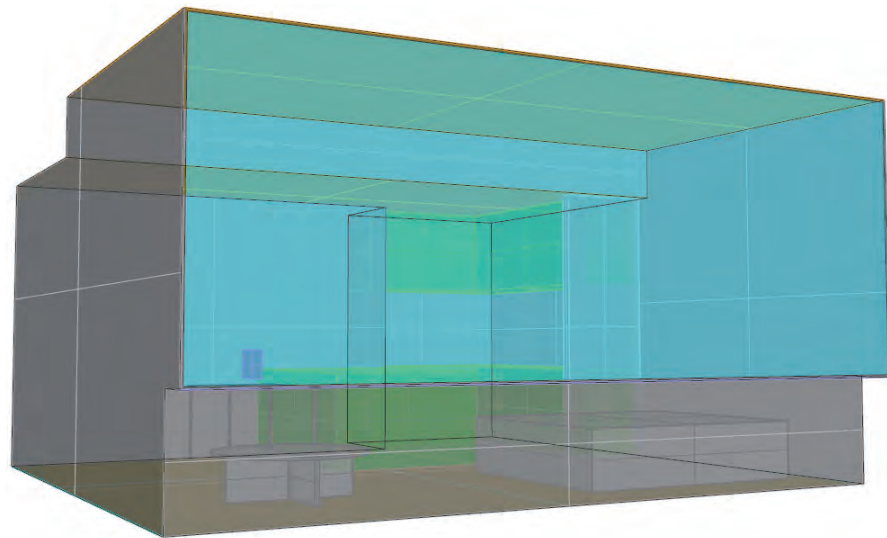


# Cylinders Shading \_natural ventilation

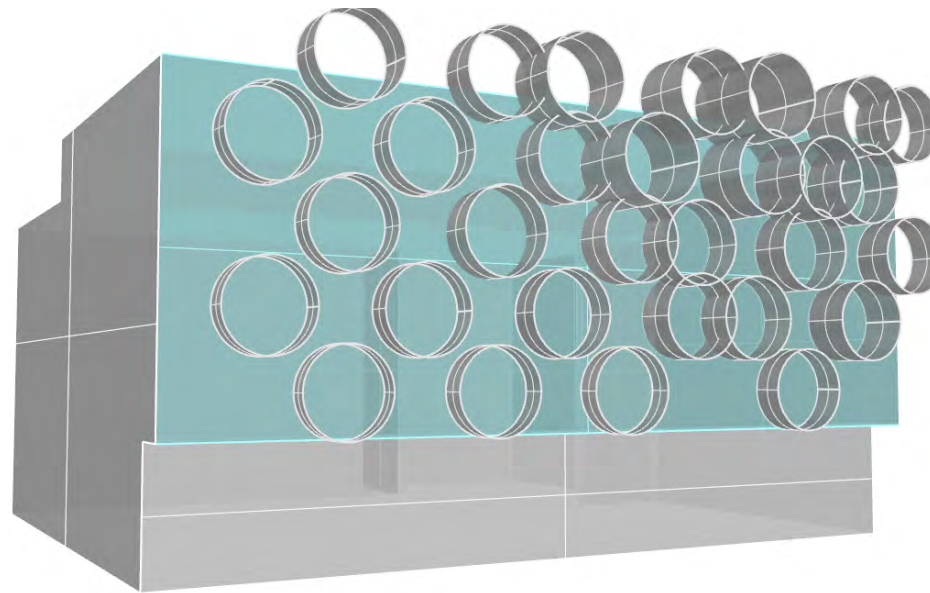
Arch753\_energy stimulation2\_Shin Yi Kwan

Base case



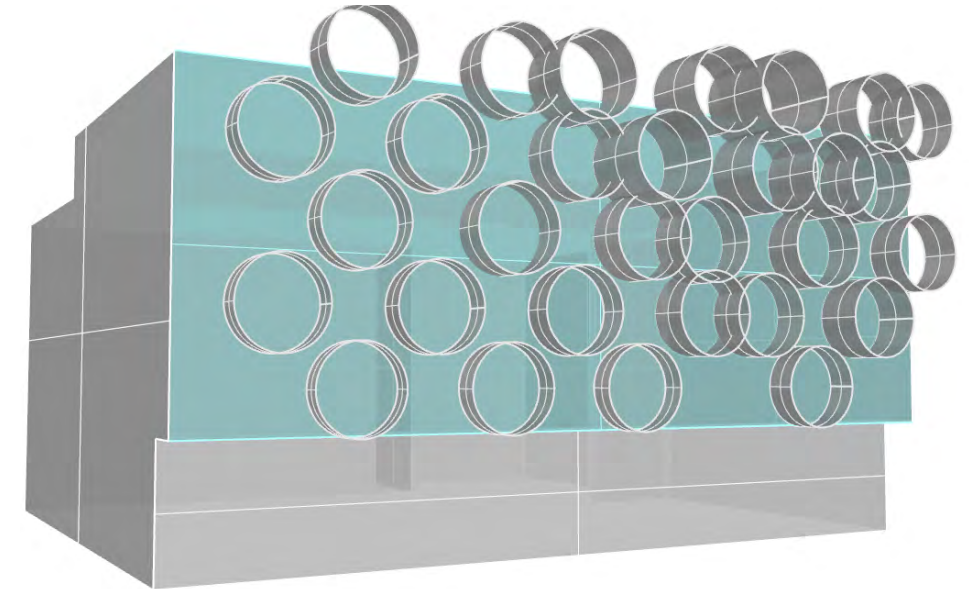
Comfortable based on PMV 8.25%  
Comfortable based on Adaptive Comfort 7.92%

Shading design case1



Comfortable based on PMV 8.9%  
Comfortable based on Adaptive Comfort 19.0%

Shading design case with  
(window based natural ventilation)



Comfortable based on PMV 39.1%  
Comfortable based on Adaptive Comfort 69.9%

+assign infiltration and lighting schedule

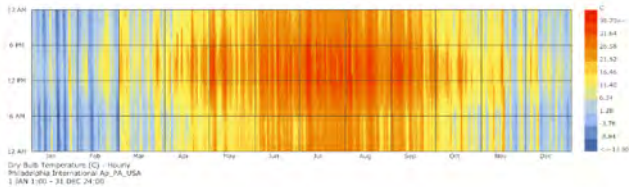
Comfortable based on PMV 47.7%  
Comfortable based on Adaptive Comfort 71.6%

+adjust natural ventilation threshold

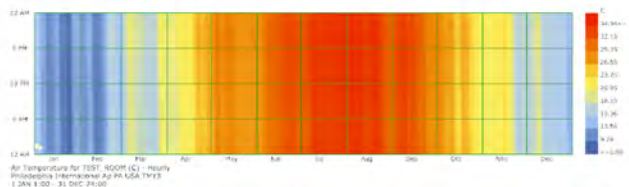
Comfortable based on PMV 38.3%  
Comfortable based on Adaptive Comfort 77.3%



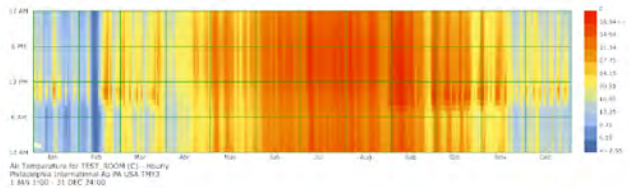
Air and Radiant temperature



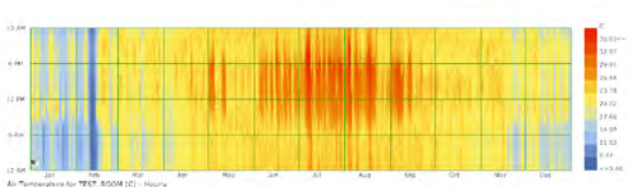
DryBulb temperature



Base case

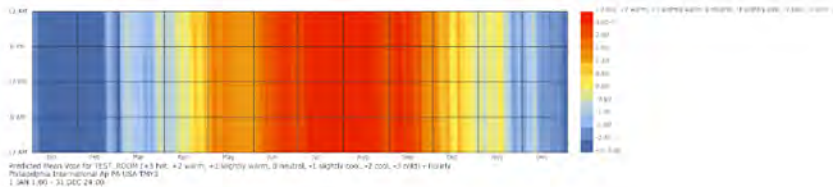


Design case

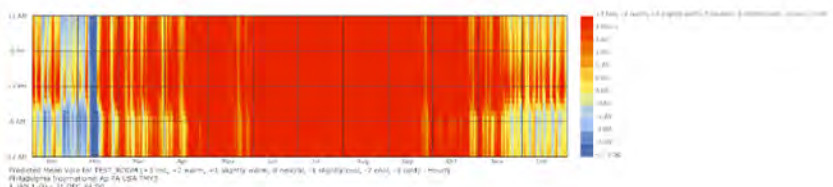


Design case\_  
window based natural vntilation

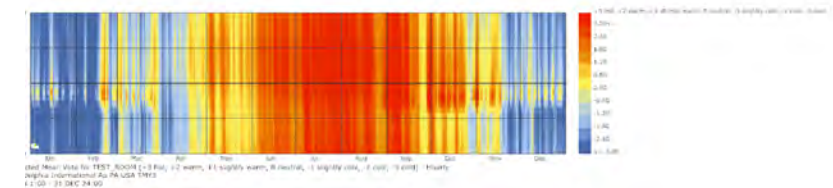
PMV comfort and Adaptive Comfort



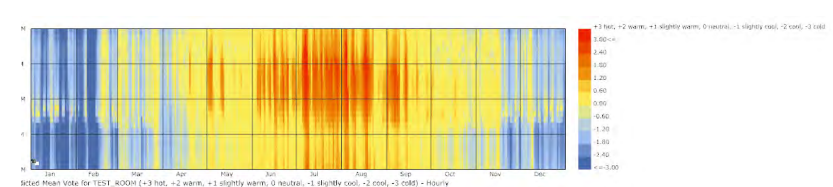
Base case\_o transmittance window



Base case

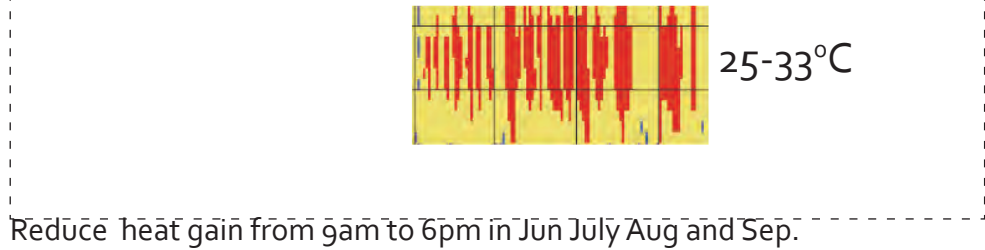
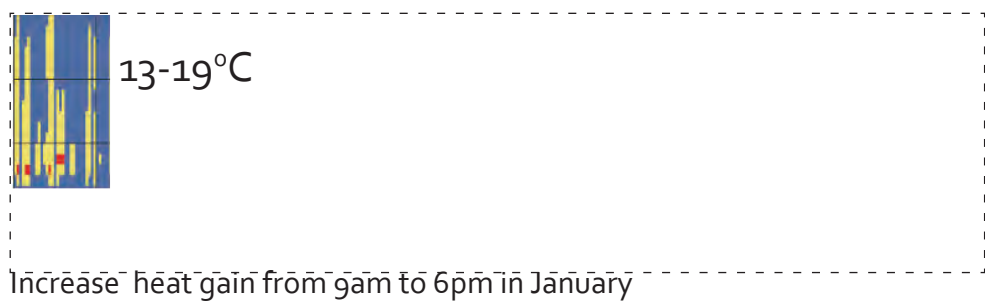
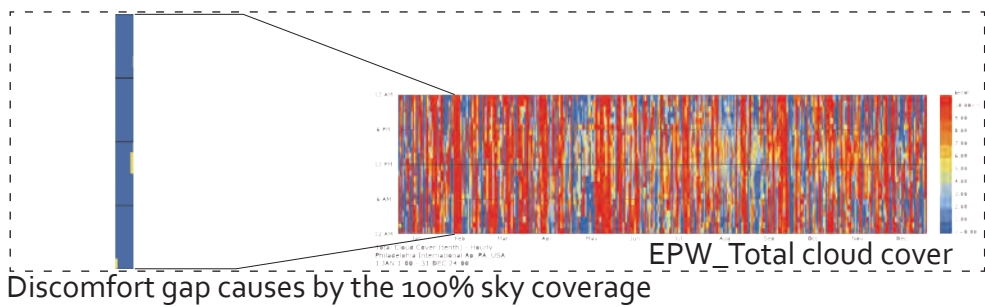
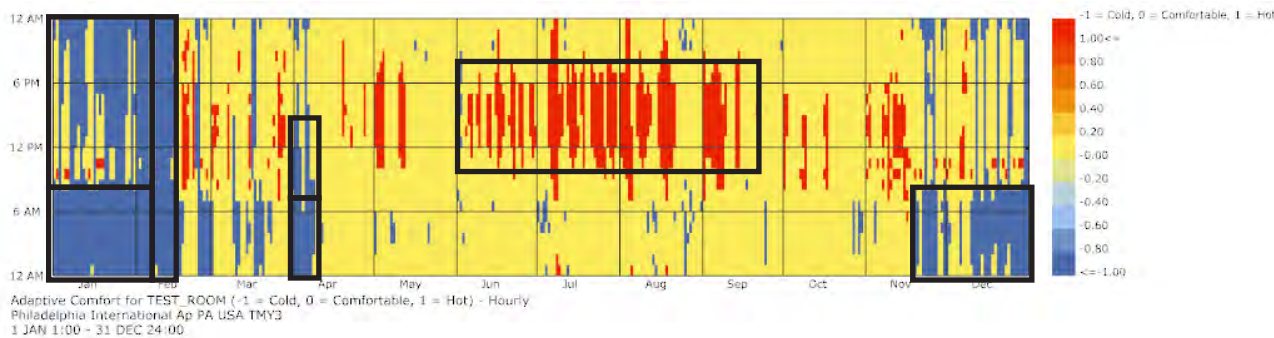


Design case



Design case\_  
window based natural vntilation

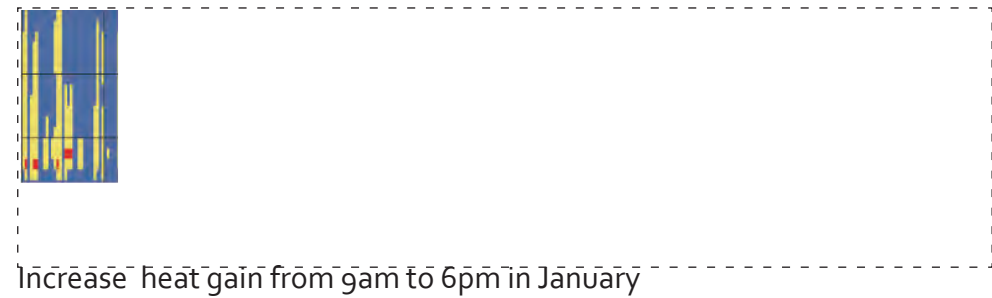
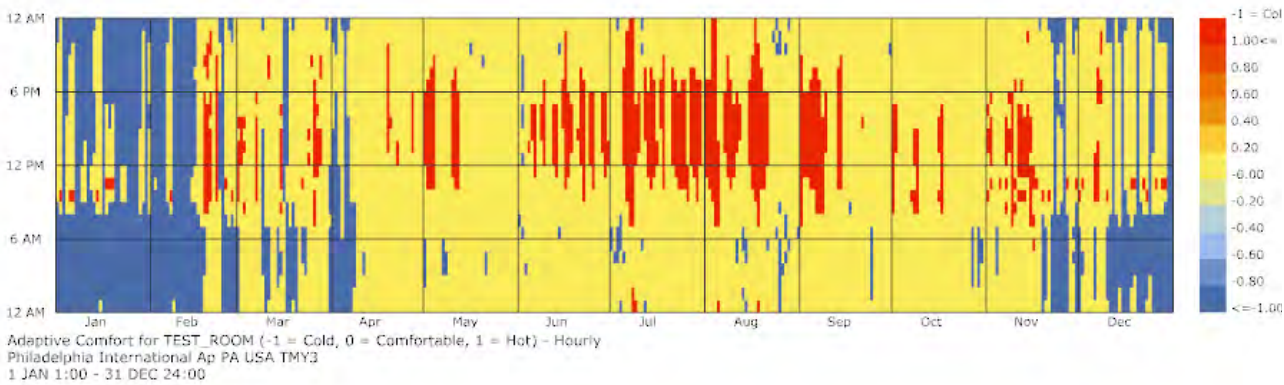
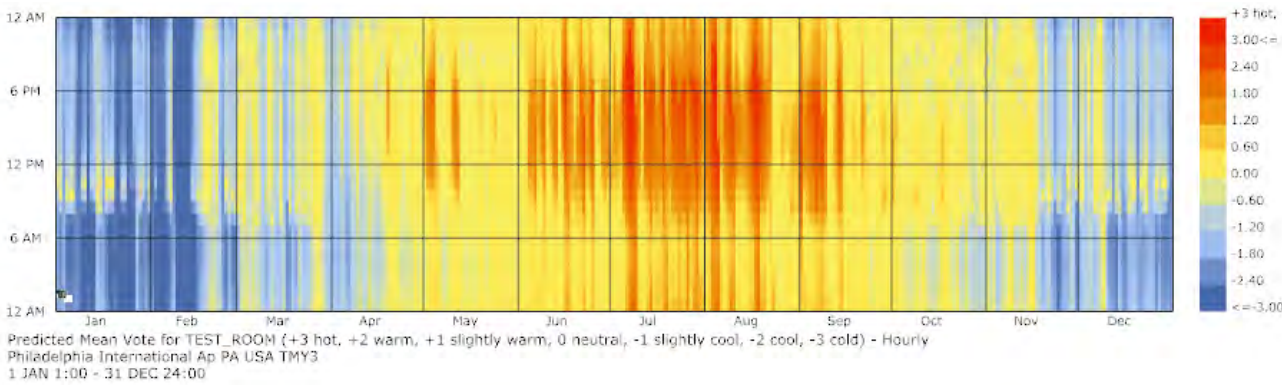
Adaptive Comfort Design case\_window based natural vntilation





PMV comfort and Adaptive Comfort

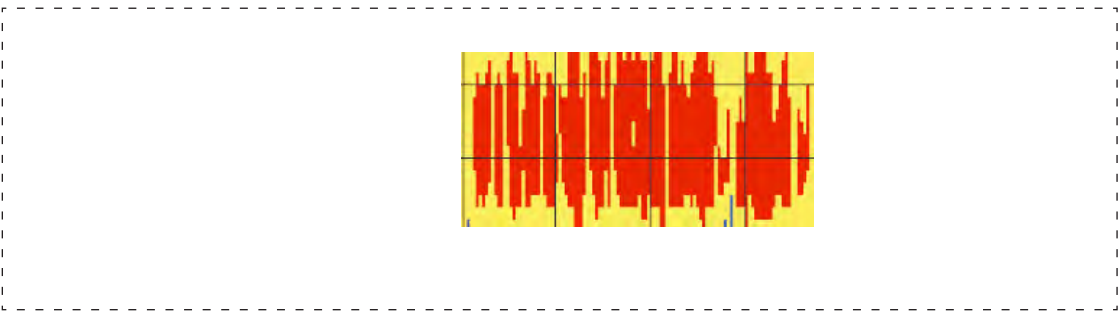
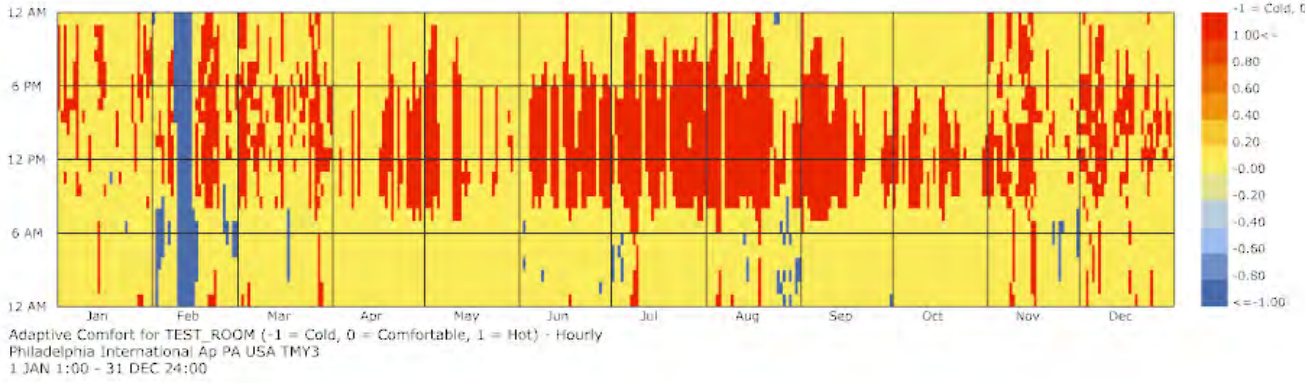
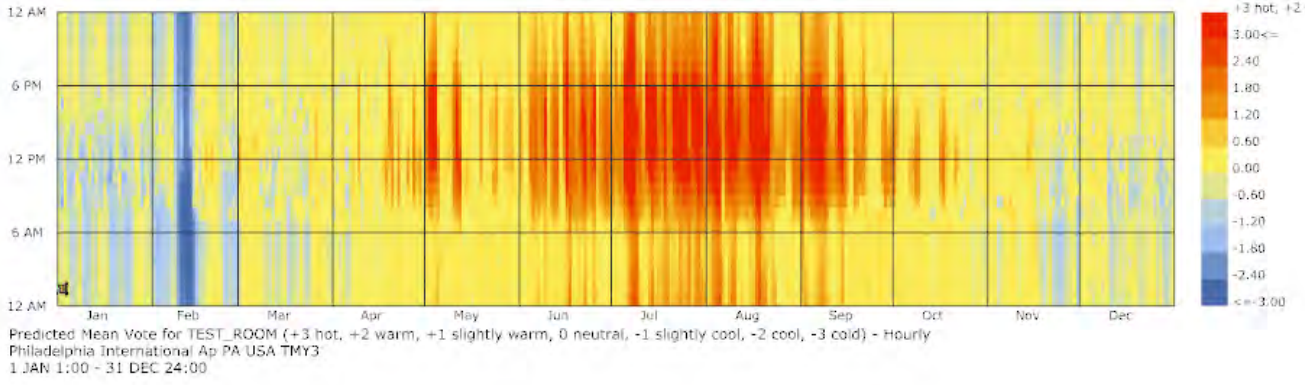
Design case\_window based natural vntilation



Adjustion:

- 1.assign lighting and infiltration schedule in Jan and Dec
2. change infiltration rate 0.0015 m<sup>3</sup>/sm<sup>2</sup>  
lighting density 15w/m<sup>2</sup>

Design case\_window based natural vntilation  
lighting and infiltration in Jan and Dec

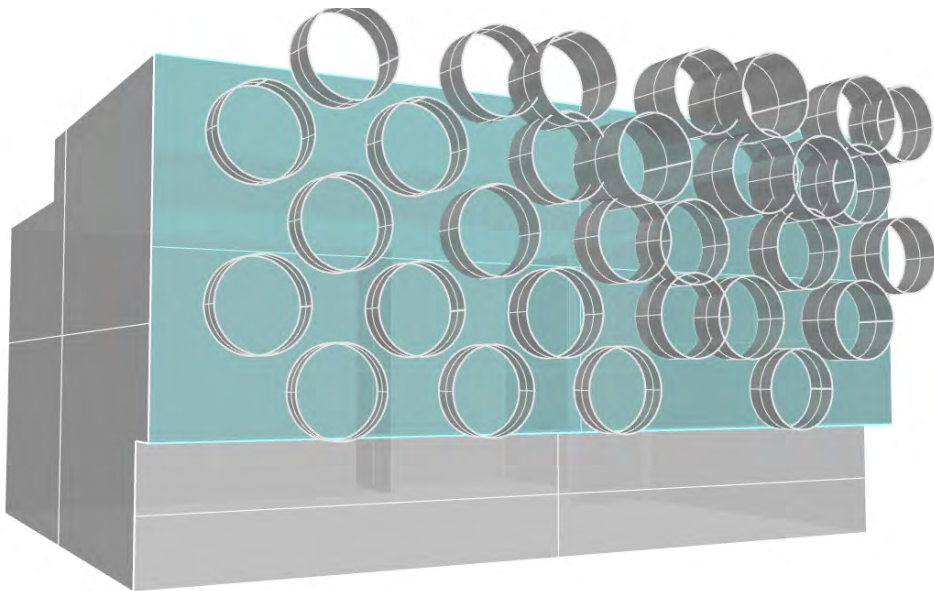


Adjustion:

1. change minIndoortemp from 24 to 23°C  
maxOutdoortemp from 28 to 30°C



Shading design case with  
(window based natural ventilation)



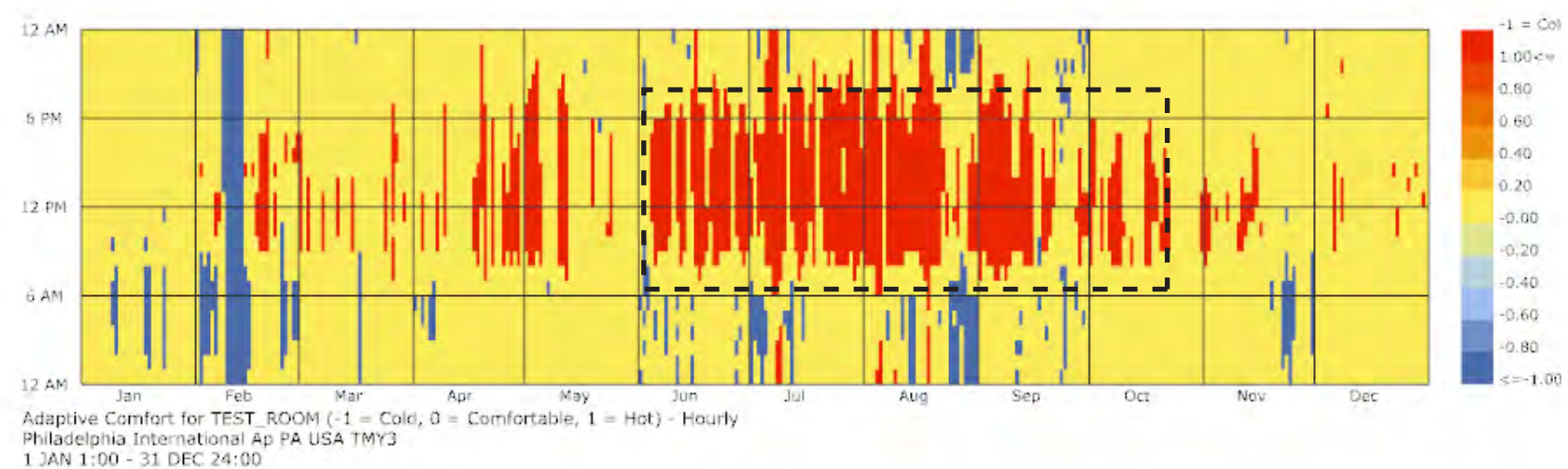
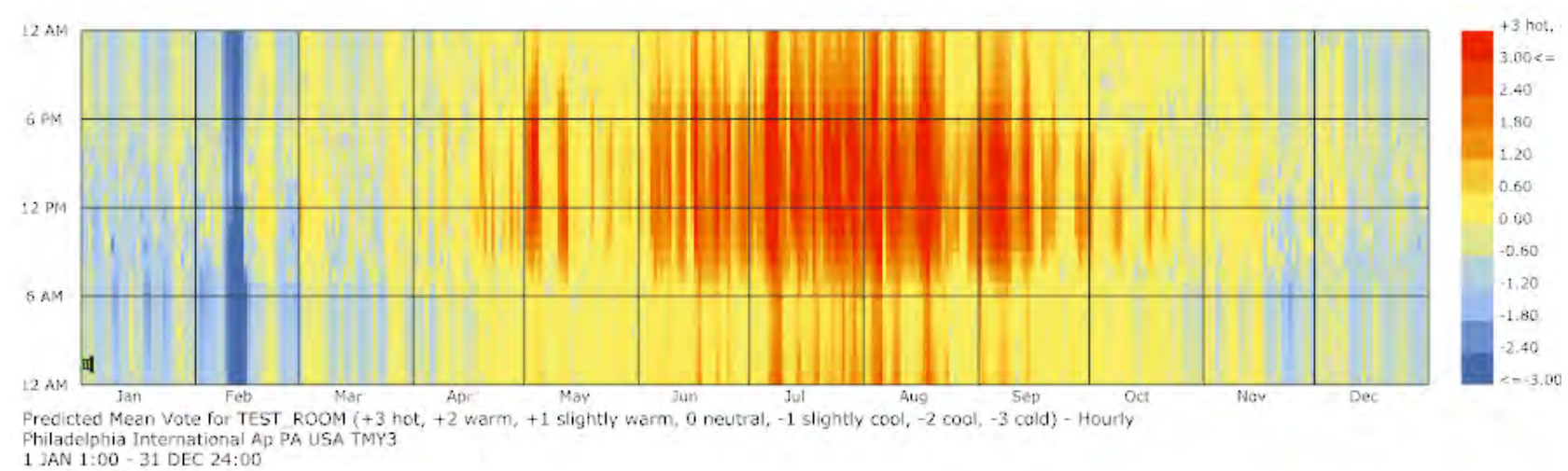
Comfortable based on PMV 39.1%  
Comfortable based on Adaptive Comfort 69.9%

+assign infiltration and lighting schedule  
Comfortable based on PMV 47.7%  
Comfortable based on Adaptive Comfort 71.6%

+adjust natural ventilation threshold

Comfortable based on PMV 38.3%

Comfortable based on Adaptive Comfort 77.3%



lighting and infiltration schedule in Jan and Dec  
Infiltration rate 0.0015 m<sup>3</sup>/sm<sup>2</sup>  
lighting density 15w/m<sup>2</sup>  
MinIndoor temp from 24 to 23°C  
MaxOutdoor temp from 28 to 30°C