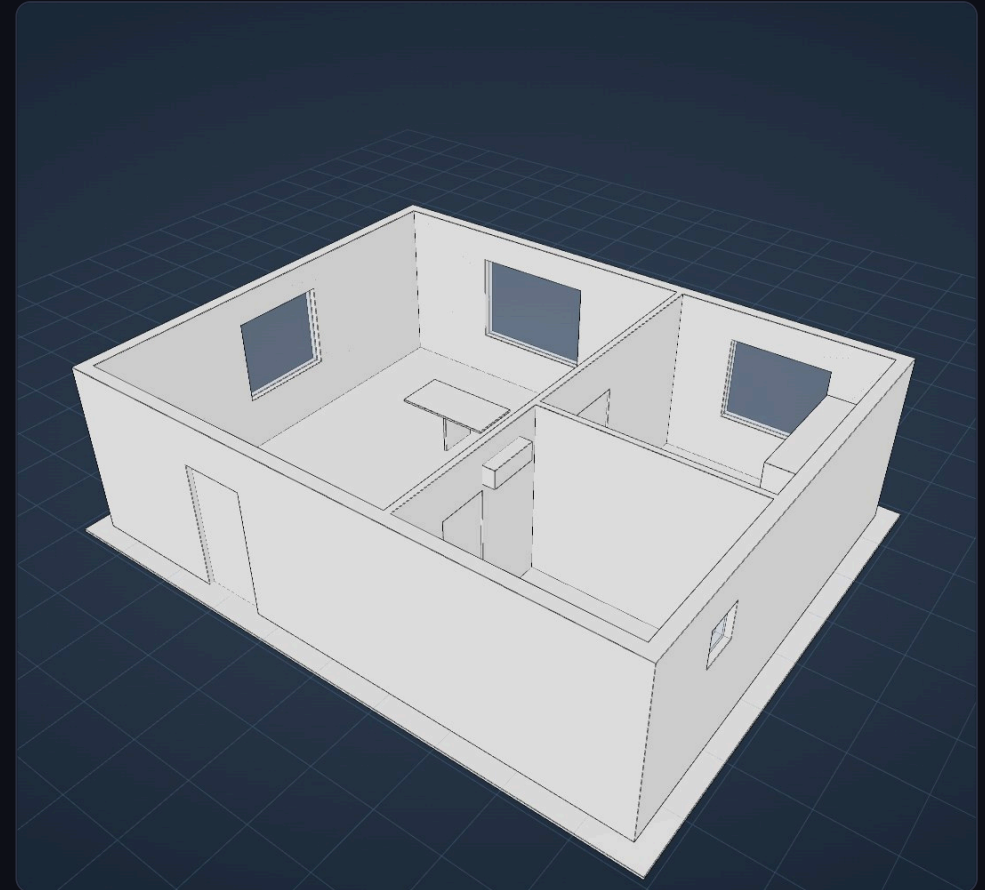


Profile parts and joints in a frame.



2D: walls, partitions, named rooms, doors, windows and furniture.

Interiors start from the room. Walls, partitions, doors and windows are drawn in 2D, rooms are named, and the same drawing becomes the 3D model the furniture is placed in.



The same plan in 3D, generated straight from the drawing.

Python

PyQt5

OpenCASCADE

In use and in pilot.

ATRIUM · 2026 · PILOT

Parametric CAD at Philpa

Philpa is entering its real product data — materials, tools, processes and parts — into Atrium to model its cabinet range parametrically.

Python · PyQt5 · OpenCASCADE

1st

company piloting it with production data

SAHLAN · 2019 - 2021

SketchUp CRM plugin

Asked to plan a move to Revit, I recommended SketchUp instead, modelled the product range as dynamic components and connected designs to the CRM.

Ruby · HTML · JavaScript

4

designers using it every day

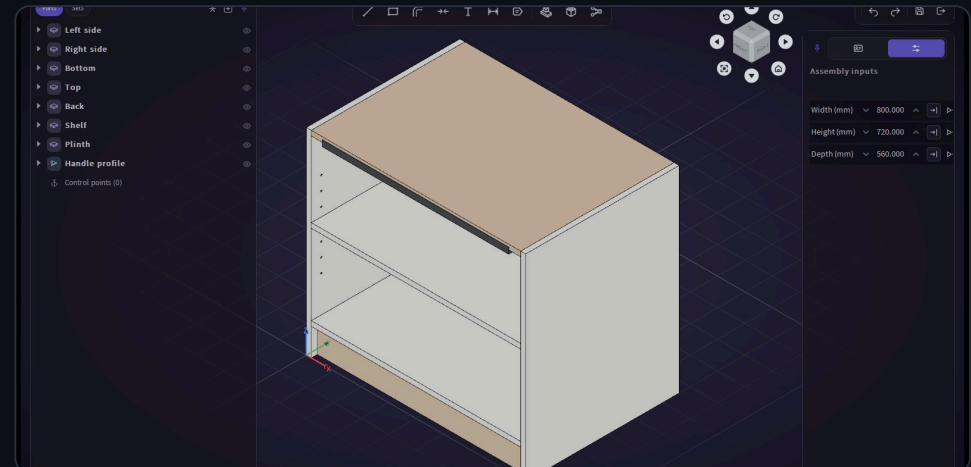
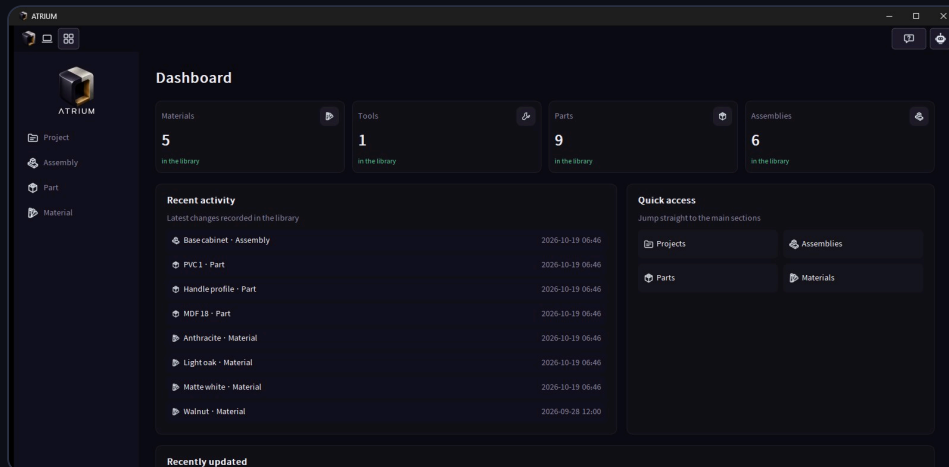
GITHUB.COM/KIANARC

Open source

QuickGH — run a Grasshopper definition from Rhino without opening it: pass inputs, get outputs.

InputPlus — store and retrieve geometry inside Grasshopper, with JSON import/export.

AlphabetSequence — zero-dependency C# library for Excel-style sequences.





PART TWO

Architecture

A small selection from 80+ projects, 2007 – present. The software work grew out of this one.

Visualisations completed in 2026 from the original design renders; forms and designs unchanged.



Green architecture and a sense of belonging — a nursing home.

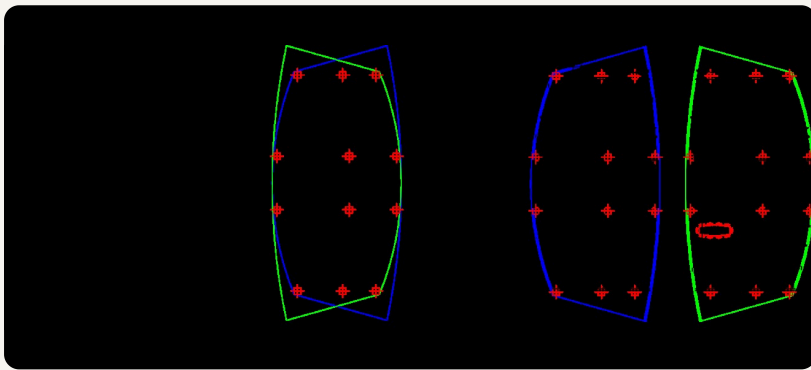
People have always shared a bond with nature, and our dependence on non-renewable energy has pulled us away from it. The thesis tries to restore that bond for the residents of a nursing home, combining sustainable green design patterns with principles drawn from Feng Shui to create a sense of familiarity and belonging.

Reinforced concrete with white cement finish. Hand sketches, modelled in Rhino, rendered in 3ds Max.

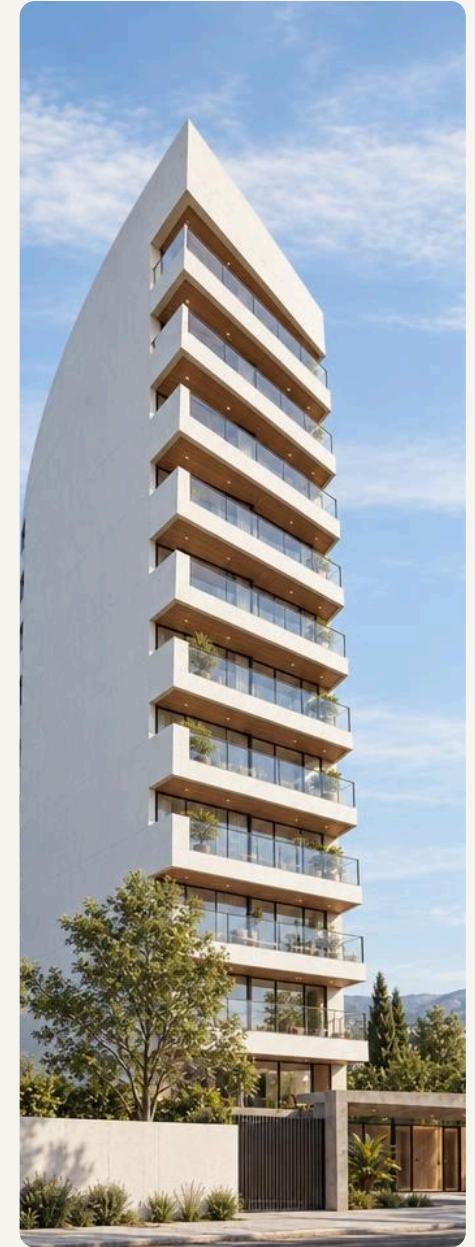


A form found by the wind and the sun.

The prevailing northwest wind and the southern sun set the plan: the sun side opens up with a larger surface, the wind side becomes aerodynamic. The plan was mirrored for the ground floor and the two were blended vertically into one mass.



Plan form-finding: from the site constraints to the final floor plate.





Villa for Mr. Karimi • Shiroom

Each space was shaped by its use, then connected through spatial-relationship diagrams. The cantilevered upper floor resolves a tight site-coverage limit against the client's brief. Concrete, white cement and thermo-wood; ArchiCAD and V-Ray.



Villa for Mr. Jahantab

View, landscape and climate drove the massing, developed through a series of sections; the interior was then designed inside-out with a functionalist approach. ArchiCAD and 3ds Max.



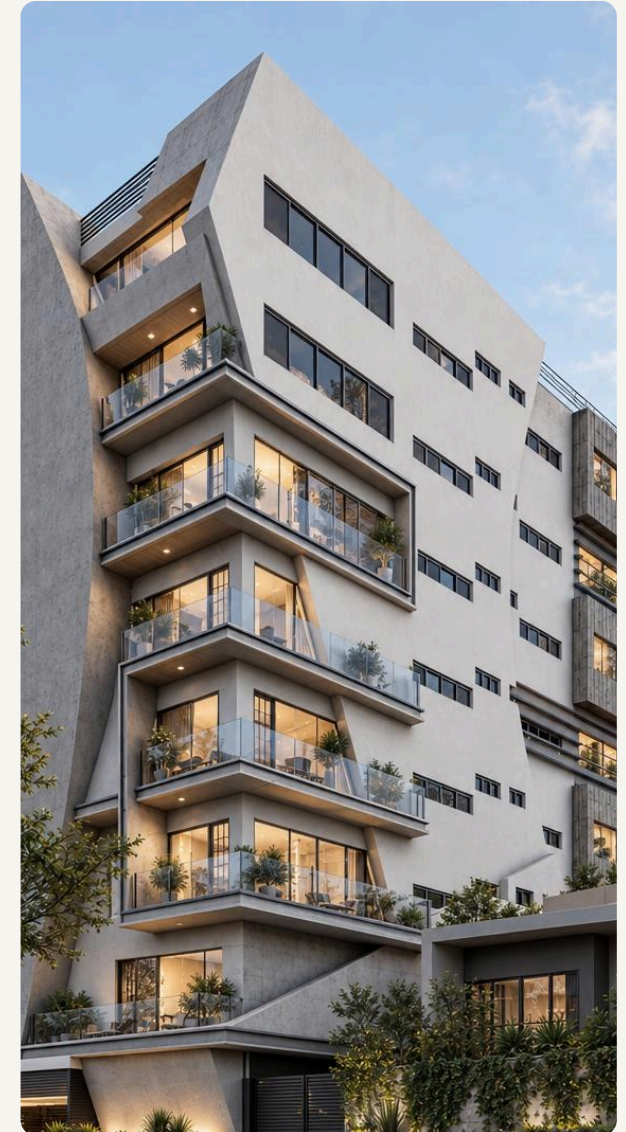
Sabat rahe alborz co. (Eng. Zamani)
Architect: Feizbahir

Villa for Mr. Abbasi — an A-frame villa, for Sabat Rahe Alborz Co.



Hyper Center Khazar

A commercial building shaped after the human eye, around the client's wish "to be seen": the first glance should lead to a second. A retractable roof answers the climate. Unbuilt.



Facade for Mr. Ghafari — folded balconies and offset volumes; white cement and exposed concrete.

CONTACT

Let's build the tools your designers need.

Open to computational design, AEC software and furniture-industry roles. Based in Tehran, ready to relocate; requires visa sponsorship.

meqdad.feizbahr@gmail.com

WhatsApp & Telegram: [@kfeizbahr](https://wa.me/kfeizbahr) (wa.me/kfeizbahr · t.me/kfeizbahr)

feizbahr.com · github.com/kianarc

linkedin.com/in/meqdad-feizbahr-330a39141