

Energy Modelling 2

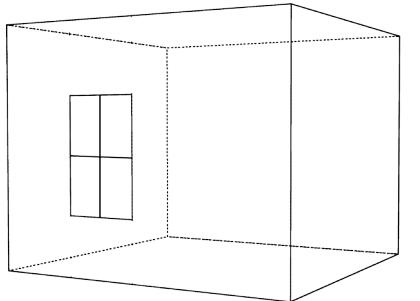
110N 34th Street, Philadelphia

Aishwarya Katta-Adiseshaiah
ARCH_753_Building Simulation

Energy Simulation FOR “DREAM ROOM”

Philadelphia falls in Climate Zone 4A
according to energy.gov

Philadelphia
110N 34th Street



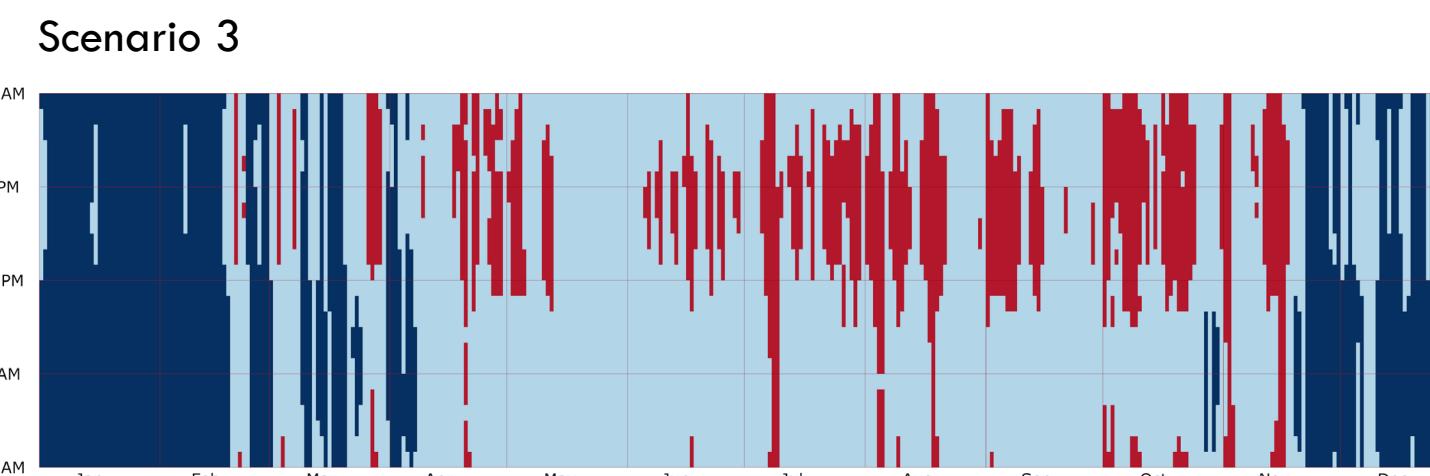
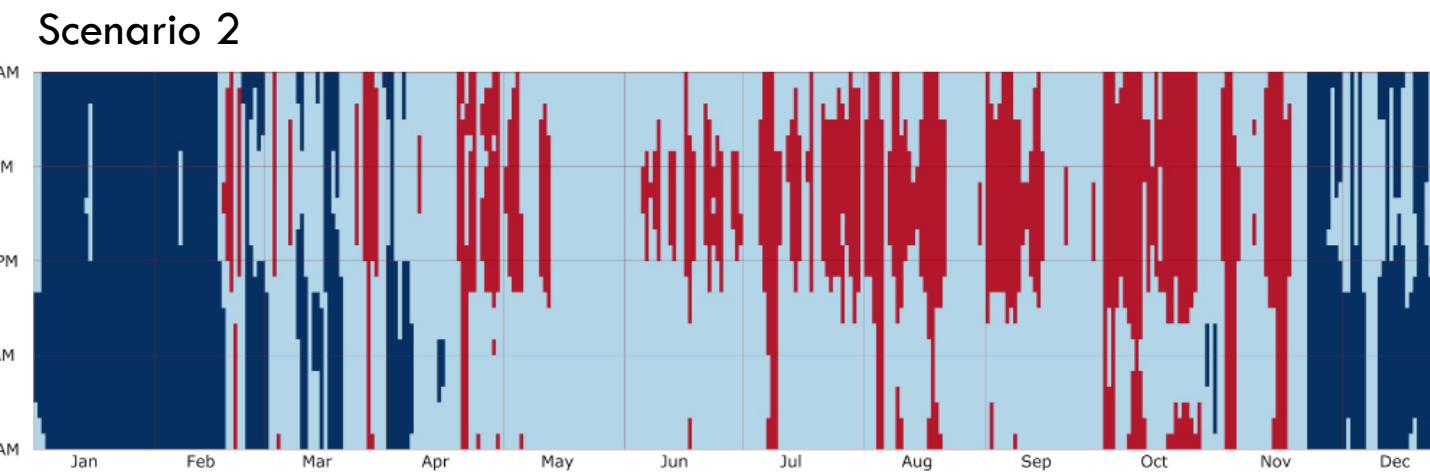
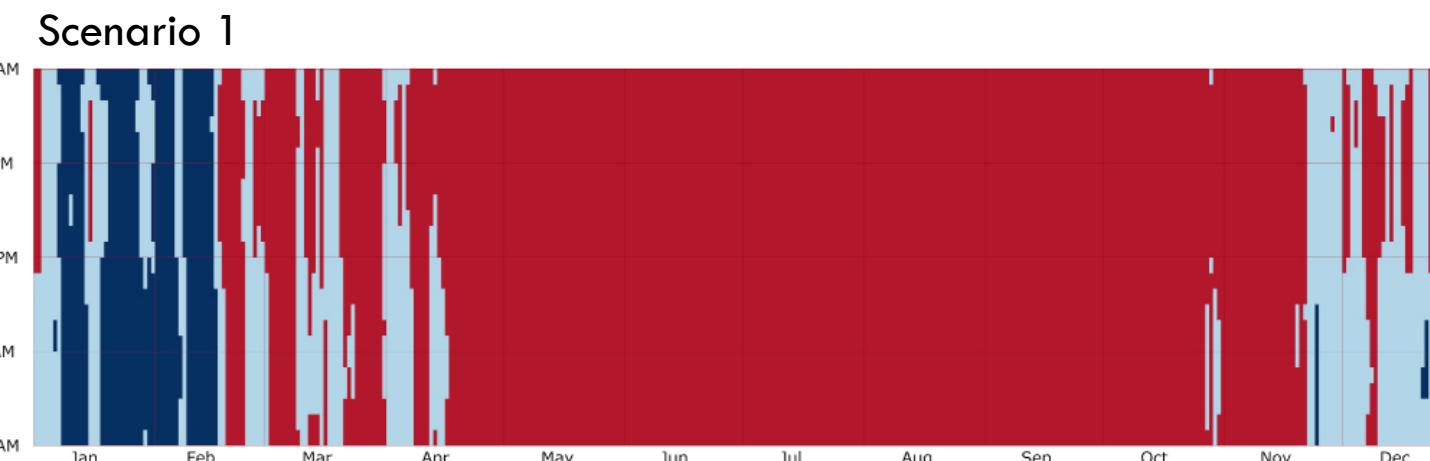
Baseline Analysis

Scenario 1. default materials for walls, roof, floor and window.

Scenario 2. considering the above parameters and the following:

- natural ventilation (indoor 24-35) (outdoor 16-28)
- infiltration: average building with min lighting and min people per sqft

Scenario 3. increasing the R Values of the roof, floor and walls while adding natural ventilation and infiltration

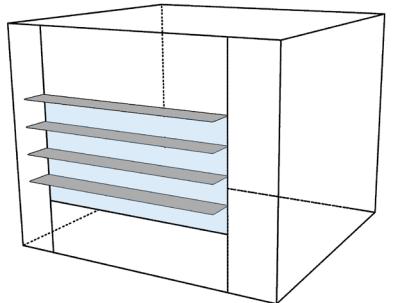


% of time comfortable: 19
% of time hot: 71
% of time cold: 8

% of time comfortable: 54.7
% of time hot: 20.5
% of time cold: 24.7

% of time comfortable: 57.4
% of time hot: 15.6
% of time cold: 26.9

Energy Simulation FOR “DREAM ROOM”



Larger window and shading

Scenario 1. default materials for walls, roof, floor and window.

Scenario 2. considering the above parameters and the following:

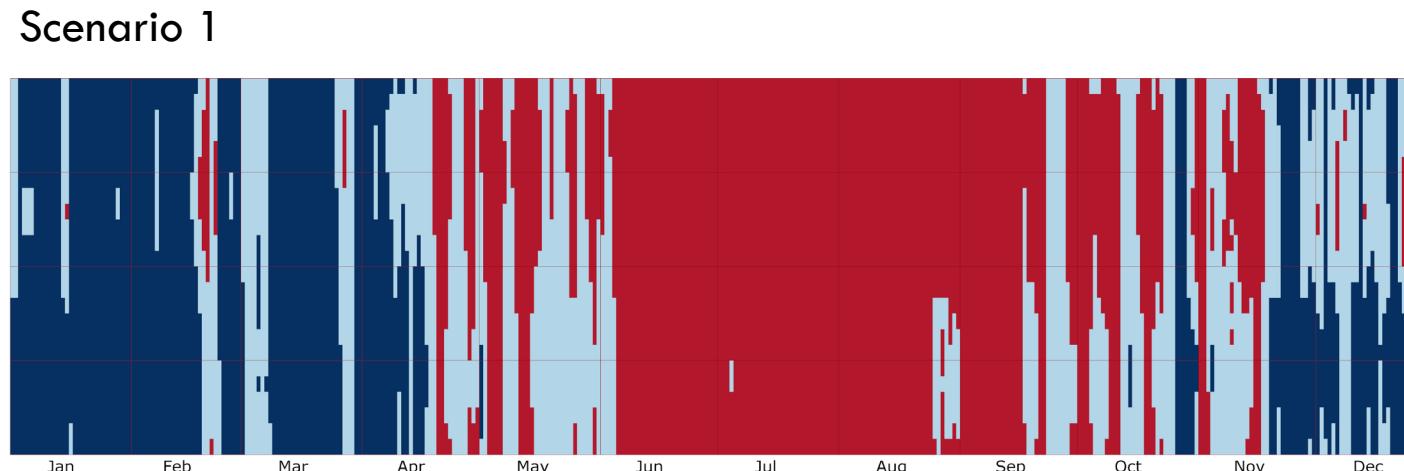
- natural ventilation (indoor 24-35) (outdoor 16-28)
- infiltration: average building with min lighting and min people per sqft

Scenario 3. increasing the R Values of the roof, floor and walls while adding natural ventilation and infiltration

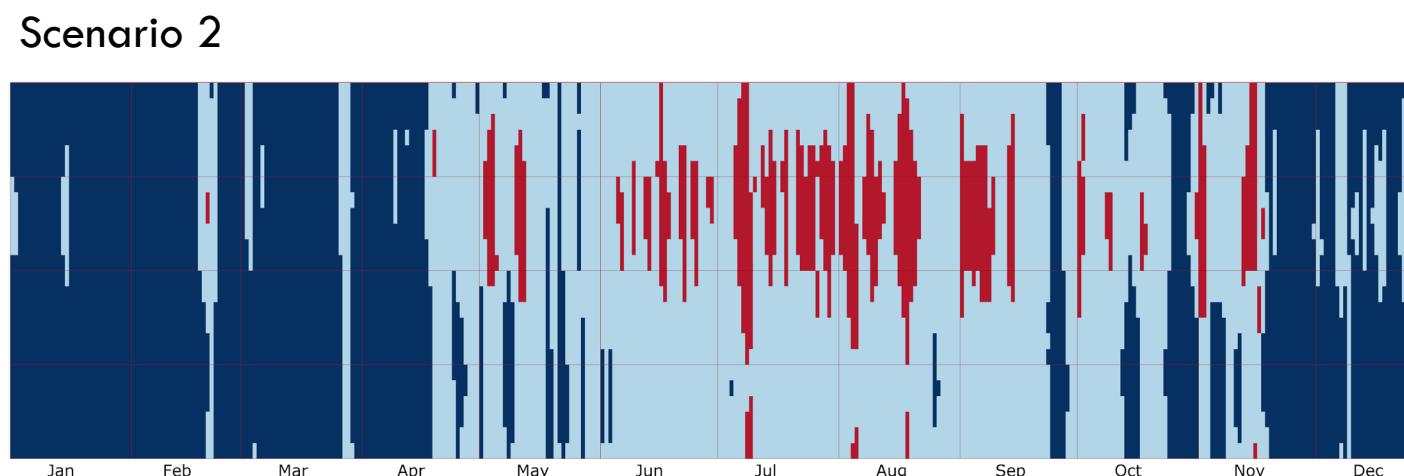


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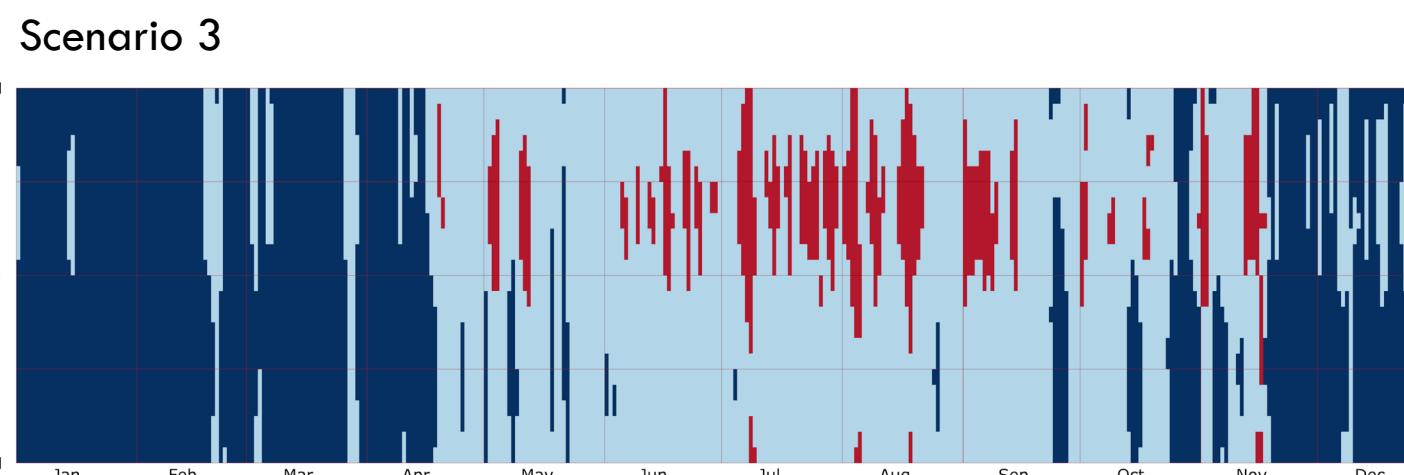
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% of time comfortable: 27
% of time hot: 42
% of time cold: 30

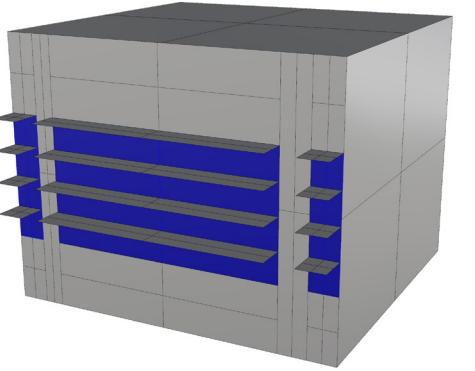


% of time comfortable: 48
% of time hot: 7
% of time cold: 43



% of time comfortable: 51.7
% of time hot: 6.9
% of time cold: 41.2

Energy Simulation FOR “DREAM ROOM”



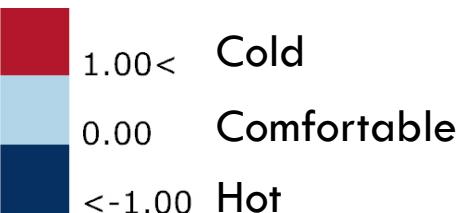
Final Proposed Design

Scenario 1. default materials for walls, roof, floor and window.

Scenario 2. considering the above parameters and the following:

- natural ventilation
(indoor 24-35) (outdoor 16-28)
- infiltration: average building with min lighting and min people per sqft

Scenario 3. increasing the R Values of the roof, floor and walls while adding natural ventilation and infiltration



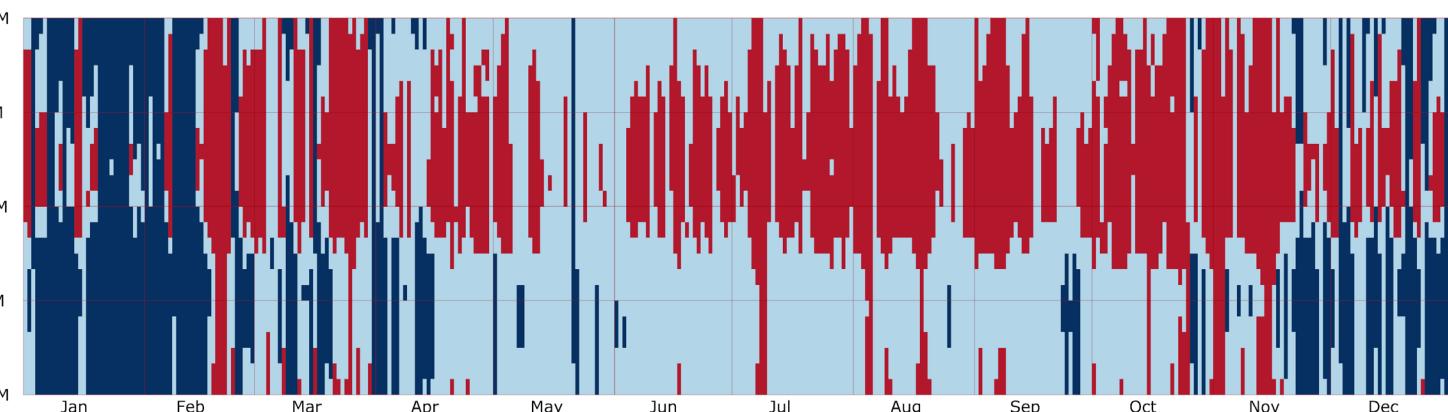
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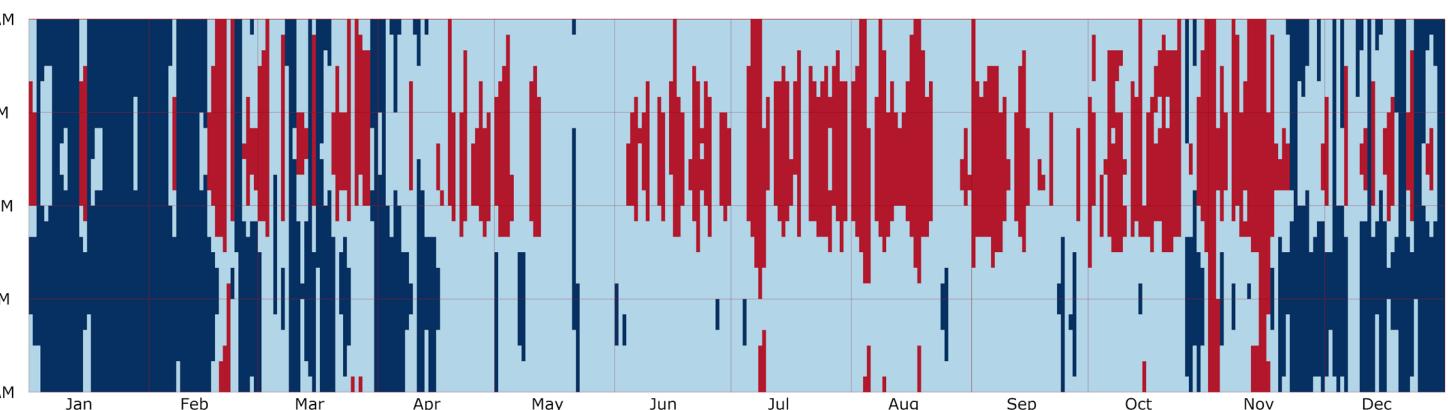
Scenario 1



Scenario 2



Scenario 3

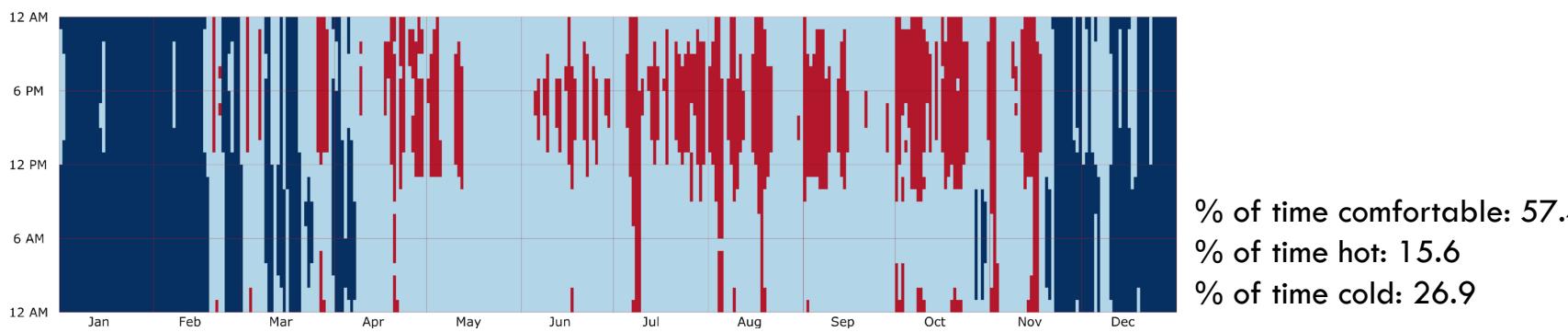
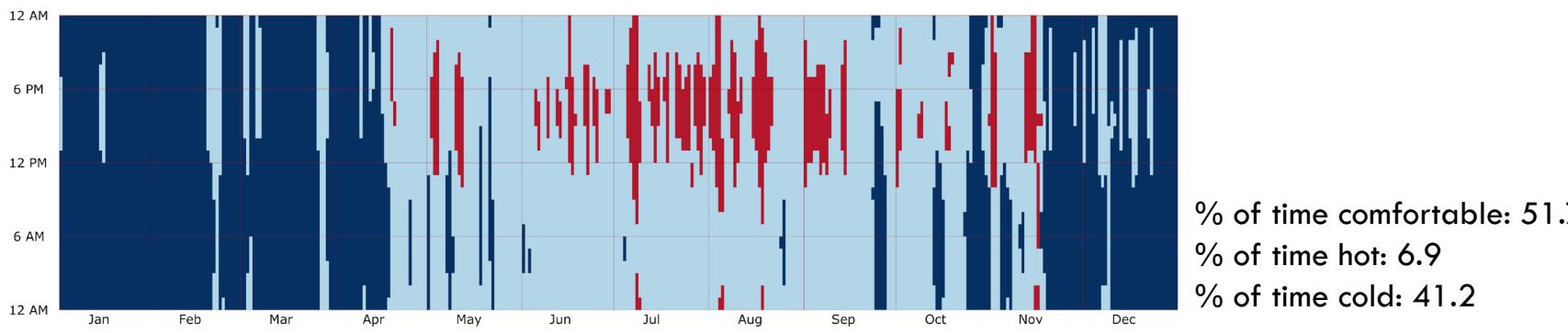
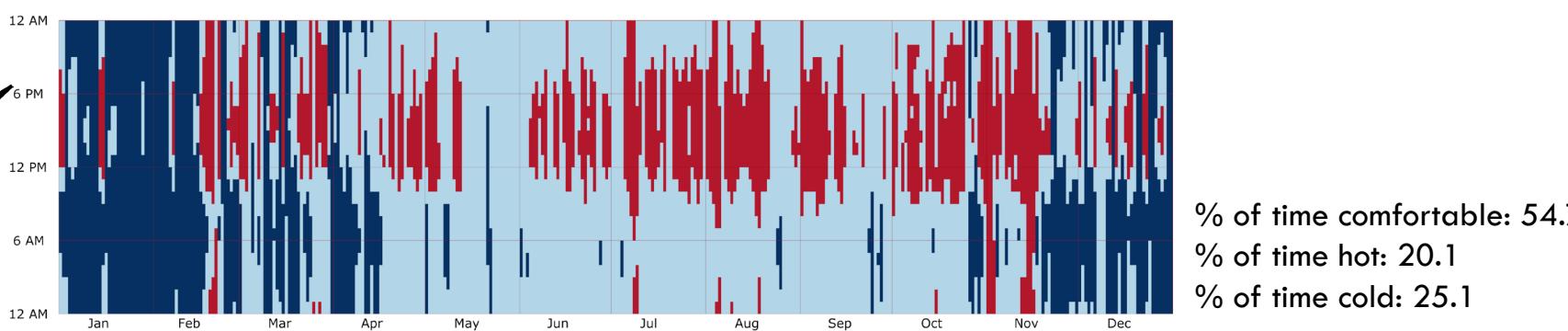


% of time comfortable: 17
% of time hot: 71
% of time cold: 11

% of time comfortable: 47
% of time hot: 32
% of time cold: 19

% of time comfortable: 54.7
% of time hot: 20.1
% of time cold: 25.1

Comparison of Scenario 3

Baseline Analysis**Larger window and shading****Final Proposed Design**

The baseline room has the highest % of time comfortable. However the final proposed design offers hot hours during the winter season and cold hours during the summer season. This is because of larger solar gain through the windows, and the heat is retained during the winter because of high R Value. Hence this proposal is more suitable for this climate.

