

Assignment 3 | Weather Report for Van Pelt Plaza

PennDesign
Environmental Systems I
Fall 2017

[group 10]
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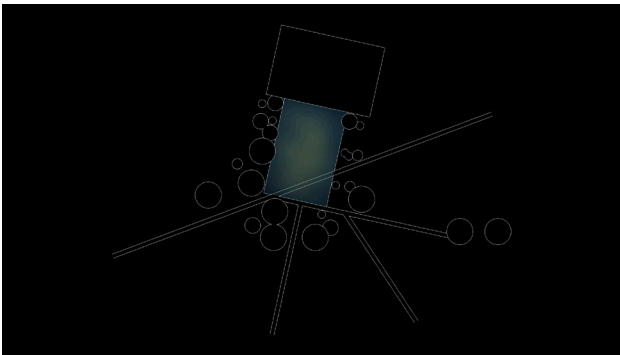


39.87° N | 75.23° W

Sunday, September 17, 2017

10:15 AM

Comfort Map



Activity



Conditions

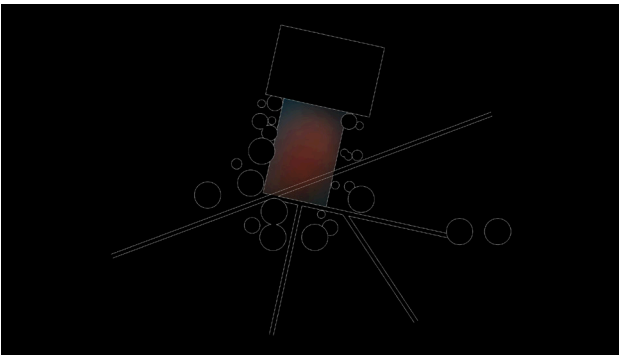


Dry Bulb Air Temperature: 22°
Relative Humidity: 86%
Wind Speed: E 4 mph
Comfort Condition: Feels Like 22°

Measured Air Temperature: 21.4°
Measured Humidity: 88.3%
Wind Speed: 2.1 mph
Comfort Condition: Humid/Comfortable

3:30 PM

Comfort Map



Activity



Conditions

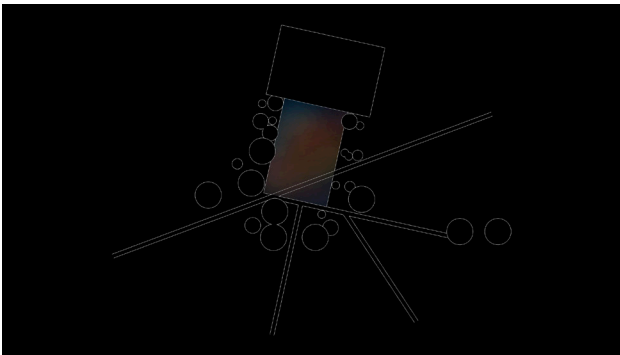


Dry Bulb Air Temperature: 27°
Relative Humidity: 62%
Wind Speed: E 9 mph
Comfort Condition: Feels Like 28°

Measured Air Temperature: 26.3°
Measured Humidity: 66.2%
Wind Speed: 4.25 mph
Comfort Condition: Comfortable

7:15 PM

Comfort Map



Activity



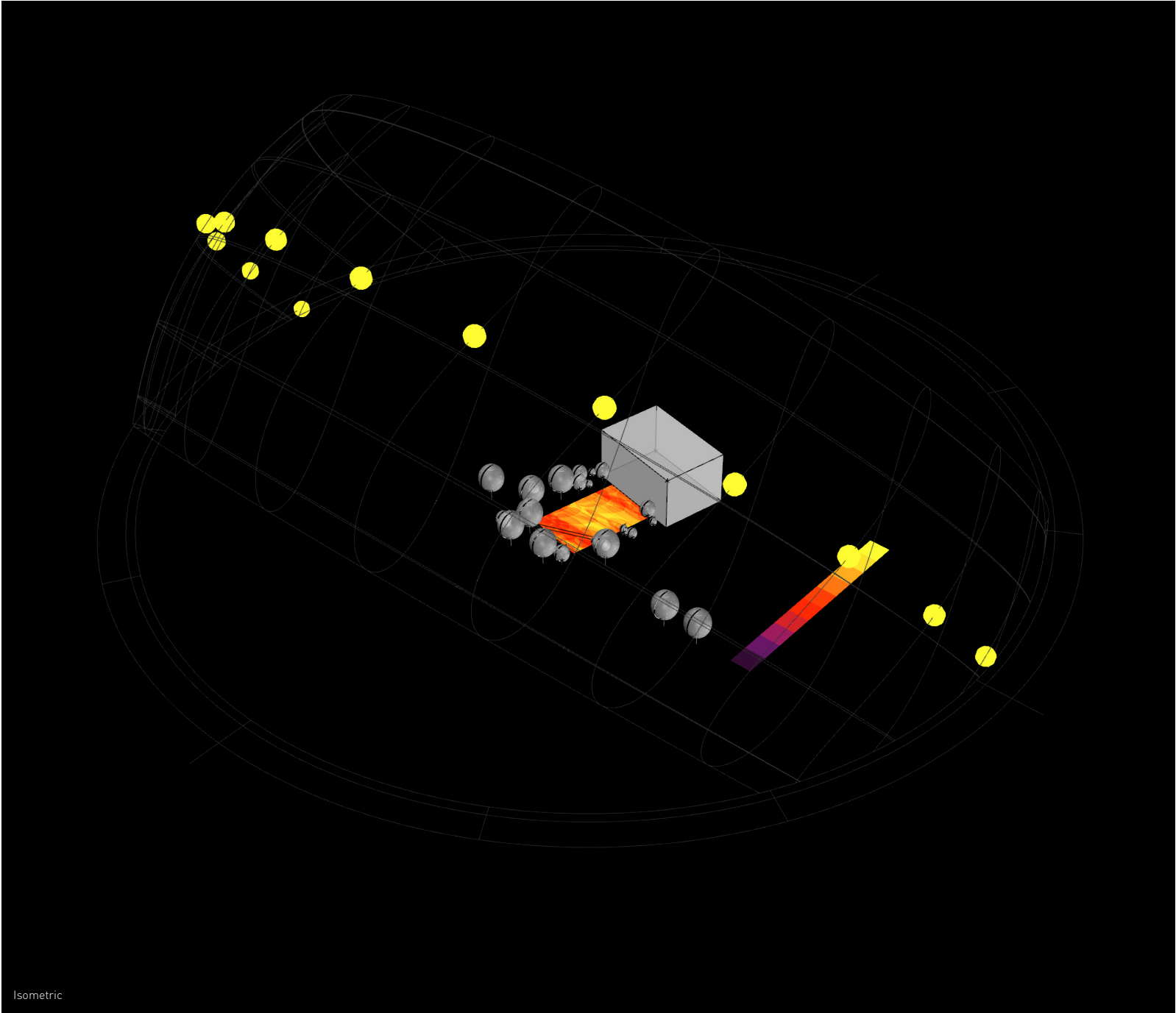
Conditions



Dry Bulb Air Temperature: 25°
Relative Humidity: 72%
Wind Speed: ESE 6 mph
Comfort Condition: Feels Like 25°

Measured Air Temperature: 23.6°
Measured Humidity: 75.6%
Wind Speed: 0.44 mph
Comfort Condition: Comfortable

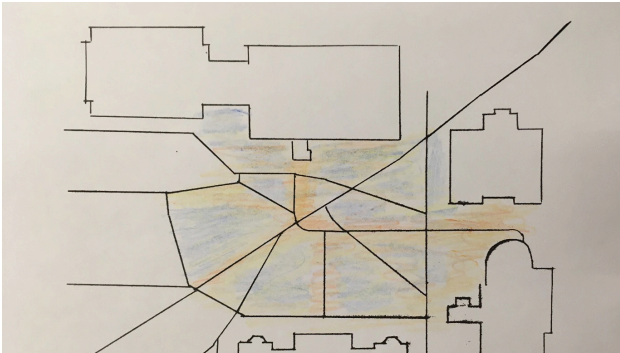
Sunlight Hour Analysis



Monday, September 11, 2017

12:00 PM

Comfort Map



Activity



Conditions



Dry Bulb Air Temperature: 22°
Relative Humidity: 38%
Wind Speed: E 4 mph
Comfort Condition: Feels Like 22°

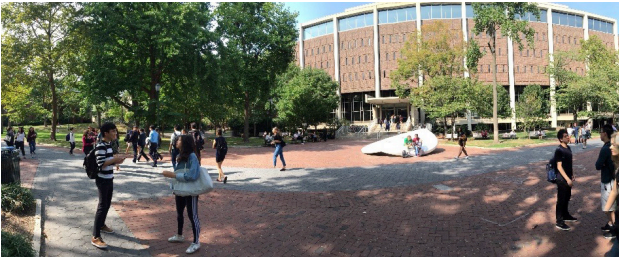
Measured Air Temperature: 22.8°
Measured Humidity: 38.8%
Wind Speed: 3.1 mph
Comfort Condition: Comfortable

3:00 PM

Comfort Map



Activity



Conditions

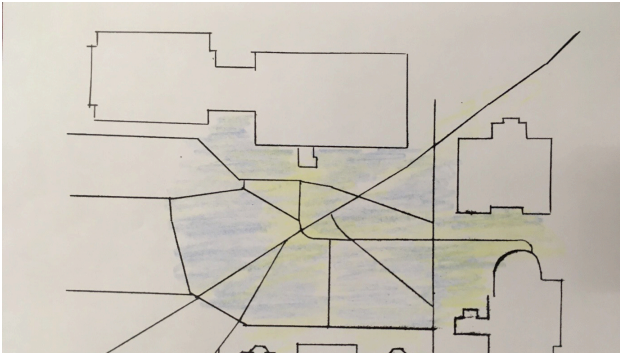


Dry Bulb Air Temperature: 24°
Relative Humidity: 30%
Wind Speed: E 6 mph
Comfort Condition: Feels Like 24°

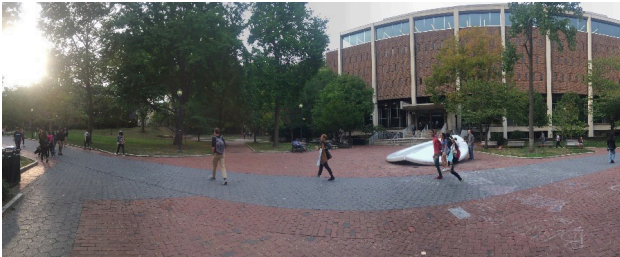
Measured Air Temperature: 24.4°
Measured Humidity: 31.6%
Wind Speed: 1.5 mph
Comfort Condition: Comfortable

6:00 PM

Comfort Map



Activity



Conditions



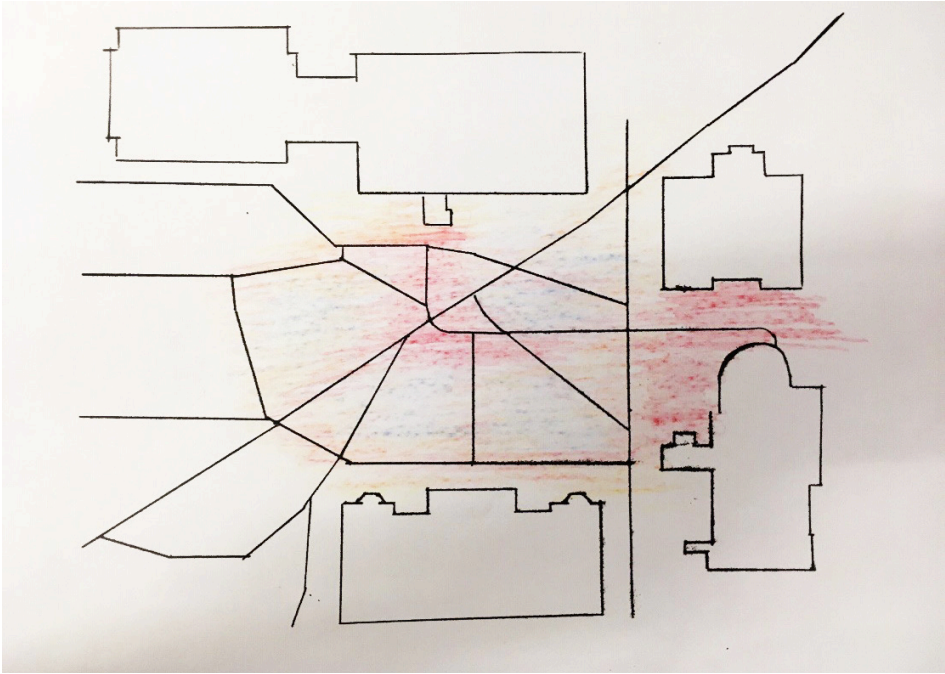
Dry Bulb Air Temperature: 24°
Relative Humidity: 57%
Wind Speed: ESE 6 mph
Comfort Condition: Feels Like 25°

Measured Air Temperature: 20.6°
Measured Humidity: 59.1%
Wind Speed: 4.6 mph
Comfort Condition: Comfortable

Comfort Map Prediction

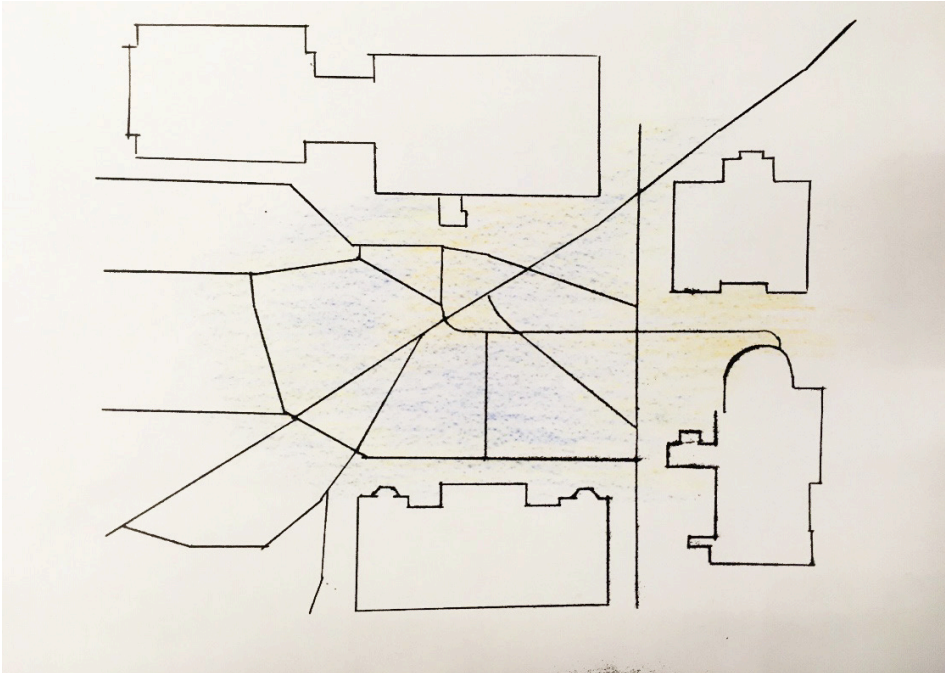
Summer

Comfort Map



Winter

Comfort Map



Design Proposals

- [1] Plant more trees that make shade on the plaza.
- [2] Change the paving into material that does not absorb so much heat (eg. grass) or incorporate water on the site.

Data Analysis

There were some differences in the data. First, the wind speed tends to be lower than the typical data. It may be because of the buildings and trees around the plaza which block wind. Second, the temperature had a difference in the afternoon. The temperature on 3pm was higher, and the temperature on 6pm was lower compared to the ones from the weather app. It is probably because of the pavement of the surface. The brick pavement tends to heat up and cool down fast. So, in 3pm the temperature became higher than the temperature from the airport and in 6pm, when the sun went down, the temperature was lower.