ENVIRONMENTAL SYSTEMS I

ASSIGNMENT 2: Meyerson Hall Outdoor Space Thermal Comfort Analysis

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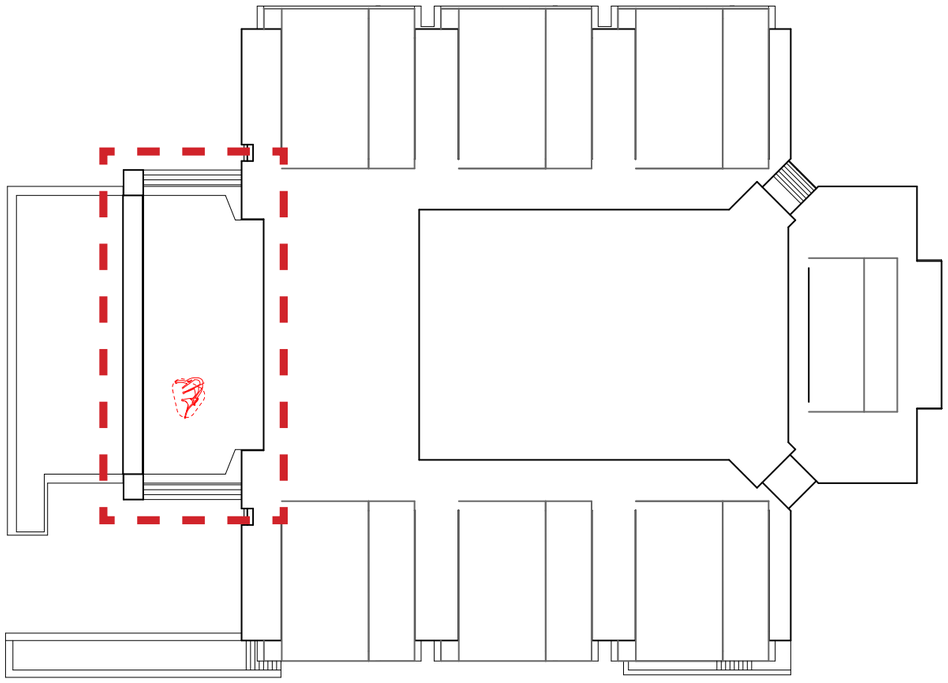
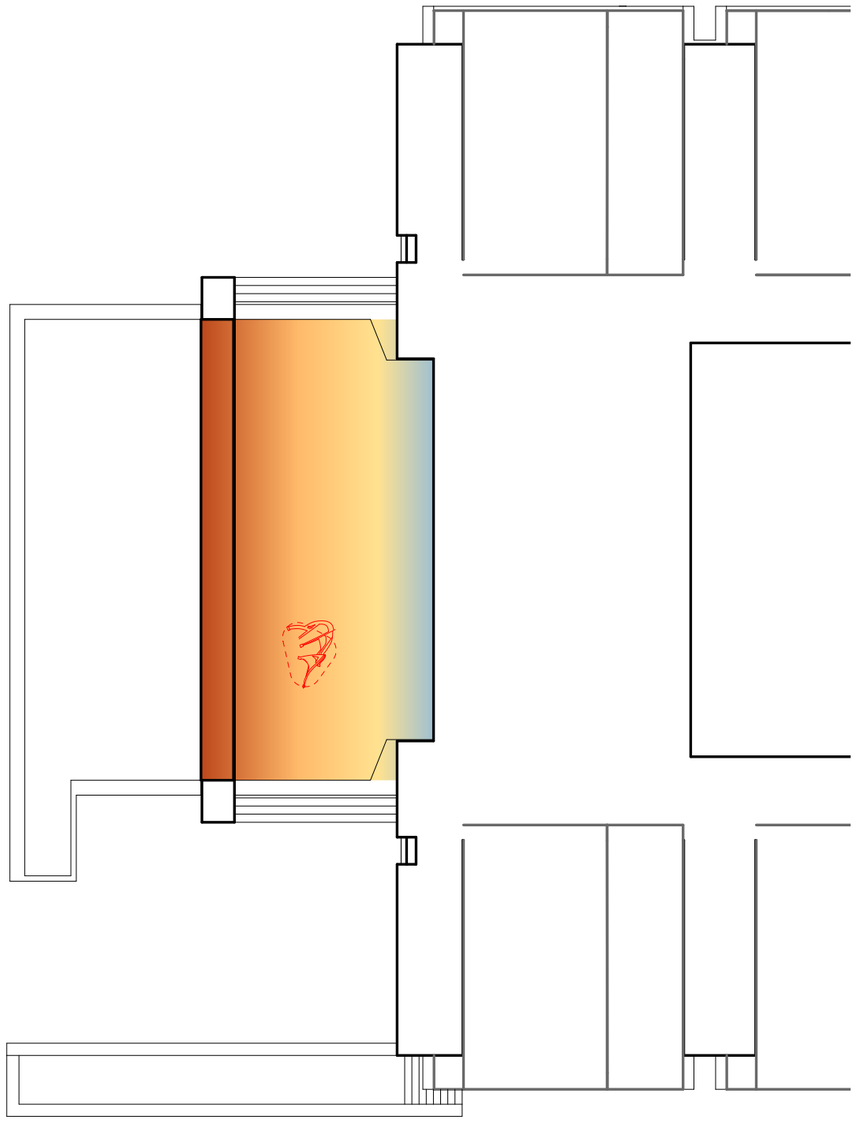
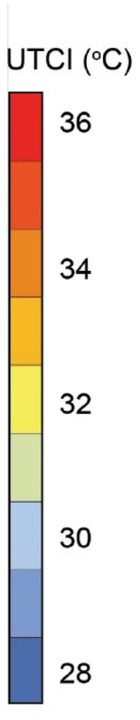
Site and Weather Data



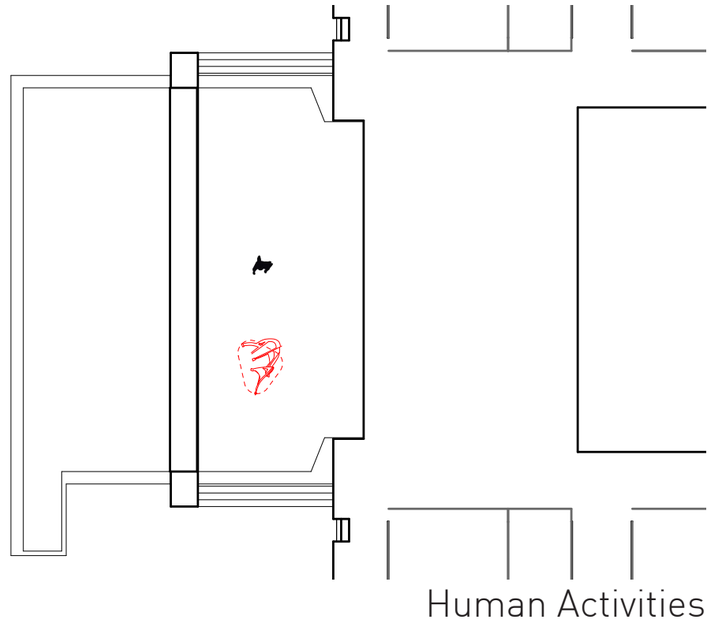
Time	Surface Temp. (Site)/C °	Wind Speed (Site)/mph	Humidity (Site)/%	Temp. (Station)/C °	Wind (Station)/mph	Humidity (Station)/%
11:00	32.5	2.46	60	18	N 12	56
13:00	36.5	2.68	55	20	NNW 8.95	52
15:00	39.3	6.26	44	21	NNW 8.95	49
17:00	36.6	1.79	45	21	NNW 13	41
19:00	28.3	1.34	/	19	NNW 11	/

11:00



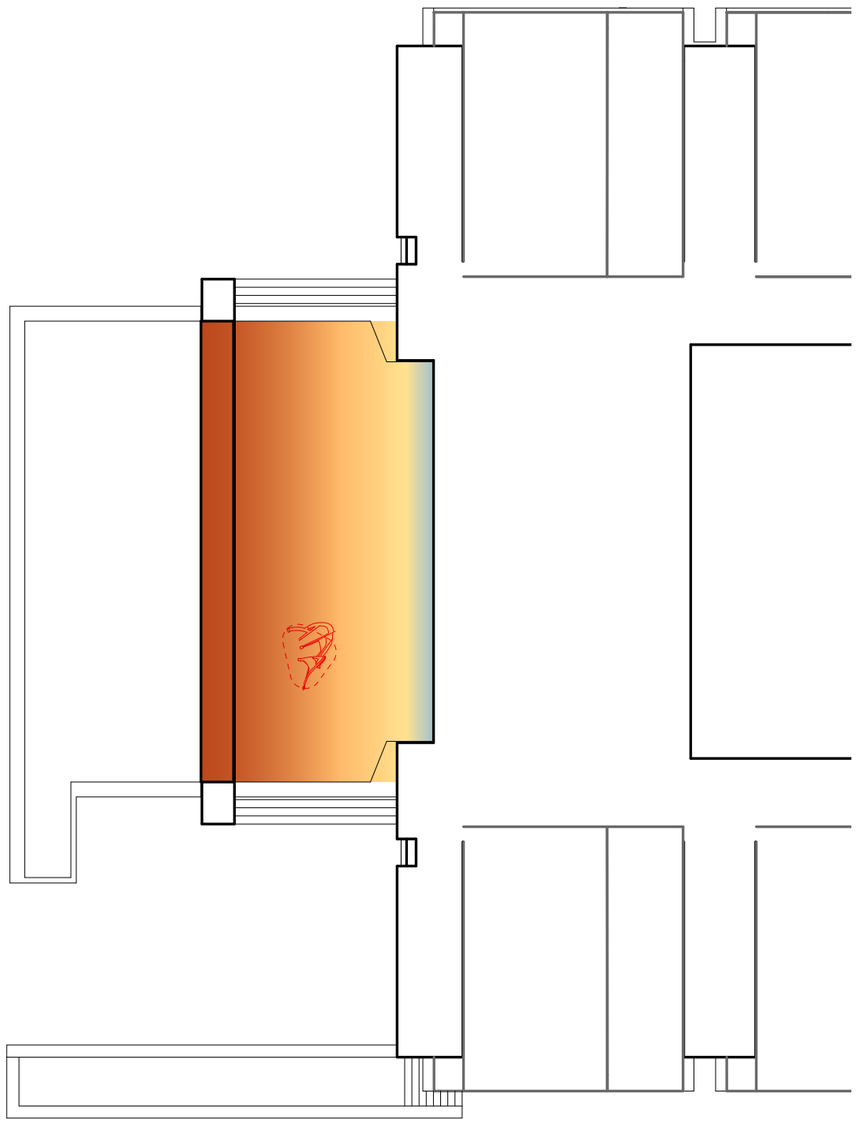


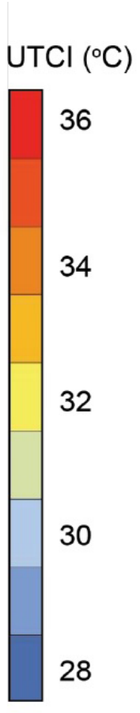
Comfort Map



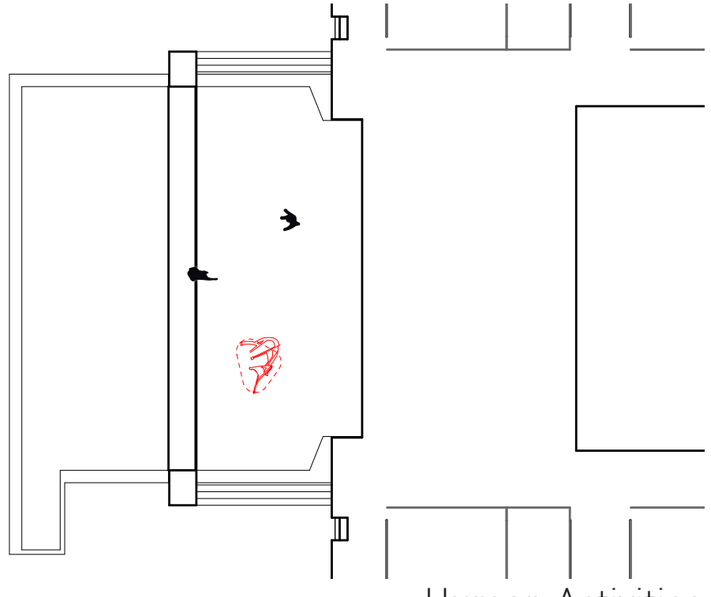
Human Activities

13:00



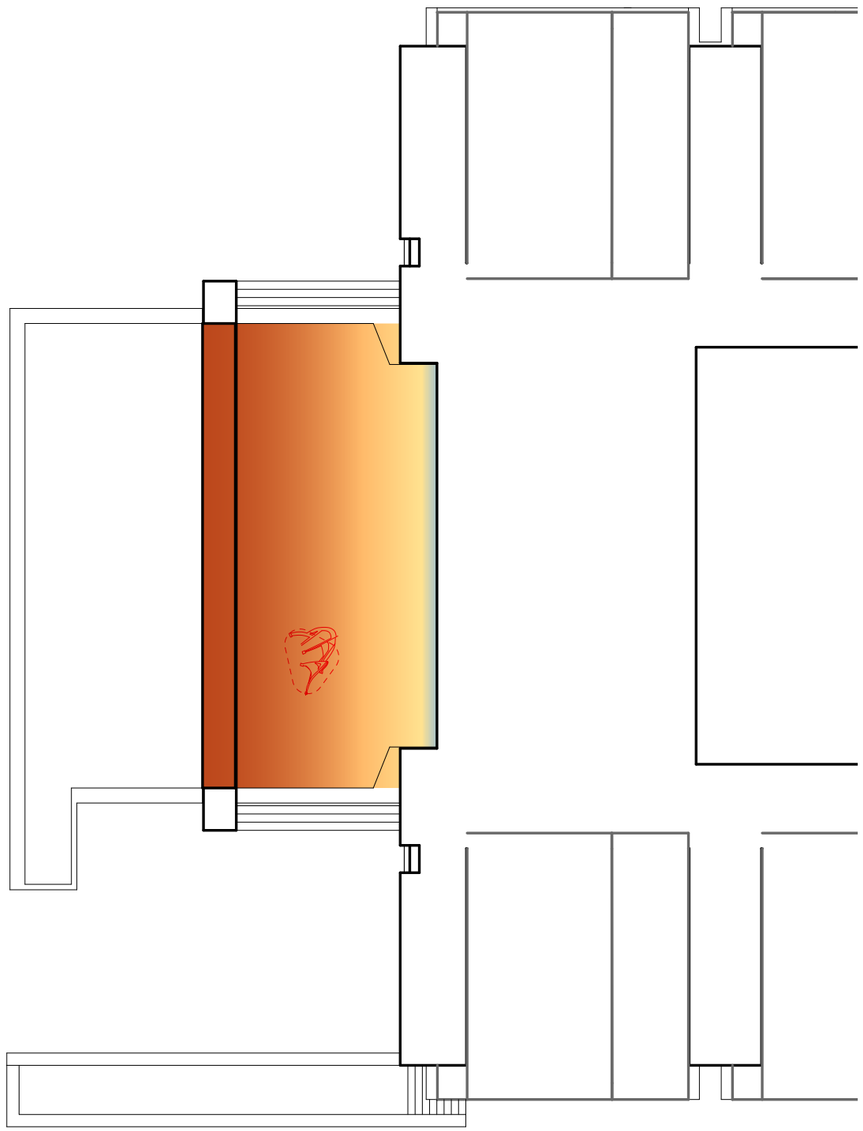


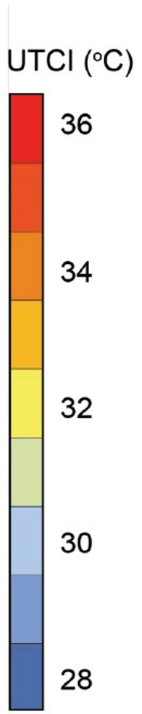
Comfort Map



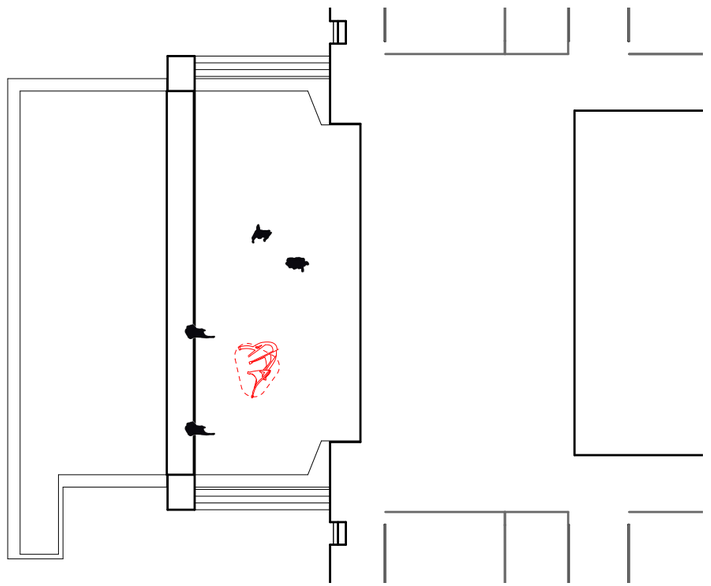
Human Activities

15:00



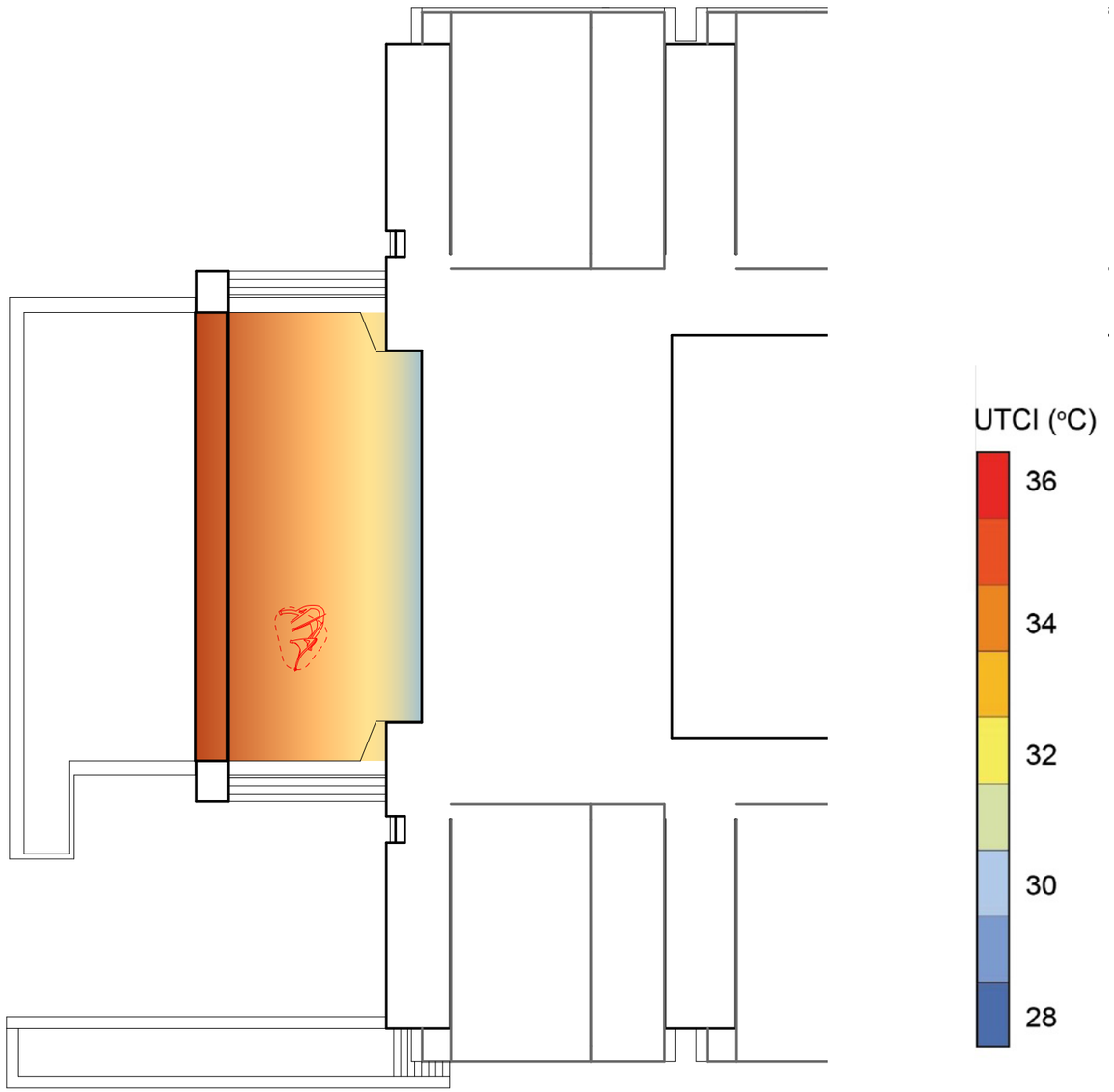


Comfort Map

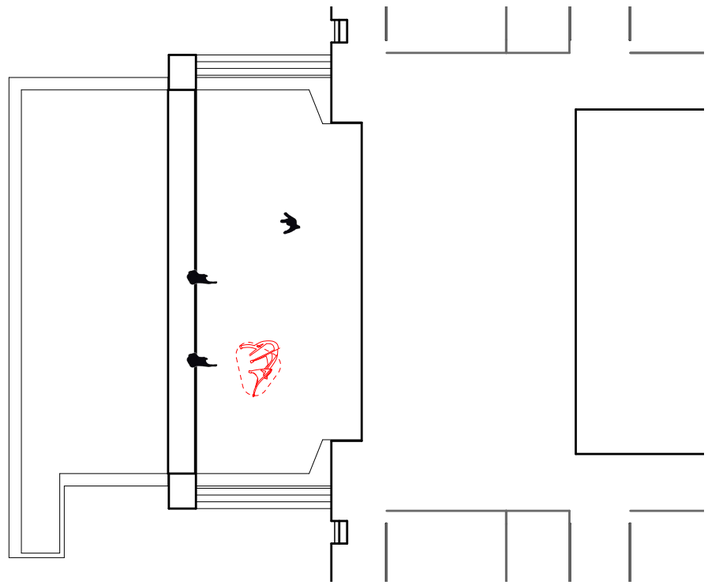


Human Activities

17:00



Comfort Map



Human Activities

Design Proposal

1.Provide sun shading device to this area.

At noon, the temperature of place becomes relatively high and makes people who sit here less comfortable. The shading devices can be used when sunlight is strong and put away when people need more sunlight.

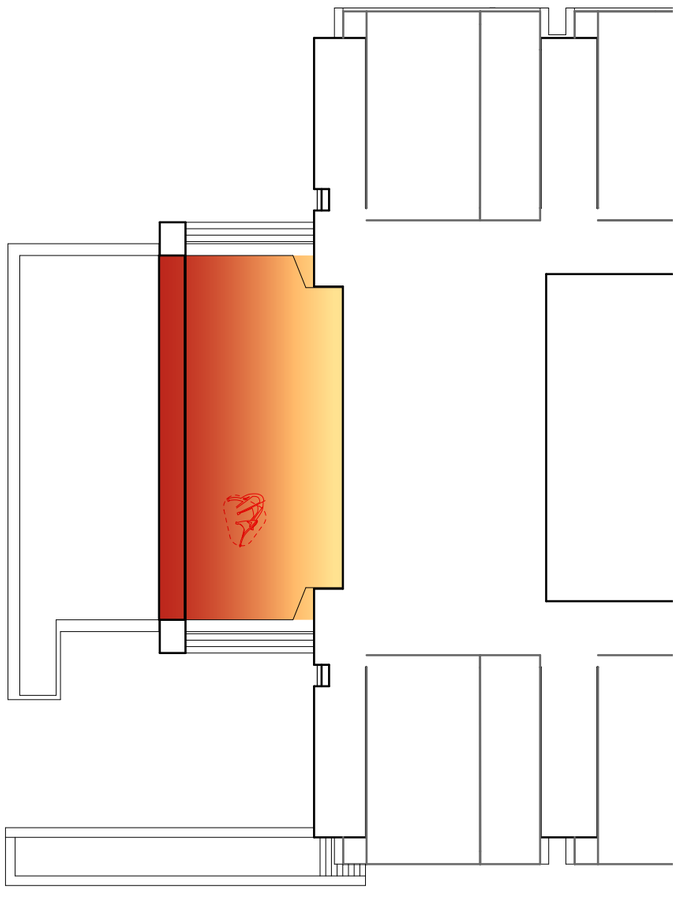
2.Change the material of sitting area from stone to wood.

People go to the site for relaxing and catering. After our investigation, we found that the sitting area which is mostly related to people's daily activities is exposed directly to sunlight and the temperature of the sitting area become very high at noon. Also, according to our analysis the surface will be very cold for people to sit during winter time. Thus, to improve people's comfort, we suggest changing the material of the sitting area surface from stone to wood, a material whose temperature is less likely to be impacted by surrounding areas.

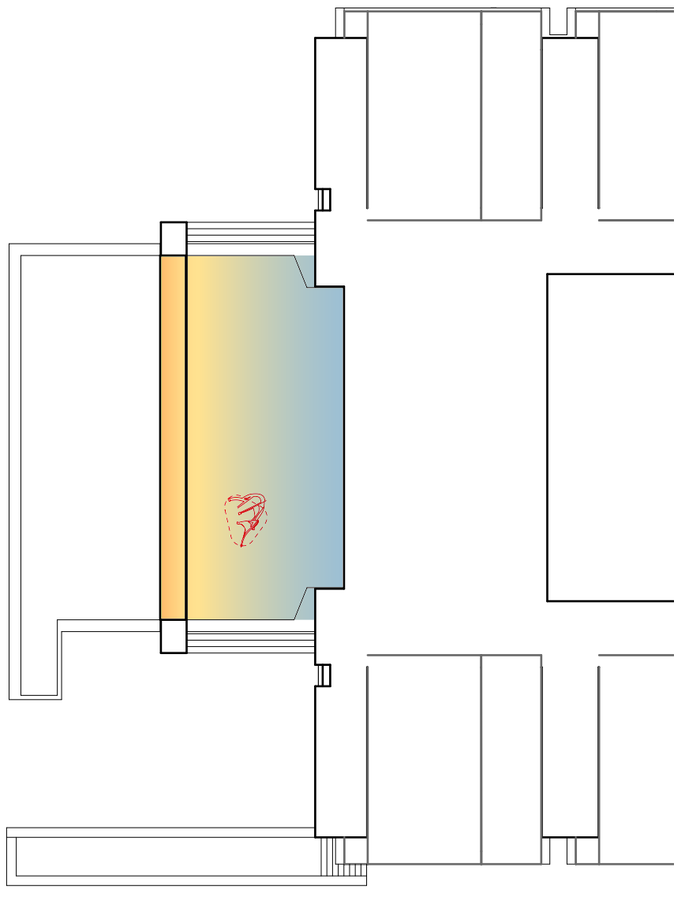
Comparison

There are some minor differences between local weather data, weather file and station weather data in terms of temperature, surface temperature, wind speed, and relative humidity. The temperature, surface temperature and relative humidity that are measured on site are higher compared to the weather file and station weather data, while the wind speed and relative humidity are lower than those.

Prediction



Summer



Winter