

## CULTIVATING MEMBRANE

Ian Barnett and Taraneh Khaleghi



## Cultivating Membrane

Ian Barnett, Taraneh Khaleghi

*“The difference between city and nature no longer actually exists. [...] The city has become an outstretched urban landscape. The city dweller is no longer limited to his immediate surroundings. [...] The city-dweller is a self-assured, exploratory individual, is extremely mobile, disposes of the achievements of technology, and has access to several media. The surroundings do not always have to be adapted to the supposed desires of the city-dweller, it is he that adapts himself to his surroundings. The home is to the city-dweller no longer an individual world. He is continually changing his guise and surroundings.”*

In Bart Lootsma's quote from *The New Landscape*, the distinction between city and nature is completely blurred; the city is a landscape, the *new landscape*. What could traditionally only happen in separate places could now happen all in the same place. The “city-dweller”, through technological and communication devices, has access to things much further than the human's immediate surroundings; with a car, the human can travel distances; with a phone, the human can communicate with friends on the other side of the world; with the internet, the human can congregate with individuals with similar interests. These media provide the *city-dweller* with a sort of virtual life where the human can physically be in one place, but virtually be in a land with people from all corners of the earth. The limits become virtually endless and

no longer physical. Lootsma further states that “the media radically destroy the traditional urban and architectural spatial organization and notably the traditional distinction between private and public space”. One can remain in the private space of one's car while travelling to the most public of spaces. One can be in the privacy of one's home meanwhile broadcasting in an online public arena. One can be contacted by telemarketers and email spammers without so much as allowing permission for this private access.

Can architecture act as a media? Can architecture blur the space between public space and private space? Can architecture create “the new landscape” by merging city and nature? What *Cultivating Membrane* does is bring together people in their own private devices, their cars or bikes or any such vehicle, and have them experience a public realm through different lenses. They interact with their public surroundings, meanwhile remaining in their private bubbles. The project melds nature and technology, using technology to broadcast nature, within the genetic laboratories and screening areas, and nature to broadcast technology, on the surface through genetic manipulation of organisms. The users get to interact in their own way with their surroundings while still influencing the private/public space of others.



Cultural Center  
32°4'20.69"N  
34°46'47.05"E  
10 350 m<sup>2</sup> / 111 410 ft<sup>2</sup>



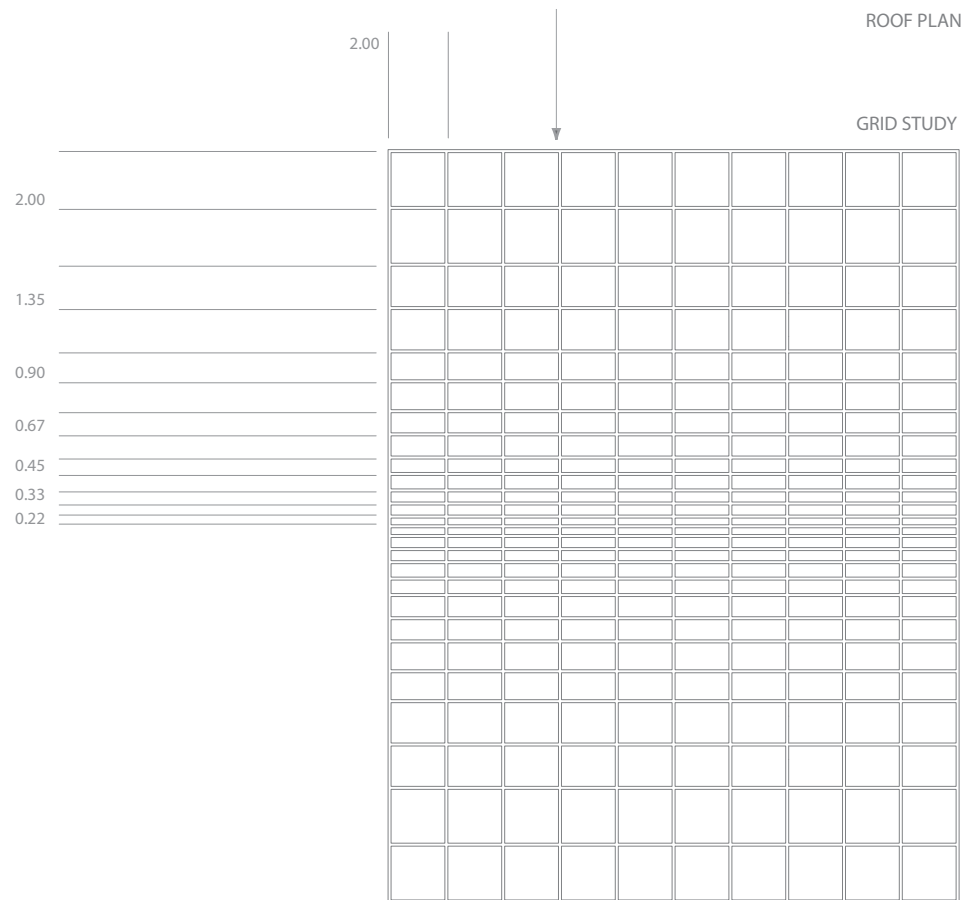
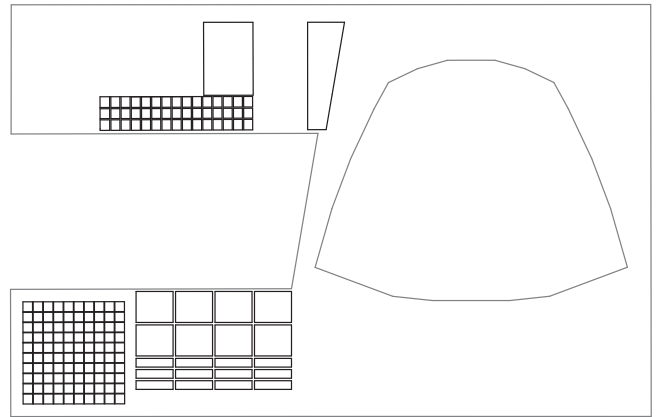
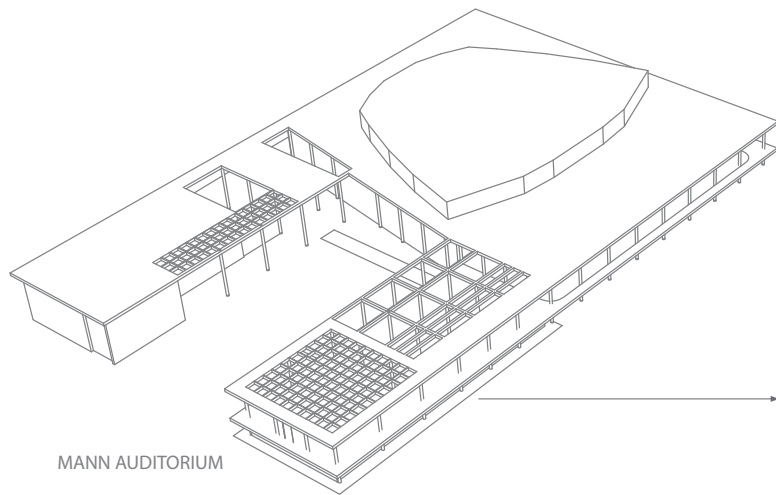


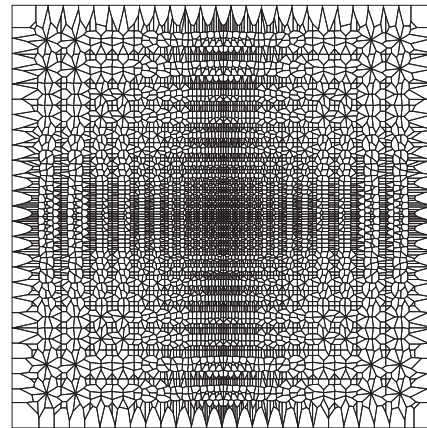
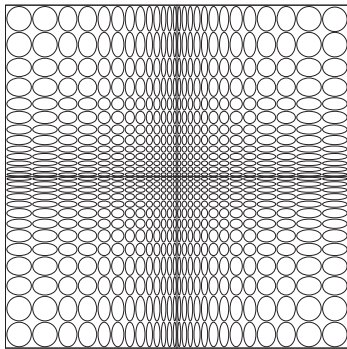
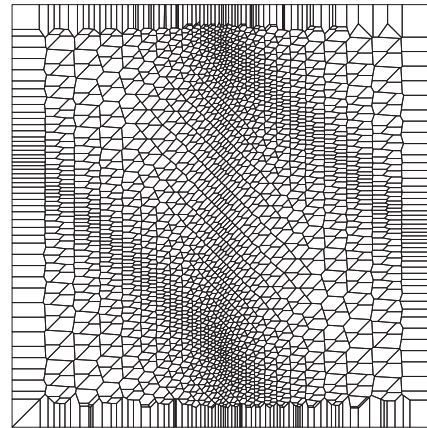
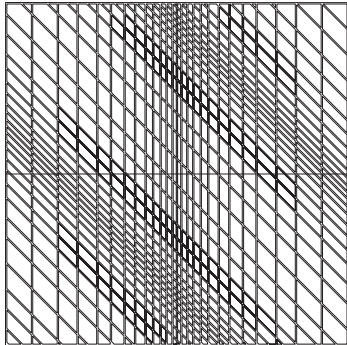
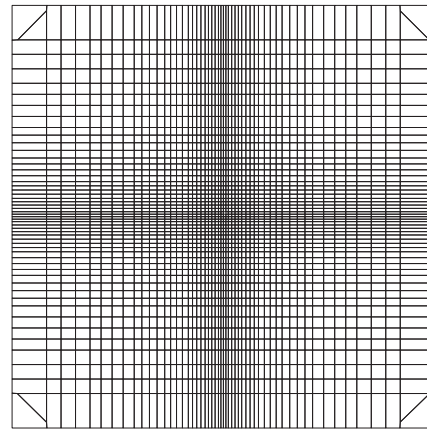
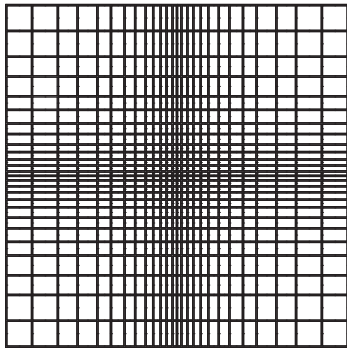


# FORCES OF MOVEMENT

- ➔ vehicular traffic
- main entrances
- pedestrian influx

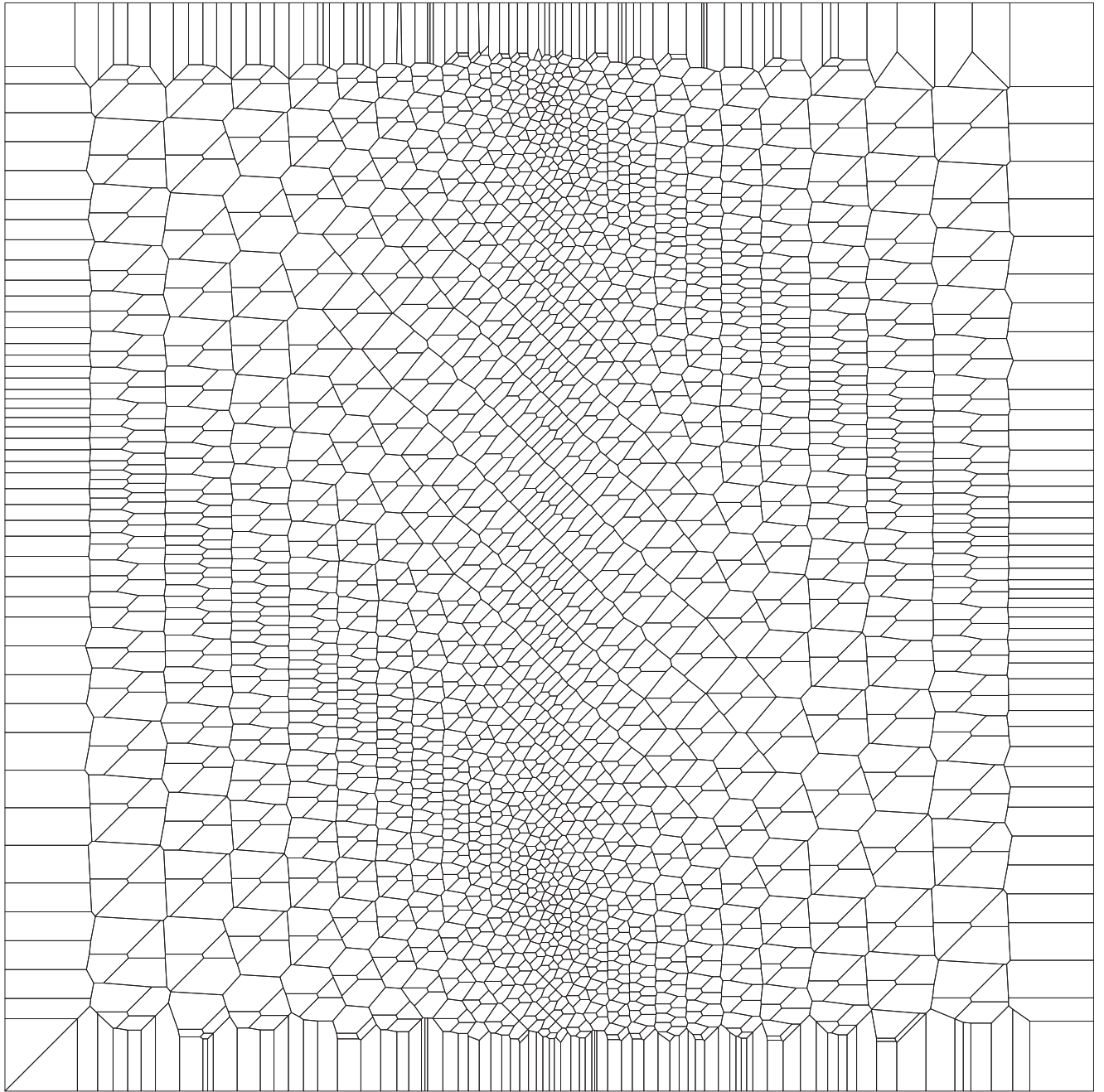
- city hall to independence hall green axis
- secondary green axis
- enter Mann auditorium
- enter Habima theatre
- enter Helena Rubenstein pavilion
- residential access
- secondary pedestrian/green axis
- observation
- commercial and public connection
- cultural connection





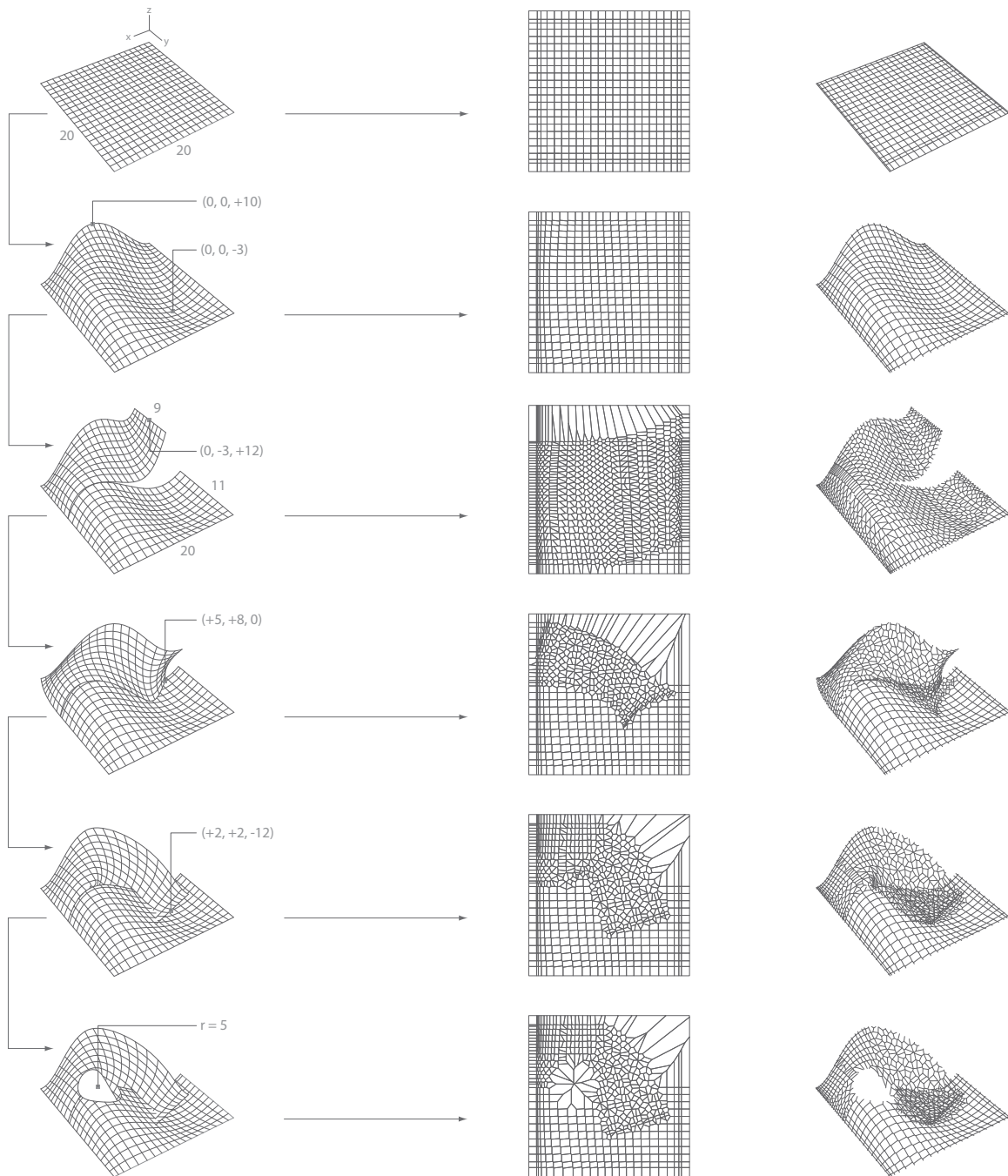
GENERATIVE LINES

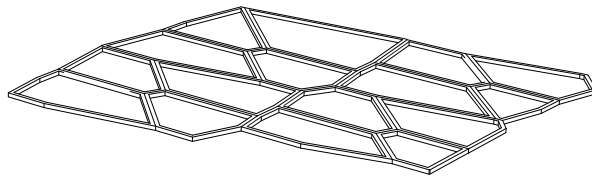
RESULTANT CELL TESSELLATIONS



CELL CONSTRUCTION

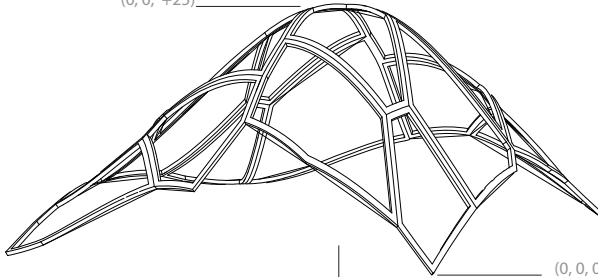
Cell Formations





PORTION OF CELL STRUCTURE

(0, 0, +25)

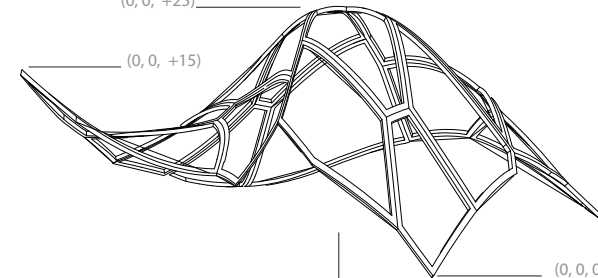


(0, 0, 0)

CELL MANIPULATION

(0, 0, +25)

(0, 0, +15)

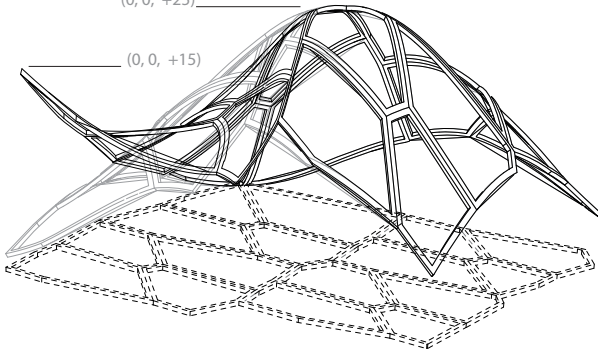


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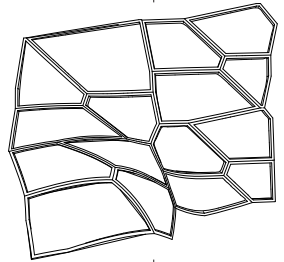
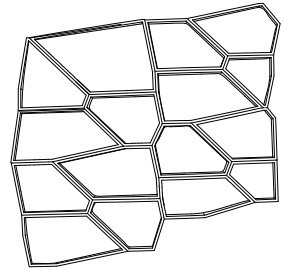
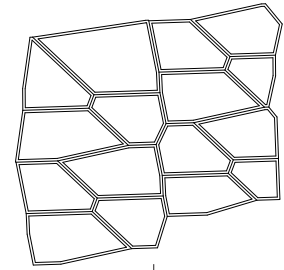
OVERLAY

(0, 0, +25)

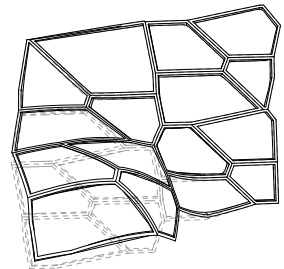
(0, 0, +15)



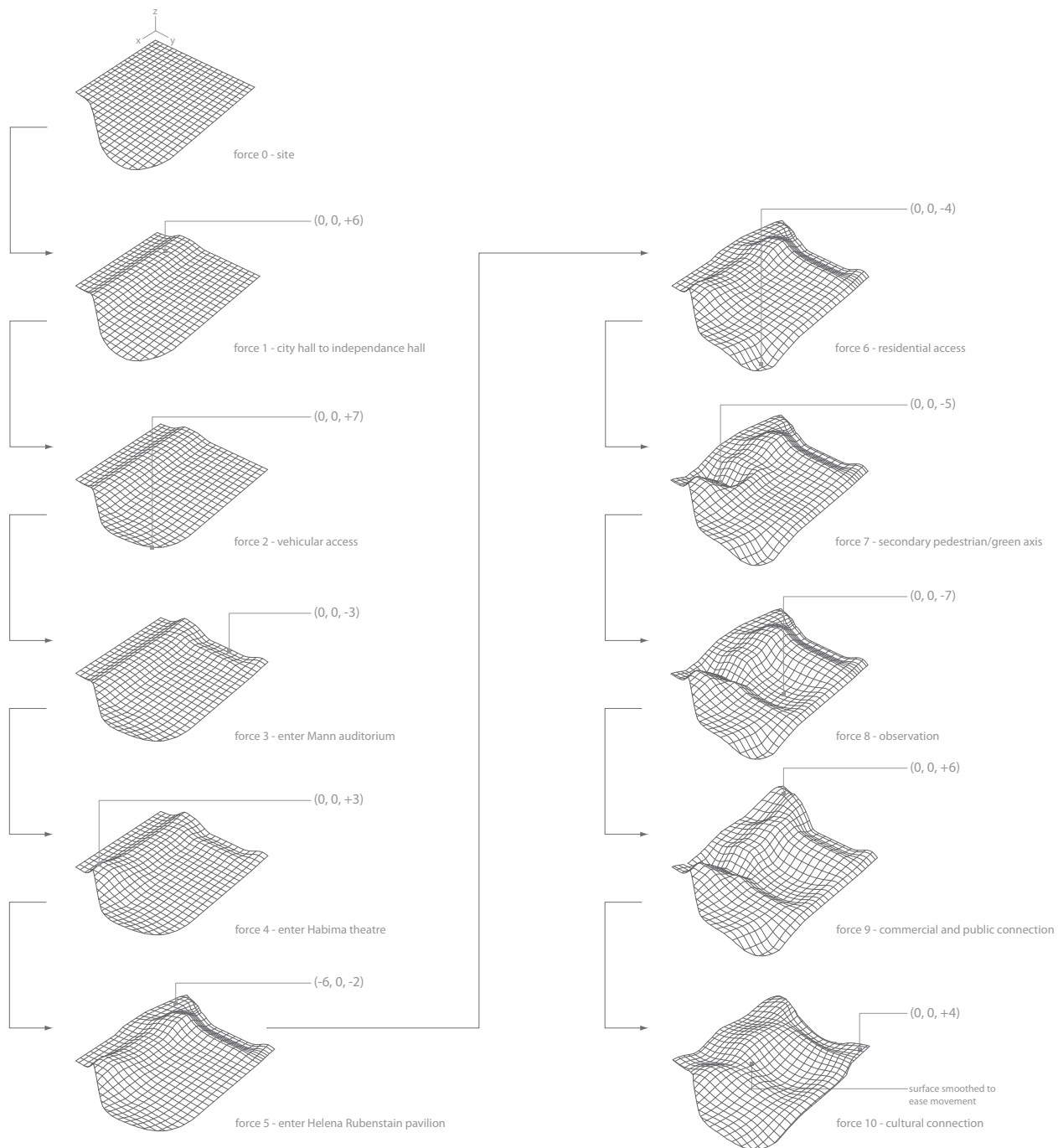
PLAN



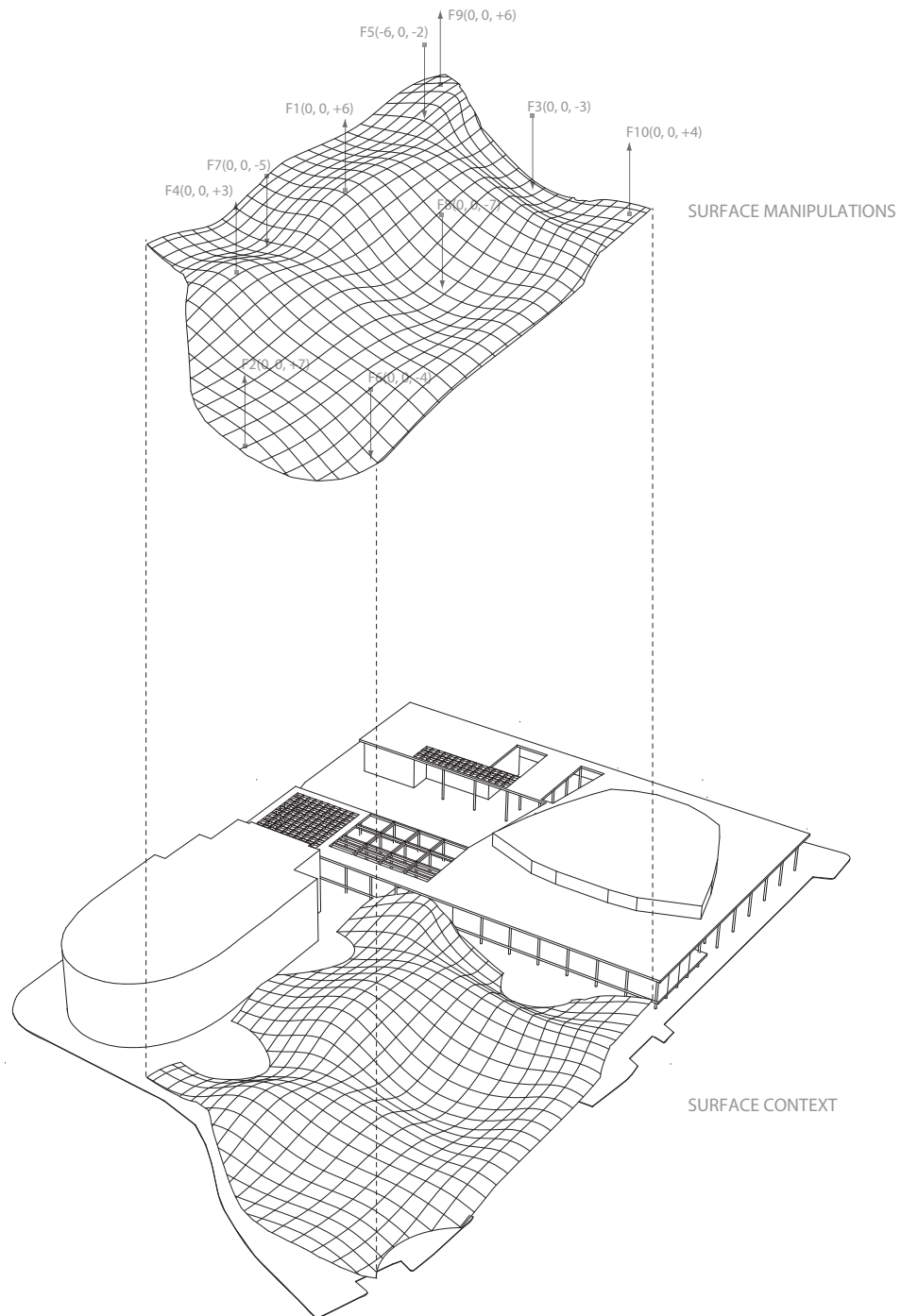
PLAN OVERLAY

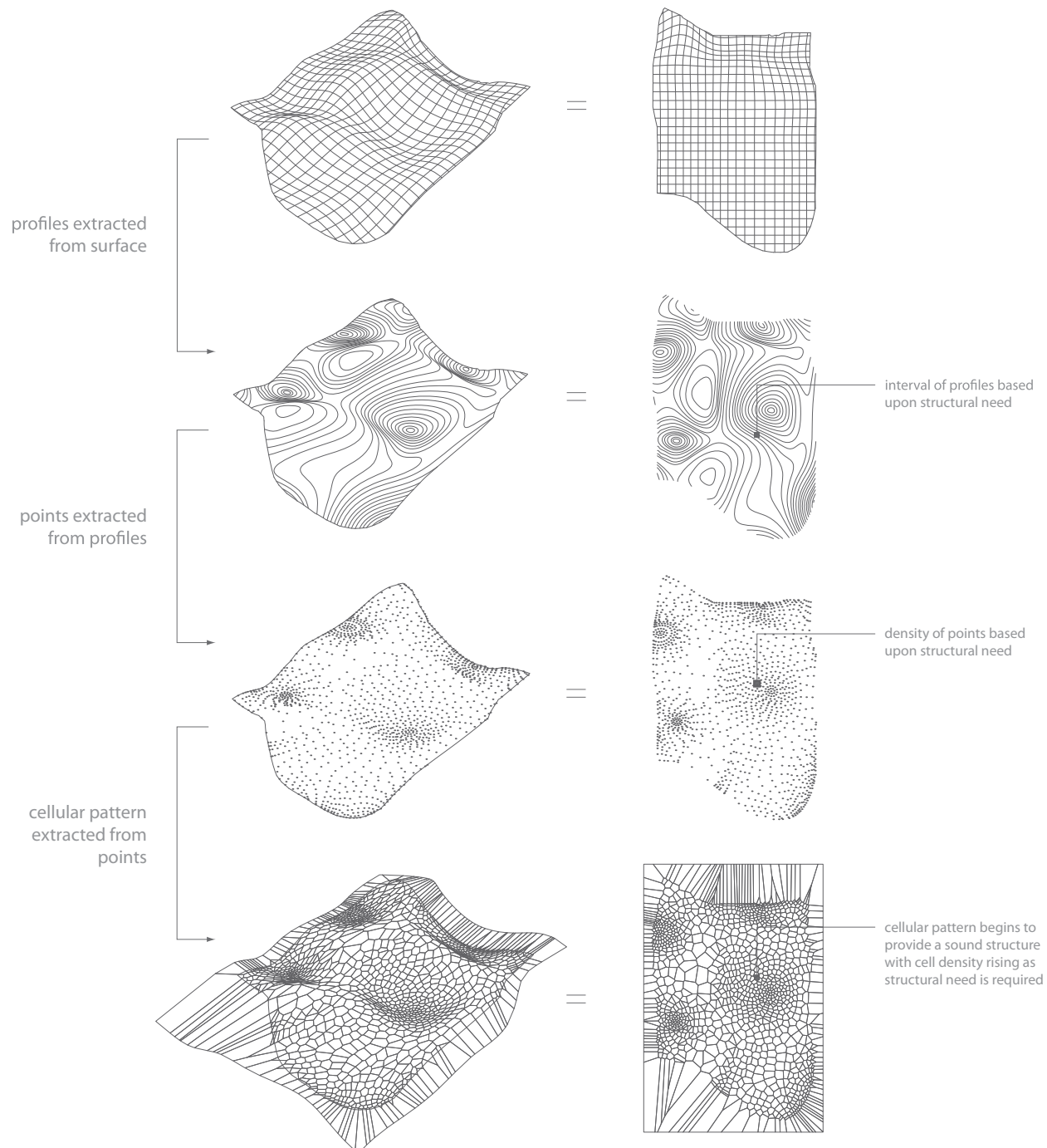


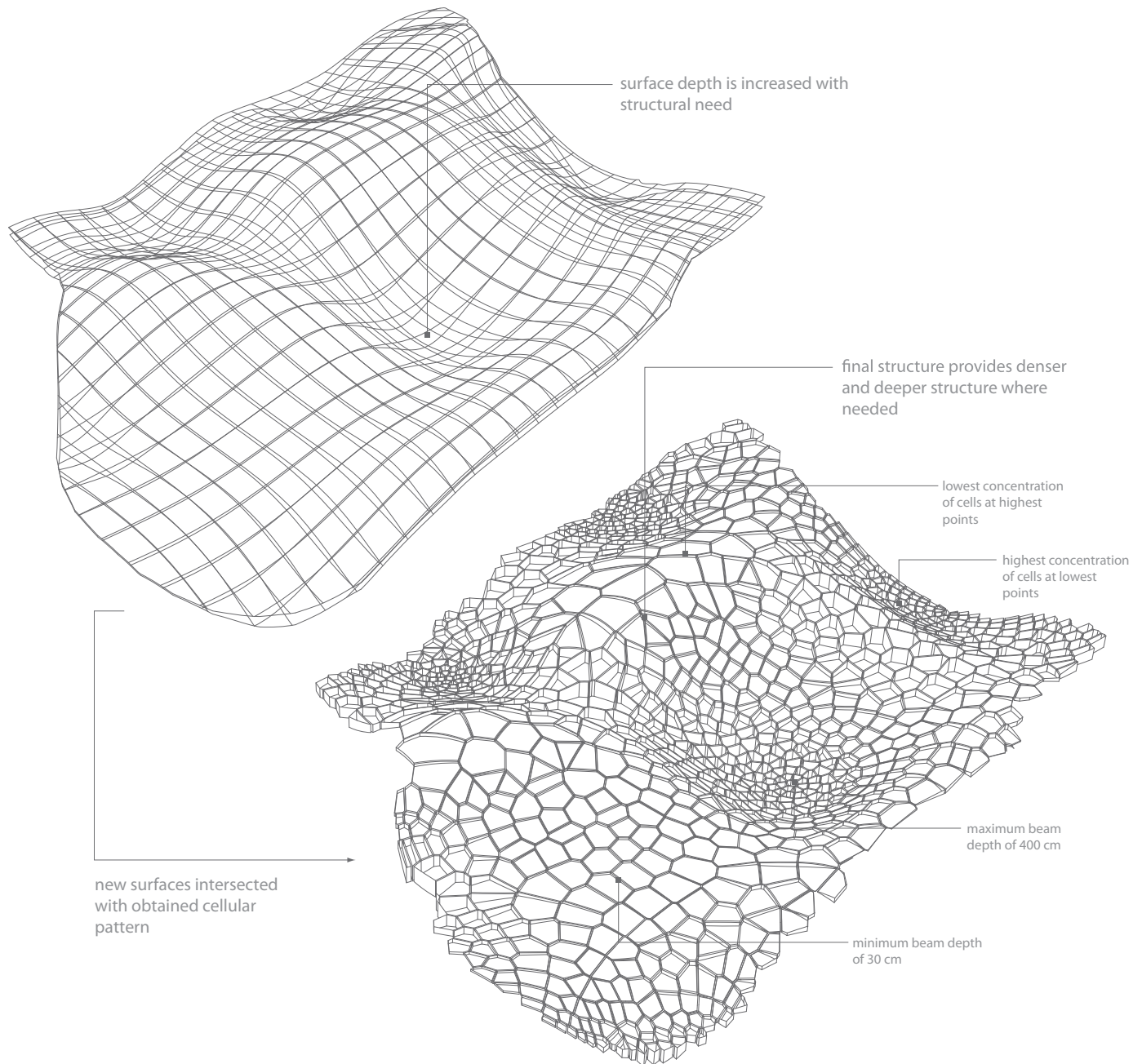


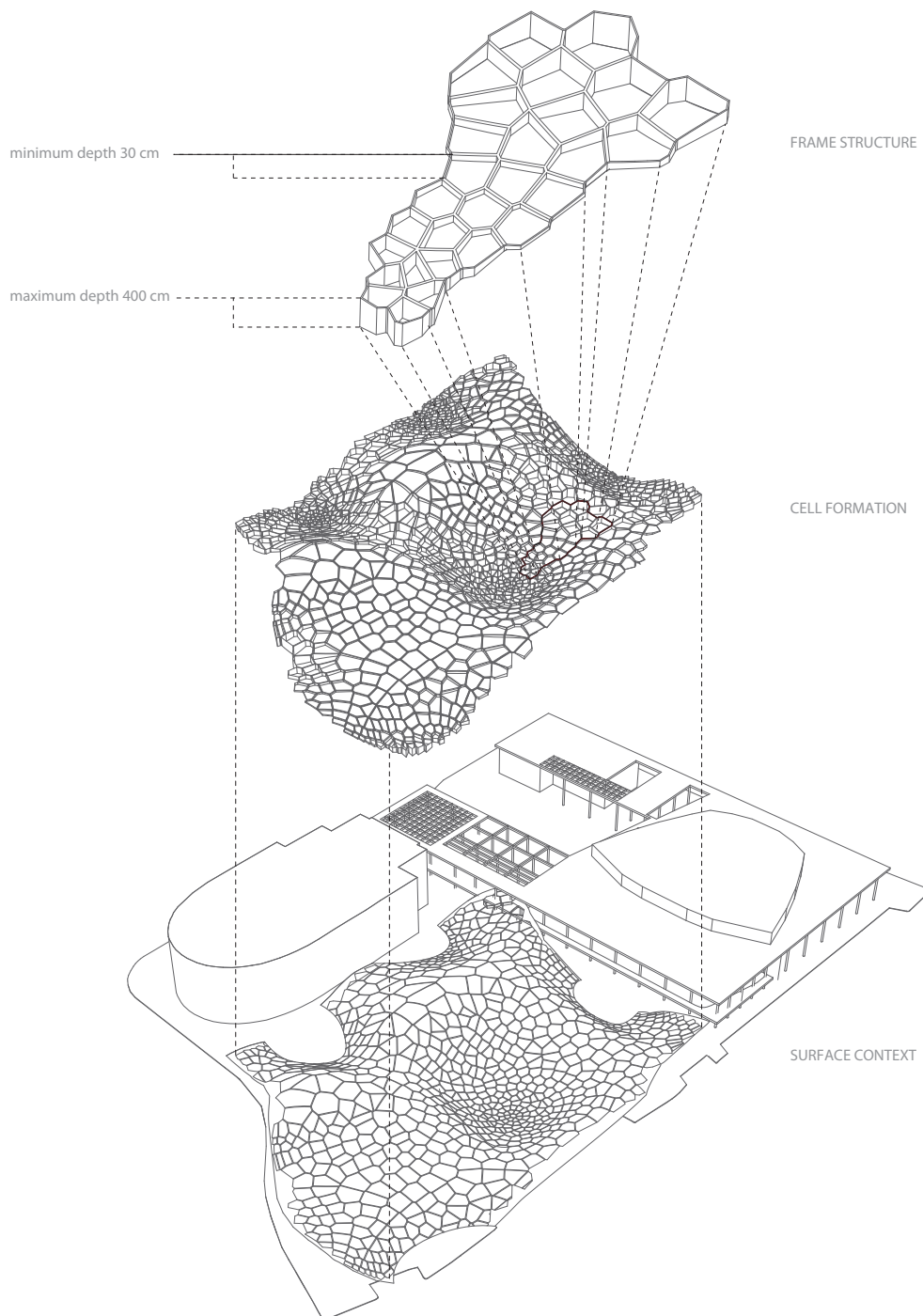


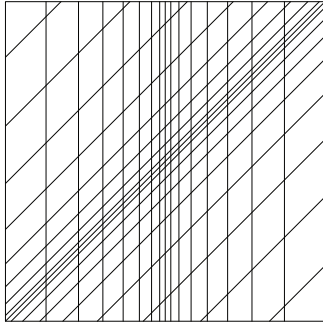
## Site Manipulation Study



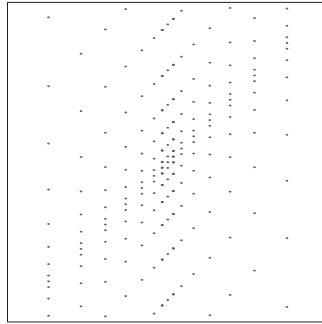




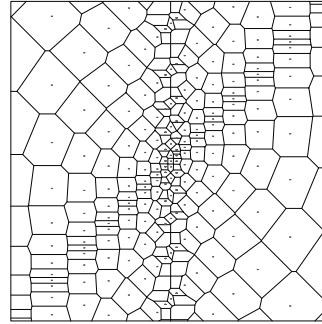




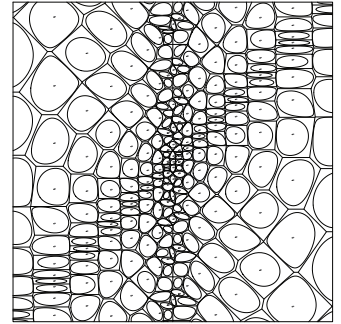
GENERATIVE LINES



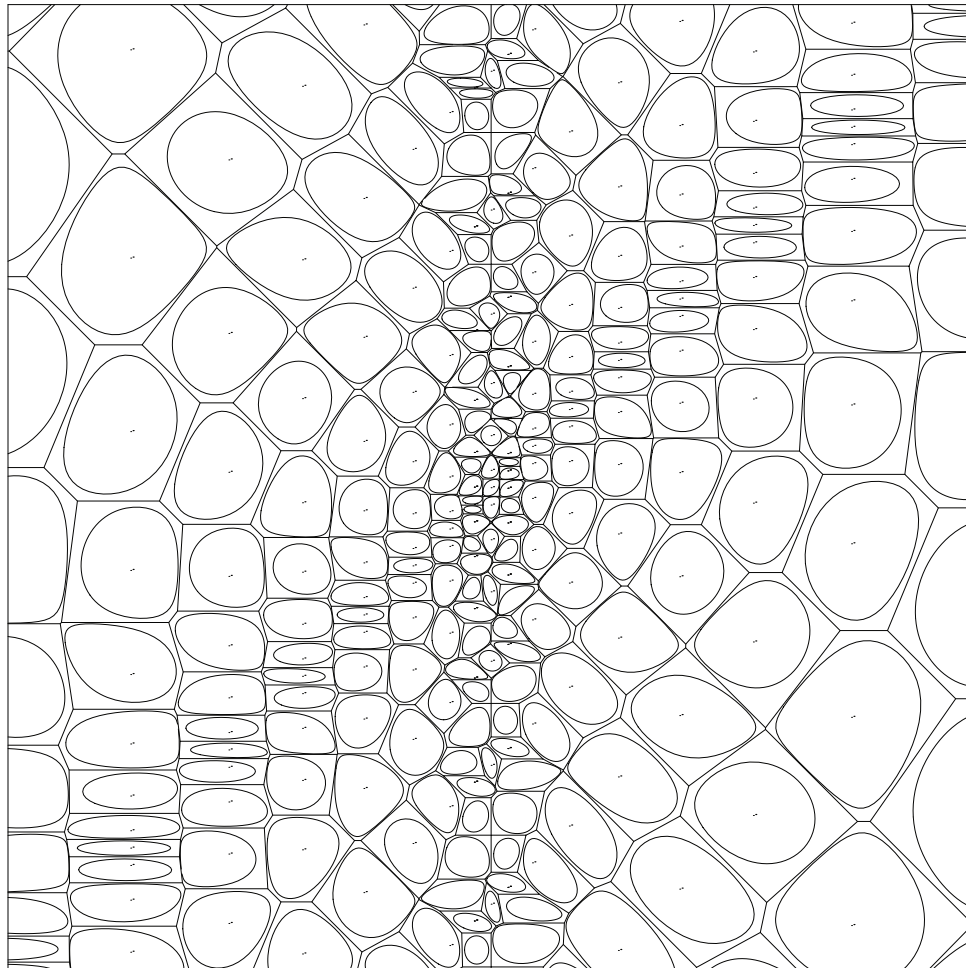
SOURCE POINTS



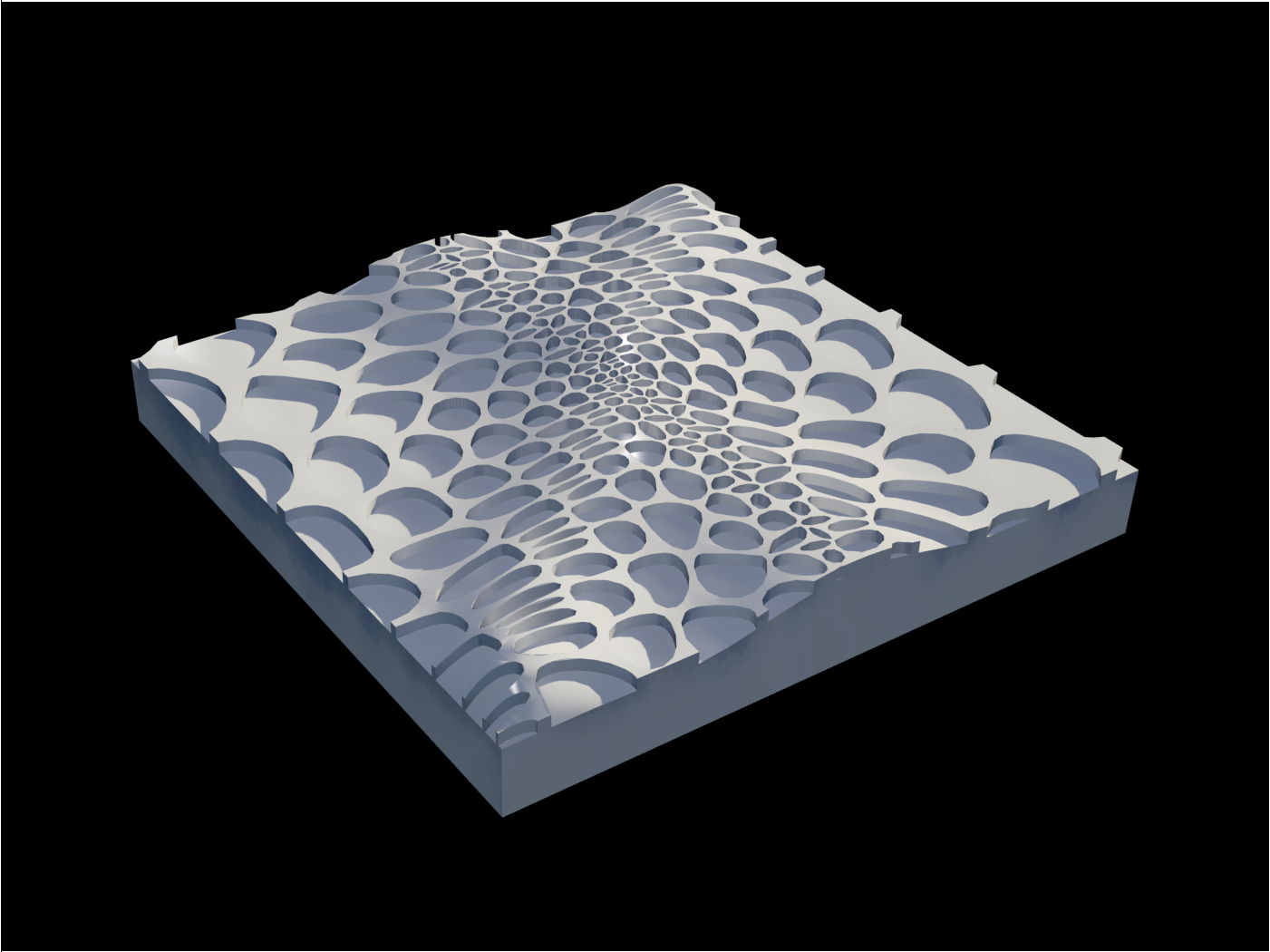
RESULTANT CELL TESSELLATIONS



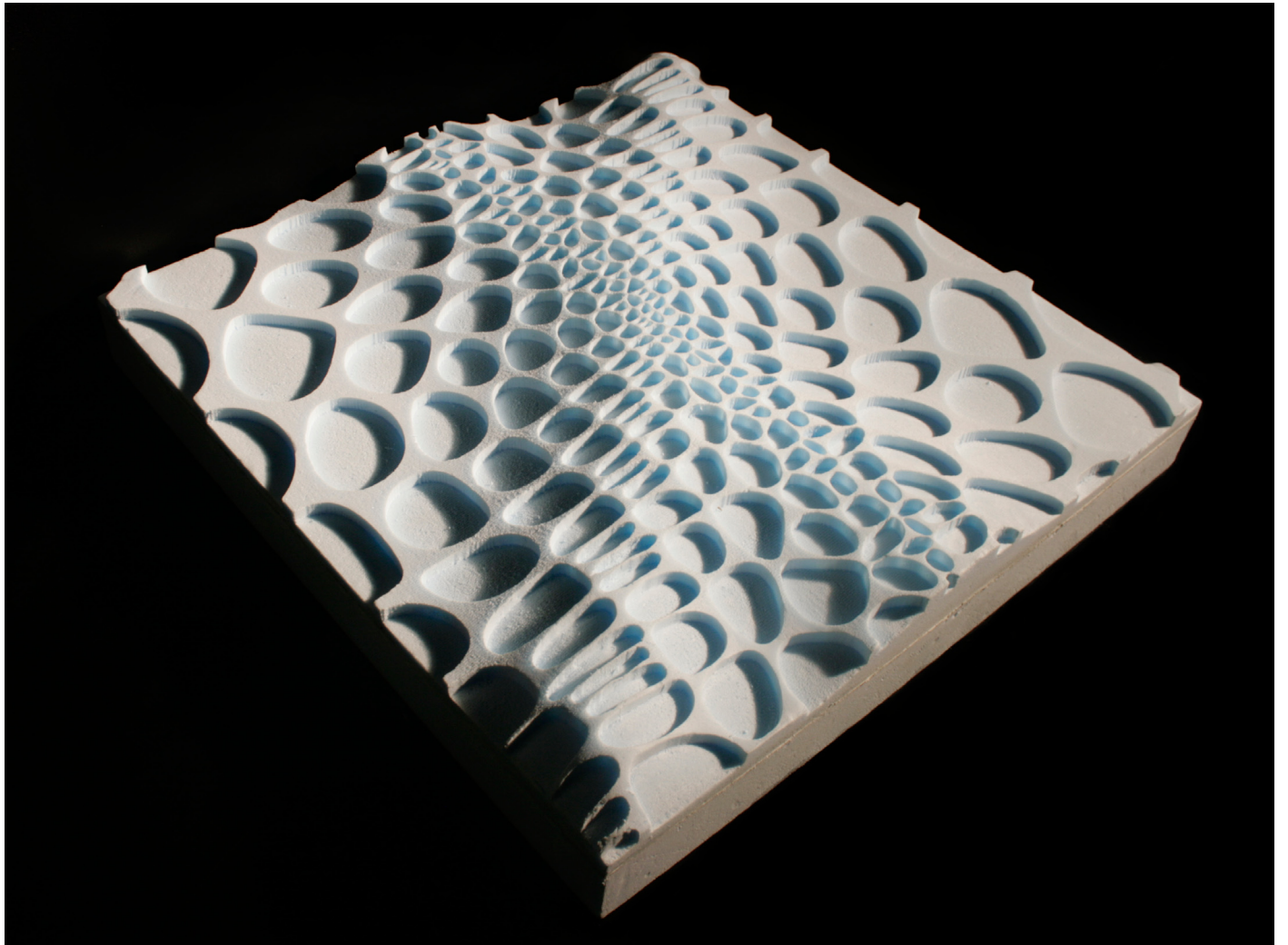
CELL CURVES





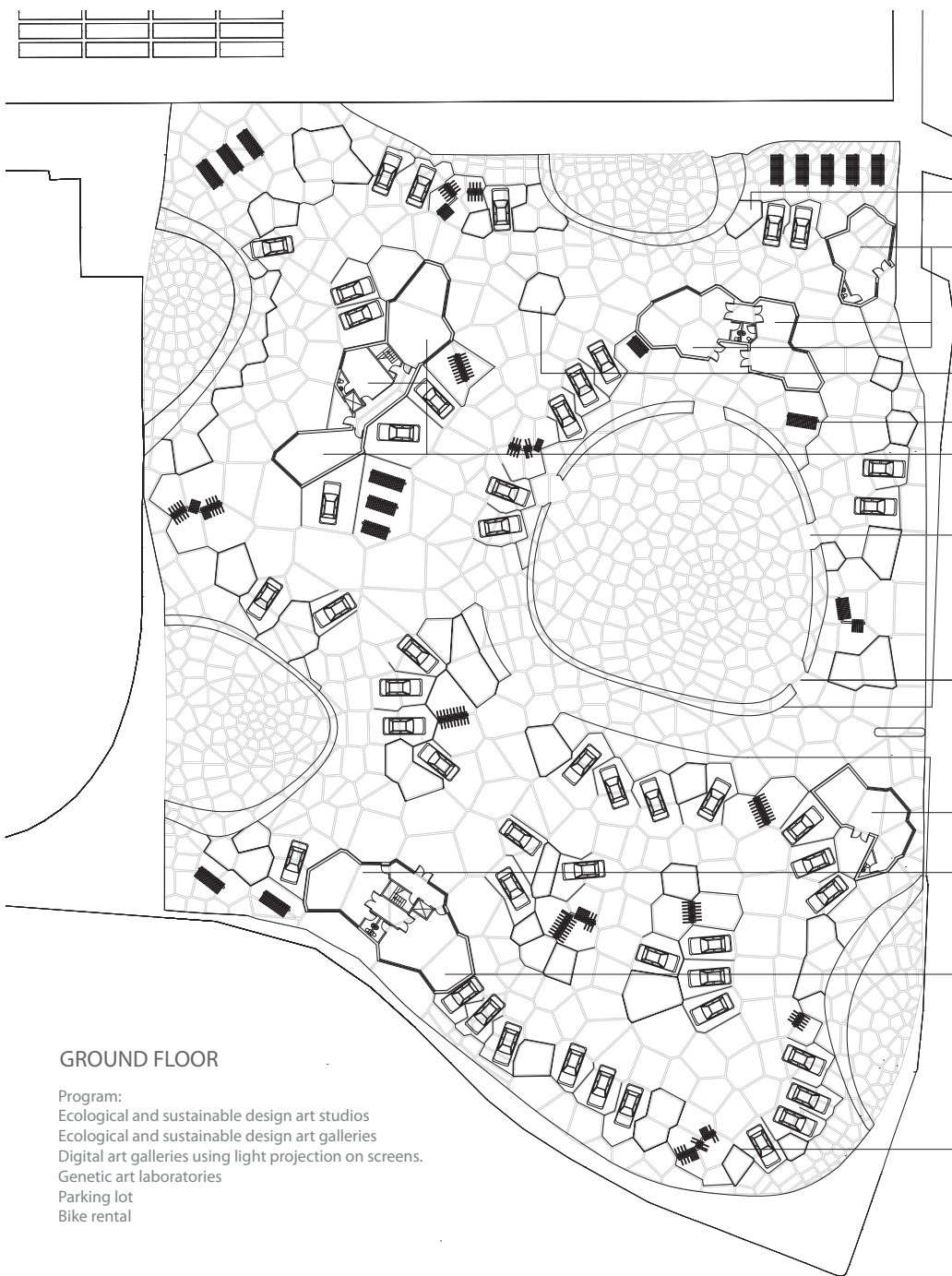


Module Tile



Physical Module Tile





## GROUND FLOOR

Program:  
 Ecological and sustainable design art studios  
 Ecological and sustainable design art galleries  
 Digital art galleries using light projection on screens.  
 Genetic art laboratories  
 Parking lot  
 Bike rental

Light projection:  
 Sustainable design screens

Contemporary Sustainable Design Studio  
 Program:  
 Sustainable design studios  
 Sustainable design gallery

Light projection:  
 Genetic art screens

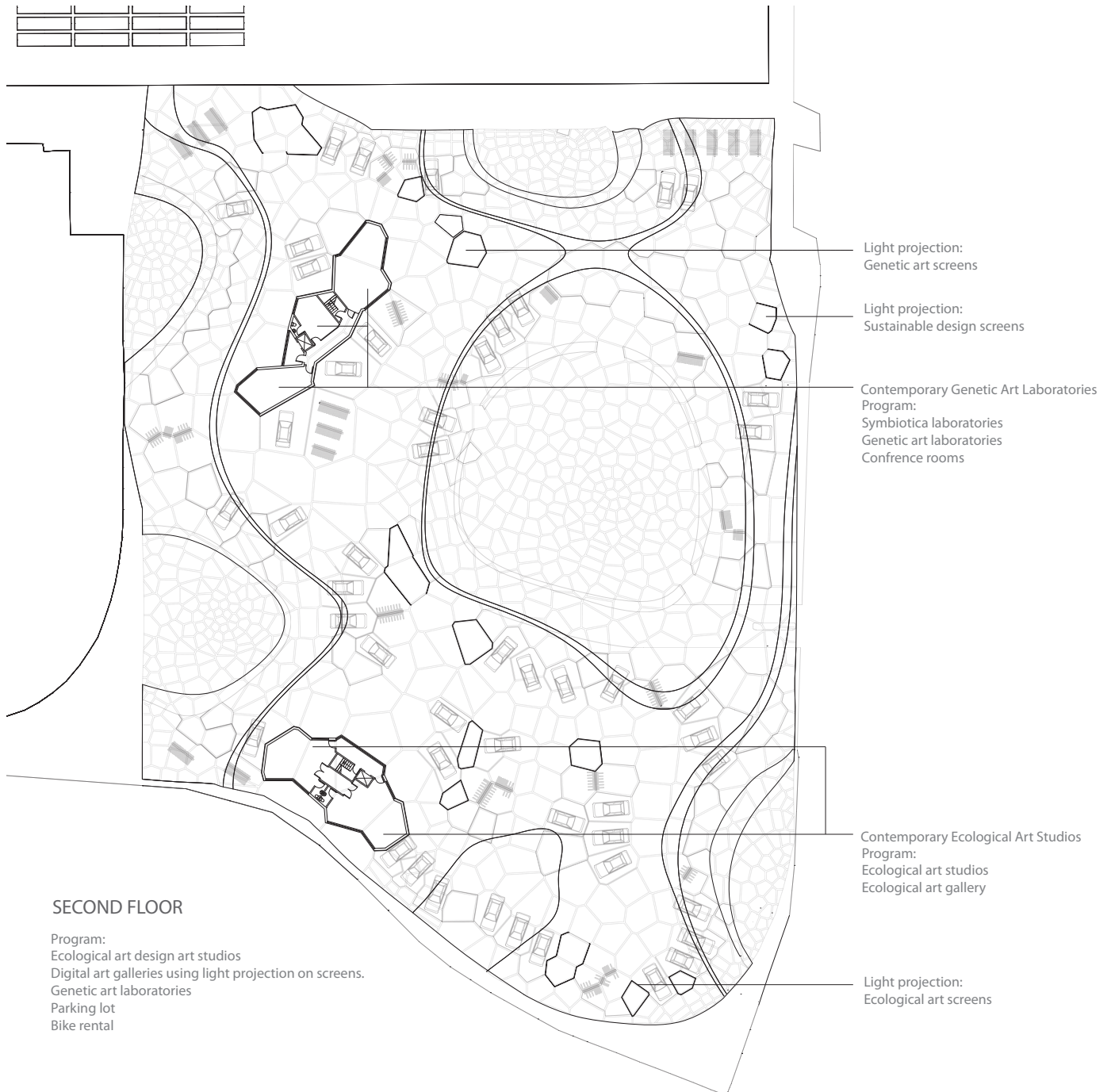
Public operated bike rentals

Contemporary Genetic Art Laboratories  
 Program:  
 Symbiotica laboratories  
 Genetic art laboratories  
 Conference rooms

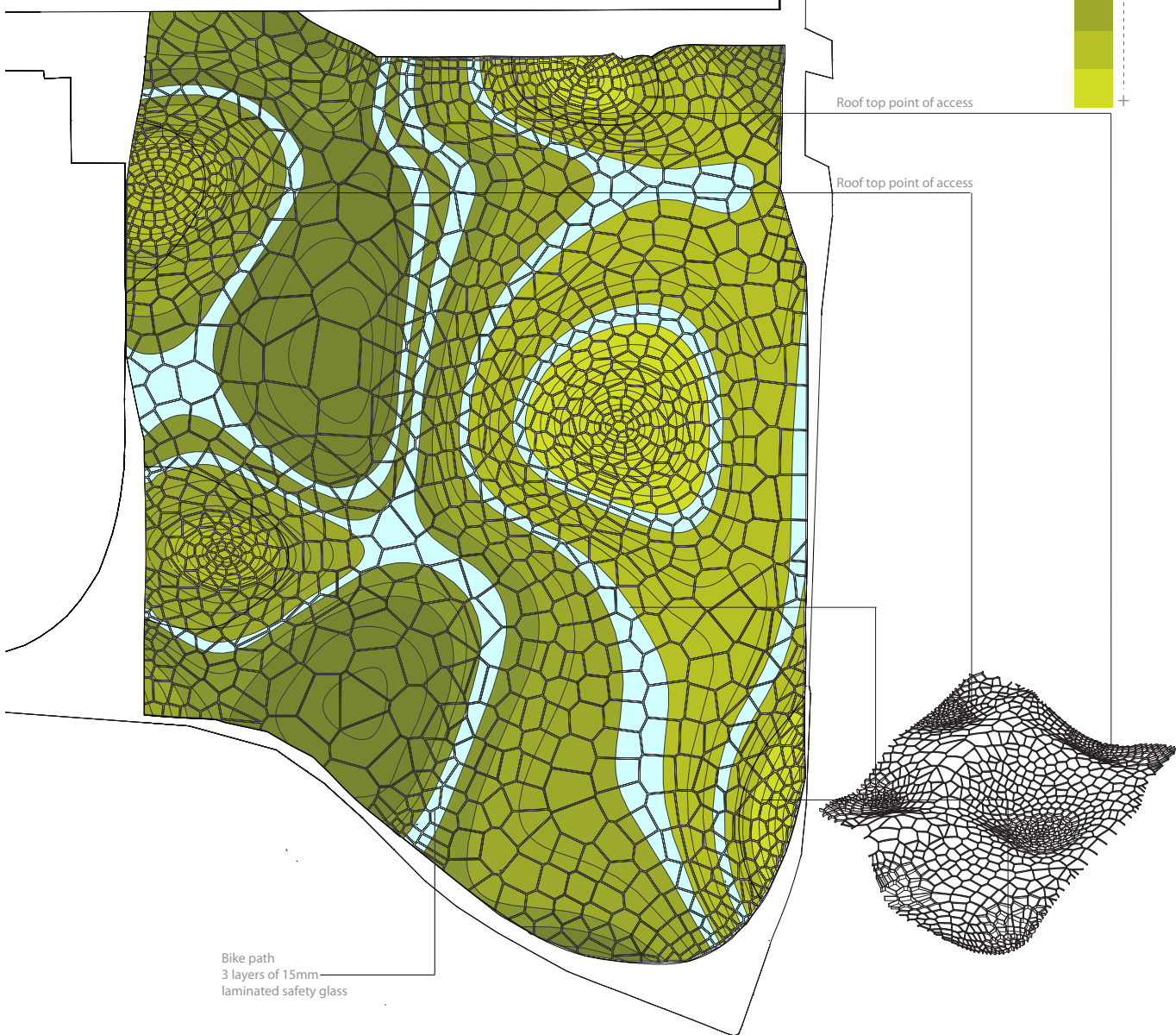
Pedestrian and bike entrance  
 to roof from ground floor

Contemporary Ecological Art Studios  
 Program:  
 Ecological art studios  
 Ecological art gallery

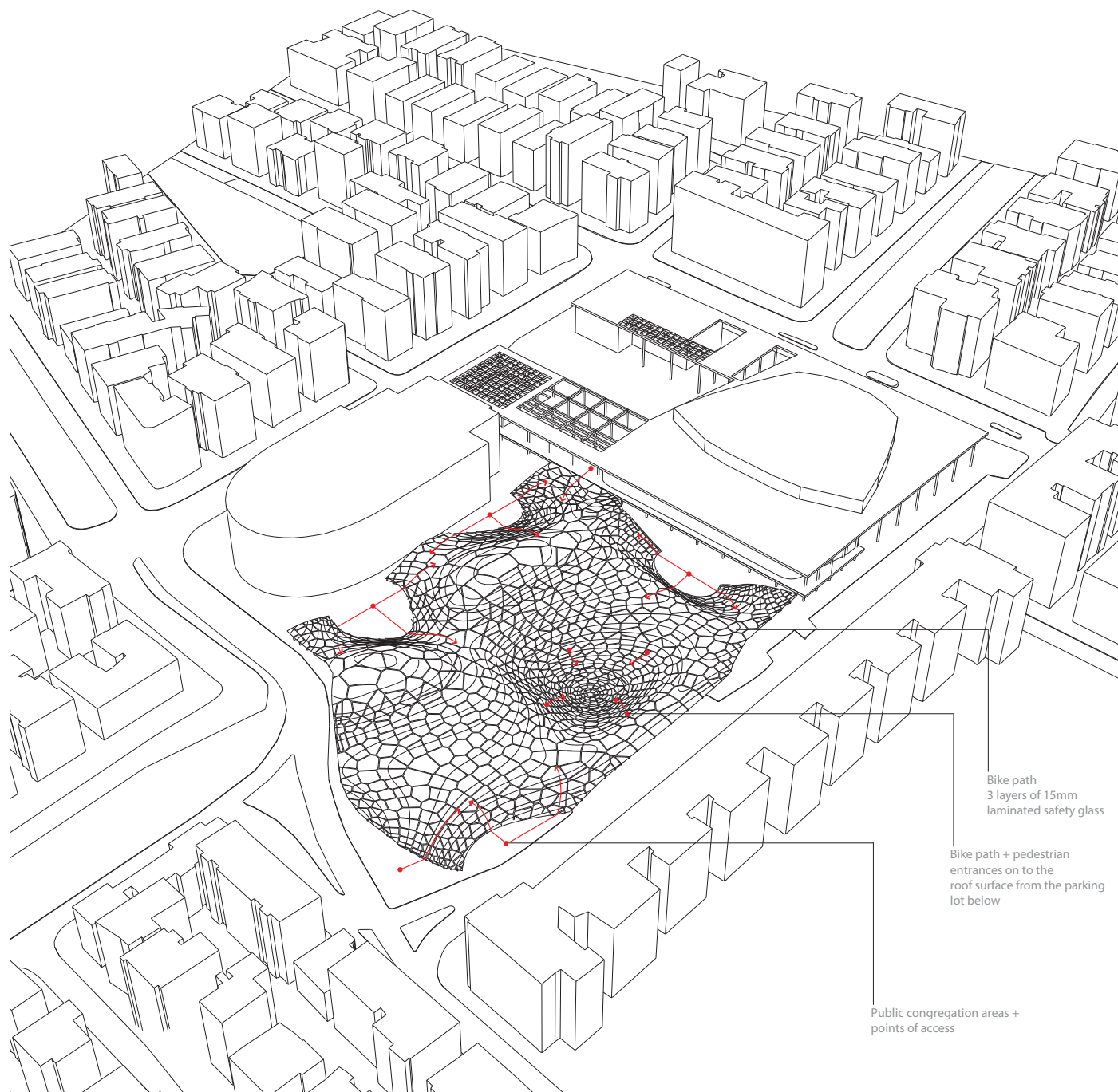
Light projection:  
 Ecological art screens



Floor Plan

Roof Plan

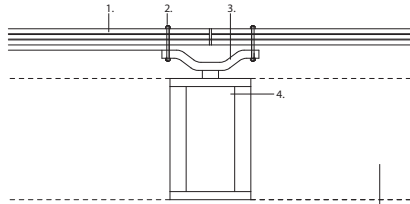
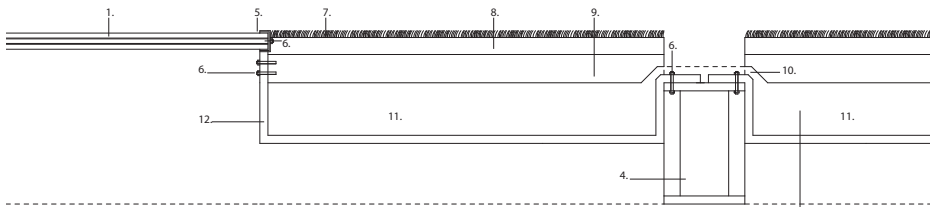


Bike path  
3 layers of 15mm  
laminated safety glass

Bike path + pedestrian  
entrances on to the  
roof surface from the parking  
lot below

Public congregation areas +  
points of access





1. Tread, laminated safety glass 3 x 15 mm, anti slip finish
2. Aluminum bolted fixing
3. Glazing support attachment
4. Timber Beam
5. Linear glass retainer
6. Steel bolted fixing
7. Tall fescue grass
8. Perlite growing medium
9. Reinforced concrete slab
10. Rain water access
11. Hydroponic rain water reservoir
12. Metal hydroponic container

## BIOLUMINESCENCE

making living things glow

### LUCIFERASE GENE

an enzyme present in certain luminous organisms.



### ADENOSINE TRIPHOSPHATE (ATP)

a nucleotide involved in energy metabolism and required for RNA synthesis; it occurs in all cells.

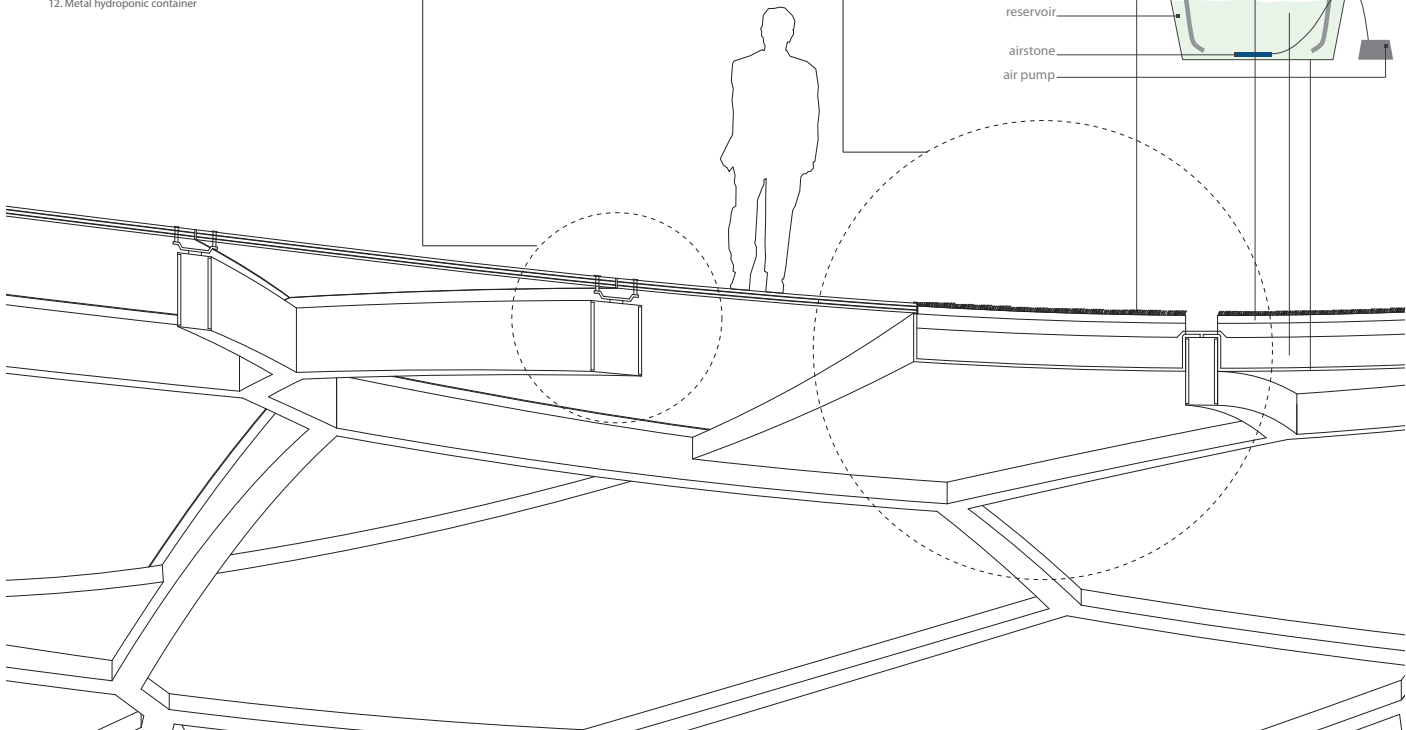
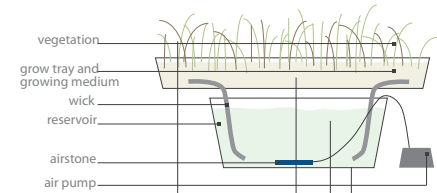


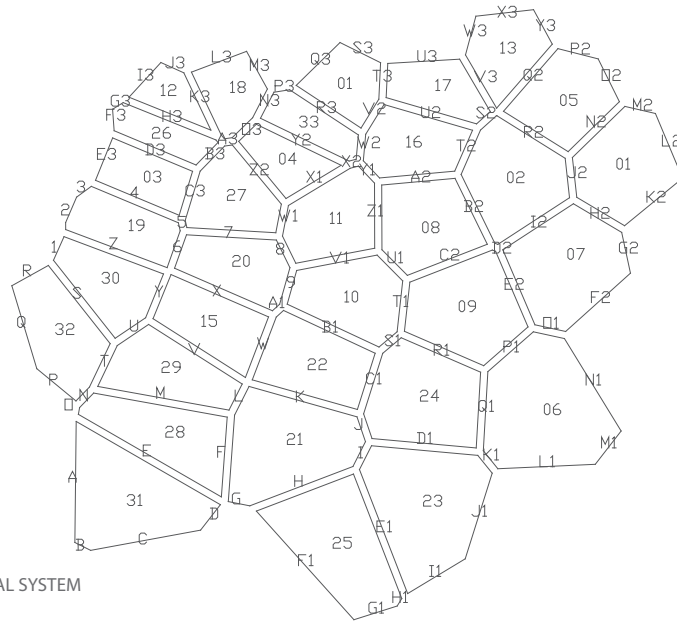
firefly

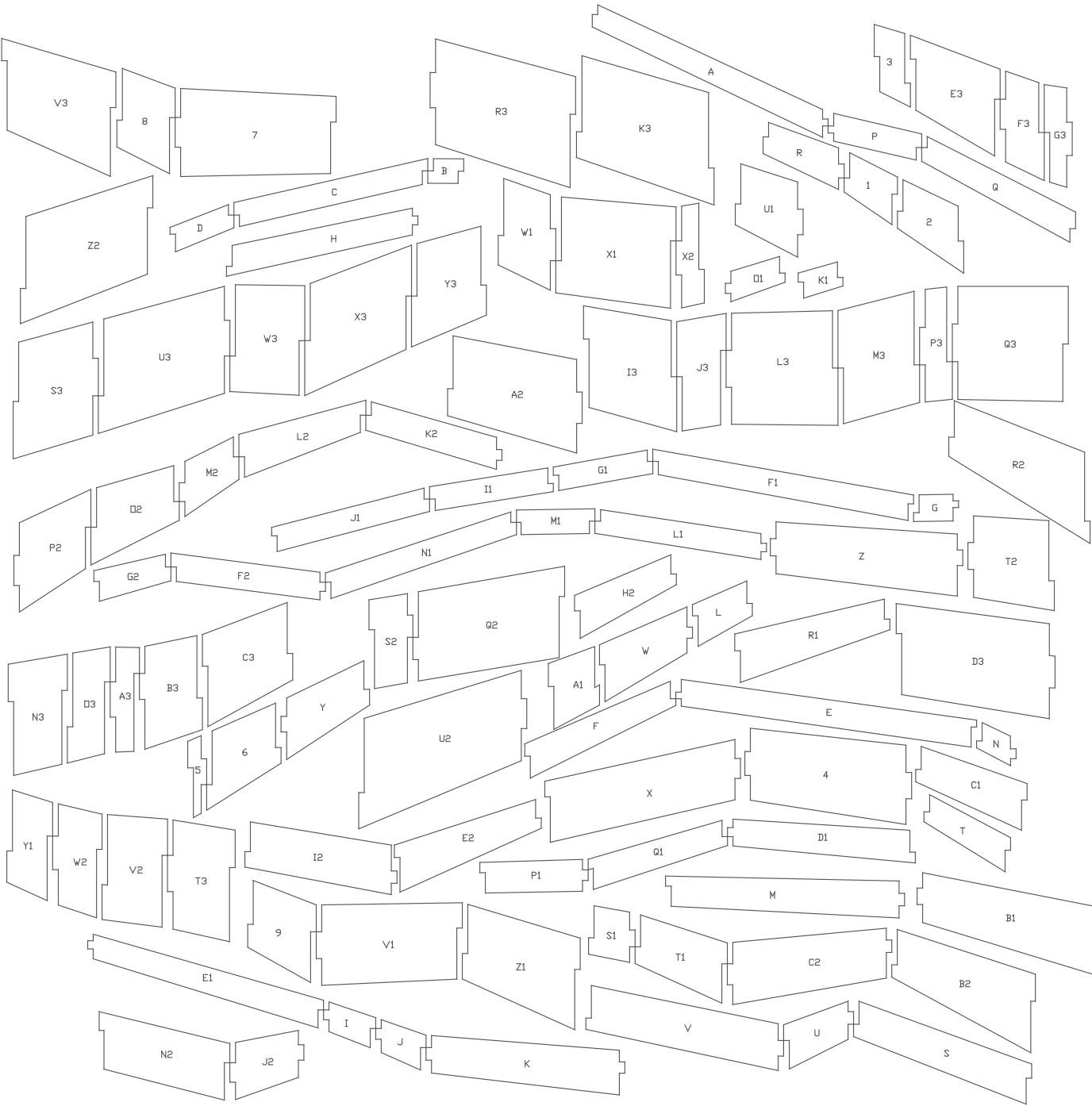
genetically- modified plant

## HYDROPONICS

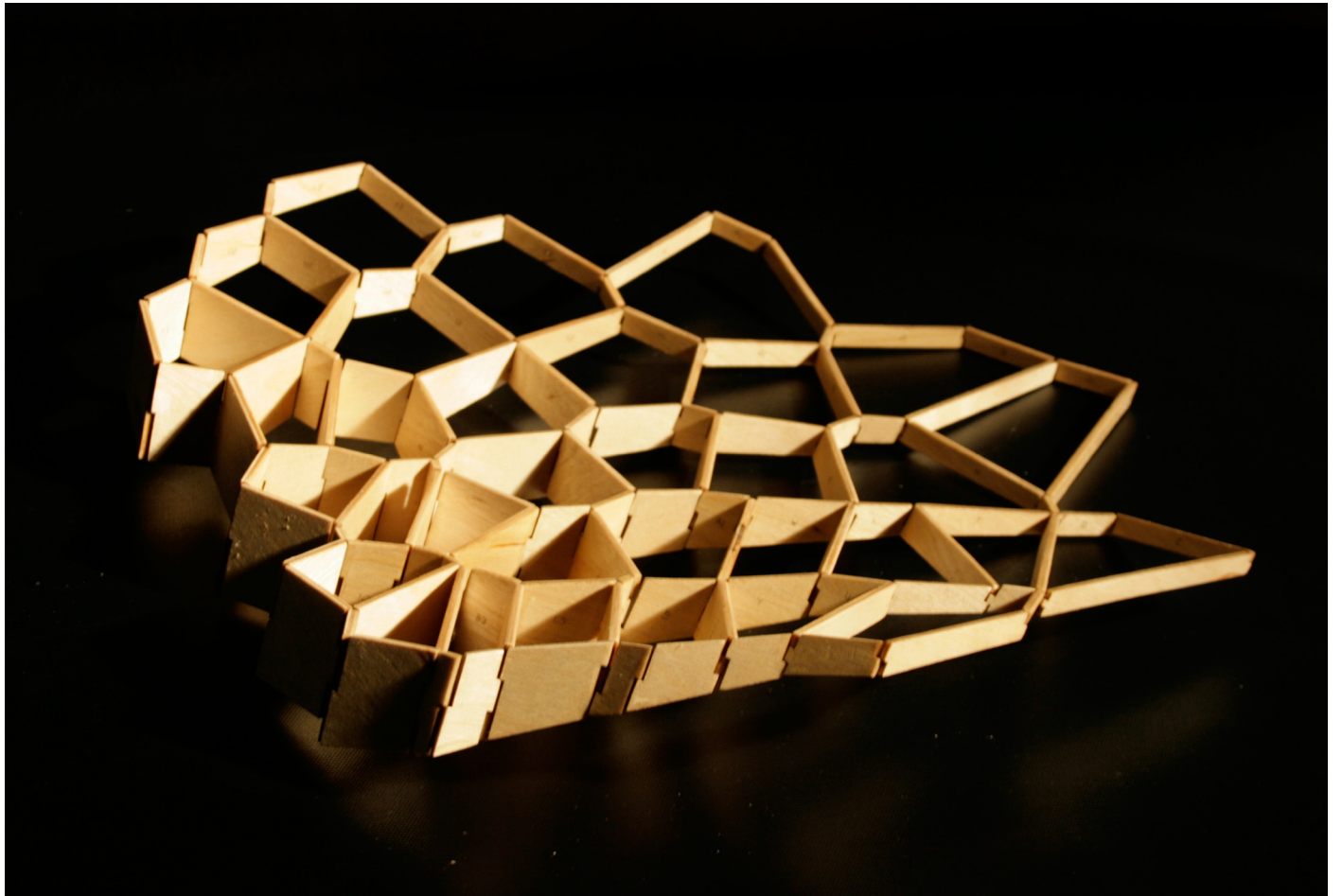
feeding plants only what is necessary





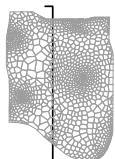
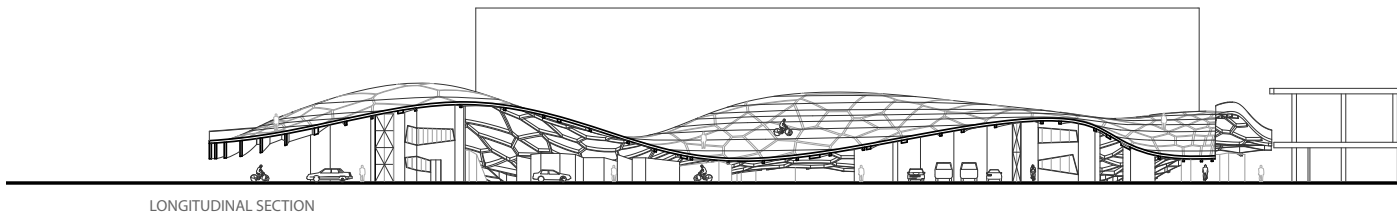
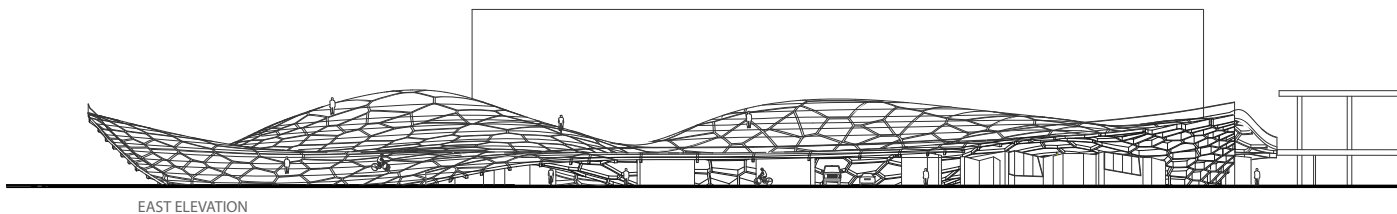
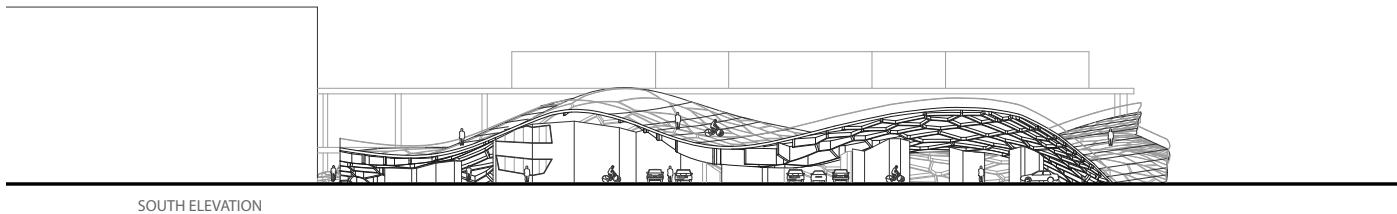


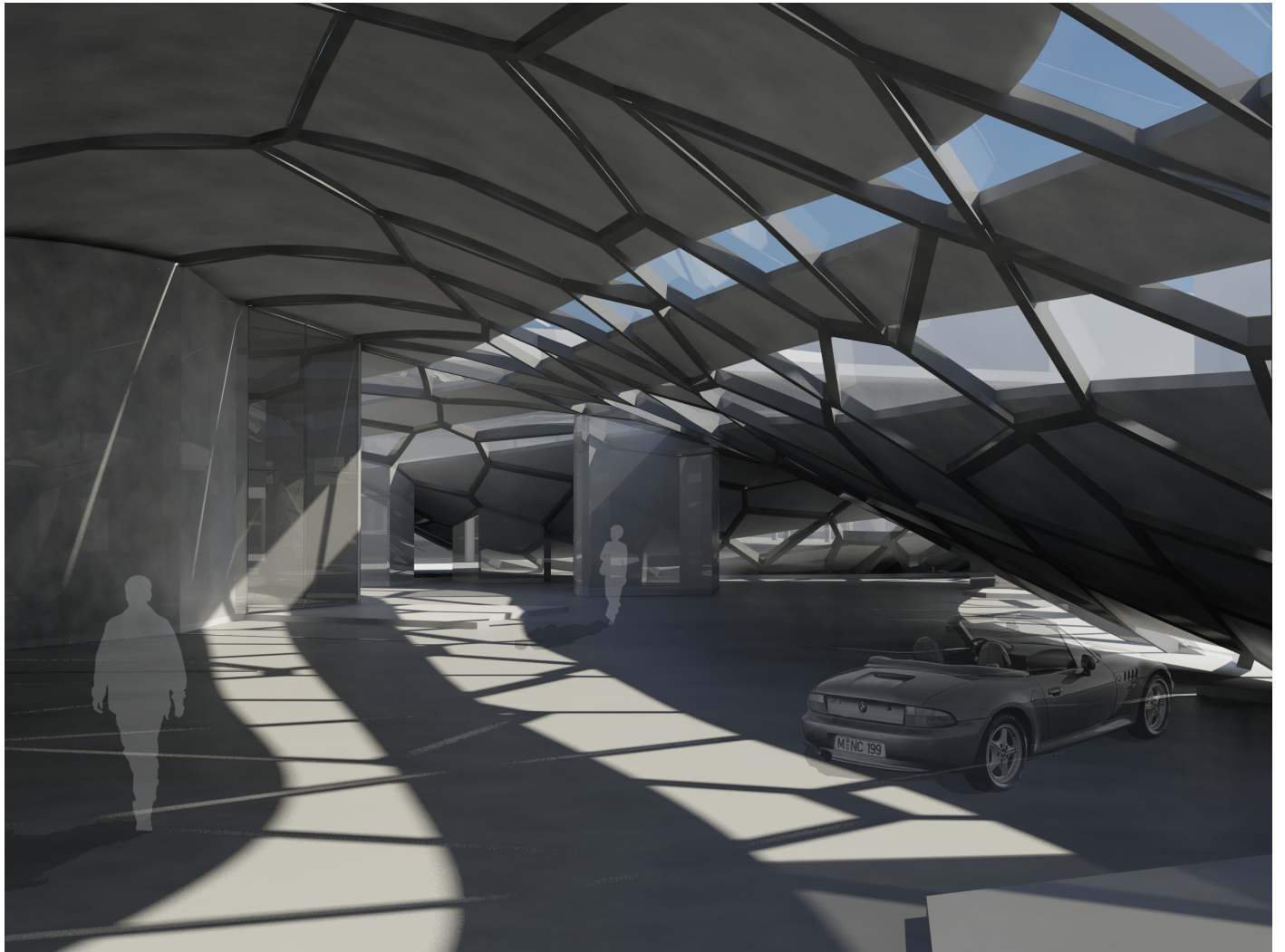
Structural Beam Study



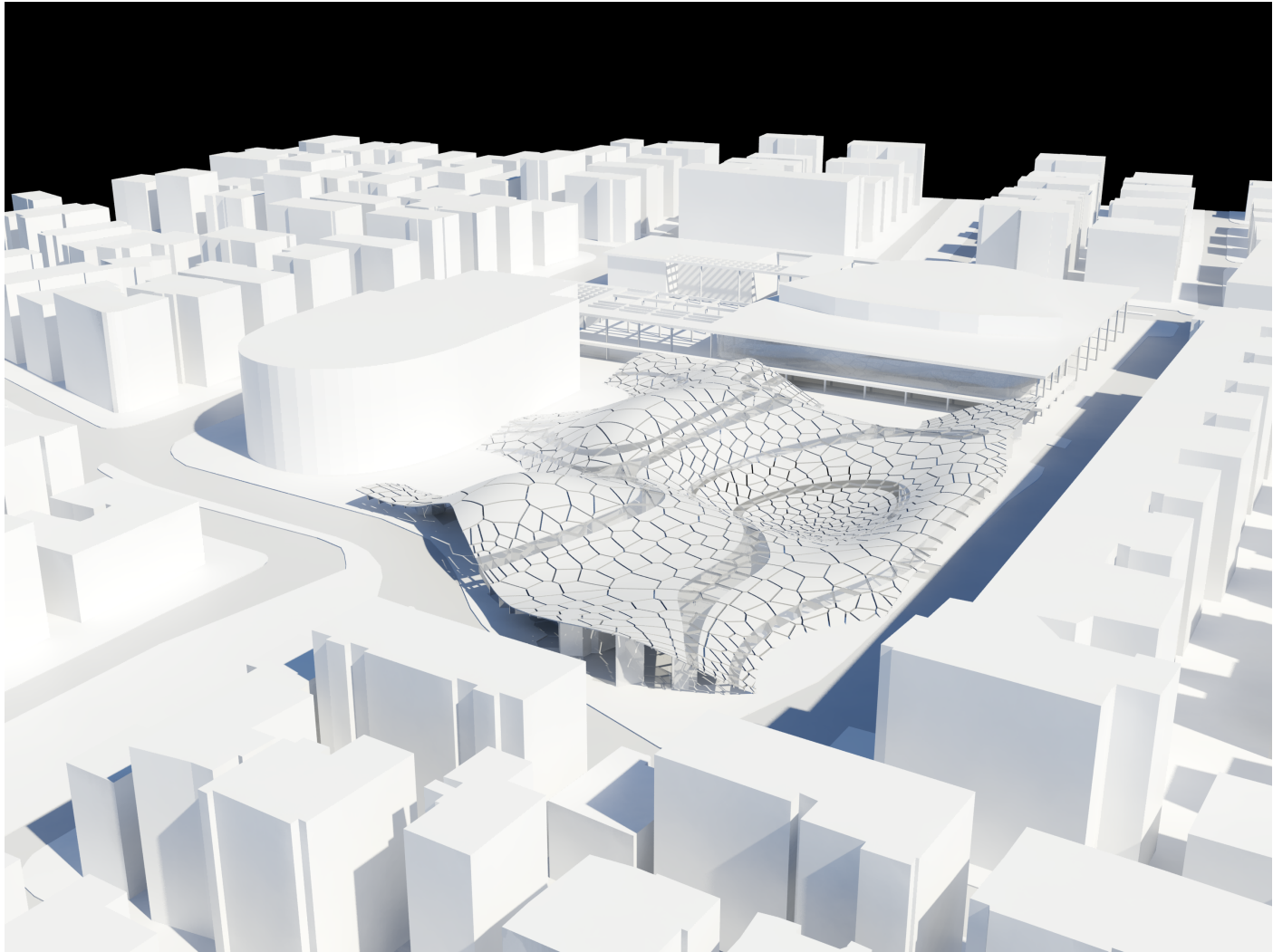
Structural Beam Study



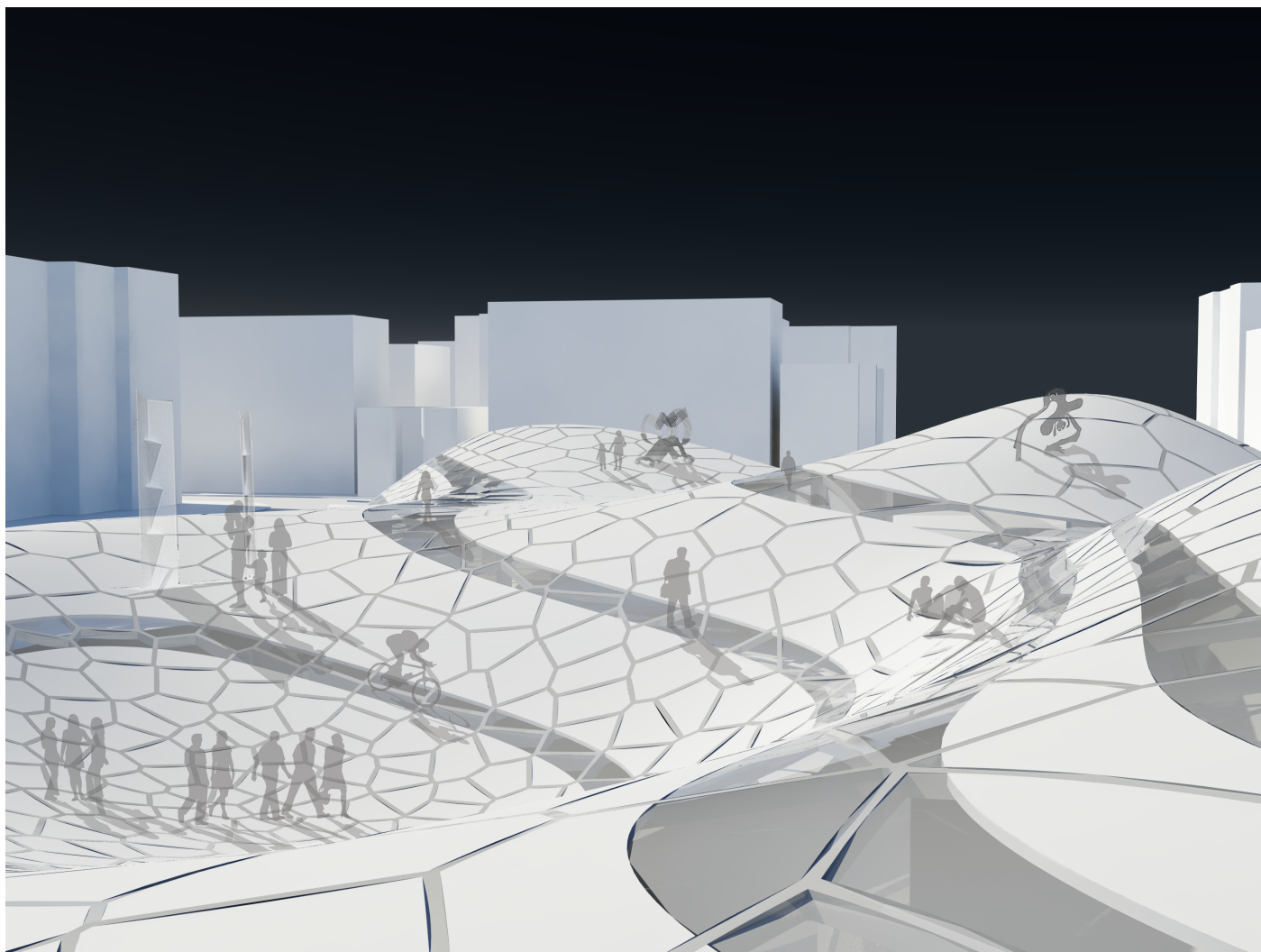




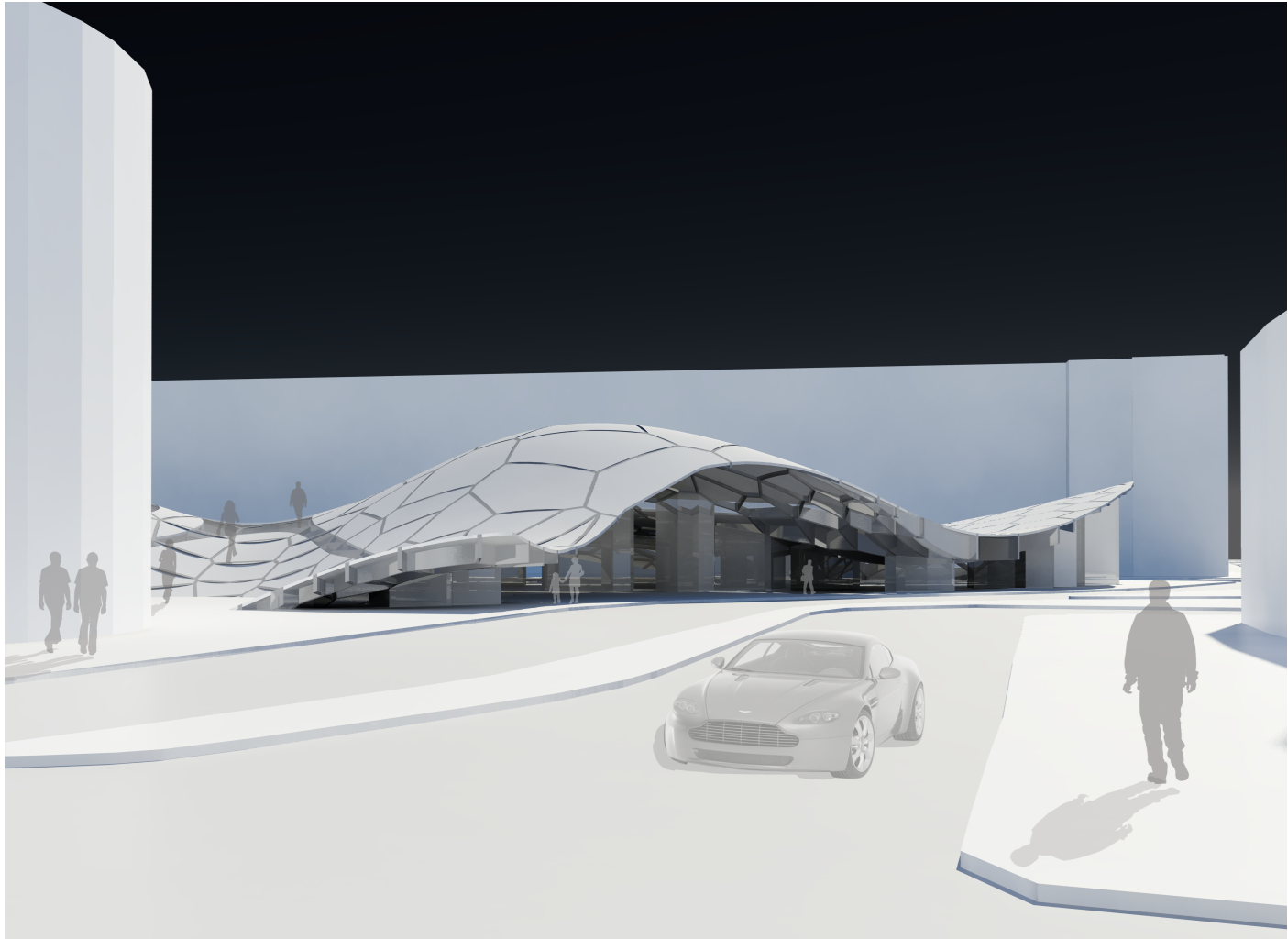
Interior View



South-East View

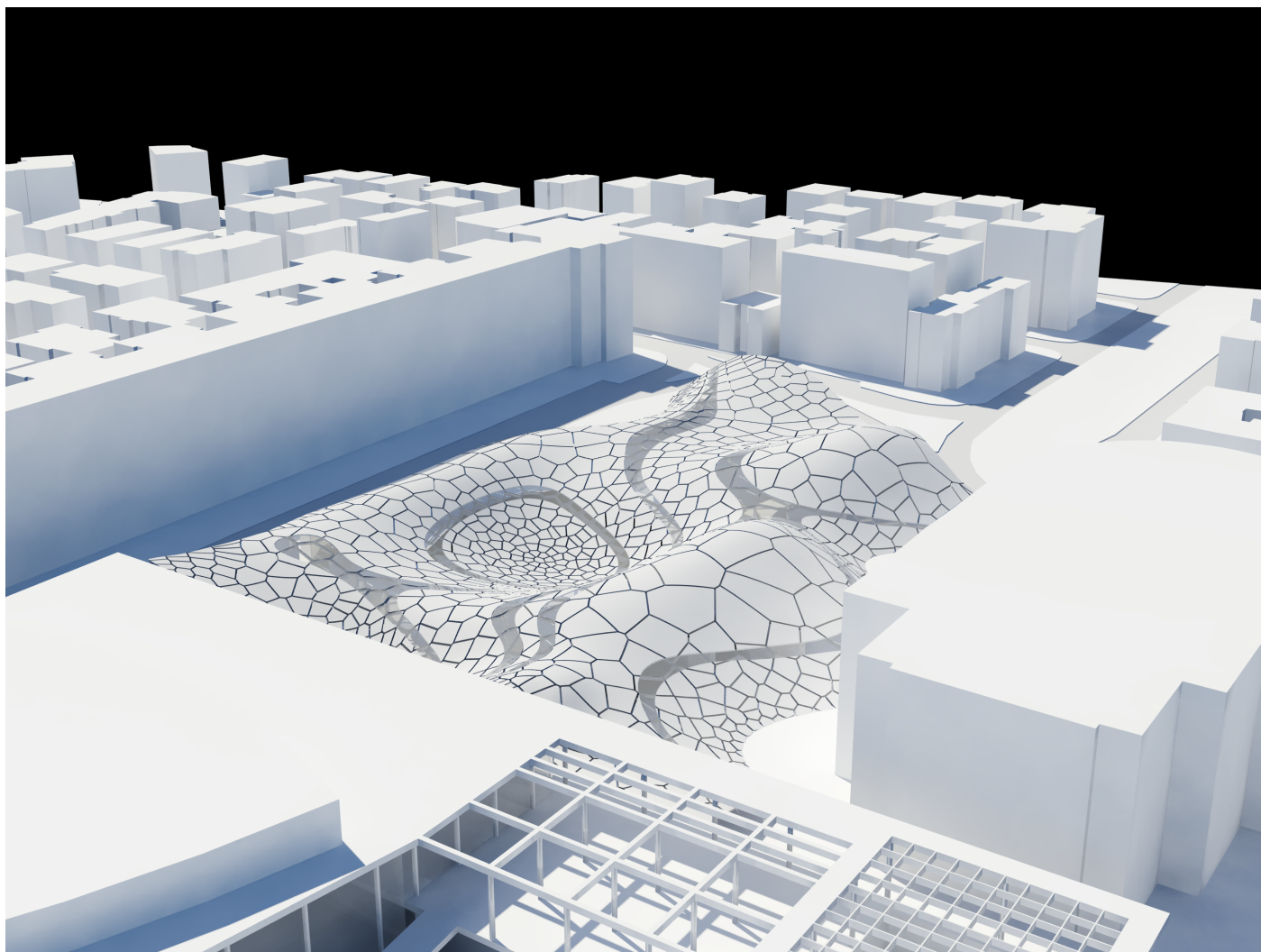


Surface View

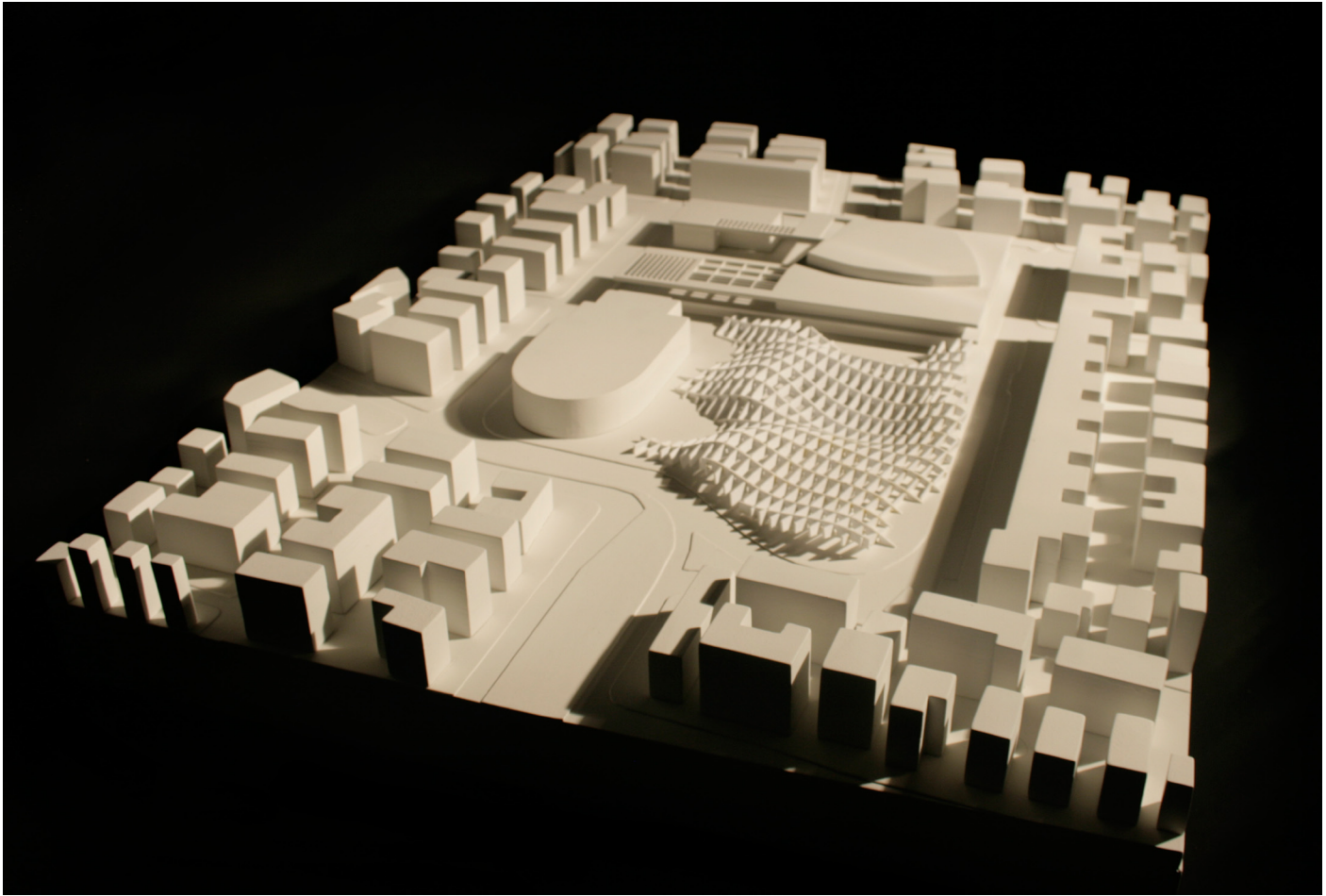


Street View from Ben Zion

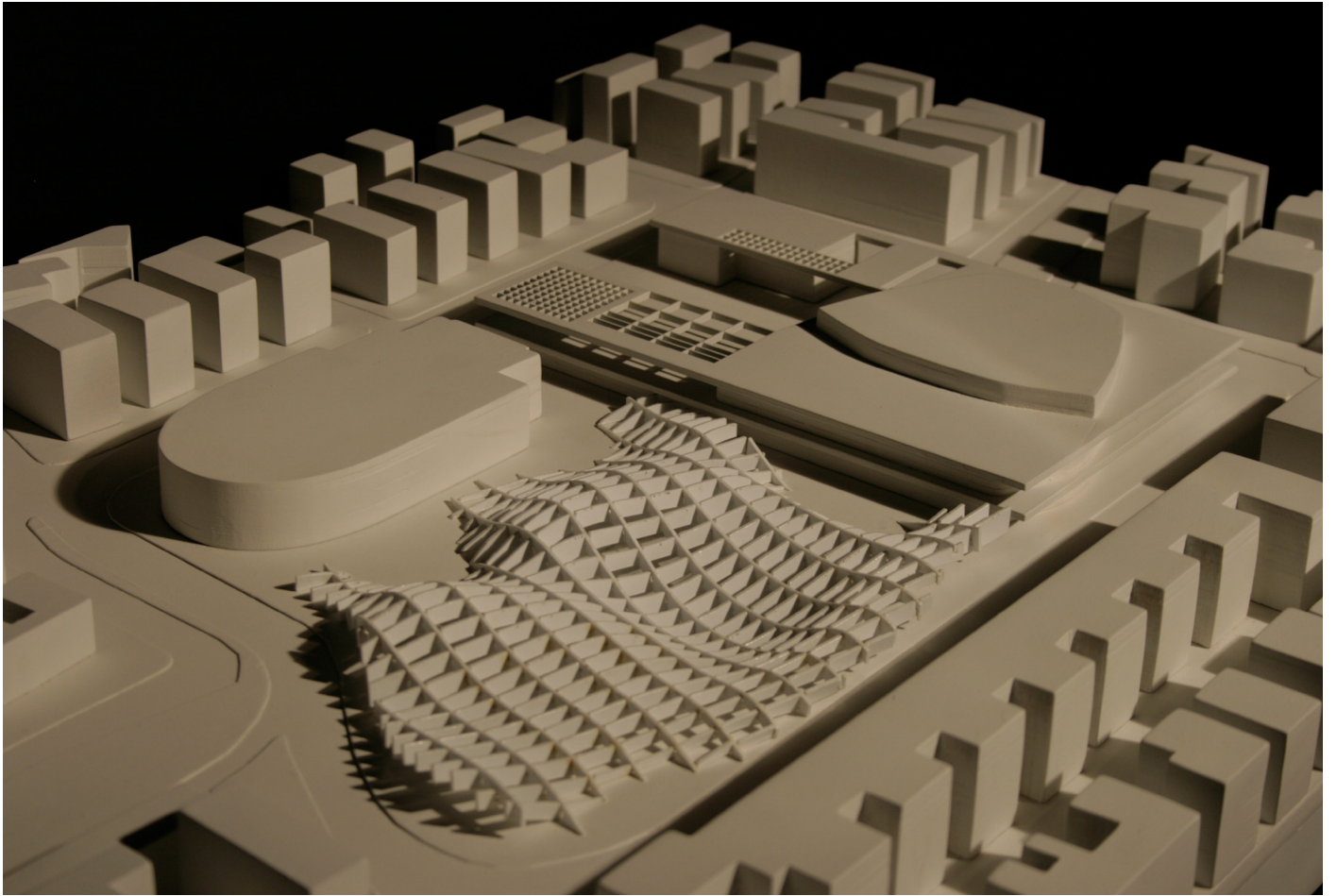




North-West View



Physical Model



Physical Model