

# **ENERGY MODELING OF A ROOM WITH VARIOUS TYPES OF SCHEDULES**

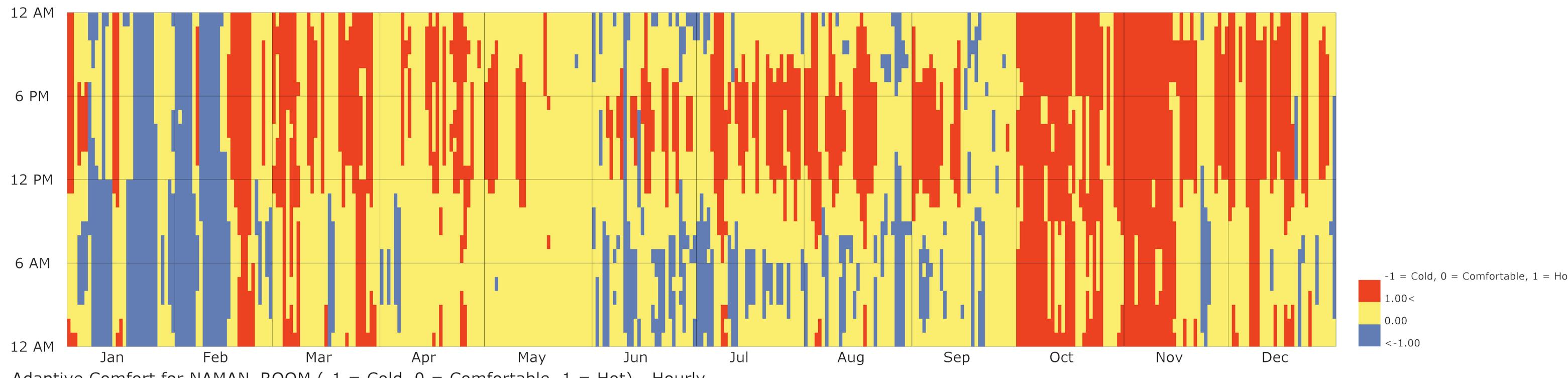
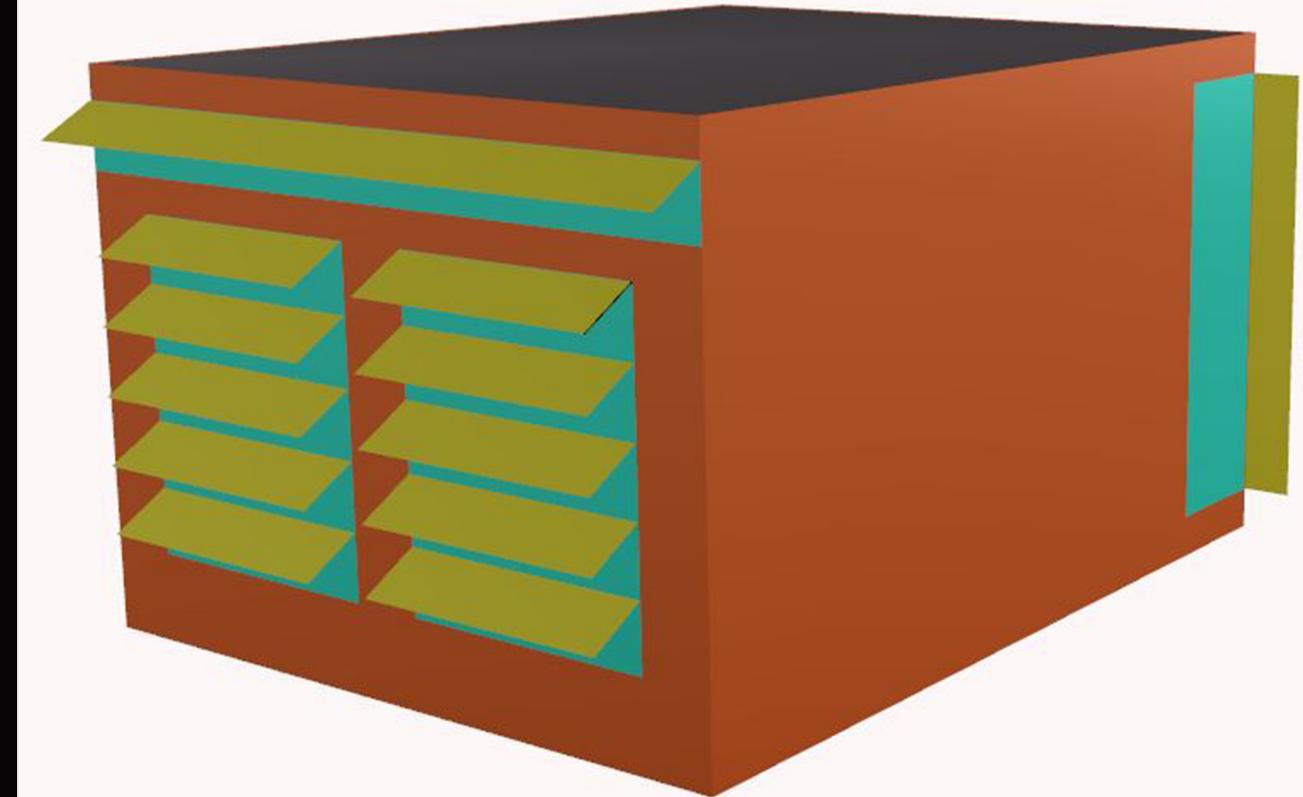
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**BUILDING PERFORMANCE SIMULATIONS**  
PRESENTED BY  
**NAMAN GUPTA**

# ENERGY AND DAYLIGHT MODELING OF A ROOM

THE LEVEL COMFORT ACHIEVED MODELS IS: 56.2%  
PERCENTAGE OF TIME WHEN IT IS HOT: 29.4%  
PERCENTAGE OF TIME WHEN IT IS COLD: 14.3%

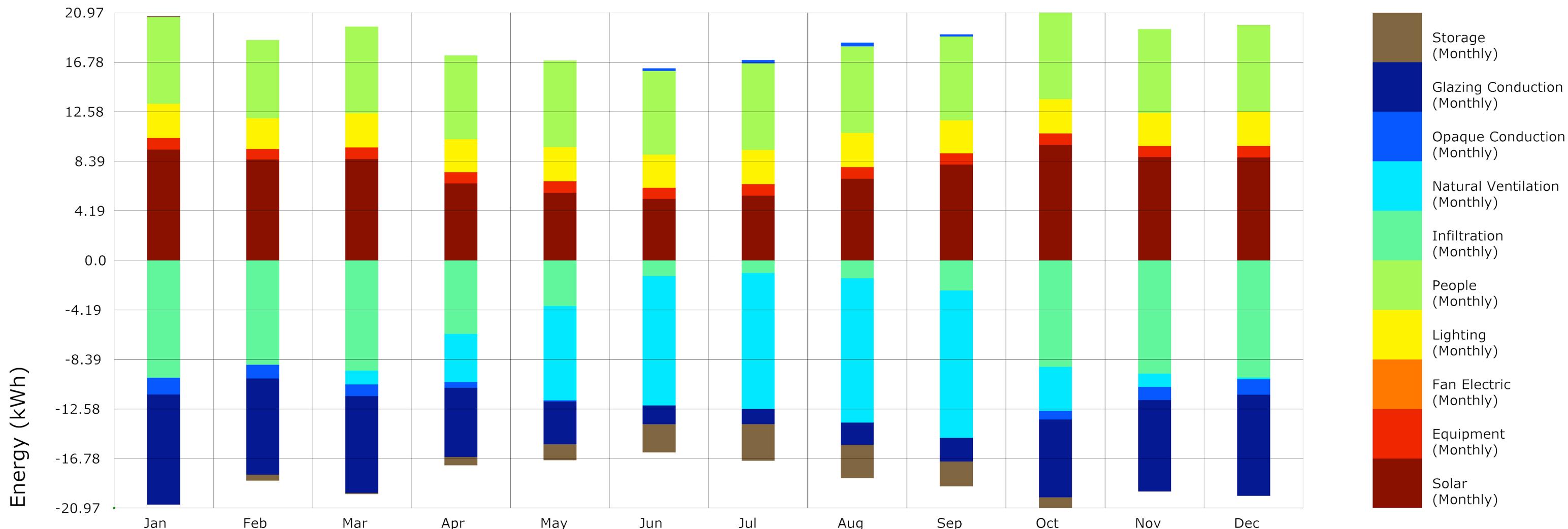
THERE IS LOT OF HEAT STRESS, IF WE INCREASE THE INFILTRATION AND VENTILATION WE CAN REDUCE THE HEAT STRESS.



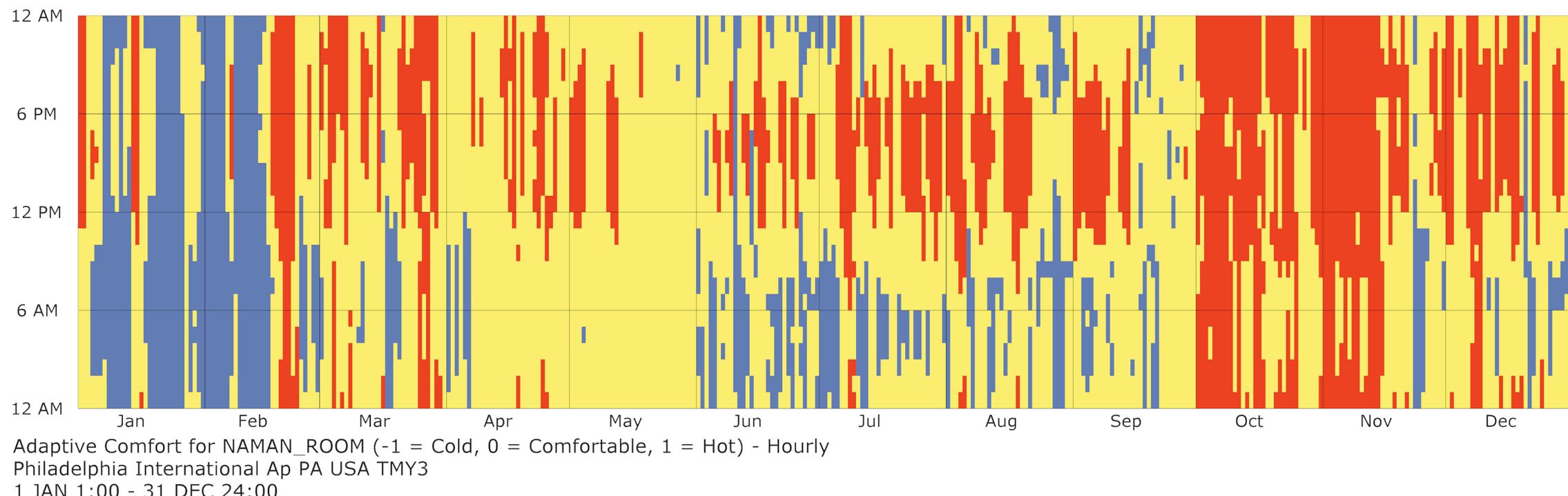
# ENERGY BALANCE OF THE ROOM

THE MAXIMUM GAIN WHICH IS HAPPENING IN THE ROOM IS BECAUSE OF PEOPLE AND SOLAR GAIN. WE CAN ADD AN OCCUPANCY SCHEDULE TO REDUCE THE LOAD GAINED. DURING SUMMERS THE ENERGY IS LOST BECAUSE OF VENTILATION, BY ADDING A SCHEDULE MADE FROM WEATHER FILE OF PHILADELPHIA, CAN REDUCE IT. DURING WINTERS ENERGY IS LOST BECAUSE OF THE GLAZING. WE NEED TO MAKE NEED TO CHANGE THE PROPERTIES OF GLAZING AND ALSO INFILTRATION RATE IS HIGH FOR WINTERS.

WE DO NOT NEED TO CHANGE THE MATERIAL OF OPAQUE SURFACES AS VERY LESS HEAT IS LOST BECAUSE OF IT.

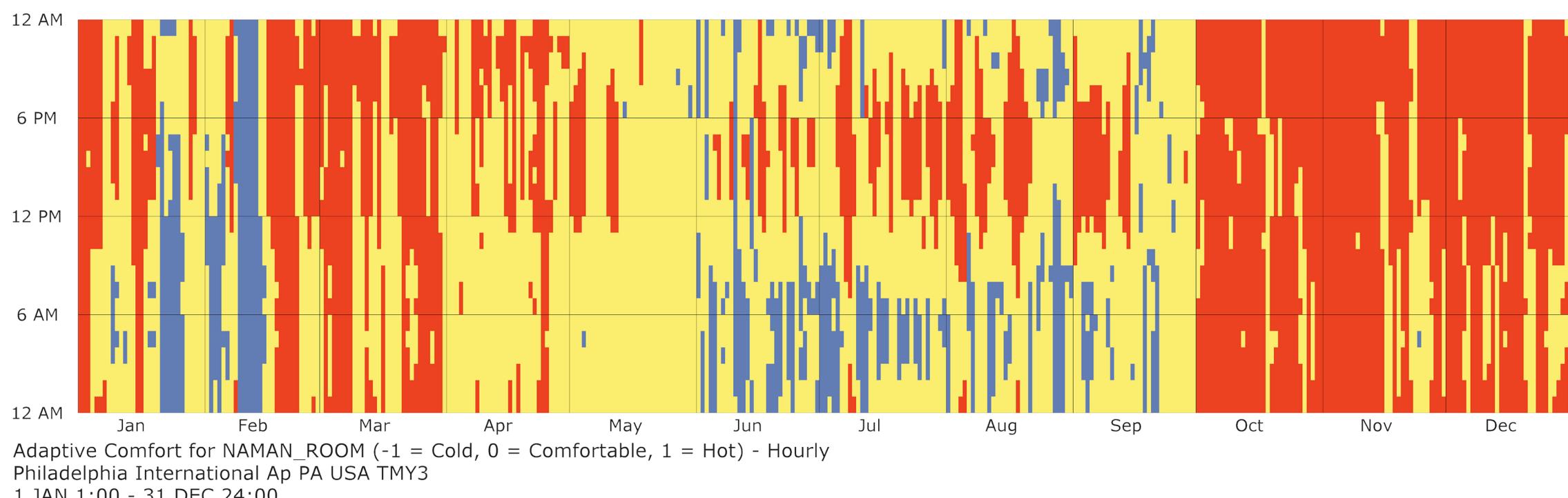


# ENERGY AND DAYLIGHT MODELING OF A ROOM WITH OCCUPANCY, LIGHTING AND INFILTRATION SCHEDULES



OCCUPANCY SCHEDULE: IT IS OCCUPIED AT BY PERSON AND A CUSTOMISED SCHEDULE HAS BEEN MADE FOR STUDENTS LIFE.

THE LEVEL COMFORT ACHIEVED MODELS IS : 57%  
PERCENTAGE OF TIME WHEN IT IS HOT : 26%  
PERCENTAGE OF TIME WHEN IT IS COLD : 16%



INFILTRATION SCHEDULE: WINDOWS WILL BE OPEN WHEN THE INDOOR TEMPERATURE WILL BE MORE THAN 20 DEGREE

HEAT STRESS INCREASES WHEN WE PUT SCHEDULES FOR OPENING AND CLOSING OF WINDOWS IN A VERY TIGHT BUILDING (INFILTRATION RATE (.001)). WHEN WE NEED TO INCREASE THE INFILTRATION RATE SO THAT THE HEAT STRESS REDUCES. IT GOES DOWN FROM 40 % TO 30 %

THE LEVEL COMFORT ACHIEVED MODELS IS : 56%  
PERCENTAGE OF TIME WHEN IT IS HOT : 30%  
PERCENTAGE OF TIME WHEN IT IS COLD : 12.9%