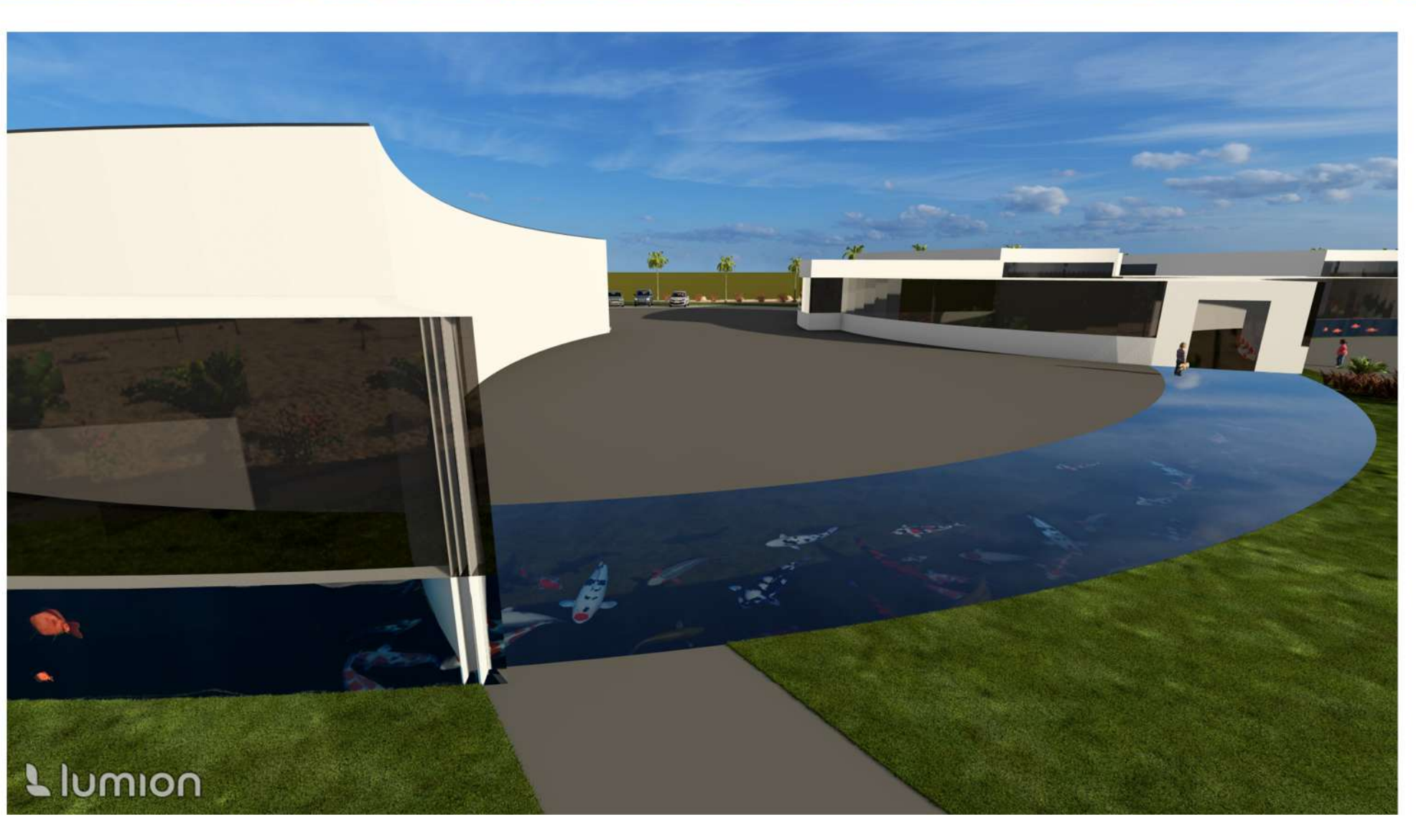


AQUAPONICS KINDERGARTEN

ALMERIA/SPAIN



Learning Through Production: Aquaponic Kindergarten

This project is an aquaponic kindergarten that aims to enable children to learn not by simply observing nature, but by becoming a part of it. By integrating educational spaces with a production system, the relationship between fish, plants, and the water cycle becomes part of everyday life. In this way, children learn sustainability through direct experience while developing a strong connection with nature.

The project is located in Almería, Spain, due to the region's limited water resources and intensive agricultural production. The arid climate makes efficient water use essential, while aquaponic systems provide a sustainable production model by consuming significantly less water than conventional agriculture. Therefore, the project aims to create an innovative educational and production environment that both raises environmental awareness among children and responds to the climatic and ecological conditions of the region.

LOCATION



SITE LOCATION

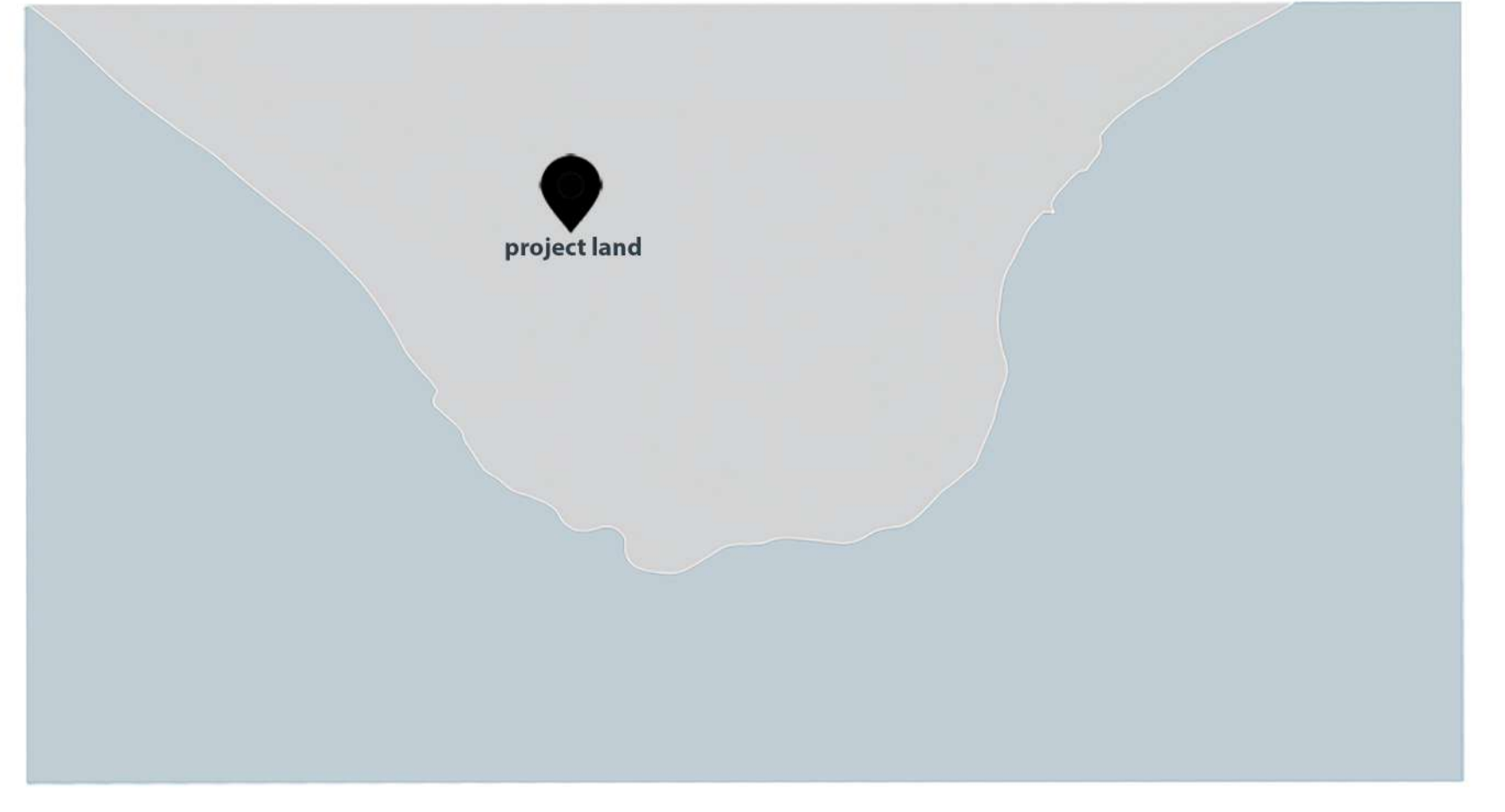
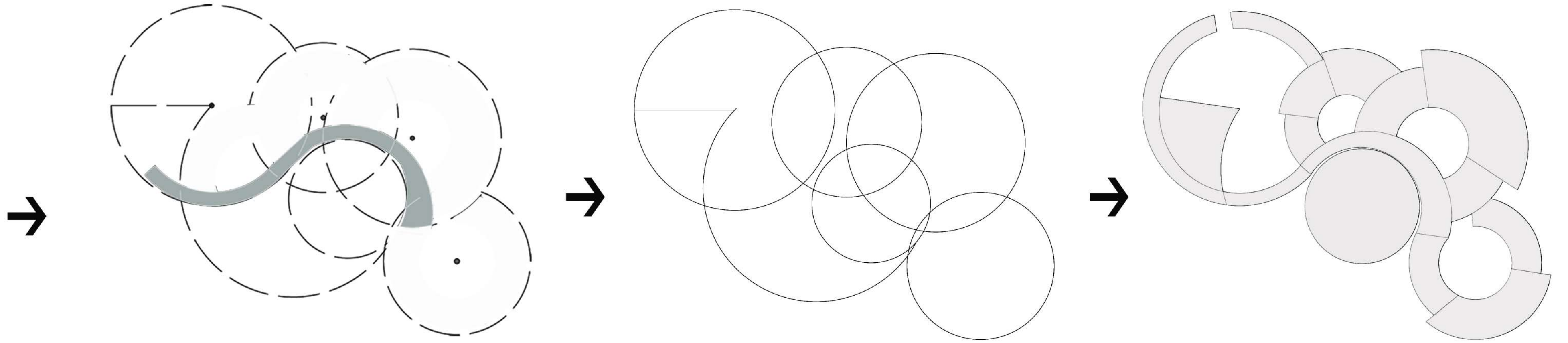
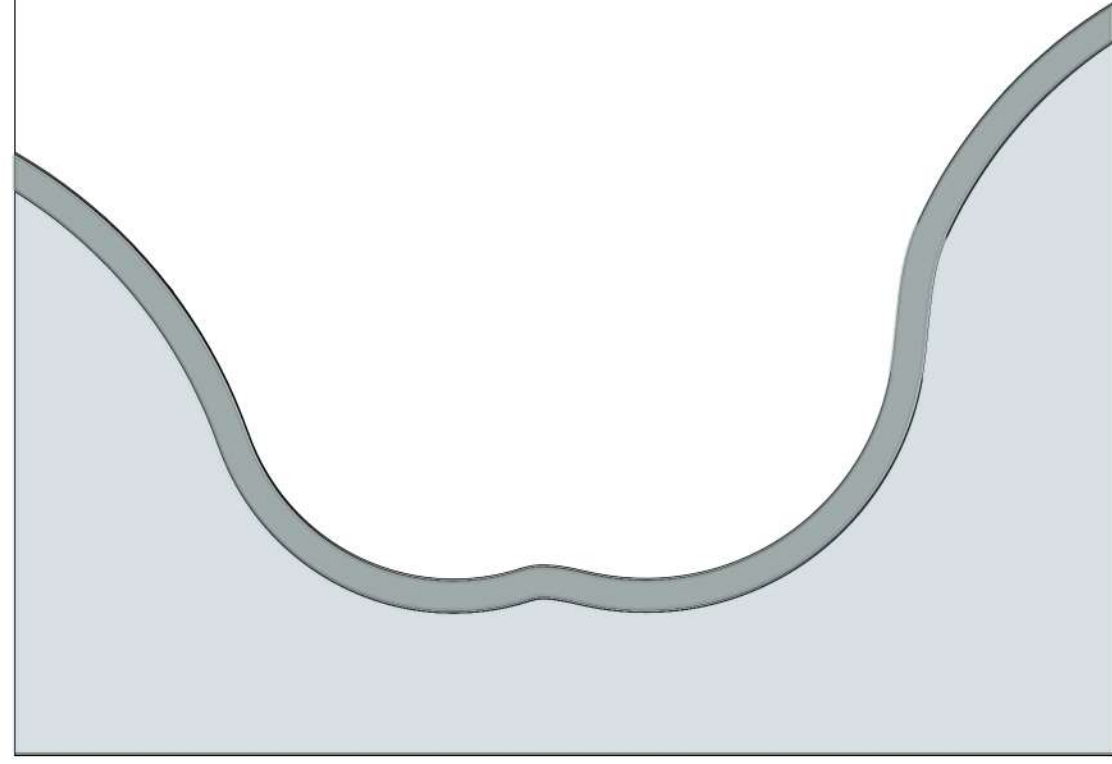


DIAGRAM / FORM GENERATION

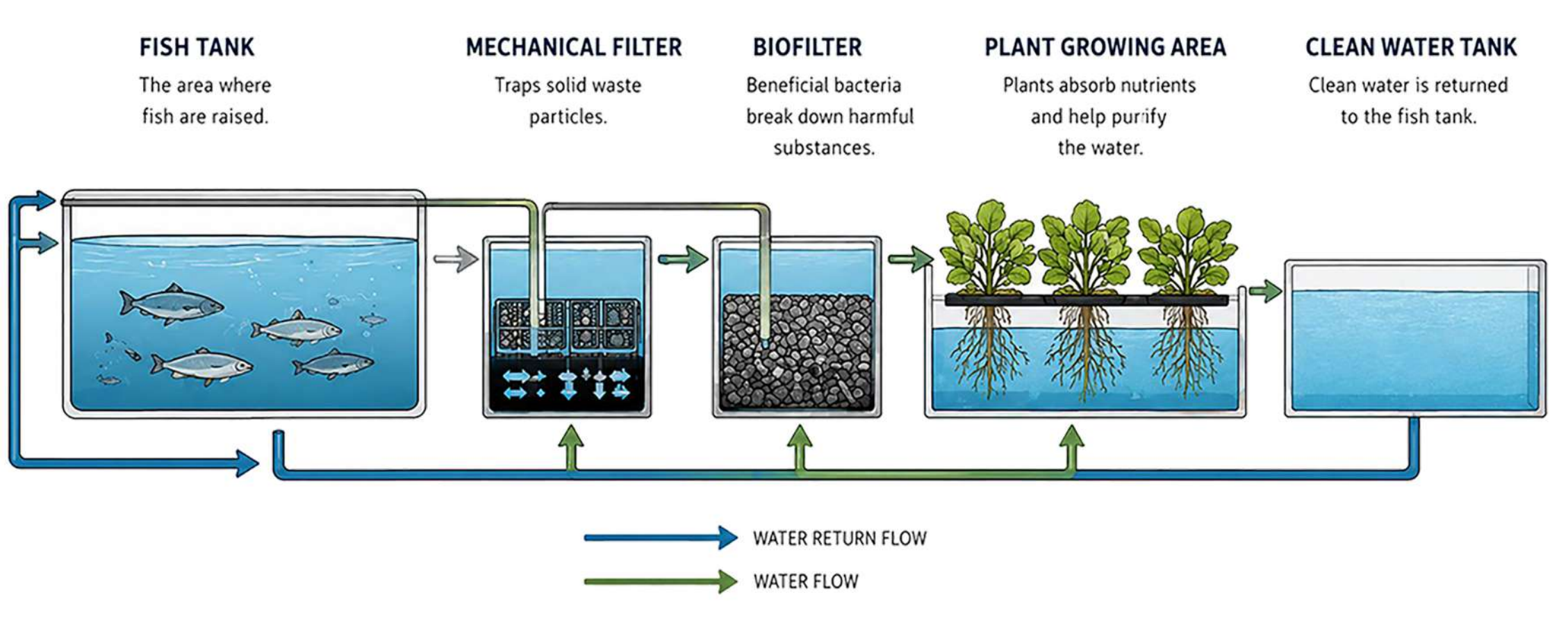
COASTLINE FORM



AQUAPONICS SYSTEM

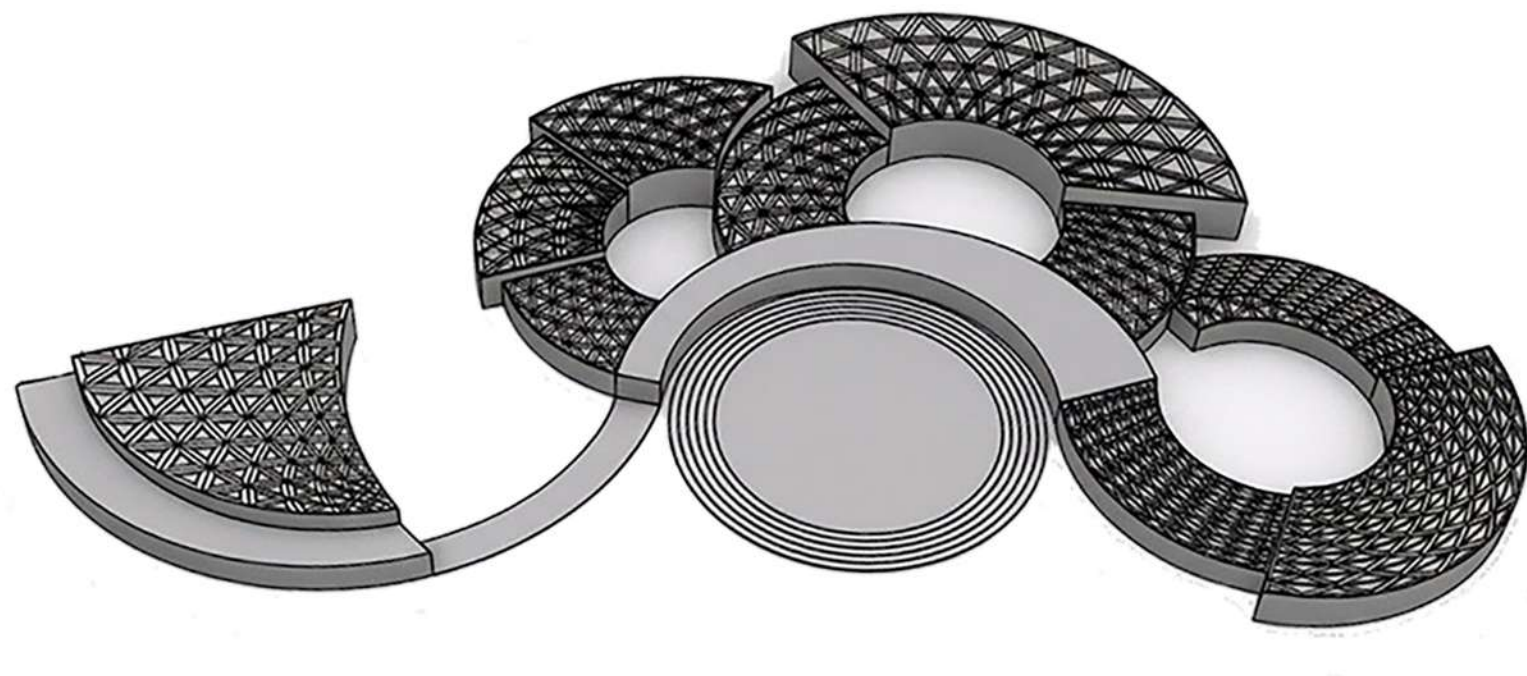
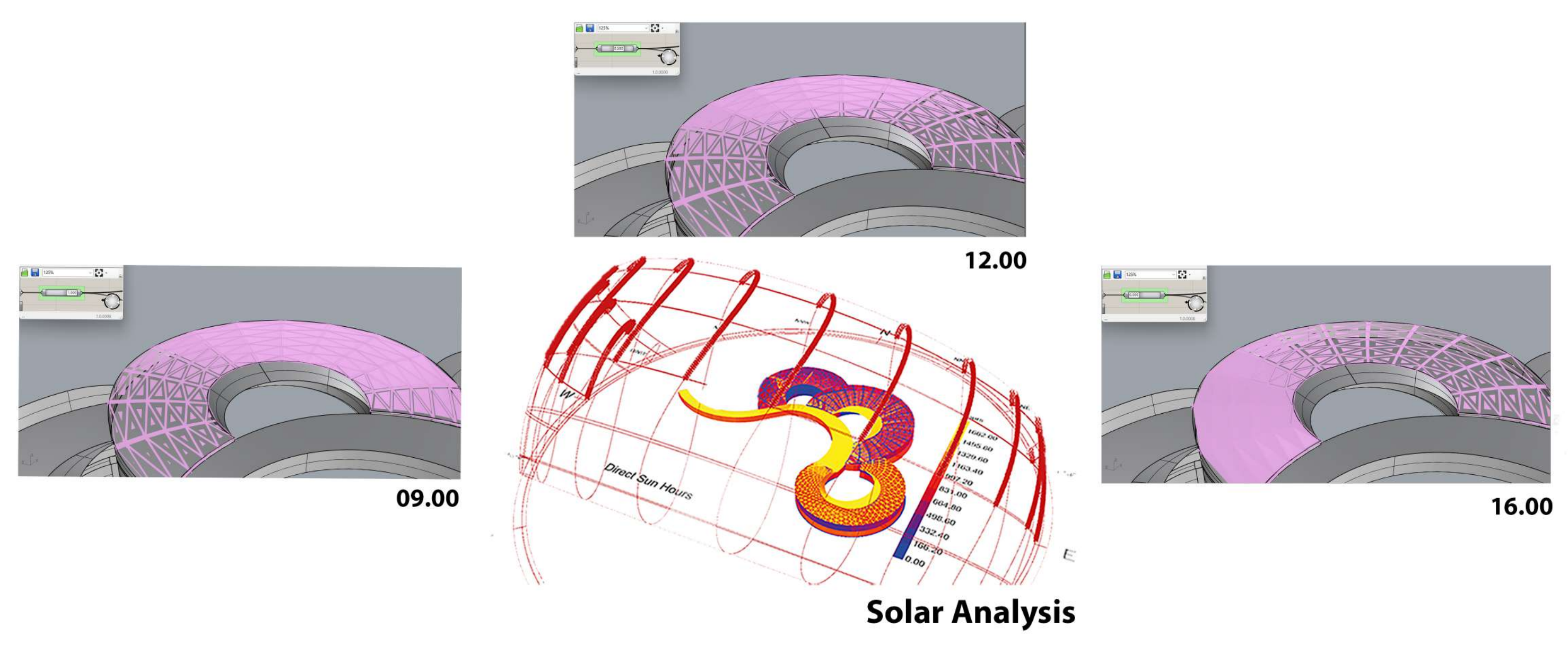
An aquaponics system is a closed-loop system that combines aquaculture (fish farming) and hydroponics (plant cultivation). The waste produced by the fish mixes with the water, and through filtration and bacteria, this water is converted into nutrients for the plants. The plants purify the water, and the treated water returns back to the fish tank. Thanks to this cycle, water consumption is reduced, chemical fertilizers are not used, and a sustainable production system is established.

SYSTEM DIAGRAM



Sun-Responsive Adaptive Roof

In response to Almería's high solar radiation and arid climatic conditions, the roof is designed as a sun-responsive adaptive system. Kinetic roof panels open and close according to the intensity of solar radiation, providing dynamic shading and enhancing the thermal comfort of the interior space throughout the day. This adaptive approach supports passive cooling while creating a more energy-efficient learning environment.



Responsive Parametric Roof