

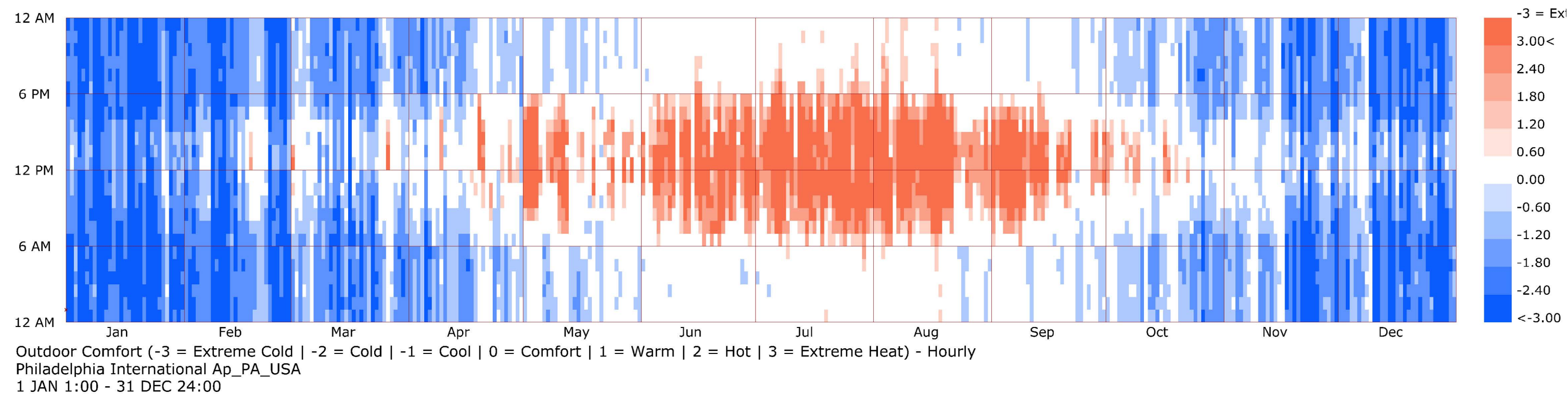
Assignment 2 Outdoor Comfort Report of Philadelphia

Outdoor Comfort (UTCI)

In Philadelphia,

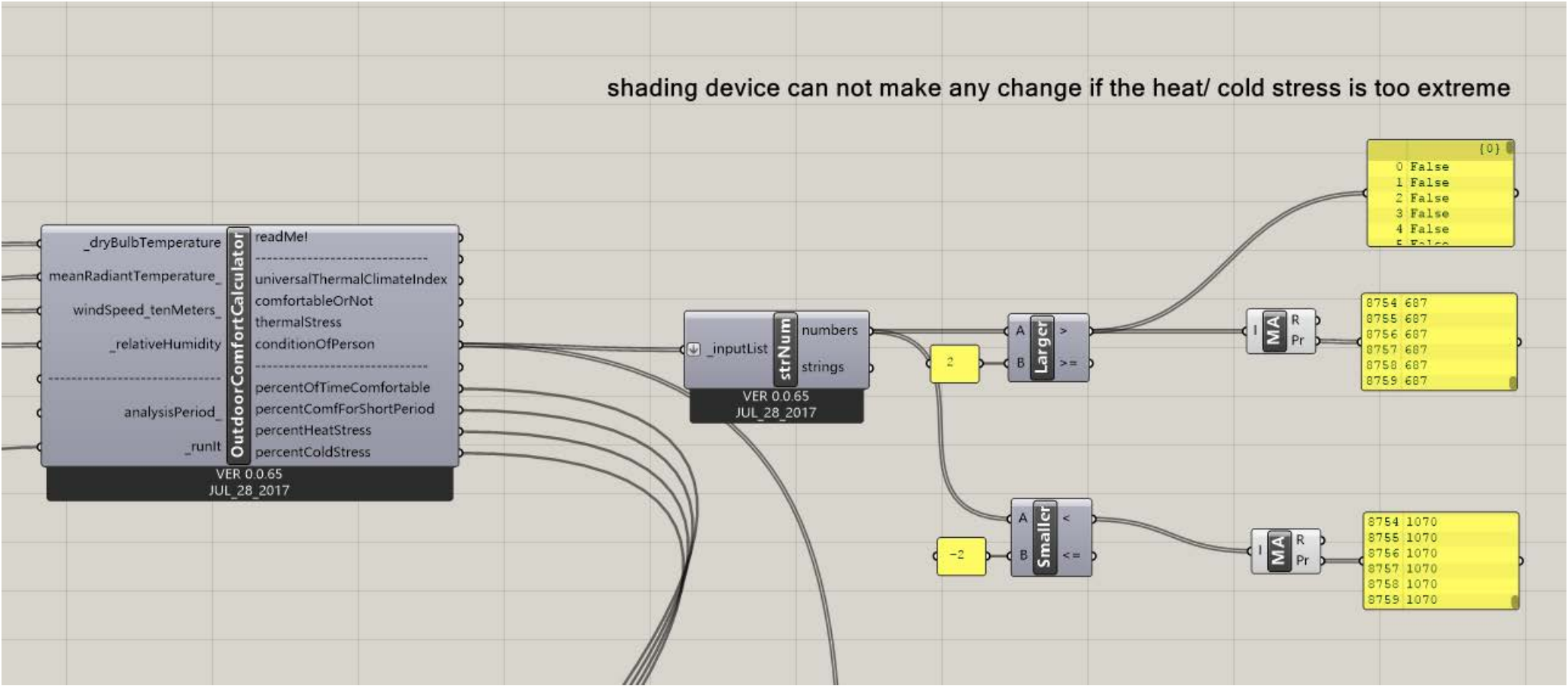
- the percentage of time with no thermal stress: 37%
- the percentage of time with slight heat/ cold: 19%
- the percentage of moderate to extreme heat stress: 12%
- the percentage of moderate to extreme cold stress: 32%

In Philadelphia, it is cold and uncomfortable in winter (from November to March). It is comfortable in April, May, September and October. From June to August, it is usually extremely hot during daytime, but is comfortable at night. So, the heating device in winter and shading device in summer is necessary for a comfortable room.



If you have a smart shading device...

By being exposed more to the sun radiation in winter and using shading device in summer, the percentage of comfortable time will be increased.



Percentage of comfortable time after using smart shading device: $1 - (687 + 1070) / 8760 * 100\% = 80\%$

Percentage of comfortable time before using smart shading device: $37\% + 19\% = 56\%$

Percentage improved by smart shading device: $80\% - 56\% = 24\%$