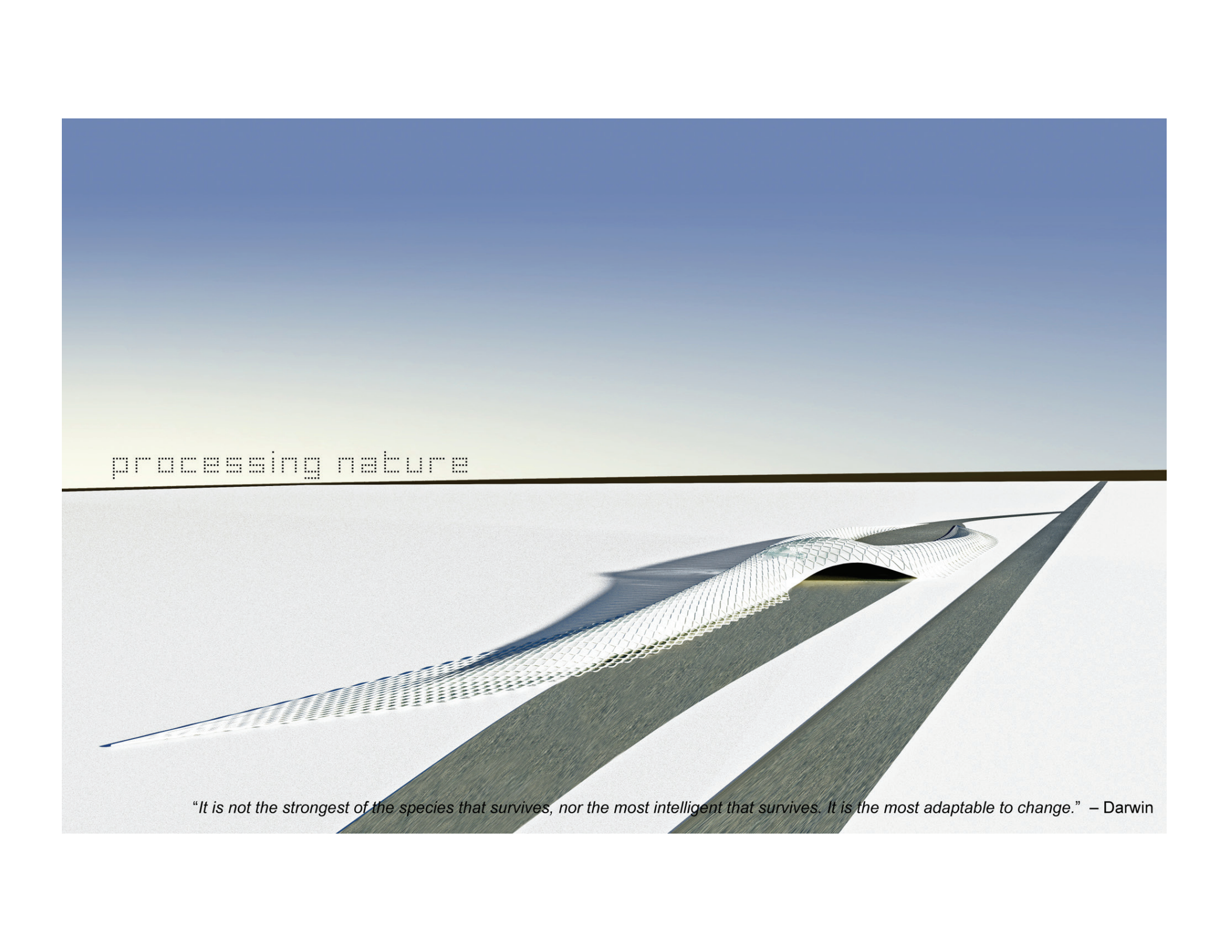


2011 MERIT

Sara Jeanne Jacques

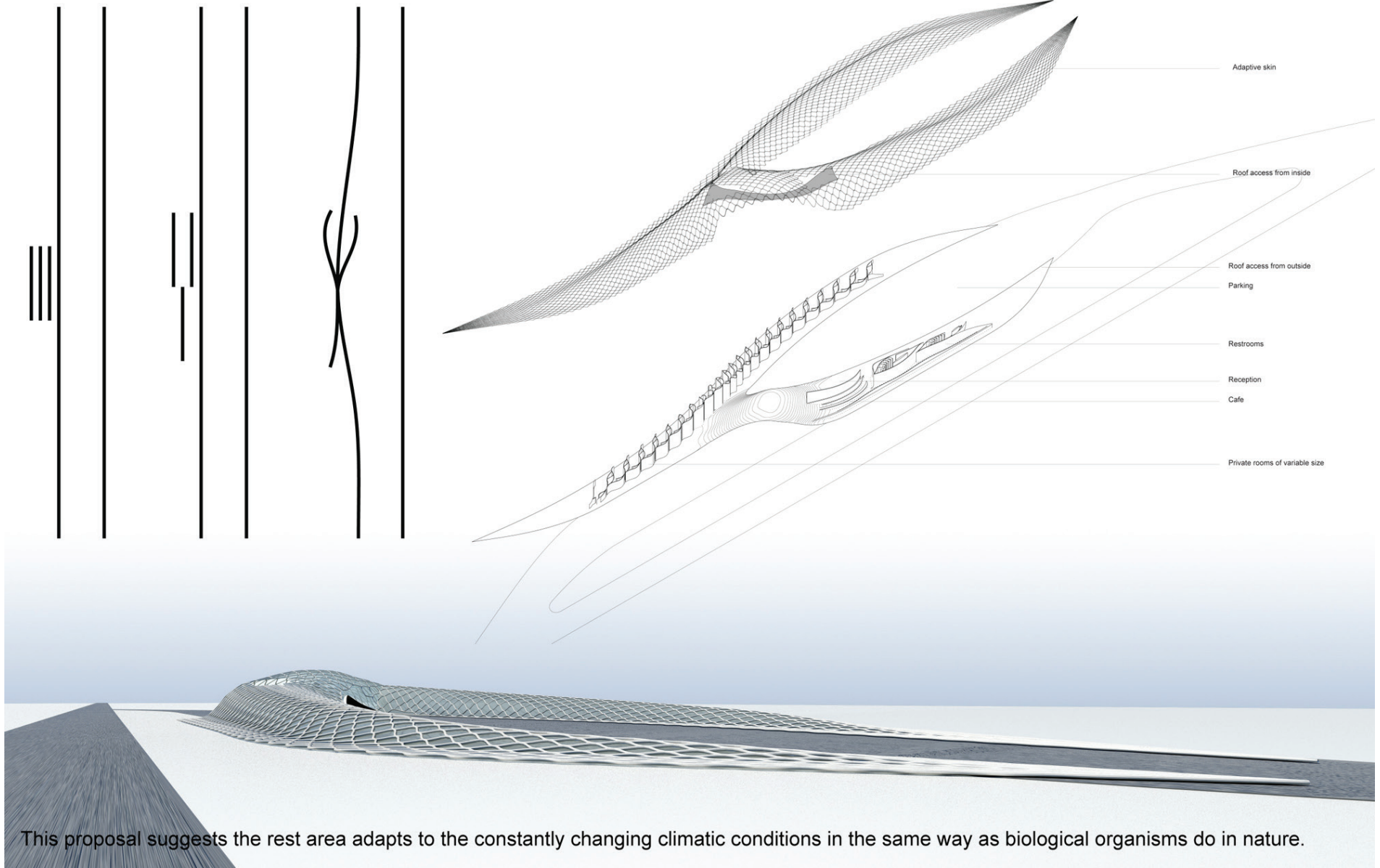
LYCEUM

*A traveling fellowship in Architecture*

A 3D rendered landscape featuring a white, grid-like terrain that curves and dips into a dark, shadowed path. The sky is a clear, light blue gradient. The text "processing nature" is displayed in a monospaced font on the left side of the horizon.

processing nature

*"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the most adaptable to change." – Darwin*



This proposal suggests the rest area adapts to the constantly changing climatic conditions in the same way as biological organisms do in nature.

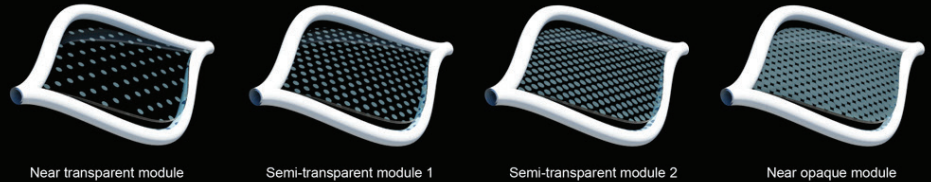


## INTELLIGENT BUILDING ENVELOPE

Integrated glass modules are organized to respond to changing climatic conditions

Parameter 1 - Shading device: Different states of opacity control transmitted light, solar gain, privacy and views depending on each module's position

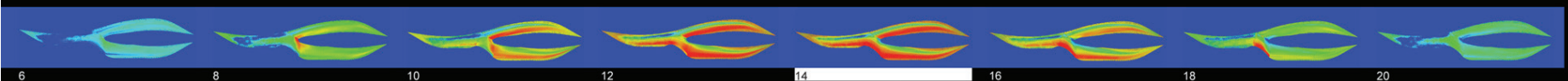
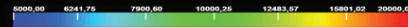
Parameter 2 - Responsive ventilation system: The rotation angle of each module changes to control airflow and indoor temperature



### Modules Configuration

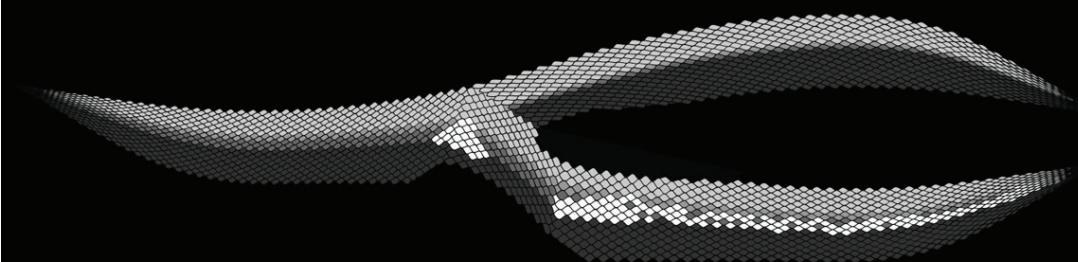
#### Lighting Analysis

Illuminance variation over the course of a typical day (September 21st - equinox)



14

Worst-case scenario - Basis of shading device design

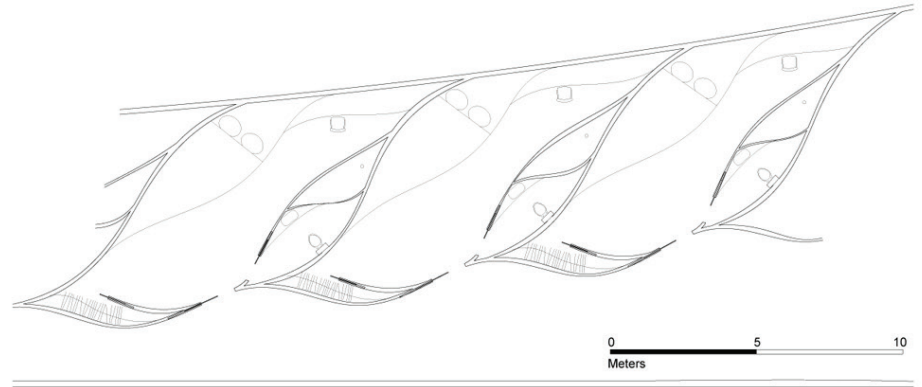
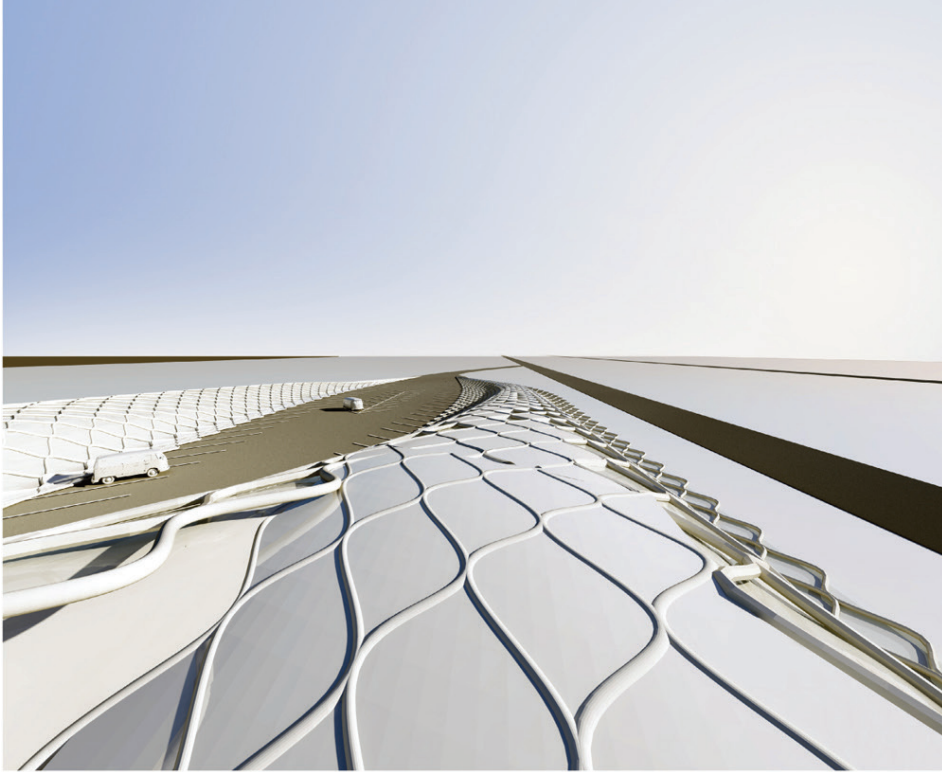


- Near transparent module
- Semi-transparent module 1
- Semi-transparent module 2
- Near opaque module
- Opaque module (rooftop pathway)

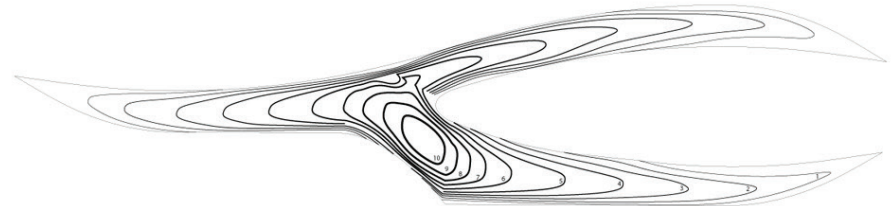
An analysis of the amount of luminance the building receives through a typical day in the Salt Lake Desert permits to frame the areas most subject to sun rays. The worst-case scenario happens at 2pm, where red zones cover the majority of South areas. The rendering also confirms the Northern areas receive a smaller amount of light, as they are covered in green.

From this data, a typical module configuration is interpreted. The red zones are replaced by "near opaque state" modules to block most of the sun rays without blocking completely the view. The green zones are replaced by "near transparent state" modules to permit indirect light to come inside and views to the horizon. Two thin transition zones are also replaced by "semi-transparent state" modules in between the two extreme zones. The only completely opaque modules are the ones used to form a pathway climbing up the skin.

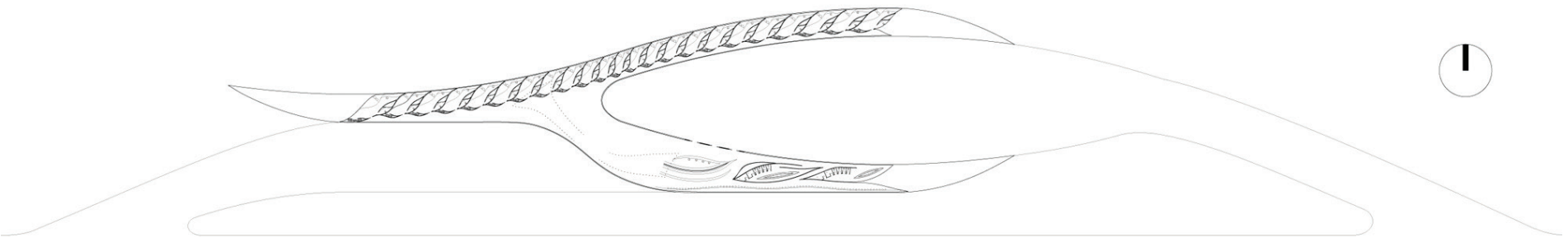
Through a series of processes, the building responds to temperature variation with an organized shading device and a dynamic, natural ventilation system.



Private rooms - 1: 150  
Rooms change in size for more flexibility; the biggest ones are at the ends of the strip and they gradually get smaller towards the middle



Building envelope topography -  
Slopes are designed to be pedestrian accessible (from 1:12 to 1:8)

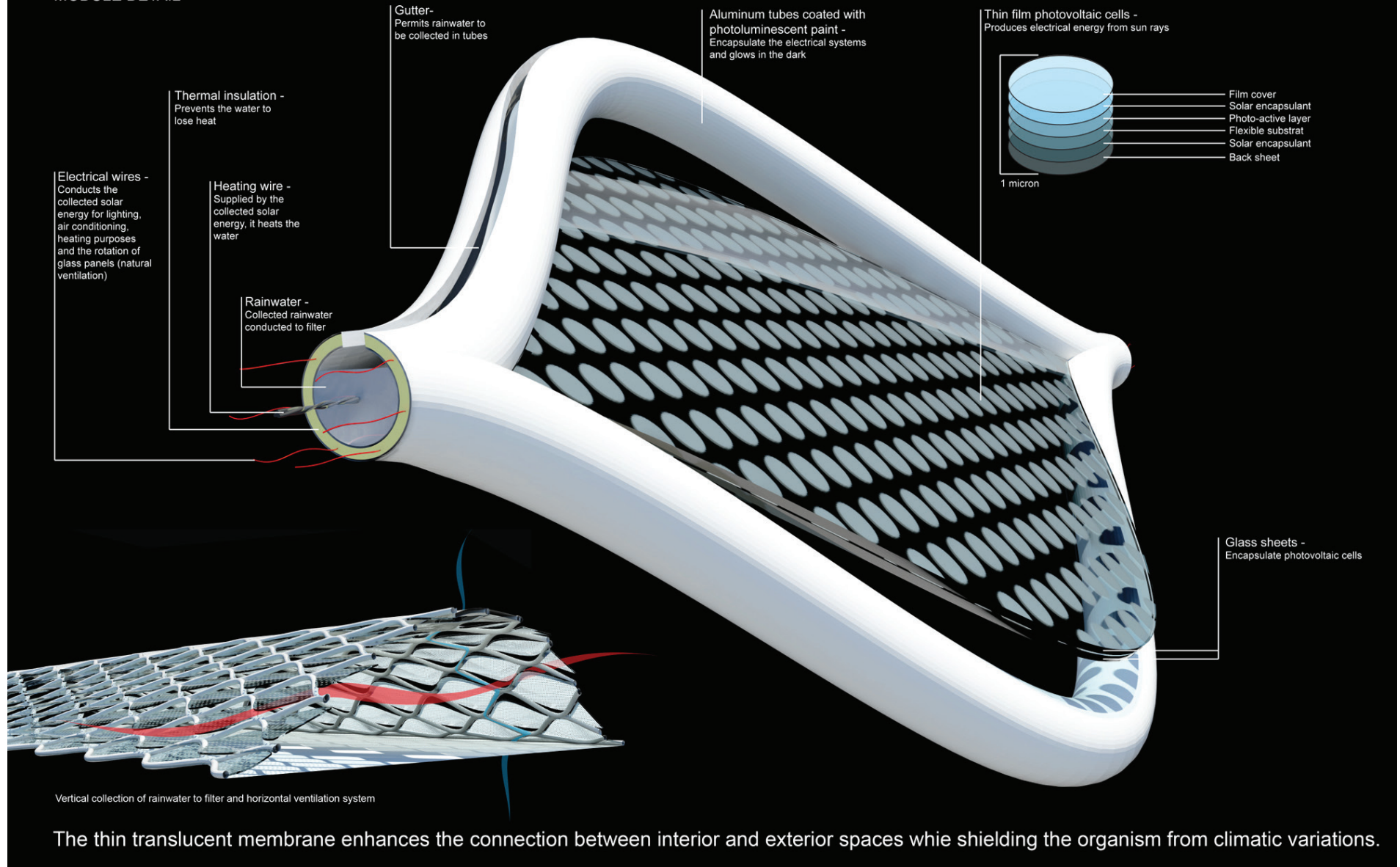


Floor Plan - 1:1500  
0 25 50 100  
Meters

The formal performance of the building stems from and integrates the desert natural system.

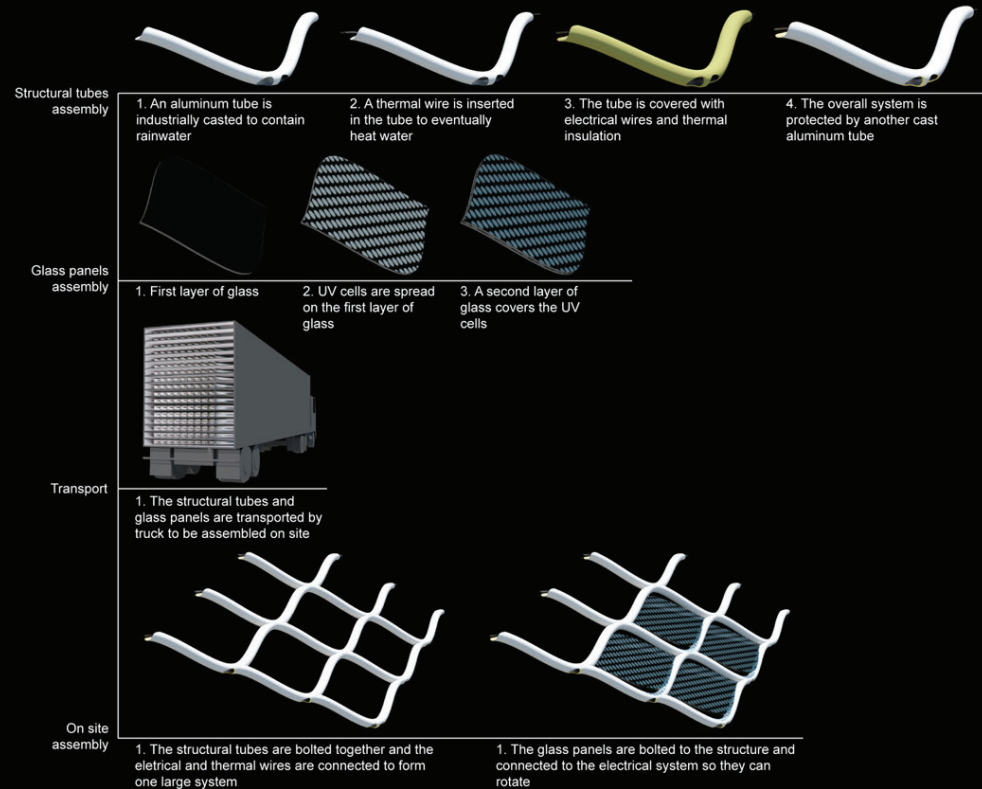


## MODULE DETAIL

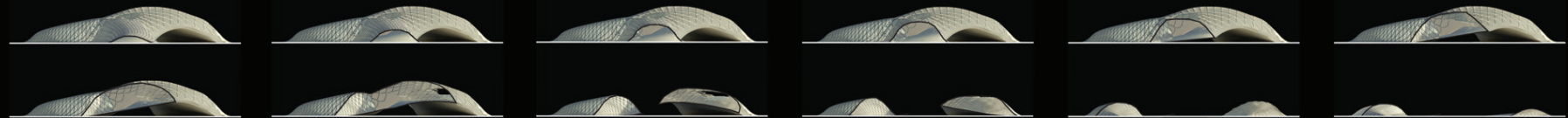
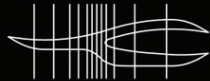




## CONSTRUCTION ASSEMBLY

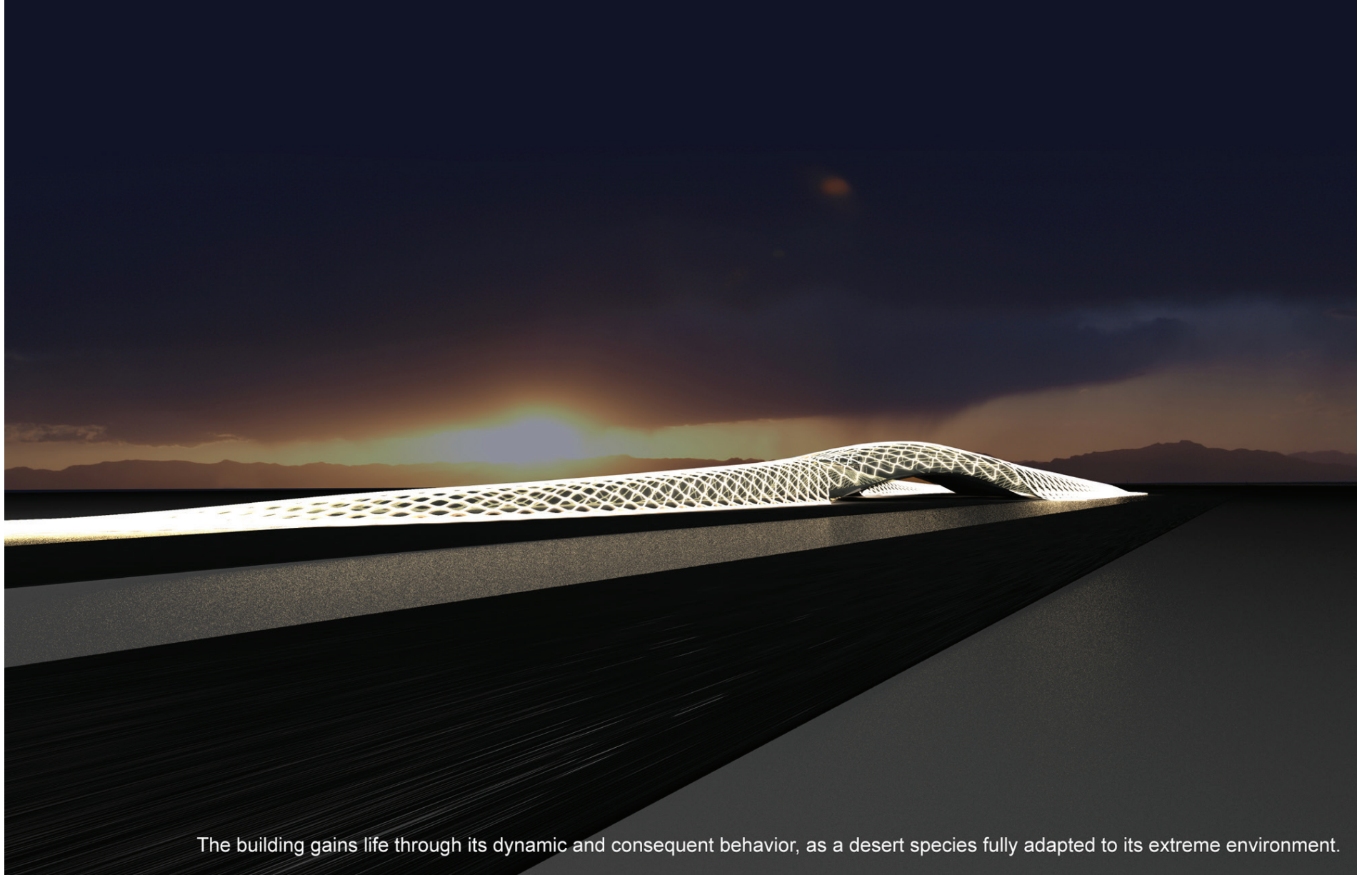


Cross-Section Series - West to East



The rest area becomes a self-organized system fully integrated into the desert as it mimics the processes of nature itself.





The building gains life through its dynamic and consequent behavior, as a desert species fully adapted to its extreme environment.