*Square root* is a modular sculpture inspired by the common shape of the fundamental unitary component of a photovoltaic system - the solar cell - and by the city plan of Mannheim. The module has a time-tested formal language and it is reminiscent of the archetypal form of home as drawn by children. The deceptively simple iconic form in its skeletal structure becomes the building block for the three-dimensional grid at civic park scale in Mannheim. The arrangement of the modules with different sizes turns the very rational configuration of the individual module into an organic and diverse pattern inspired by fractals and structures found in nature.

At the civic park scale the pattern becomes a relief over the landscape emphasizing the interaction between sunlight and surface.

**Activities**

The variety of scales and configurations allows for different public activities such as community garden for individuals (Schrebergarten), agrivoltaics, greenhouses, aviaries and animal shelters, huts, sheds for tool and shelters, all integrated with the possibility of producing clean energy with the photo voltaic roofs.

**Technology**

*Square root* is suitable to be individually installed in a private garden as well as to be a part of a larger array in the public realm. It has two versions: the South-facing module, which allows for more density within an array and features a slightly better sun exposure and an East/West-facing module, which allows for twice the area of Monocrystalline solar panels in one module.

**MWh generated**

In the example of Spinelli Park in Mannheim, the array of *Square roots* can generate 16000 MWh on average if implemented over the entire available area. One *Square root* module with a side of 5m can generate 2418 kWh per year (EW module) or 1605 kWh per year (S module).

**Supporting UN sustainable development goals**

With its basic configuration, Square root could easily be constructed also in developing countries. Its modular element and different sizes can be adapted to different contexts and are easily transportable. This could contribute to eradicate poverty and hunger with the combination of renewable energy generation and food production.

The possibility to grow food locally can significantly increase the quality of life and therefore health, while providing affordable and clean energy anywhere on a domestic scale.

The modular shape of *Square root* allows the flexibility to implement it at an infrastructural scale potentially generating work both in the food and energy sector. The different functions that can be hosted under the photovoltaic roofs can generate new public spaces and communities.

**Environmental impact summary**

The basic skeletal structure is realised with recyclable steel or aluminium. The light construction makes the realisation and prototyping of the modules affordable. The way each Square root module meets the ground allows for minimal footprint, soil use and structural foundation. The modules can be recycled at the end of their operative life.