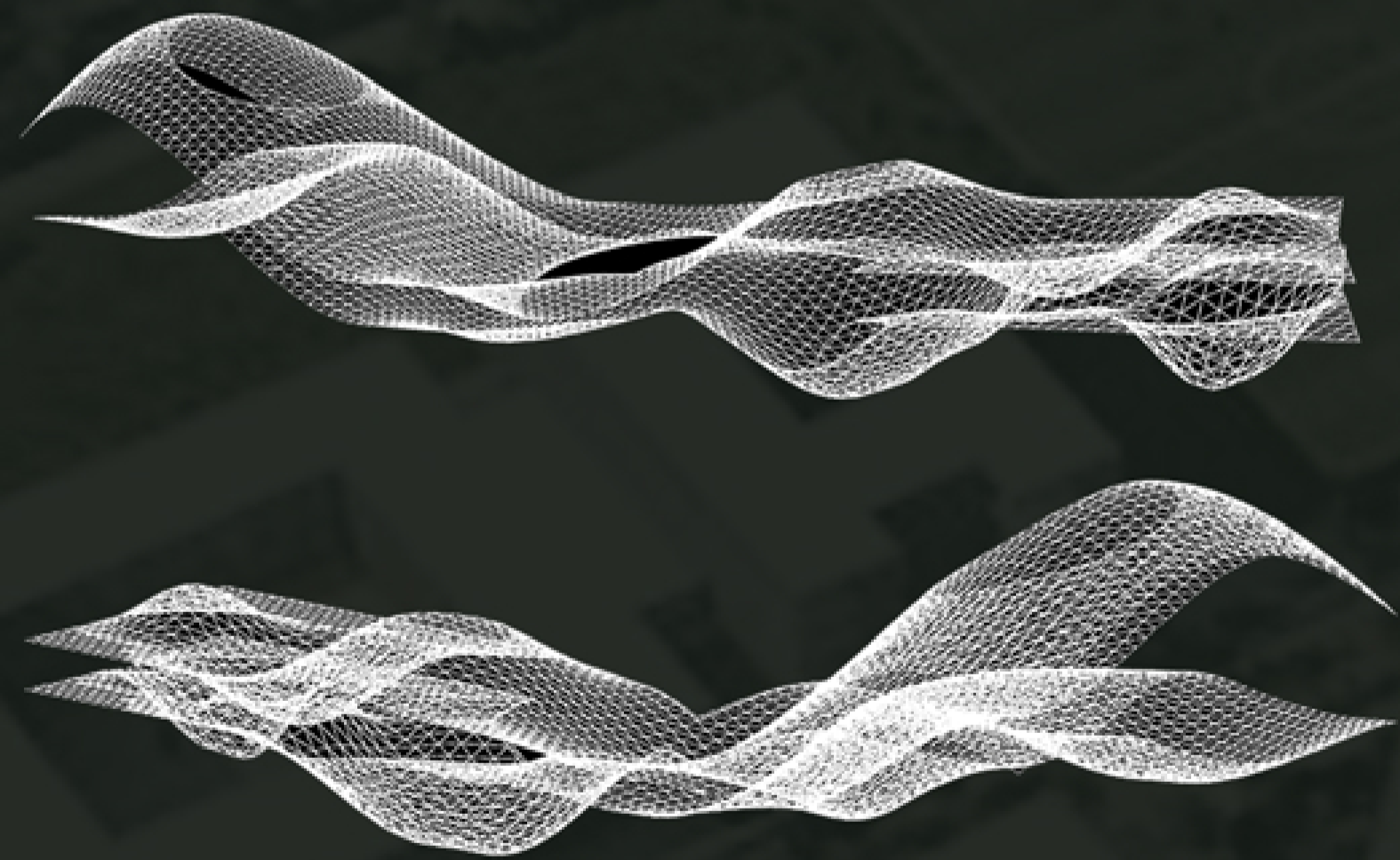


ECODUNES

In the design process of Ecodunes a new method is used to fight sand storms and desertification. In the proposed method, a specific bacteria, called *Bacillus Pasteurii*, is poured onto a pile of sand and starts filling up the void between the grains. A chemical process produces calcite, which is a kind of natural cement that binds the grains together. The whole cementation process takes about 24 hours.

In our designed architectural element, we made a sand dune and used *Bacillus Pasteurii* bacteria to solidify the necessary parts. We then excavated the sand to ultimately produce our architecture. This method of solidifying the sand provides a physical support structure for our designed public space inside the sand dune.

We found microalgae to be a promising source of renewable energy in our design. The shade inside the sand dune protects microalgae from the high solar radiation in Abu Dhabi, and creates a perfect place for harvesting microalgae.



By use of sand as a vernacular material, we were able to achieve an ultimate form that matches the context of the project. The sand dunes that were designed by natural materials are capable of being built in any other location all over the UNE and would have no destructive environmental impact.



algae pond

green zone

solidified sand