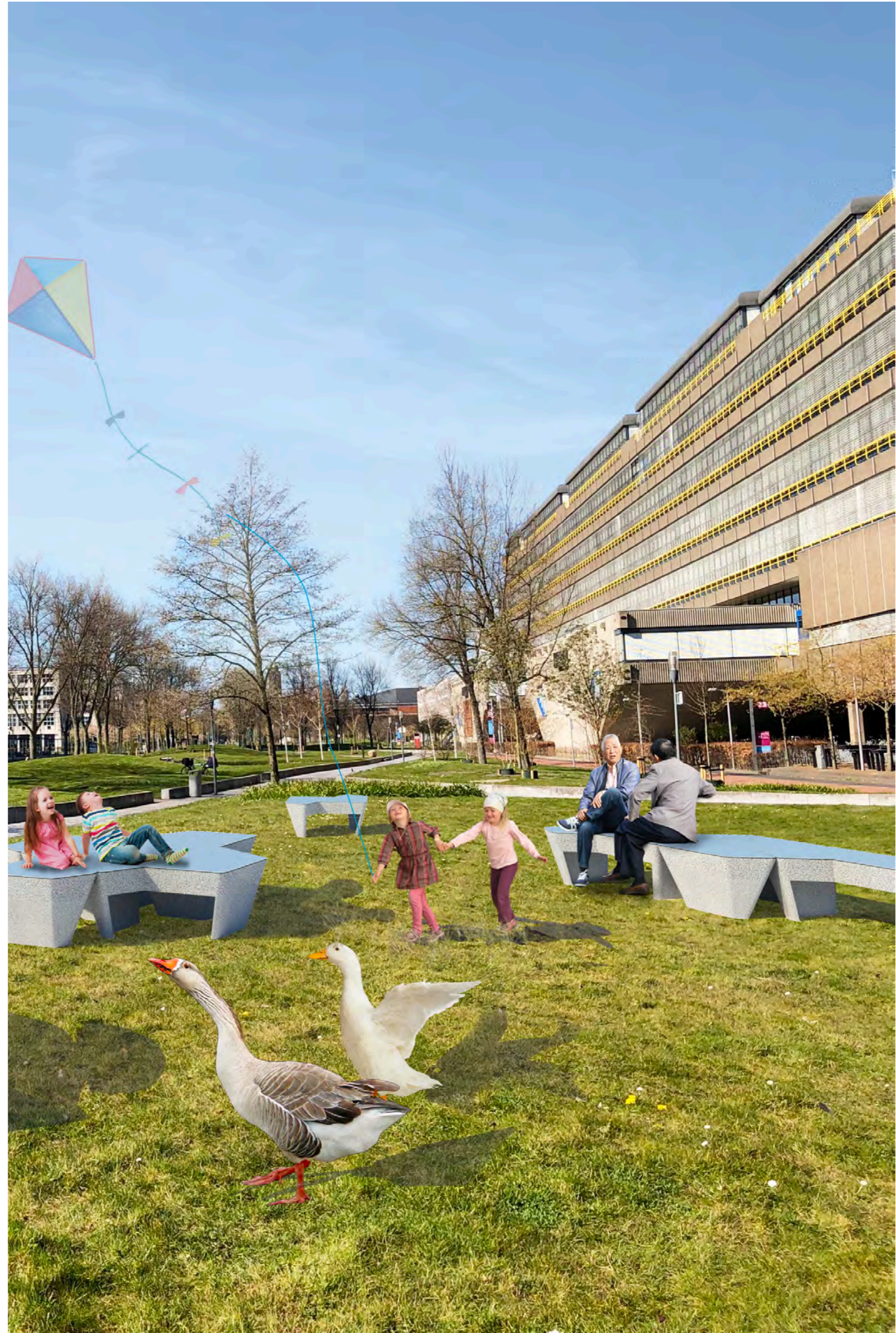
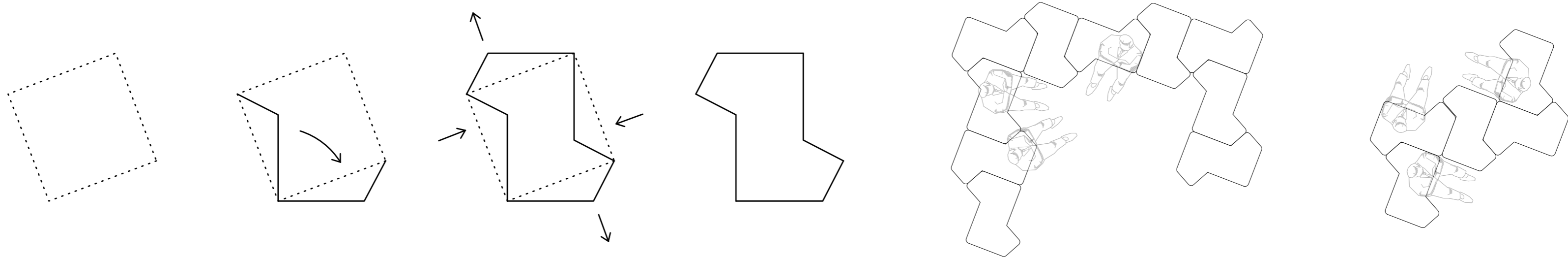




Night render



Day render

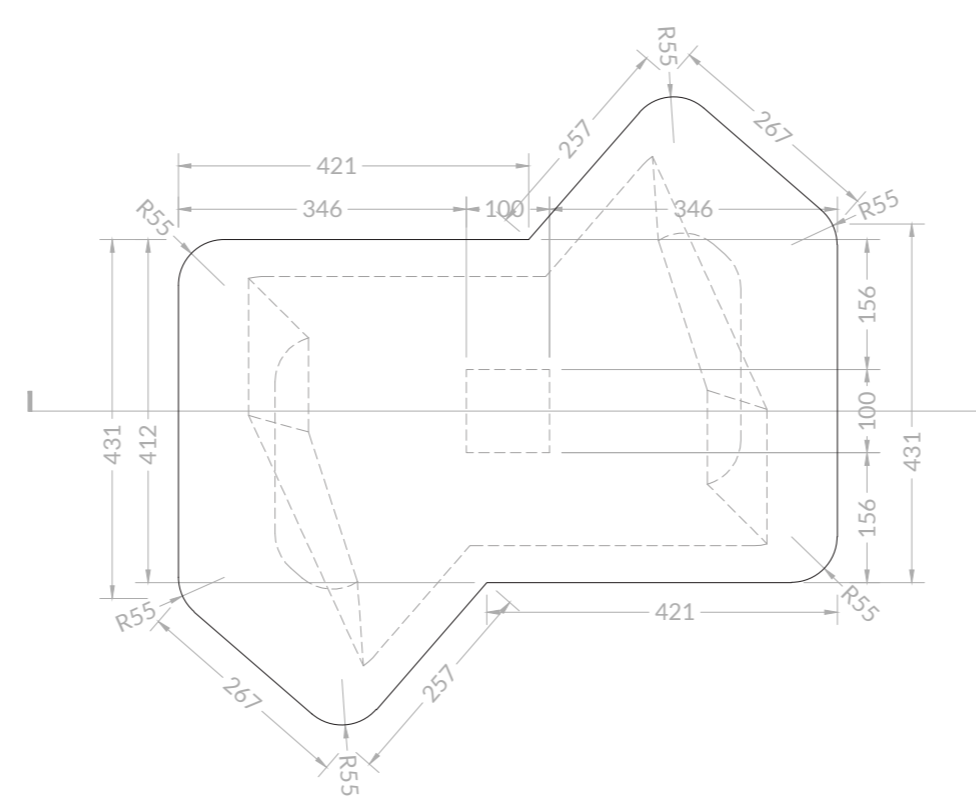


Form concept

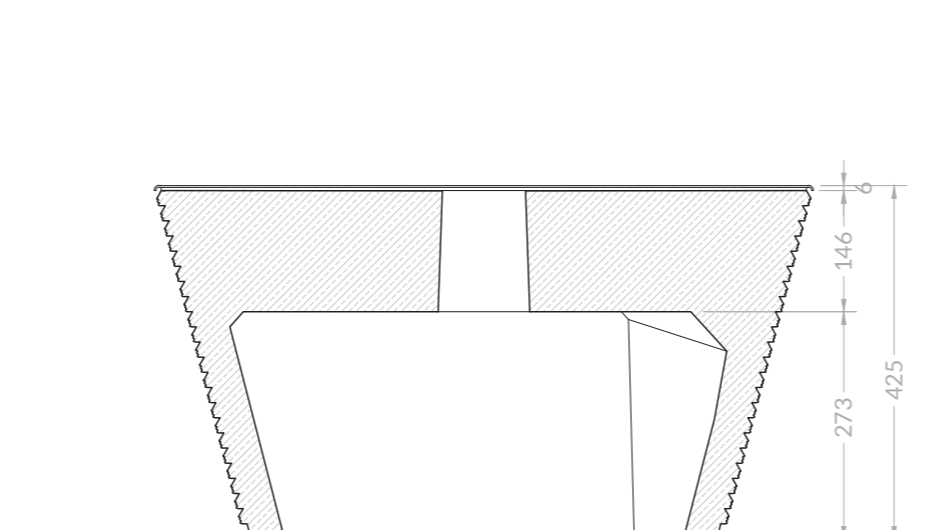
MODULAR e-BENCH

Designed for the outdoor in a park situation and glowing in the dark, the design of the modular e-bench can store and produce energy. The modular concept allows the individual module to have an acceptable weight and it includes the perspective of mass production on an industrial scale. The shape of the module is based on the principle of tiling. Therefore the modules interlock and can be arranged in many ways. To save material, we tried to make the construction as lightweight as possible. The LED rim, the Peltier elements, and the wires are all placed in an installation layer of 4 mm. The temperature difference between the aluminium and the concrete generates electricity and charges a battery. The battery is placed together with the wire connections in a hole with access for easy maintenance from the bottom.

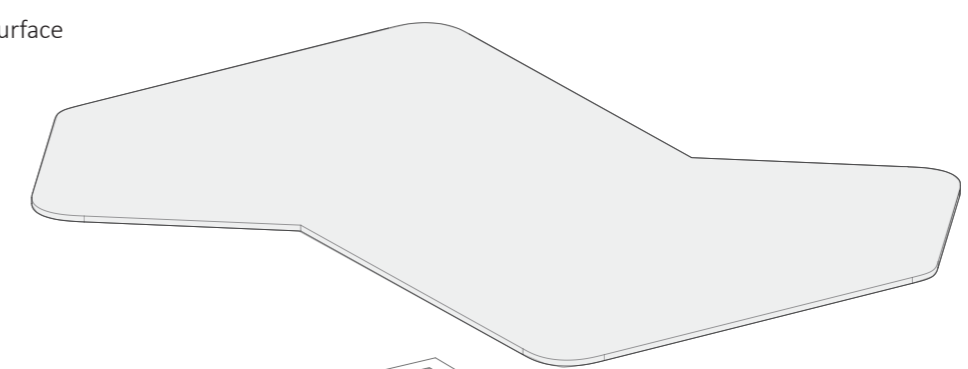
Bench plan



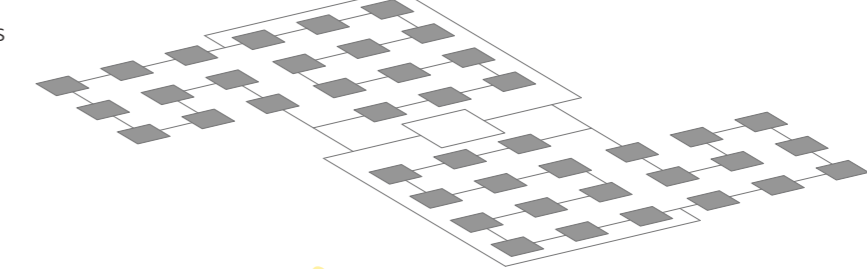
Section A-A



Aluminum Surface



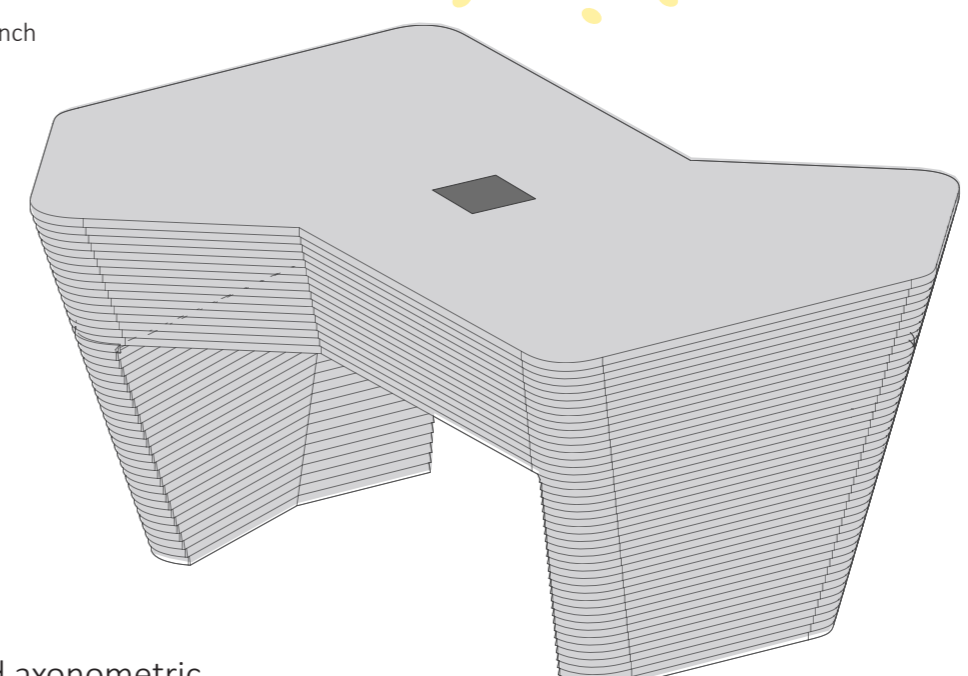
Peltier Elements



LED Lights



Concrete bench

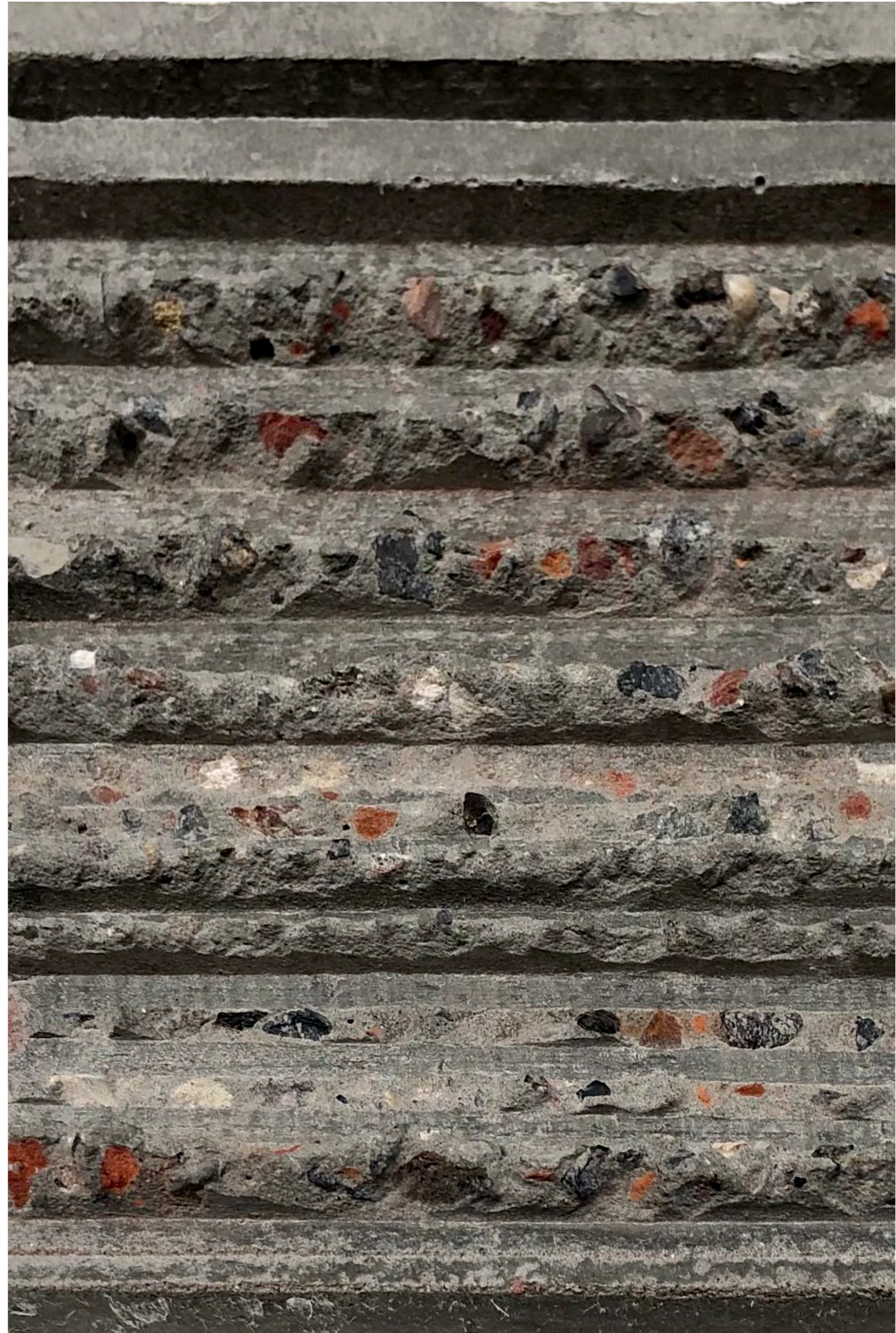


Exploded axonometric

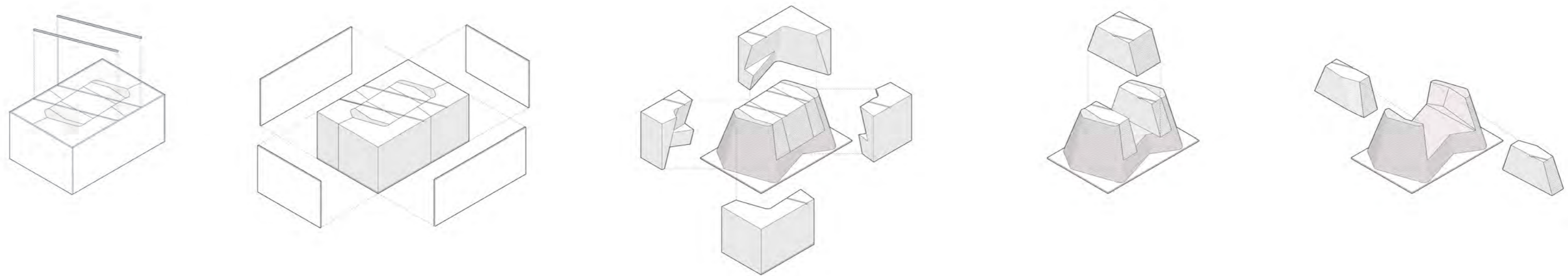




Untreated surface



Hammered surface

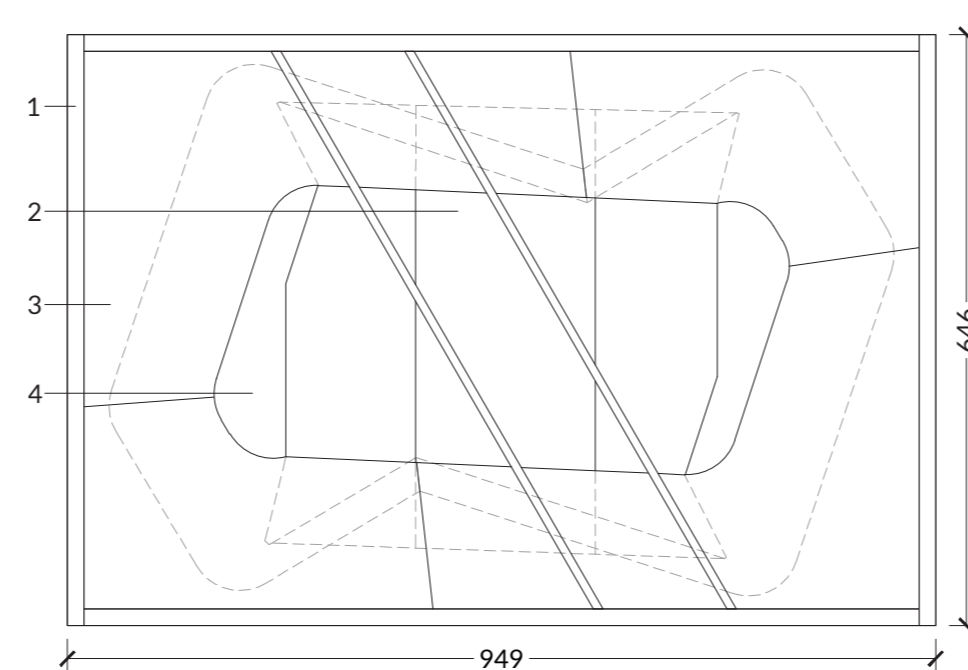


Formwork disassembly axo

MODULAR e-BENCH

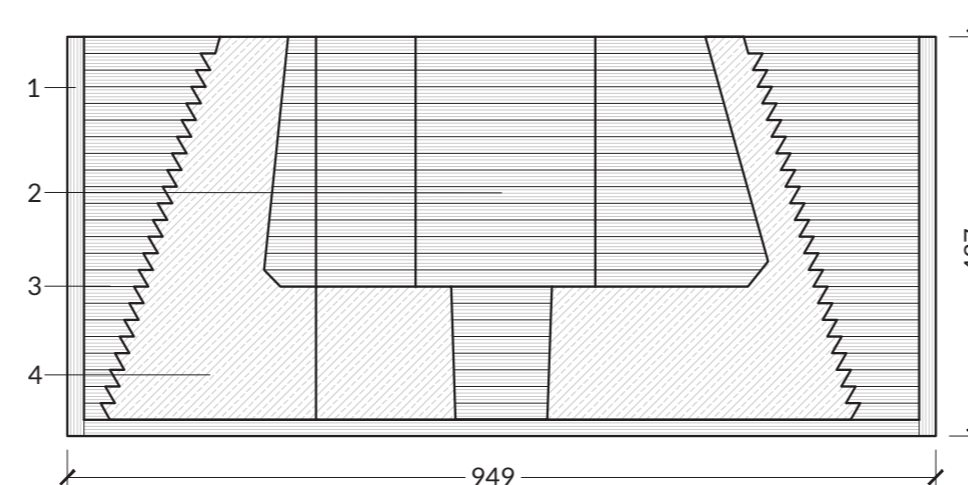
An important part of the bench design is the treatment technique of hammered concrete that is incorporated in the making process. It was important to develop a formwork design that could accommodate both the practical production requirements of a modular bench as well as a formwork that could accomplish the complex geometry and chosen surface finishes we envisioned in our final design proposal. To build the formwork, we chose to use 23 layers of 18mm plywood sheets, cut by a CNC router. We divided it into 7 segments that would be easily demolded when the exterior timber box is removed. Afterward, the bench can be manually hammered by cutting off the concrete edges. As a result, the bench displays an extraordinary surface with exposed aggregates and horizontal lines that emphasize the shape.

Formwork plan

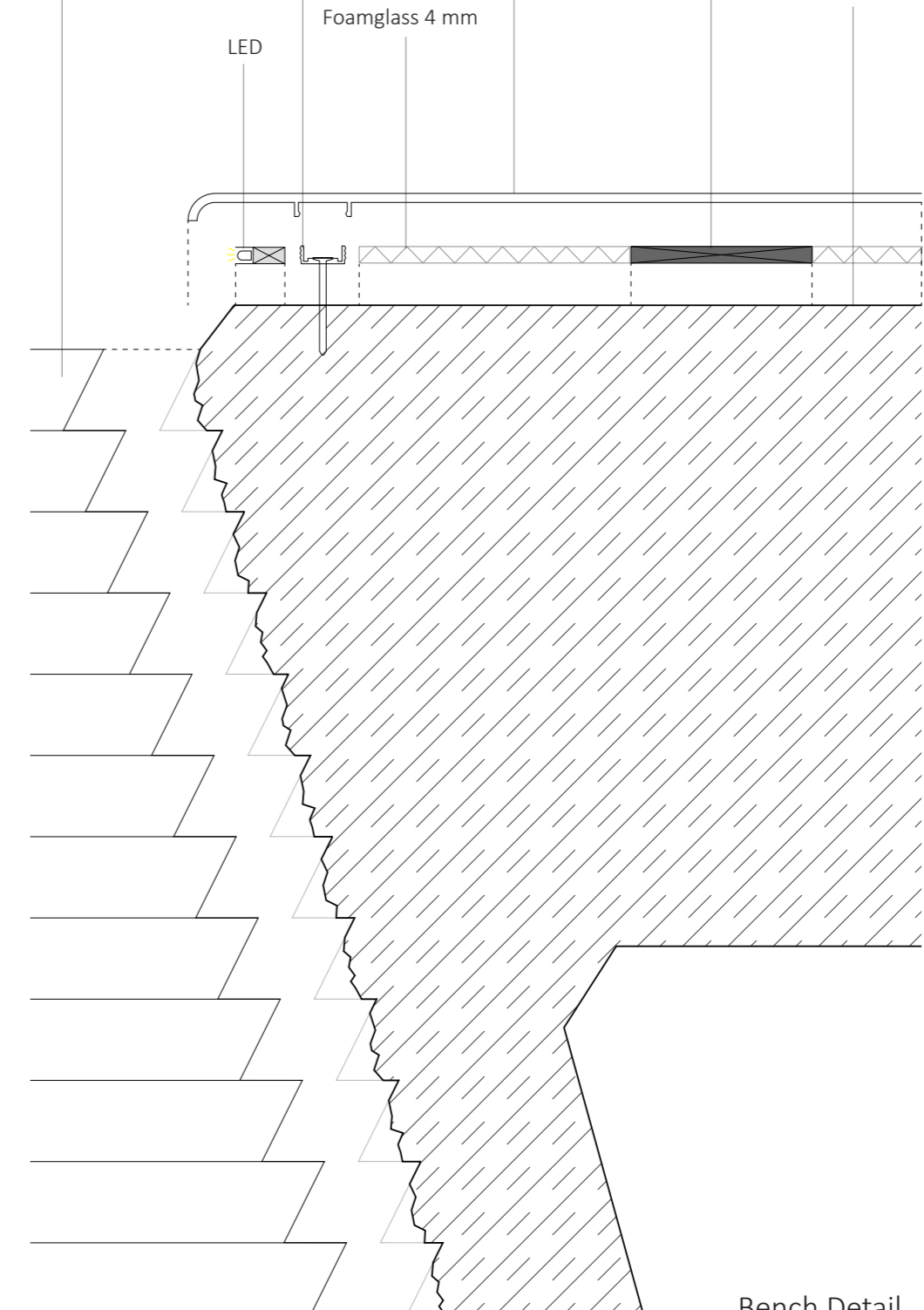


- 1 formwork box
- 2 inner cutout formwork
- 3 outer bench formwork
- 4 concrete bench

Section A-A



- Plywood Formwork 18 mm
- Aluminium Clip
- Aluminium Surface 2 mm
- Peltier Element 4 mm
- Concrete 150 mm
- Foamglass 4 mm
- LED



Bench Detail

