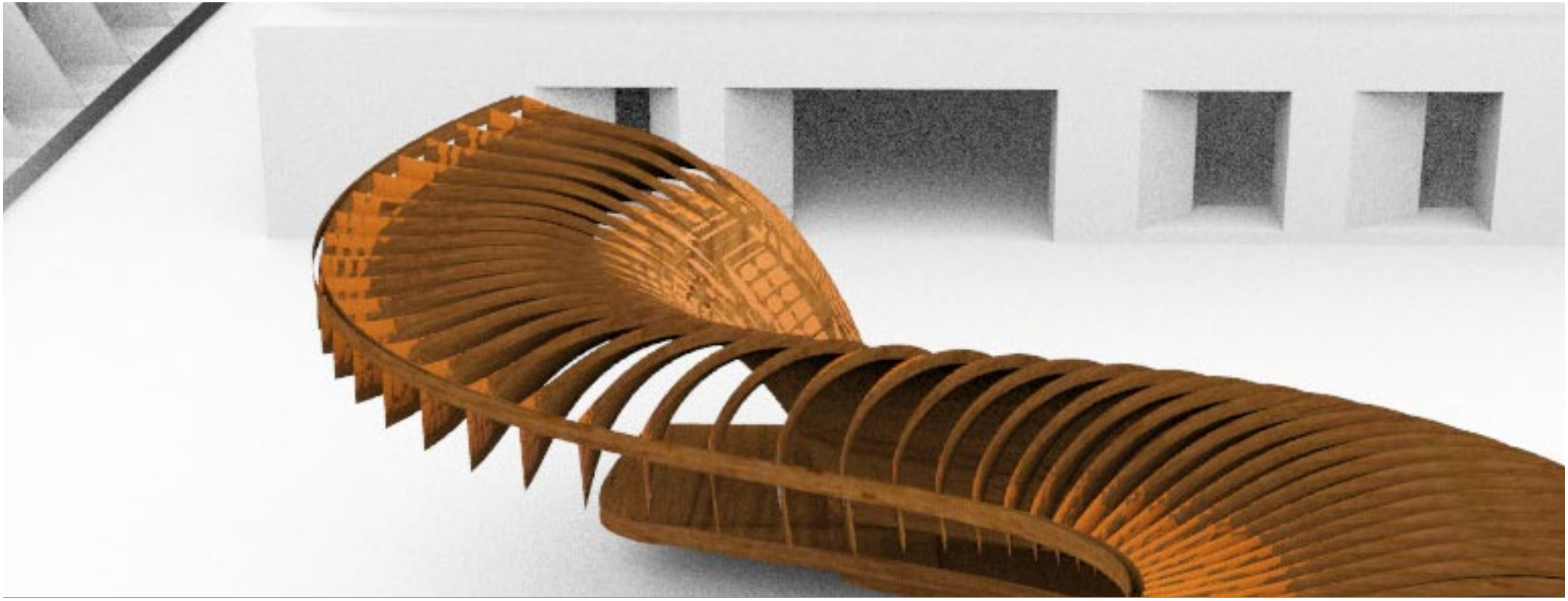
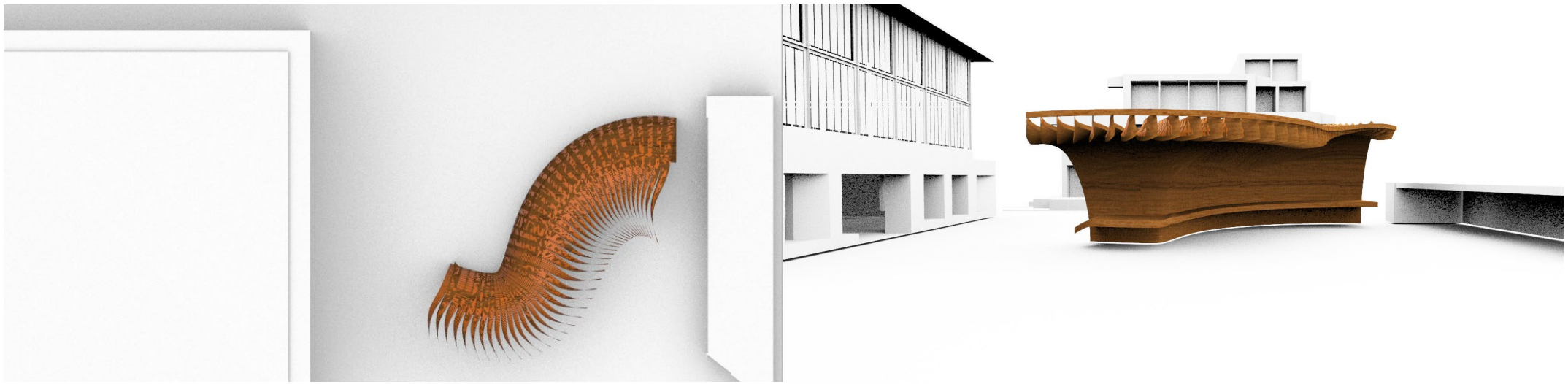
The Centipede

Pavilion at South Lawns, CEPT University,Ahmedabad



Design Brief



Plan and elevation

'The Centipede' is a parametric pavilion at the south lawns of CEPT University, Ahmedabad. It intends to create semi open spaces around the existing building and makes use of a kinetic roof to respond to the varying needs of heat, light and rainfall across different seasons.

Site

- The Site is the South lawn area of CEPT University, Ahmedabad. It is an opne to sky grass lawn between the library, south pavilion and FP department building.The growing strength of the university in the recent years has increased the need for semi open areas on campus where students can eat, relax and interact. The design intends to create shaded pavilion in the lawns which compliments the exisiting south pavilion and also encloses the space in front of the library creating different zones of interaction. The kinetic roof takes inspiration from the adjoining library while also responding to the climate of the context. The form is designed such that it does not completely overpower the existing open space but shapes itself to allow exisitng activities to occur and provides shaded space for new ones.
- *Fig.1 (Right) Site Plan. Area marked in green is the chosen site*

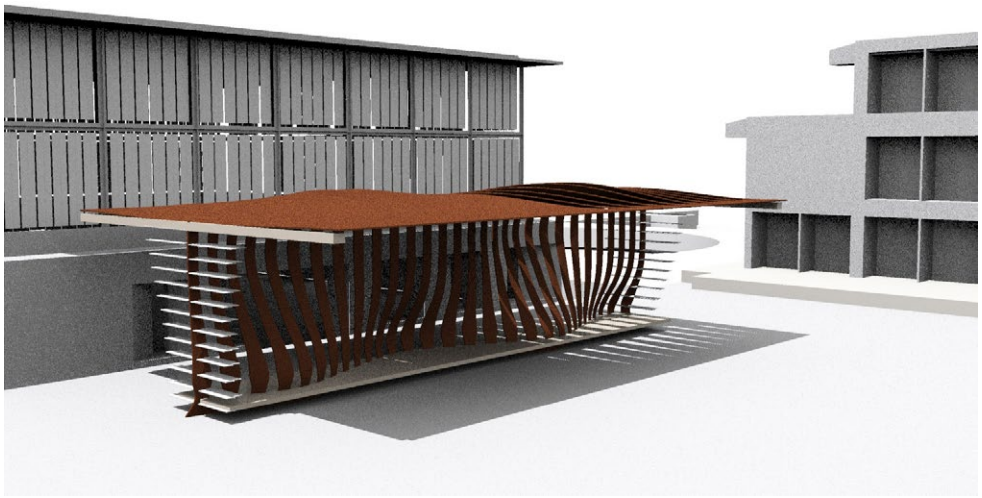
- Source:www.cept.ac.in

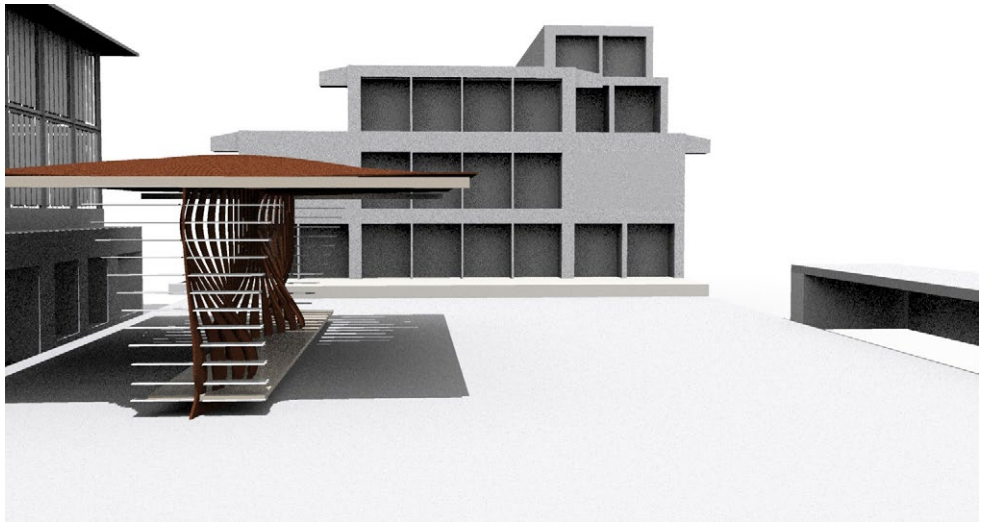
- The lawns are used for various activities, concerts, classes and eating spots as well

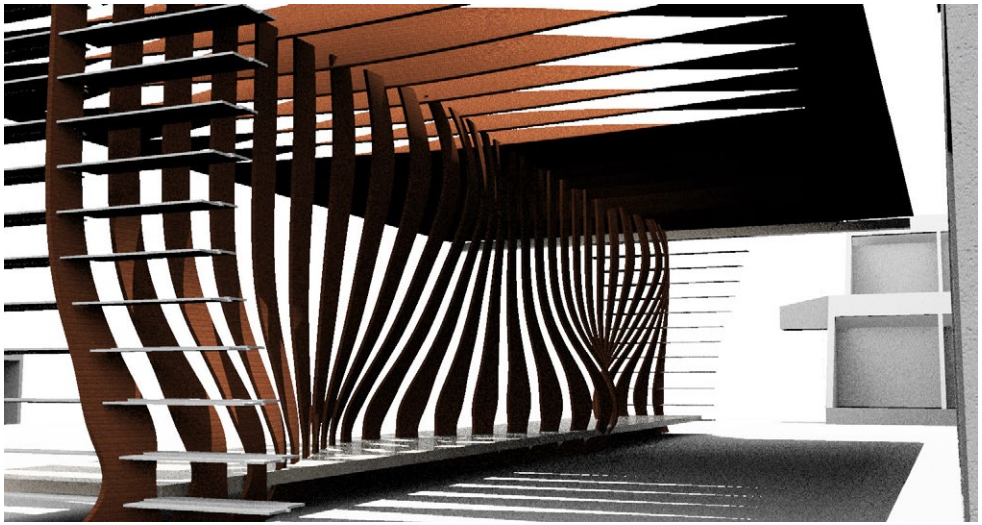
- Source:www.cept.ac.in

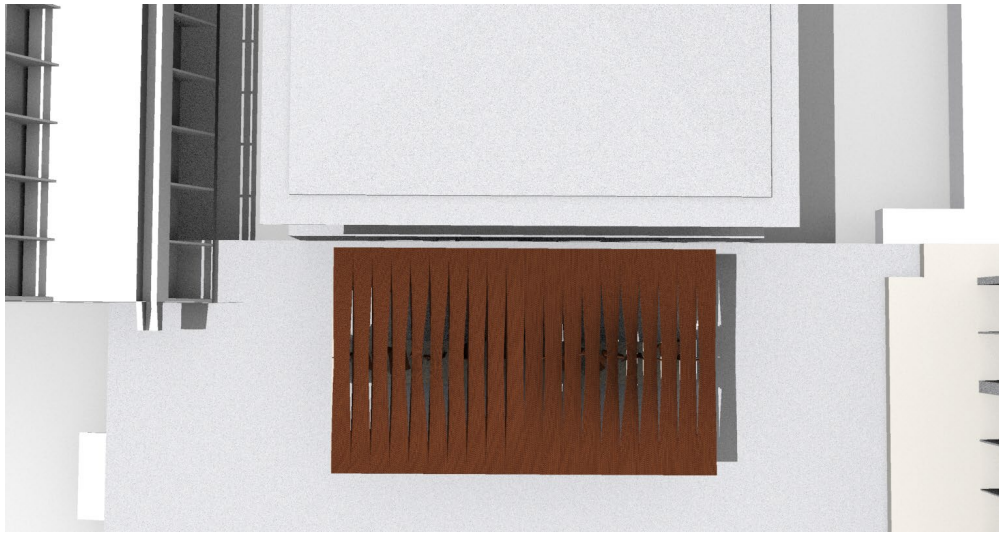
Design Concept / Form Development-Iteration 1

Site model credits- Faculty of Planning.CEPT



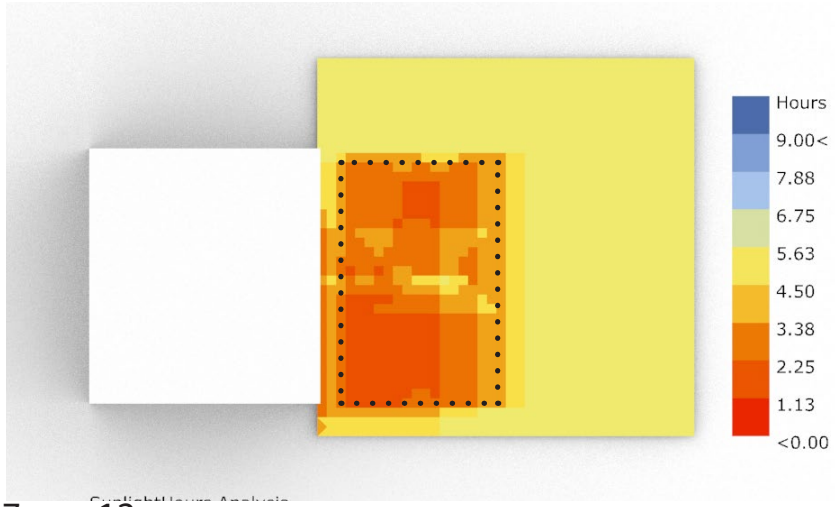




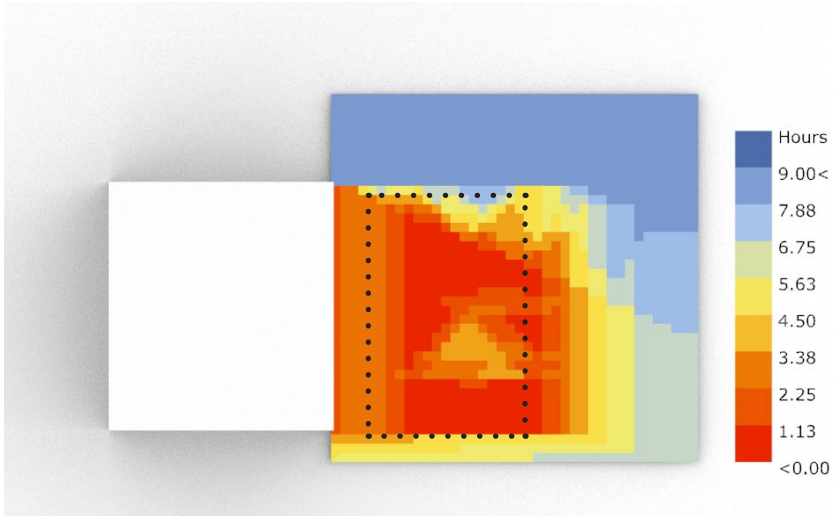


Sunlight Hours Analysis for Iteration 1

Summer Solstice

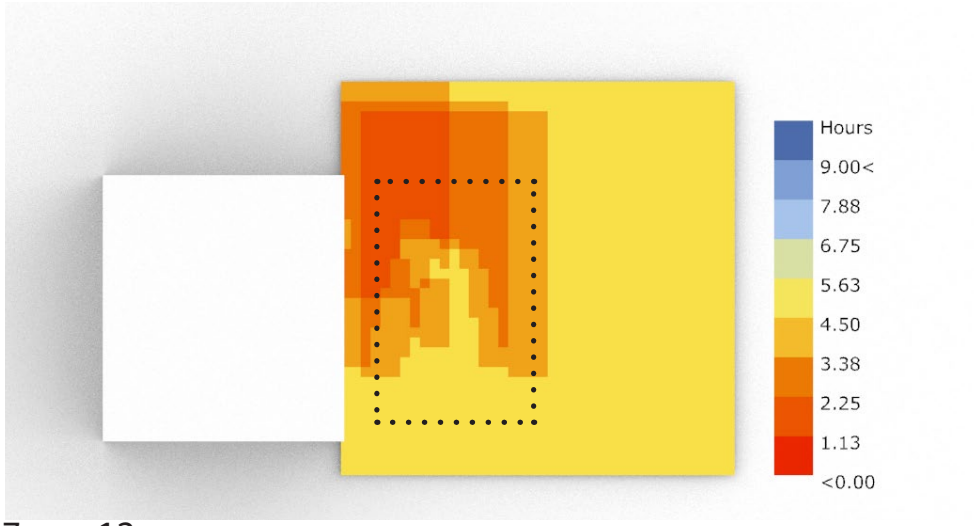


7am - 12pm

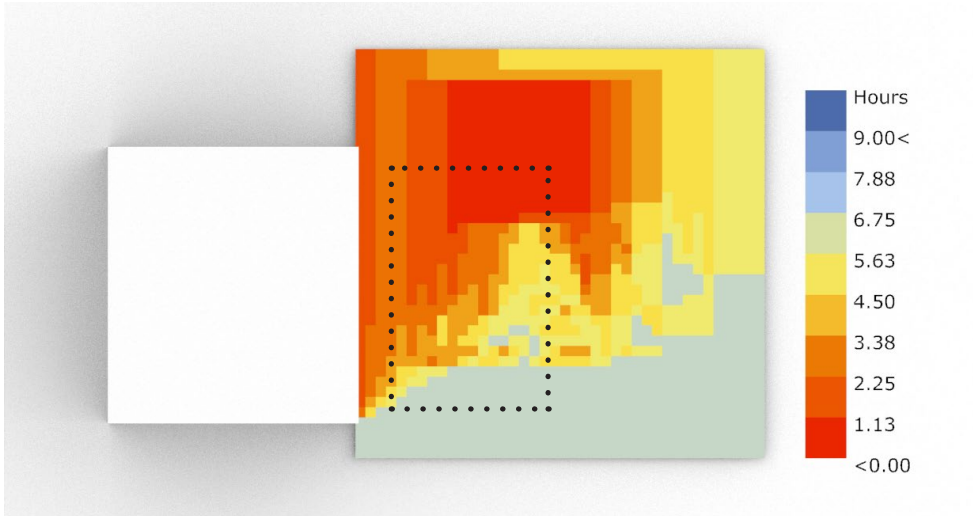


12pm- 8pm

Winter Solstice



7am - 12pm

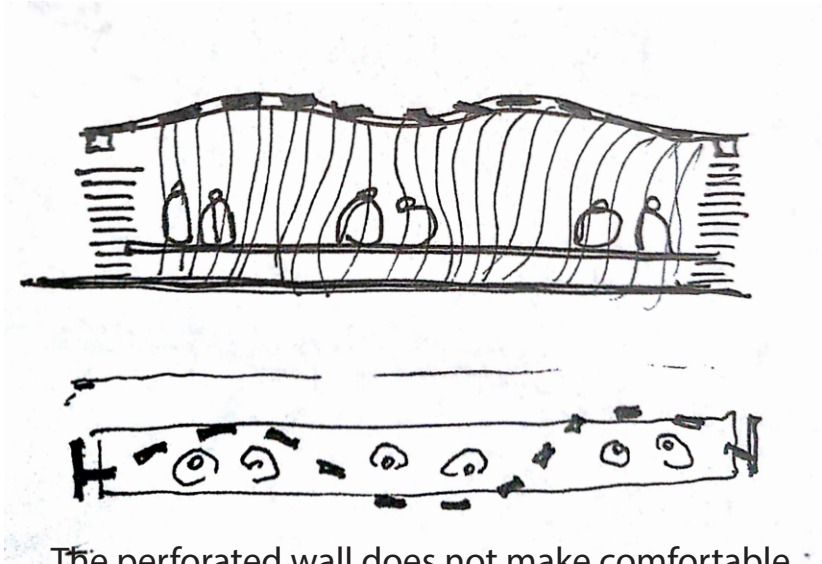


12pm- 8pm

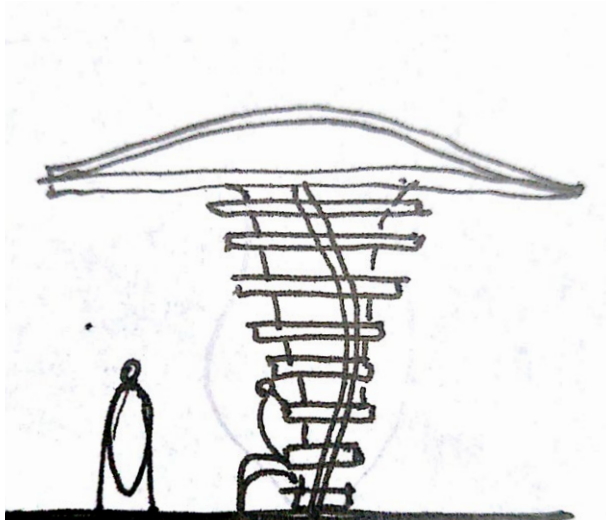
Identifying flaws in Iteration 1

Inferences from sunlight hour Analysis:

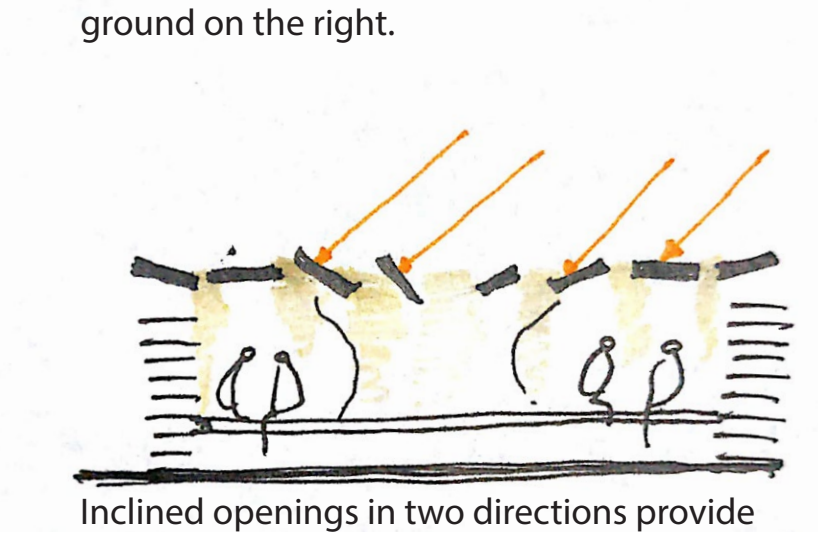
-Location and linear form of the pavilion divides the lawn space into distinct linear shaded and unshaded areas
- Uneven light penetration in winter months
- The static openings of the roof do not respond to the changing need for light and shade



The perforated wall does not make comfortable seating. The wavy wall creates small pockets allowing only a small group of people to gather at one time.

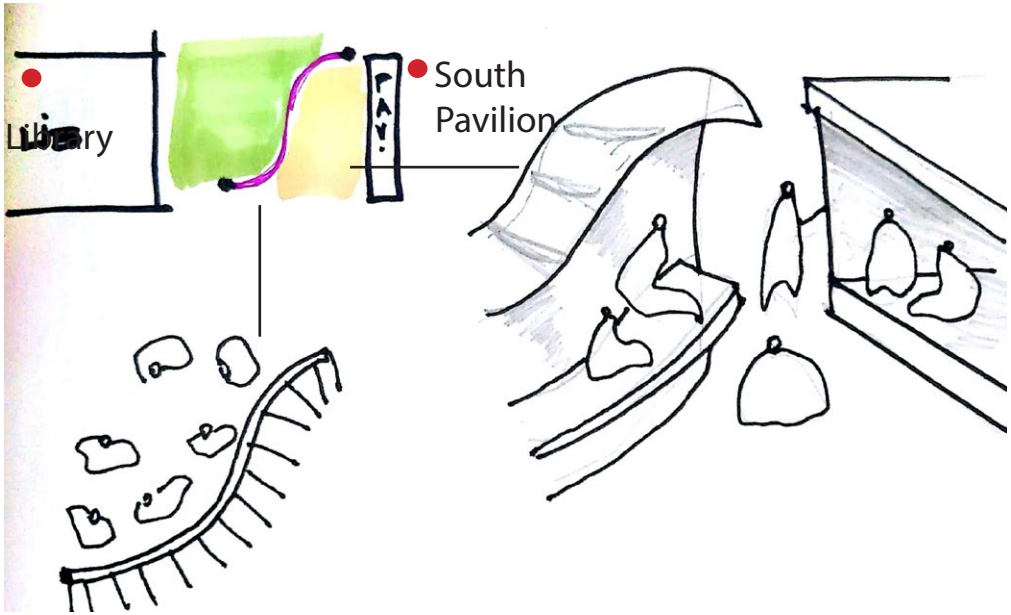


Similar space on either side of pavilion doesnt respond to the library wall on the left and open ground on the right.

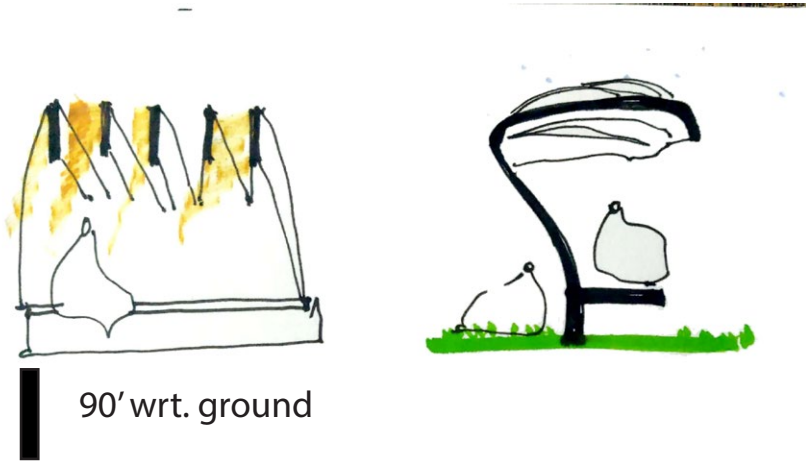


Inclined openings in two directions provide shade for a limited number of hours.

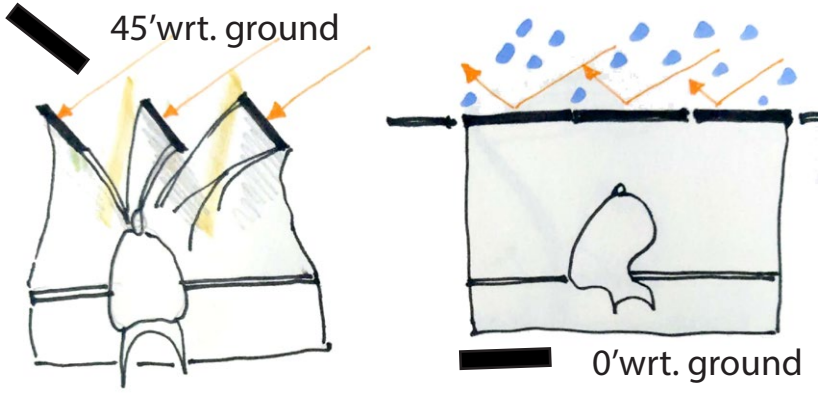
Design Development- Revised Parameters for Final Design



Re- orienting and Reshaping the geometry of the pavilion.
- The shaded part of the pavilion faces the south pavilion thereby adding to the existing semi open space there
- The back wall of the pavilion retains the idea of an open lawn , creating a space enclosed between the library, Department of planning and itself.
- Two types of public spaces established for the students
- Kinetic Roof adapting to different climatic conditions
-Wall and roof as homogenous elements(From a massive surface to dissolving into fins at the roof)

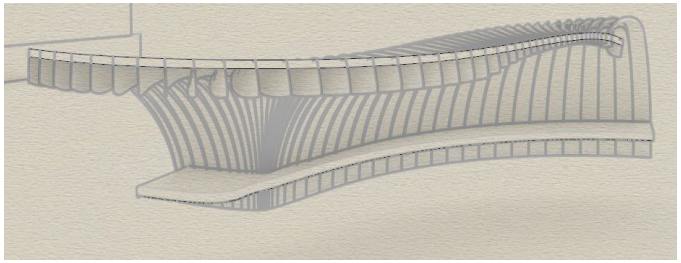


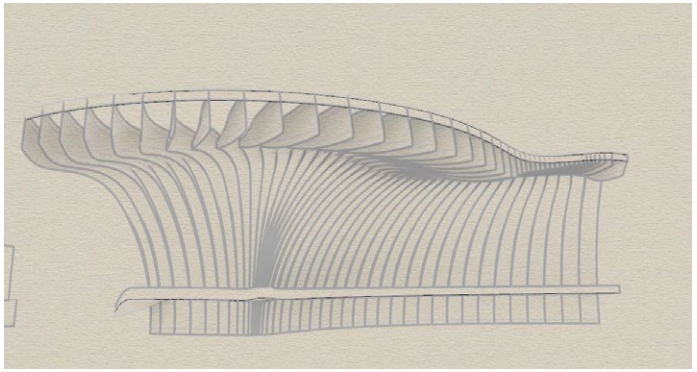
(left): The kinetic roof can be kept open during late evenings to increase its porosity and bring in soft light. It can be kept open during winters to allow light and heat penetration.

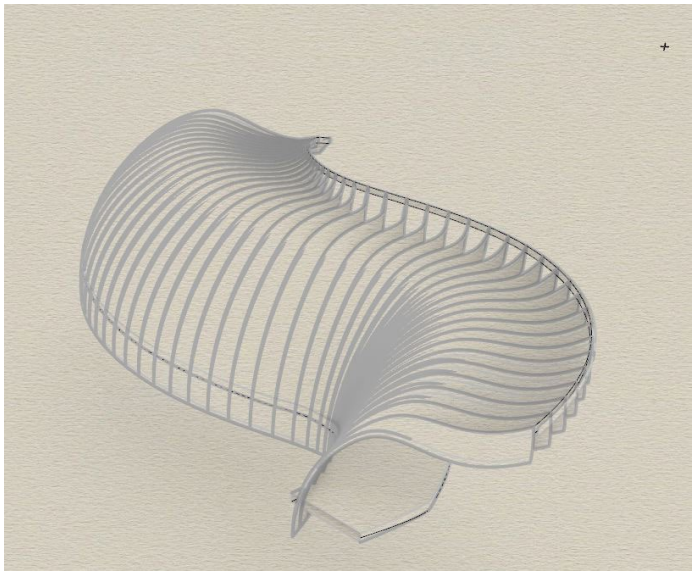


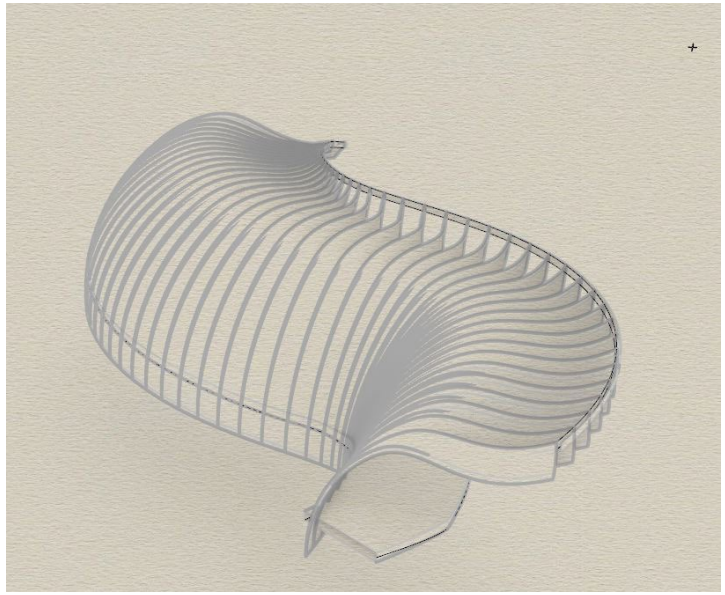
(left): Partially open fins blocking direct radiation during summers but allowing indirect light to enter
(Right): Completely closing the roof between 12pm-4pm in summers and during monsoons

Design Geometry

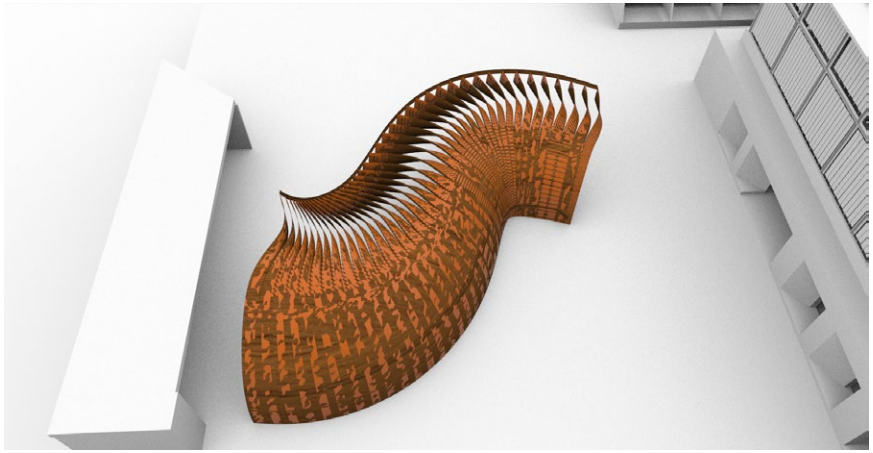








Kinetic roof



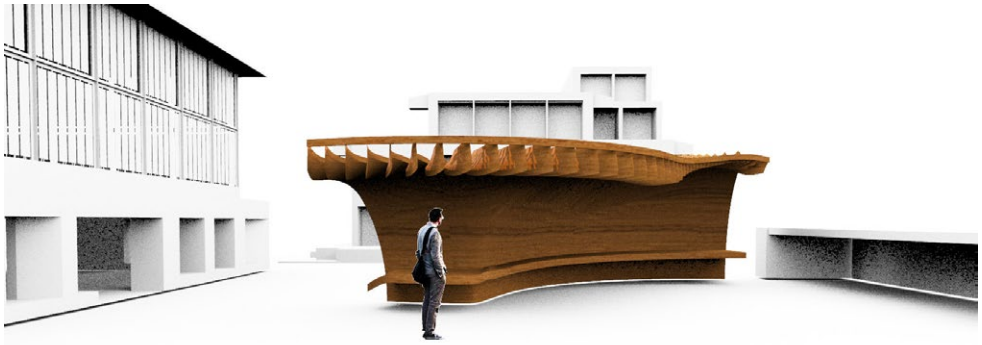
Open roof

Partially open roof

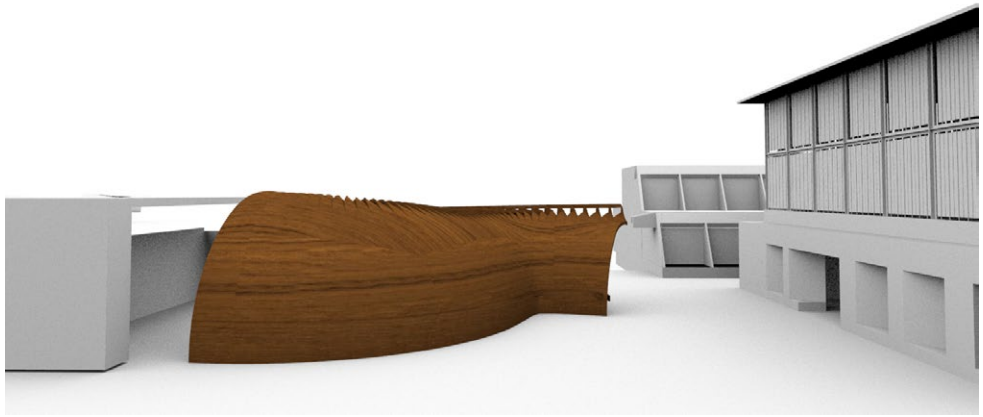
Closed roof

Structure Views

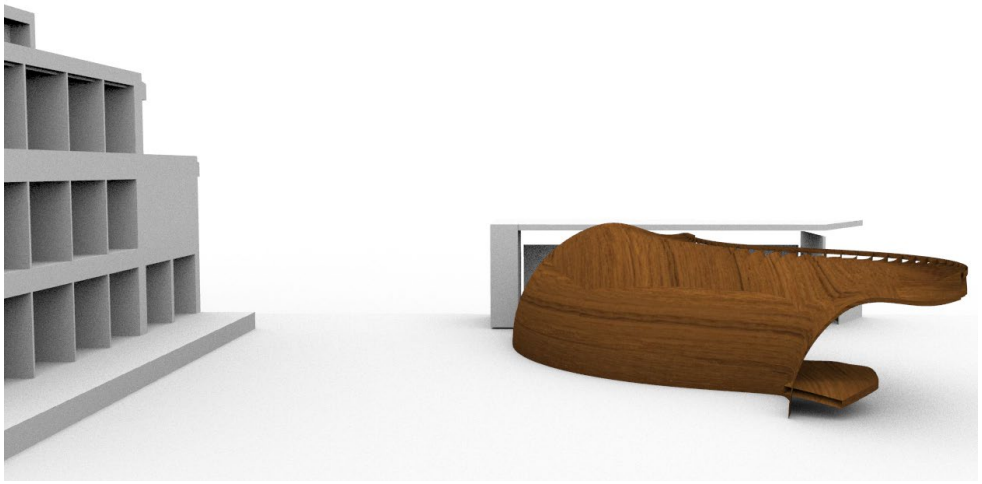
Pavilion in Plan



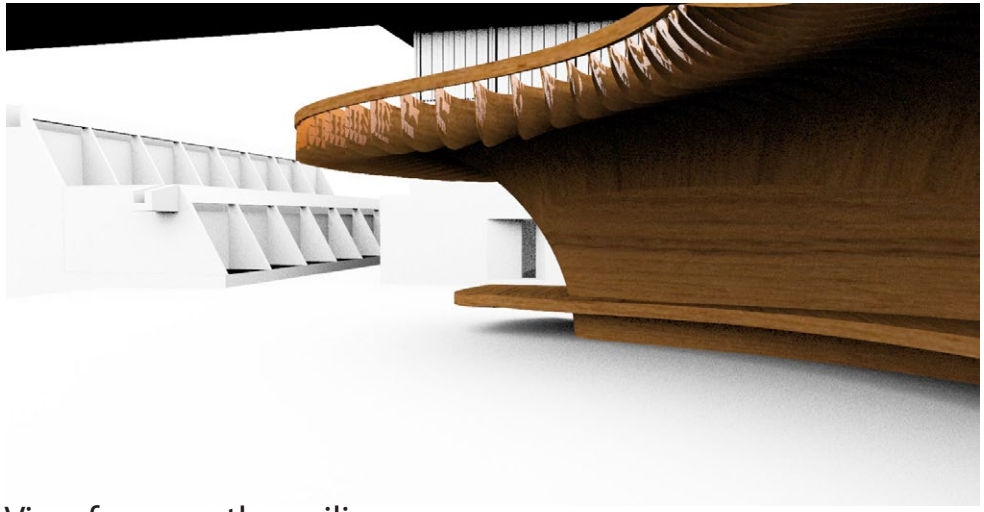
View from Student service office



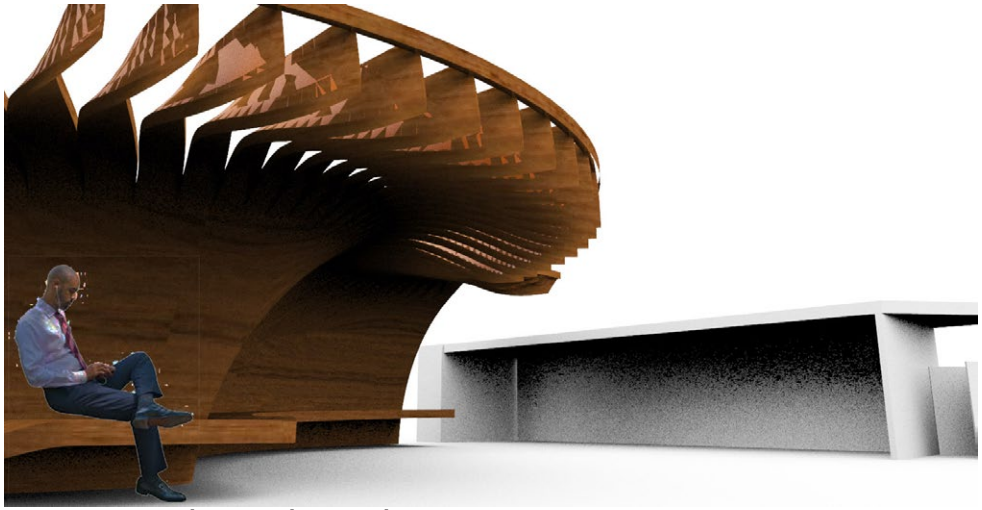
View from Faculty of Planning



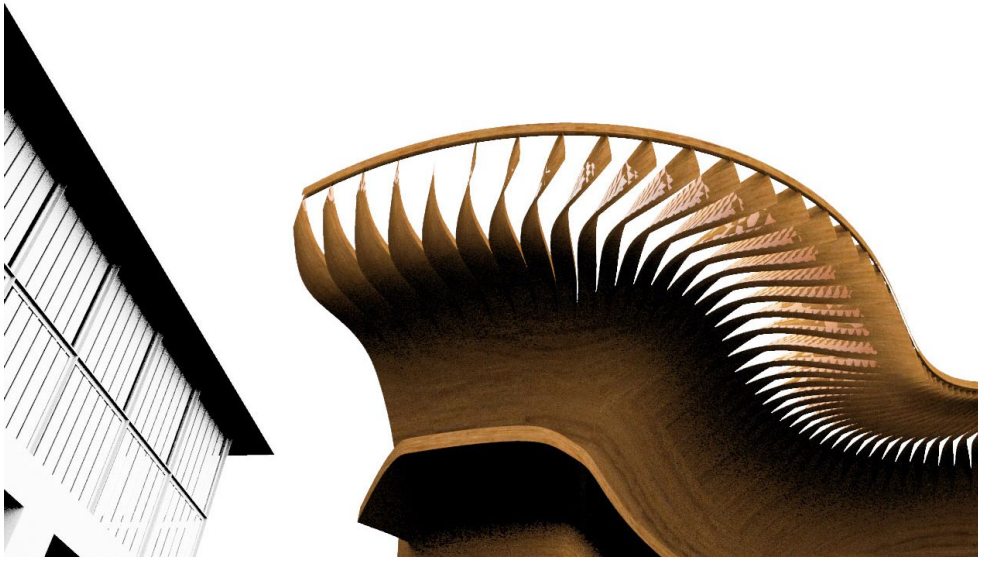
View from Library



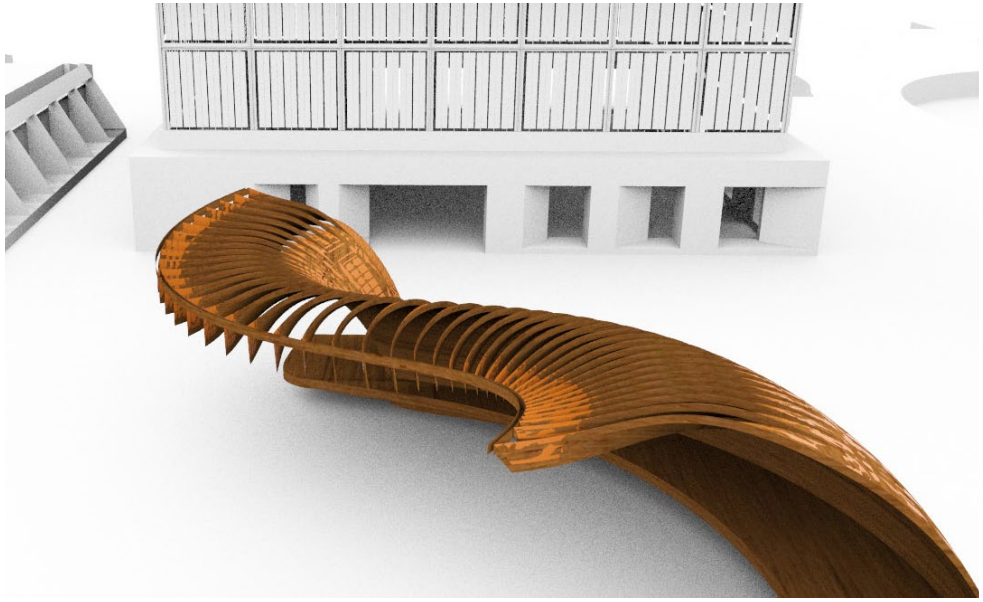
View from south pavilion



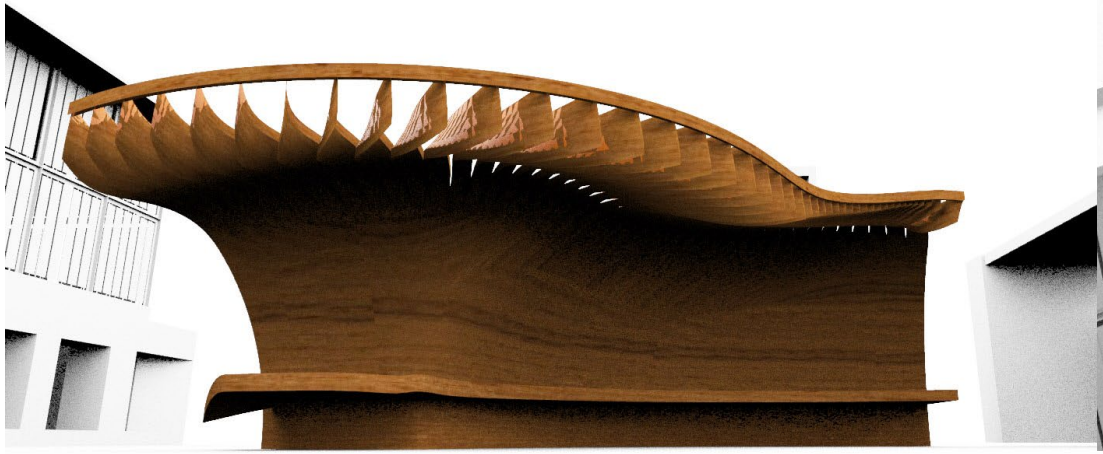
View towards south pavilion



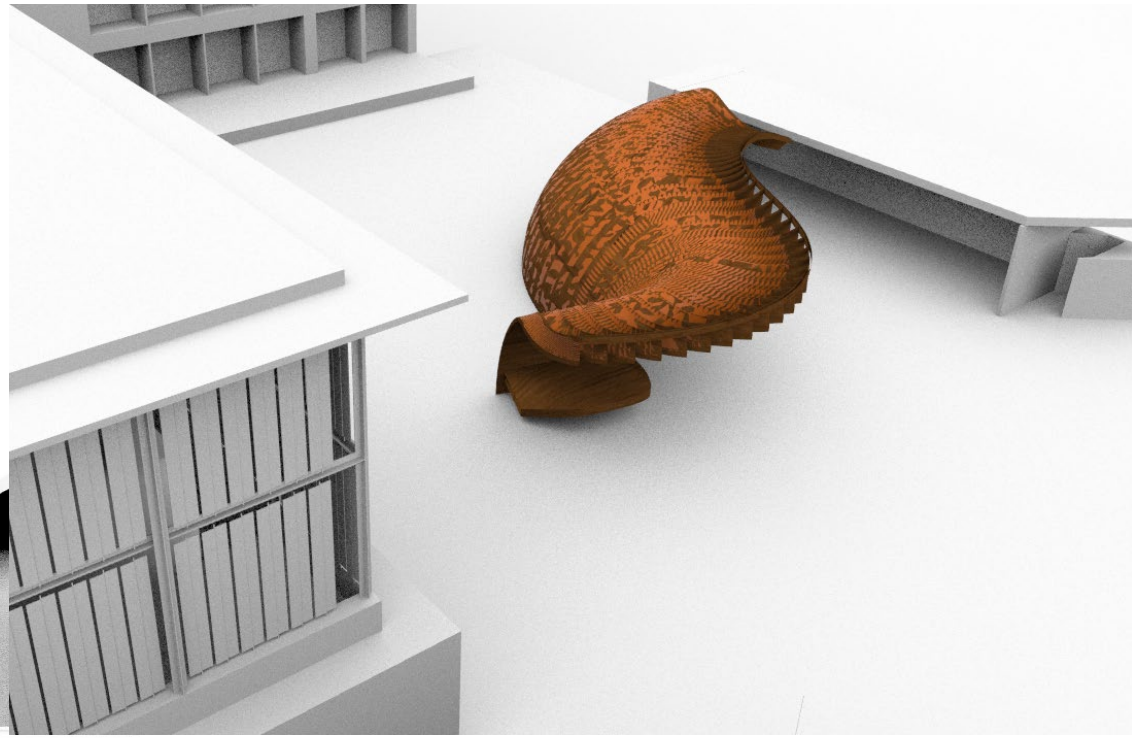
View from under the roof



Bird's eye view

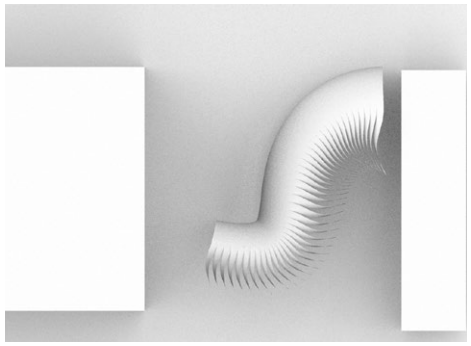


View from Student service office



Bird’s eye view

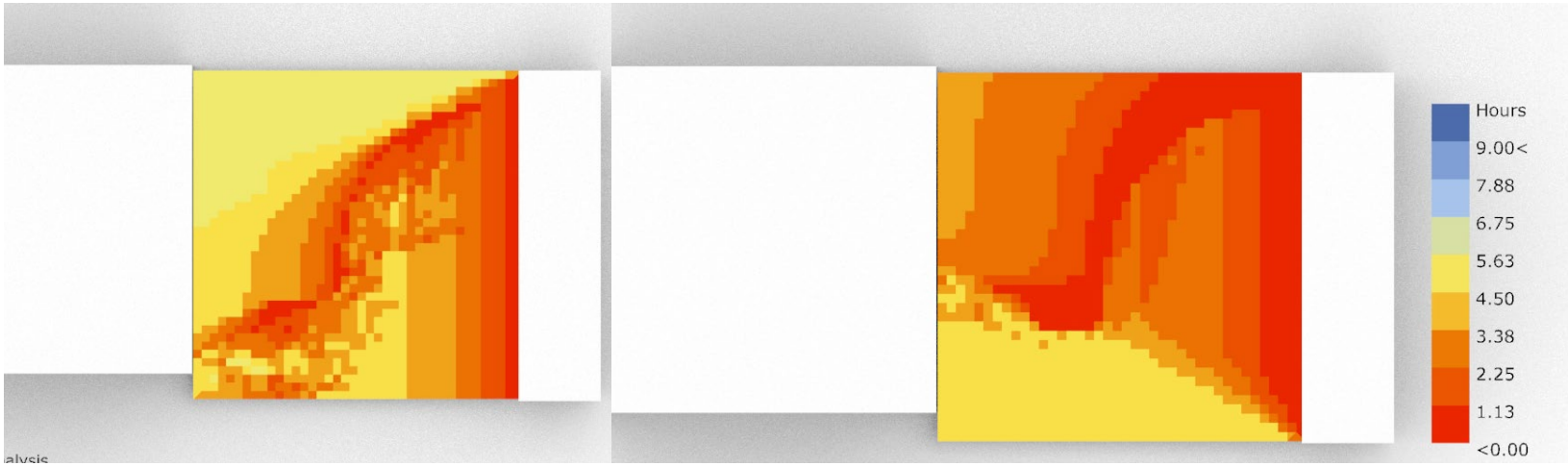
Environmental Analysis when the kinetic roof is open



The pavilion is shaded in summer and winter during the harsh sunlight hours in the afternoon even with an open roof allows indirect light only.

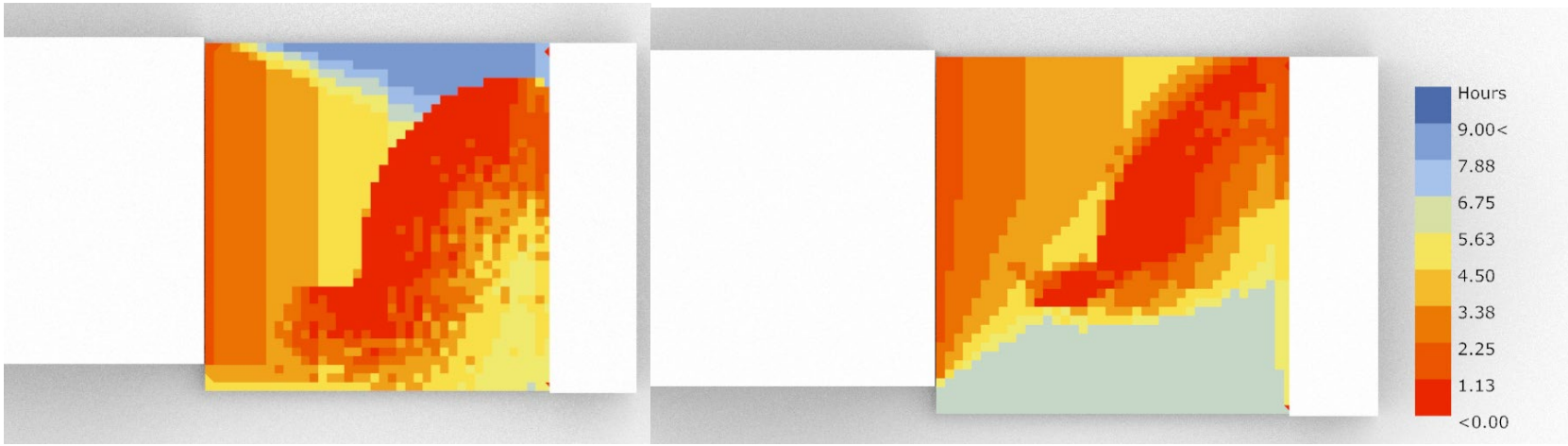
Summer Solstice

Winter Solstice



7am - 12pm

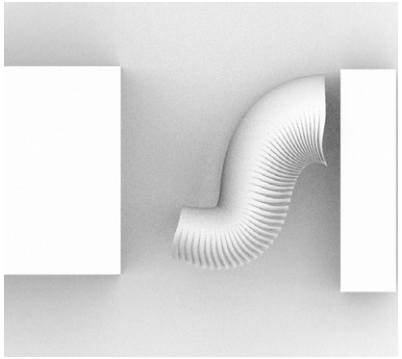
7am - 12pm



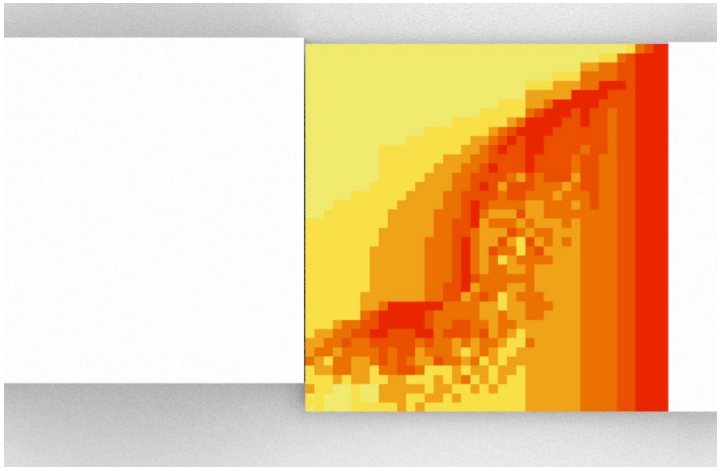
12pm- 8pm

12pm- 8pm

Environmental Analysis when the roof is partially open

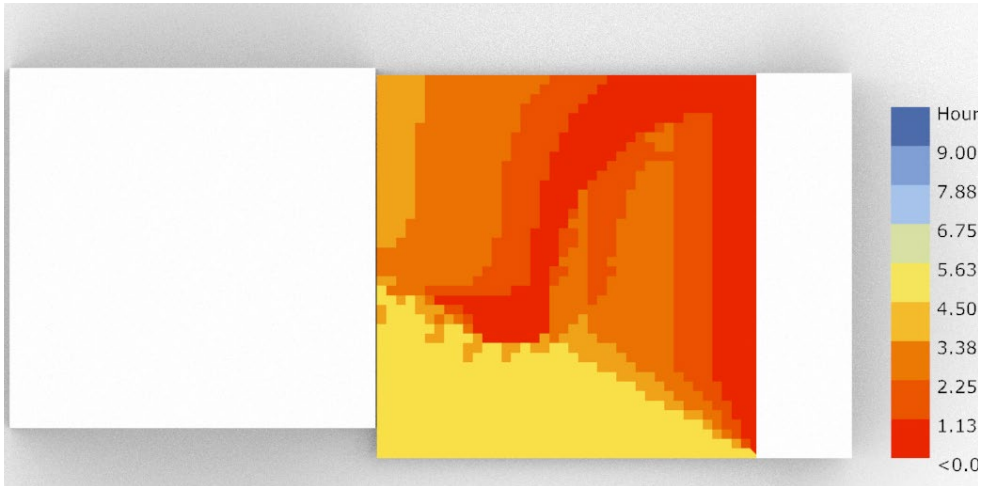


Summer Solstice

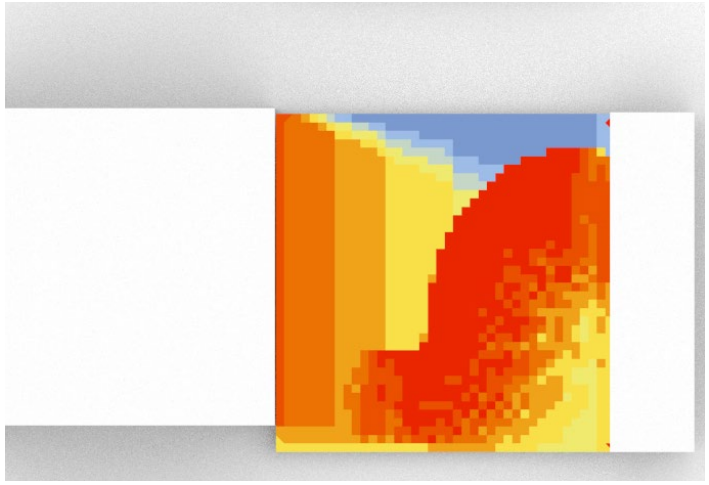


7am - 12pm

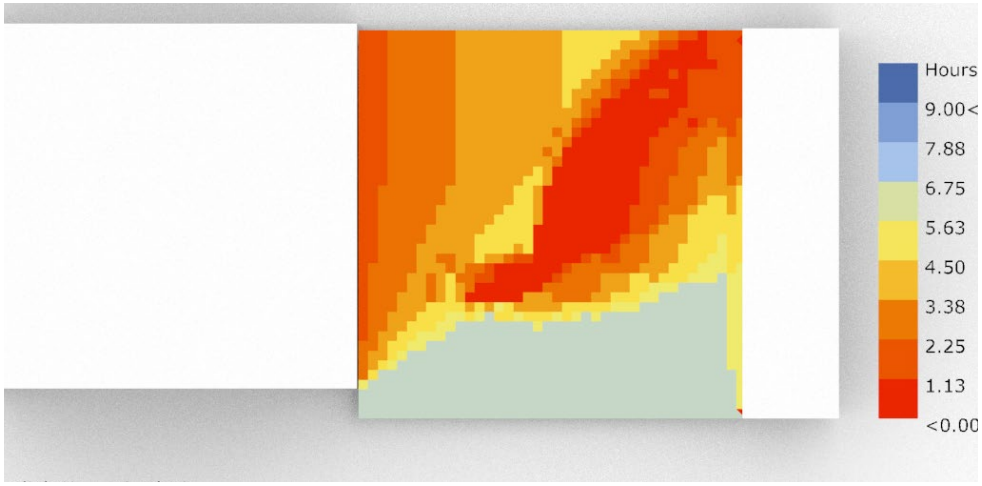
Winter Solstice



7am - 12pm



12pm- 8pm

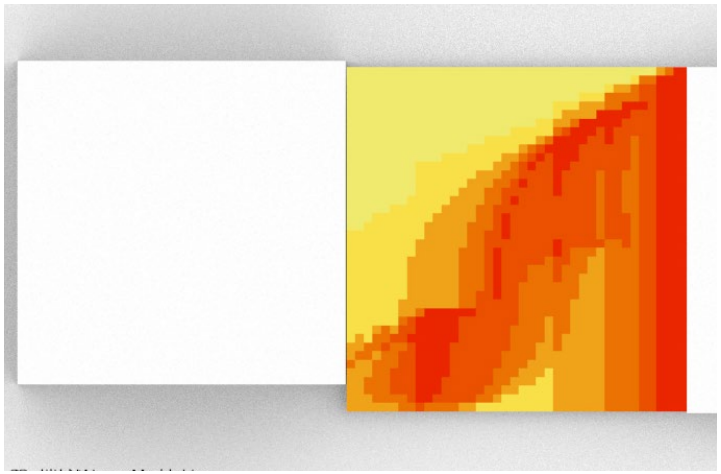


12pm- 8pm

Environmental Analysis when the roof is completely closed

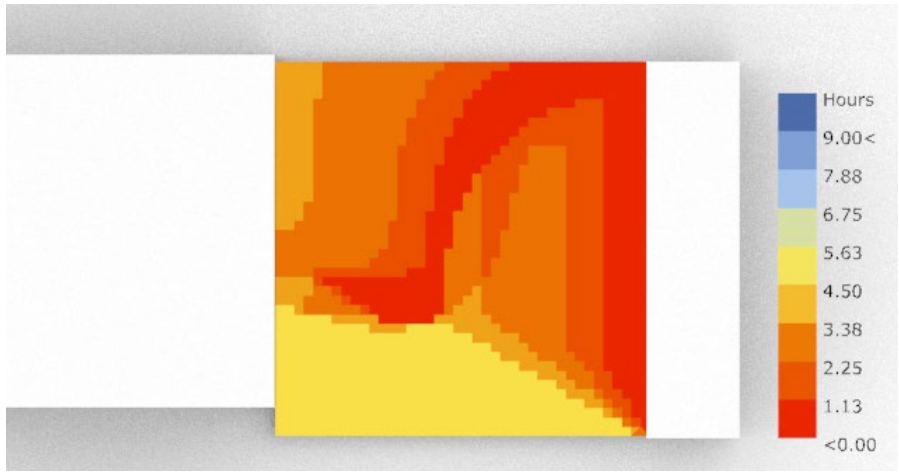
In all the three roof conditions the seating area is always shaded.

Summer Solstice

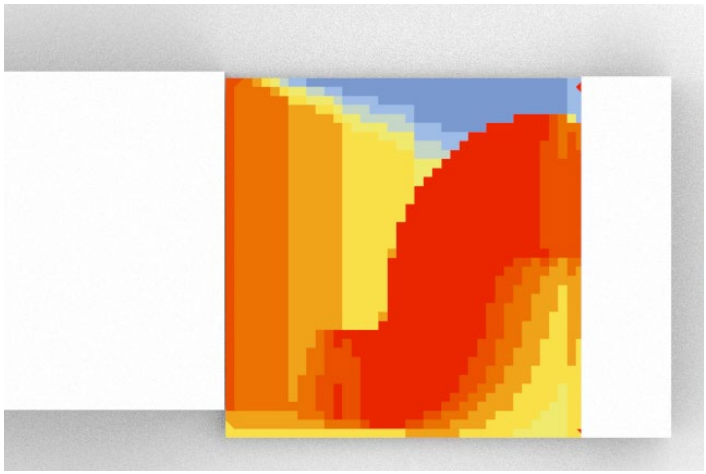


7am - 12pm

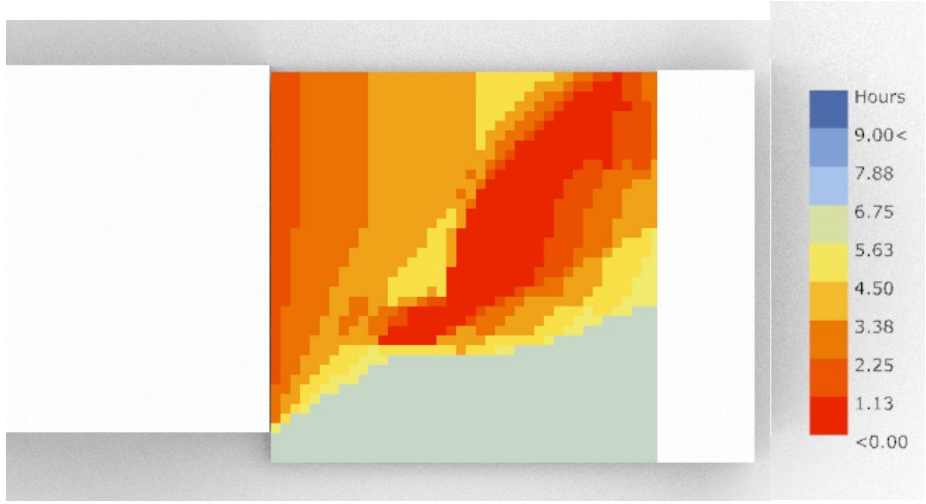
Winter Solstice



7am - 12pm



12pm- 8pm



12pm- 8pm