

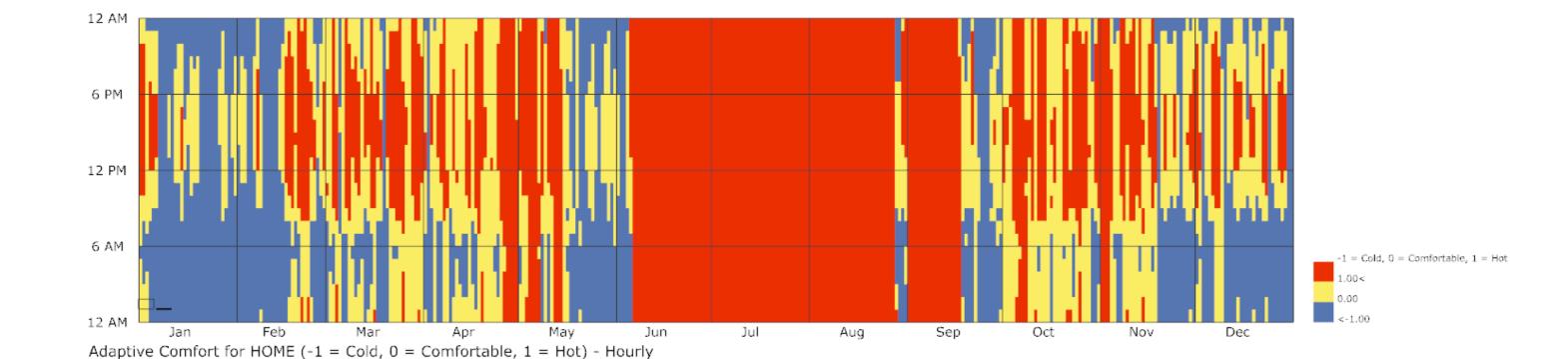
## INFILTRATION

# CONDUCTION

\_\_naturalVentilationType
minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
maxOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent\_

airflowrate = 1

material: default



comfortable%:28.013699

Philadelphia International Ap PA USA TMY3

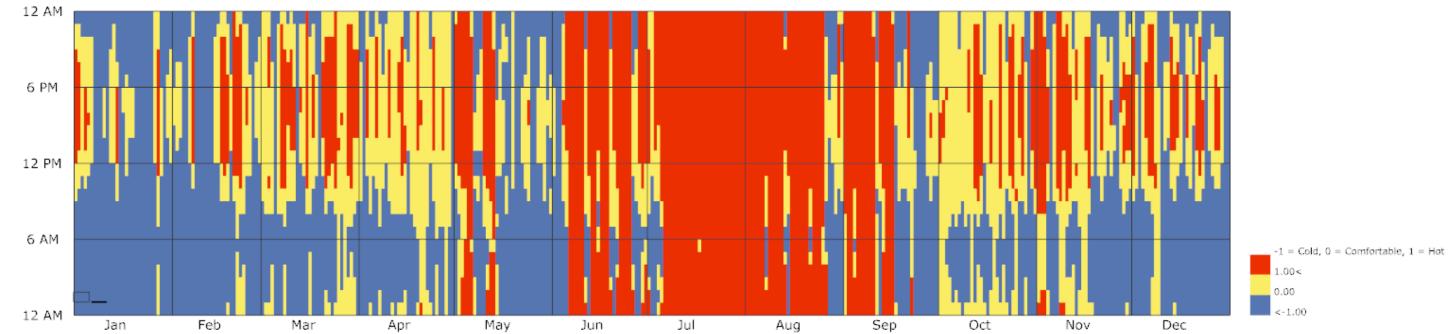
## **INFILTRATION**

# CONDUCTION

\_\_naturalVentilationType
minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent\_

airflowrate = 1

material: high R value



Adaptive Comfort for HOME (-1 = Cold, 0 = Comfortable, 1 = Hot) - Hourly Philadelphia International Ap PA USA TMY3 1 JAN 1:00 - 31 DEC 24:00

comfortable%:27.248858

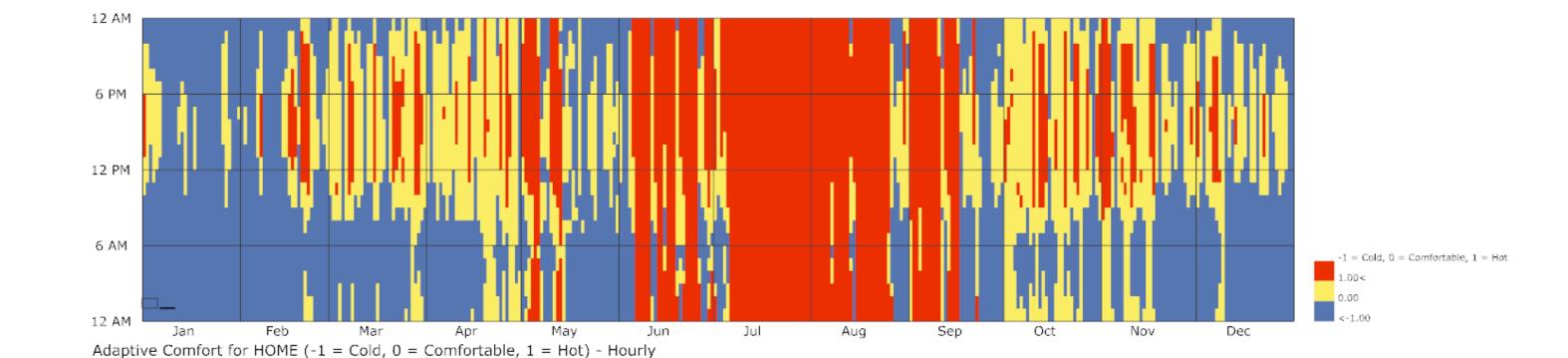
## **INFILTRATION**

# CONDUCTION

\_\_naturalVentilationType
minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent\_

airflowrate = 1

material: low R value



comfortable%:27.751142

Philadelphia International Ap PA USA TMY3

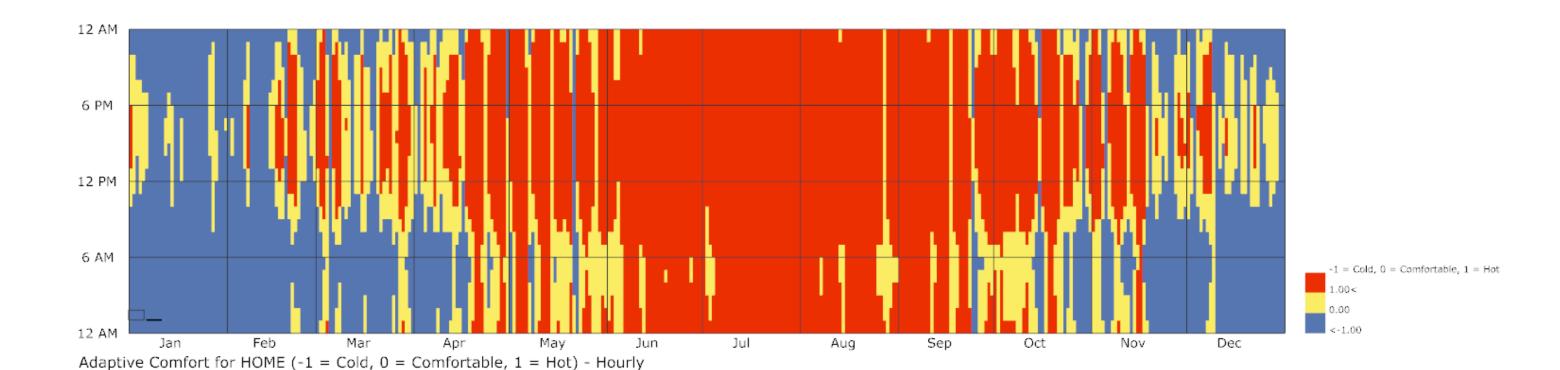
## INFILTRATION

# CONDUCTION

material: low R value

maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
minOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent

airflowrate = 1



comfortable%:20.878995

Philadelphia International Ap PA USA TMY3

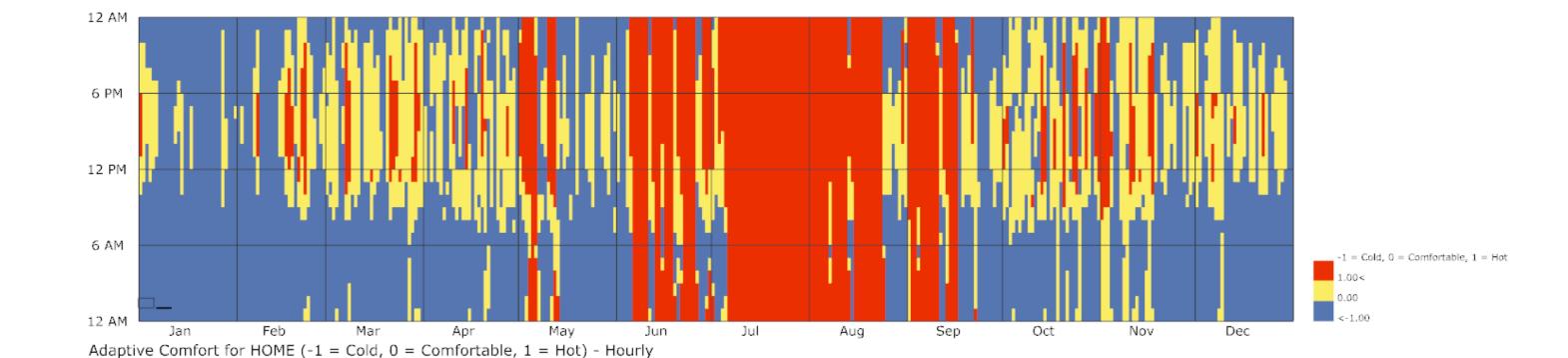
## INFILTRATION

# CONDUCTION

minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
maxOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent\_

airflowrate = 1

material: low R value



comfortable%:23.344749

Philadelphia International Ap PA USA TMY3

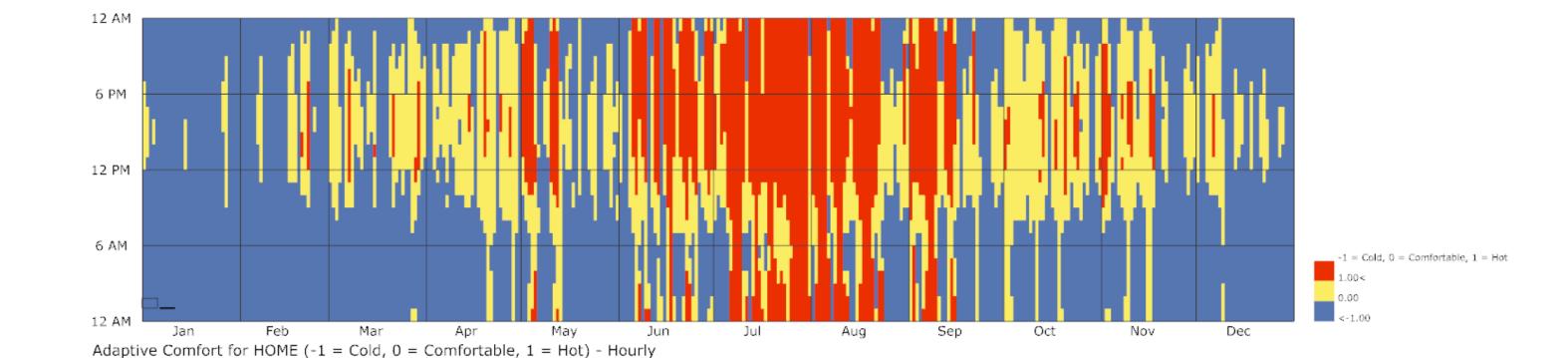
## INFILTRATION

# CONDUCTION

\_\_naturalVentilationType
minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent\_

airflowrate = 2

material: low R value



comfortable% :26.461187

Philadelphia International Ap PA USA TMY3

# FINAL DECISION

23

27

17

28

## **VENTILATION**

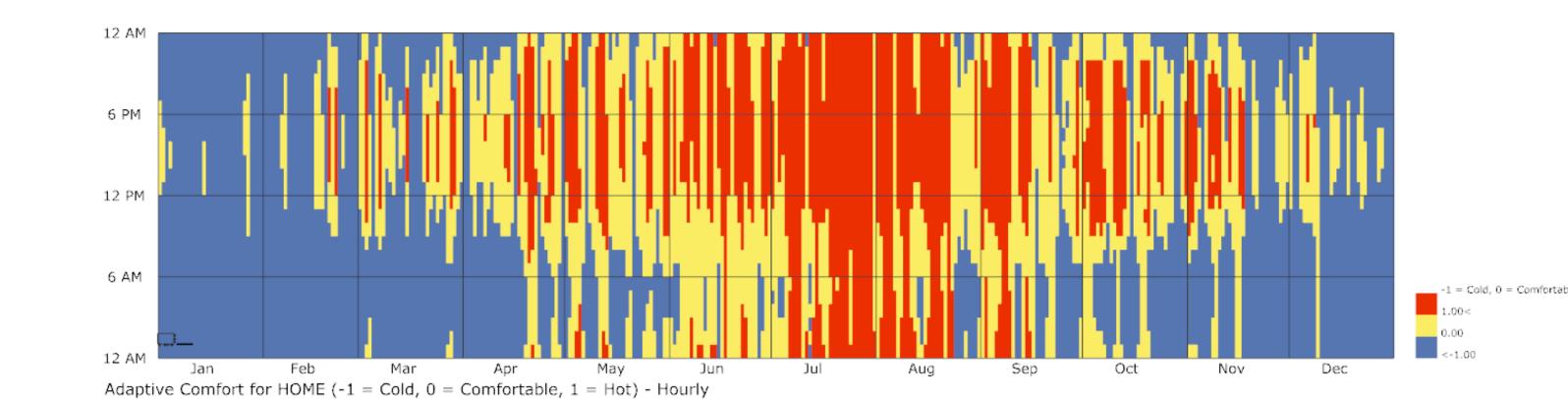
\_\_naturalVentilationType
minIndoorTempForNatVent\_
maxIndoorTempForNatVent\_
minOutdoorTempForNatVent\_
maxOutdoorTempForNatVent\_
deltaTempForNatVent\_
openingAreaFractionalSched\_
fractionOfGlzAreaOperable\_
fractionOfGlzHeightOperable\_
windDrivenCrossVent

## **INFILTRATION**

## CONDUCTION

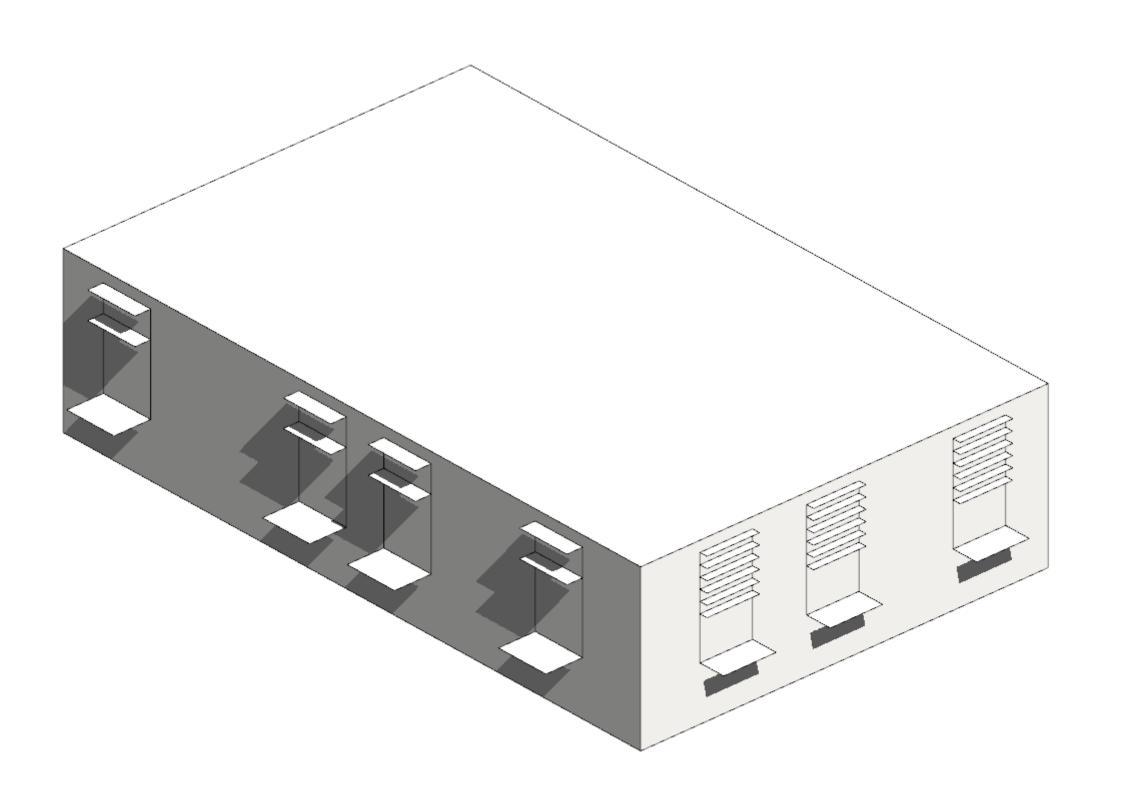
airflowrate = 2

material: low R value



comfortable% :31.96347

Philadelphia International Ap PA USA TMY3

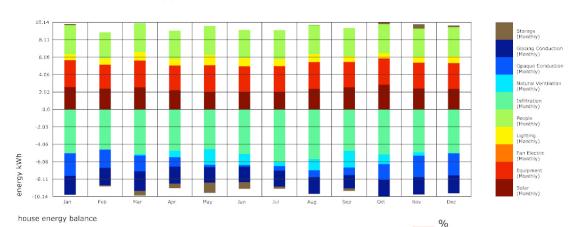


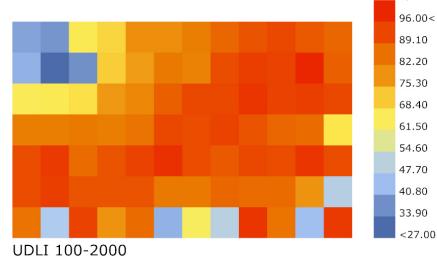
According to the energy balance, the solar input is quite constant. But in summer and winter, the house has different needs of sunshine. So I change the shade of shading to make it block more sun in the summer.



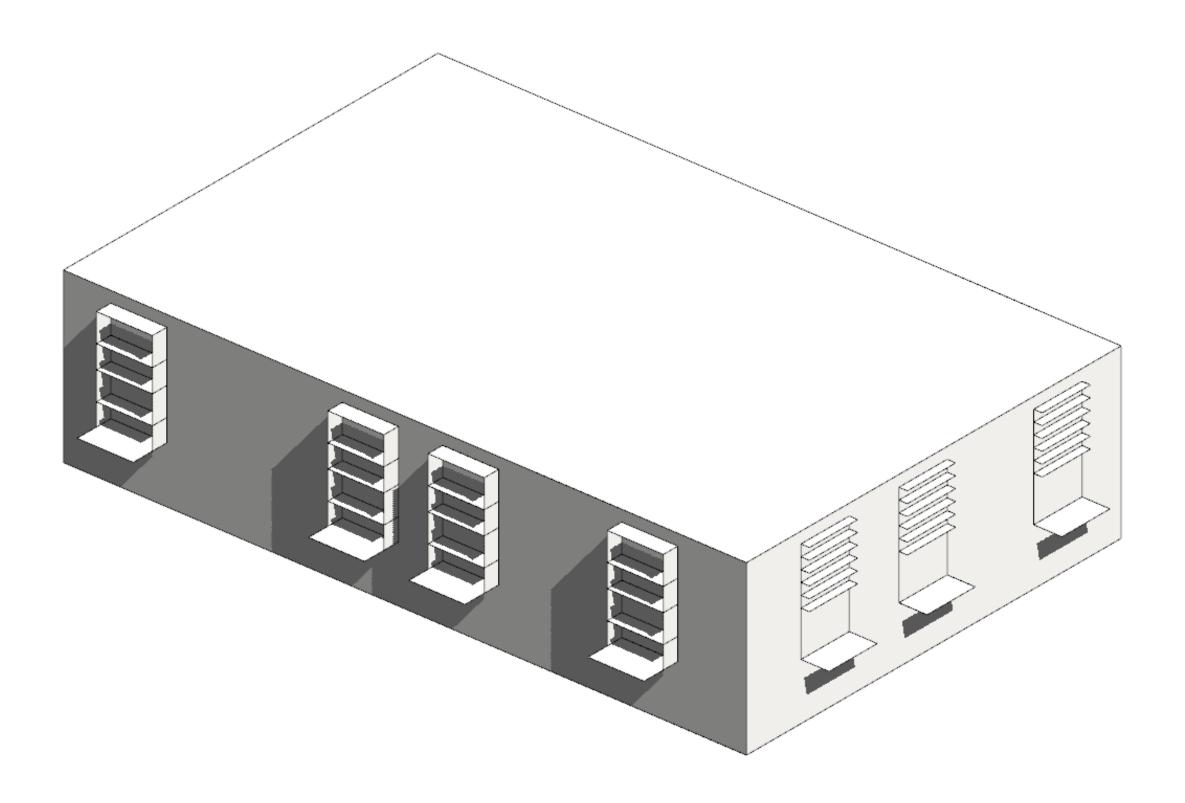
Jan Feb Mar Apr May Jun Adaptive Comfort for HOME (-1 = Cold, 0 = Comfortable, 1 = Hot) - Hourly Philadelphia International Ap PA USA TMY3
1 JAN 1:00 - 31 DEC 24:00

#### comfortable% :31.050228



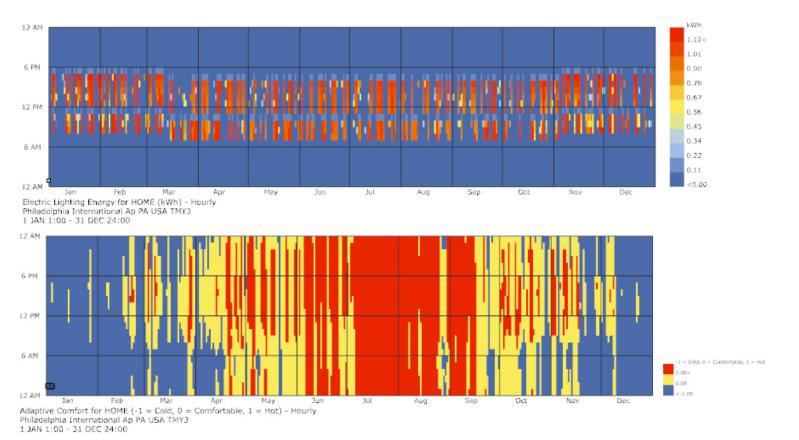


Average:77.857143%

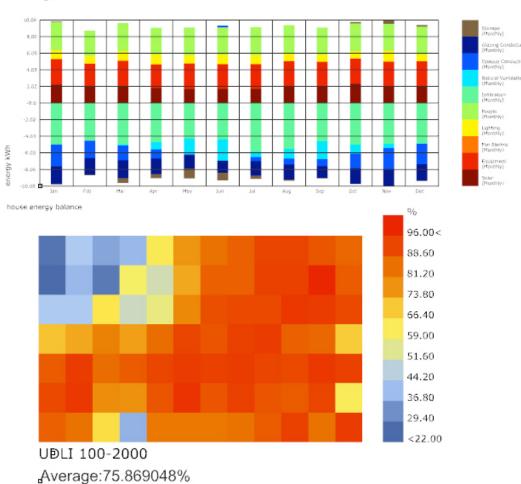


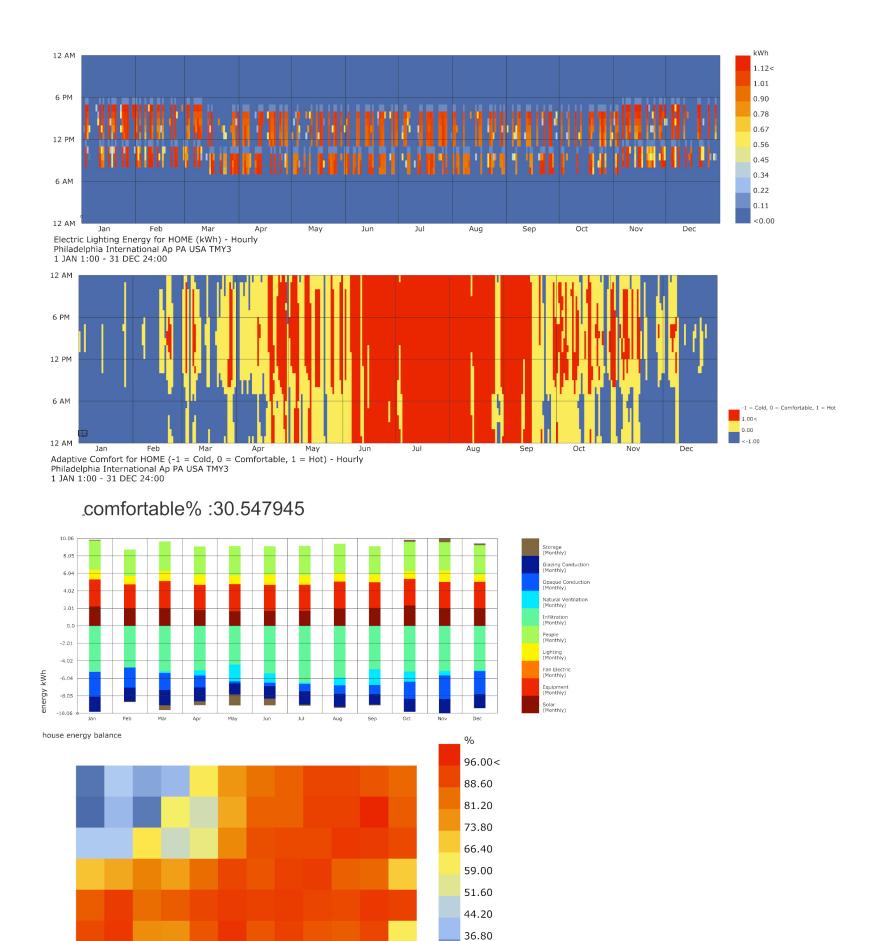
Changing the shape of shading

After changing the shading, the thermal comfort gets better.
The windows always give energy out, so I increase the R value of windows.



#### comfortable%:32.511416





29.40

UDLI 100-2000

Average:75.869048%

Well, it performs worse, both in winter and summer.