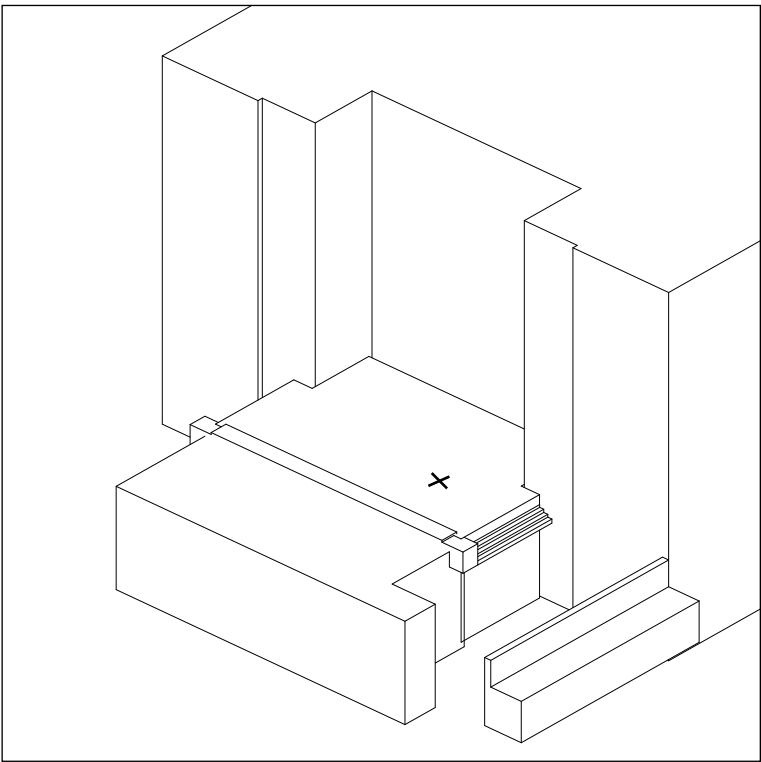


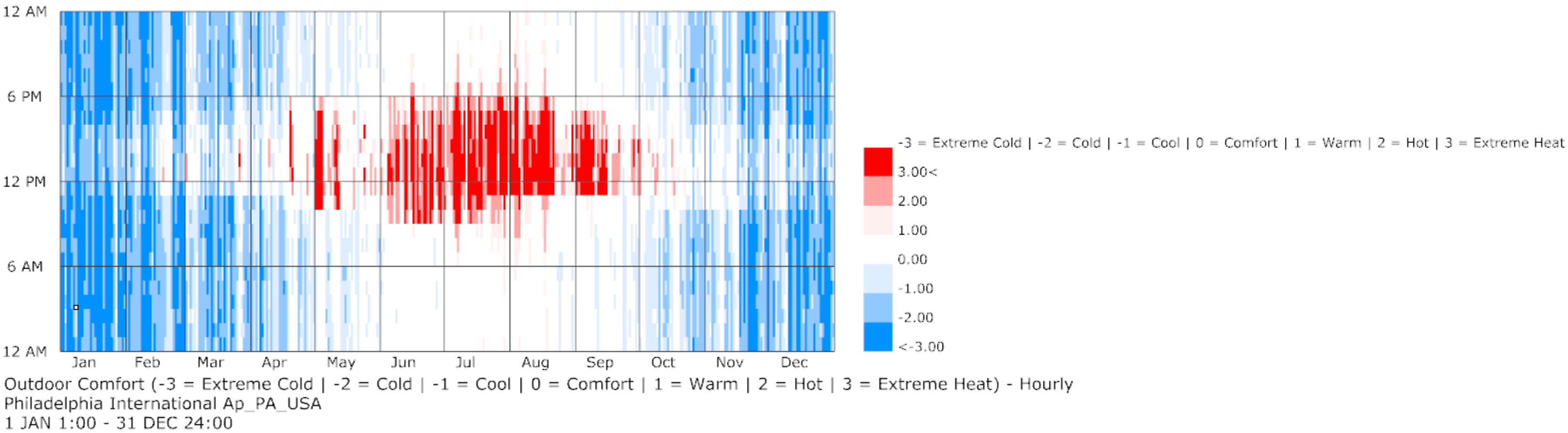
ENVIRONMENTAL SYSTEMS I

ASSIGNMENT 5: Meyerson Hall Outdoor Space Annual Comfort Map

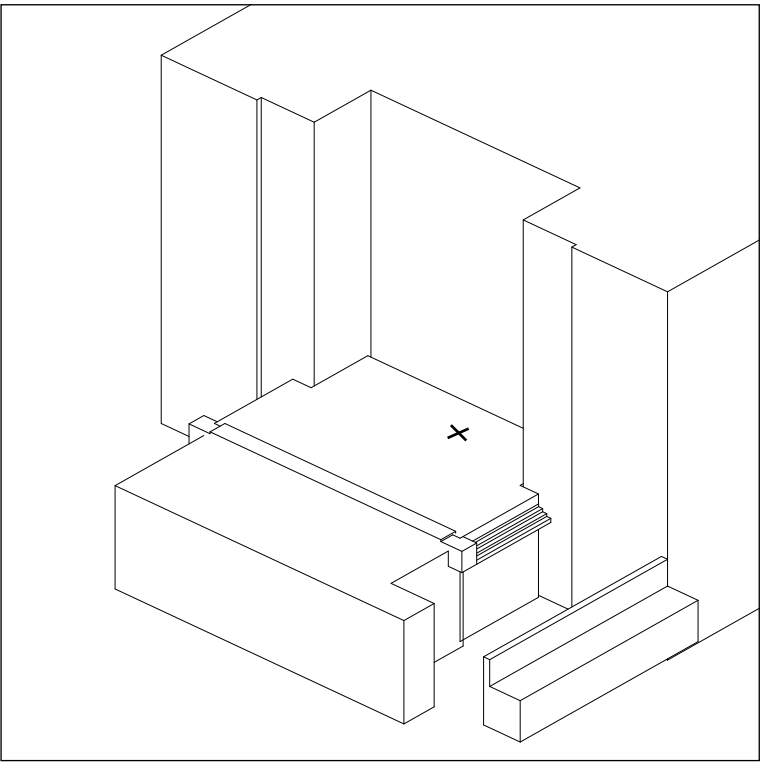
Bingyu Wang



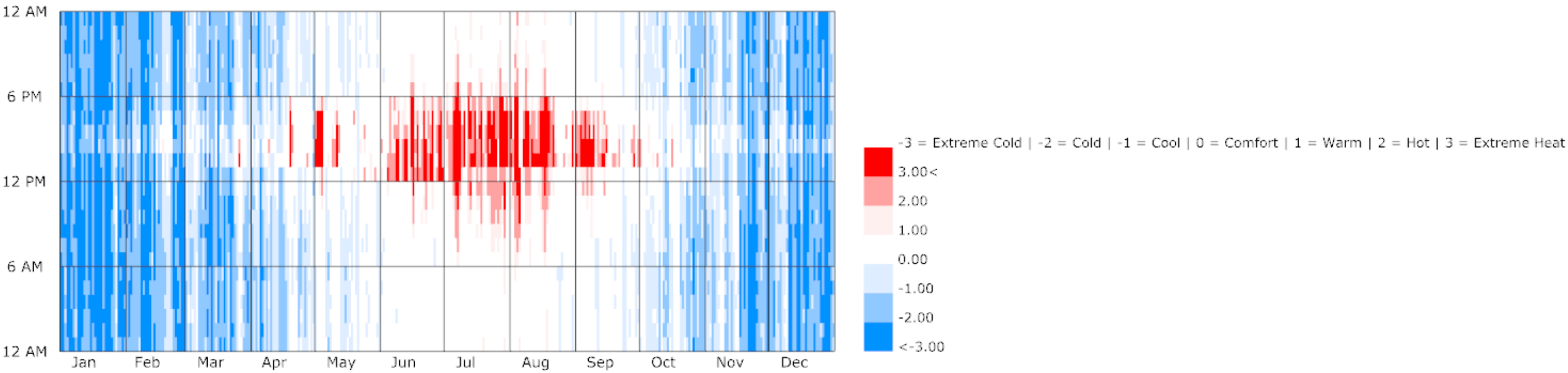
Location: Philadelphia
Comfortable Hours over the Year
= Percentage of Comfortable Hours/Year x Total Hours/Year
= 38.54 % x 8760
= 3376.10 hours



Comfortable: 38.54%; Short period comf.: 19.36%; Heat stress: 8.84%; Cold stress: 33.26%

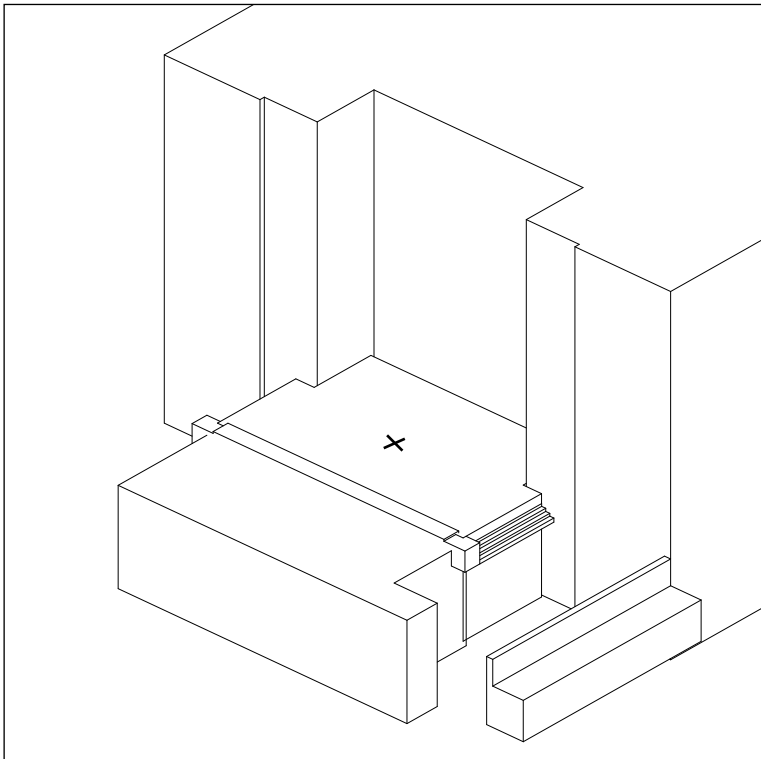


Location: Philadelphia
Comfortable Hours over the Year
= Percentage of Comfortable Hours/Year x Total Hours/Year
= 39.42 % x 8760
= 3453.20 hours

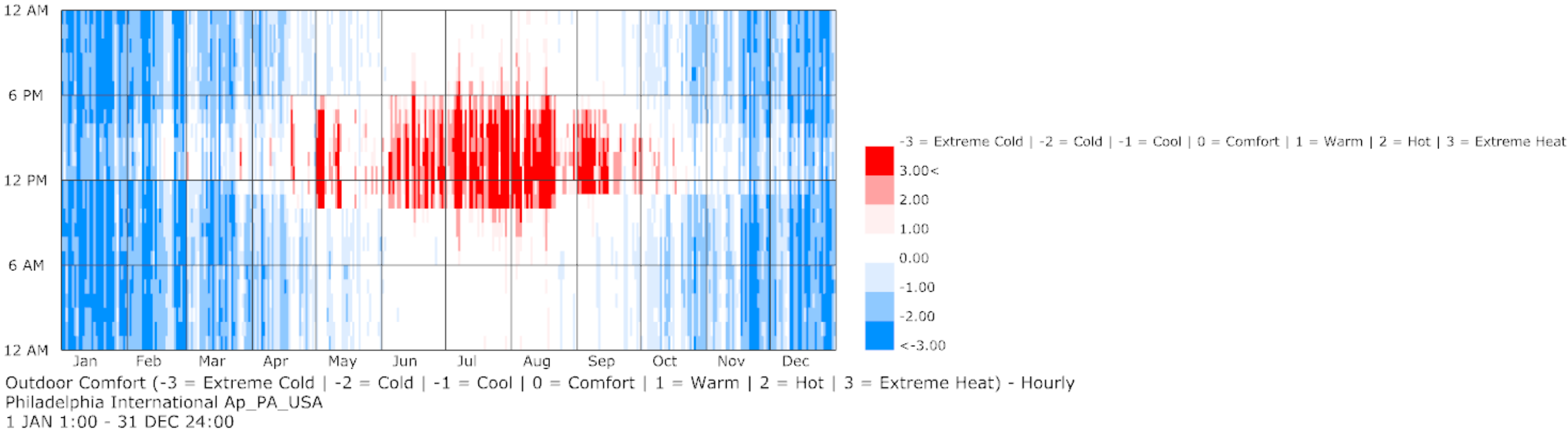


Outdoor Comfort (-3 = Extreme Cold | -2 = Cold | -1 = Cool | 0 = Comfort | 1 = Warm | 2 = Hot | 3 = Extreme Heat) - Hourly
Philadelphia International Ap_PA_USA
1 JAN 1:00 - 31 DEC 24:00

Comfortable: 39.42%; Short period comf.: 20.25%; Heat stress: 6.08%; Cold stress: 34.25%



Location: Philadelphia
Comfortable Hours over the Year
= Percentage of Comfortable Hours/Year x Total Hours/Year
= 38.46 % x 8760
= 3369.10 hours



Comfortable: 38.46%; Short period comf.: 19.5%; Heat stress: 8.54%; Cold stress: 33.5%

Analysis of Factors Affecting Comfort Based on Location Selection

1. My thinking process in terms of the location selection is that whether the surrounding building will affect the outdoor comfort level on the space. Location 1 and 2 are contrasting to each other, as one is close to the adjacent building and nearly touches it as the other one stands a little far away from the adjacent building. The third location is in the middle ground of the first two locations. It has equal distance to the surrounding building and the platform.
2. In my understanding, the best location would be the one that makes people most comfortable which means that it has the highest amount of comfortable hours during the year. In reverse, the worst location would be the one that least likely to make people feel comfortable.
3. The parameters are relative humidity, drybulb temperature, windspeed and mean radiant temperature. The location selection is affecting the solar adjustment temperature which is affecting the mean radiant temperature. When the location is more close to the adjacent building which is the Meyerson Hall building, it is more protected from sun radiation because the building is blocking the sun radiation and creates shadow for the location. Therefore, the more close the location is to the building, the more comfortable the people feel.
4. The main limitation of current method is that we assume the data collected on the site is exactly the same as the one on the weather report. However, the data collected on the weather report is over the whole region of Philadelphia, so there might be difference between the on-site data and weather data and that's where the limitation is.