

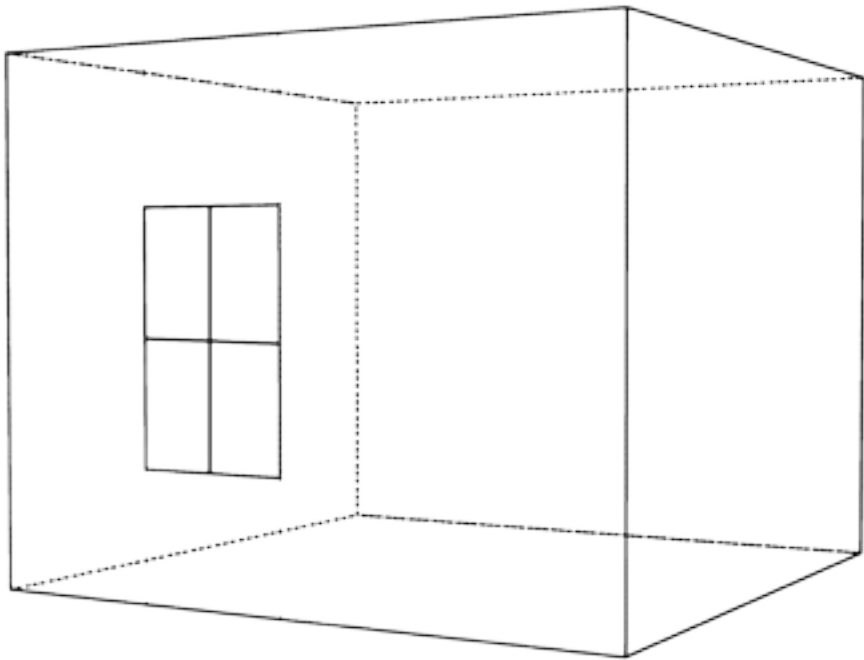
Annual Analysis

110N 34th Street, Philadelphia

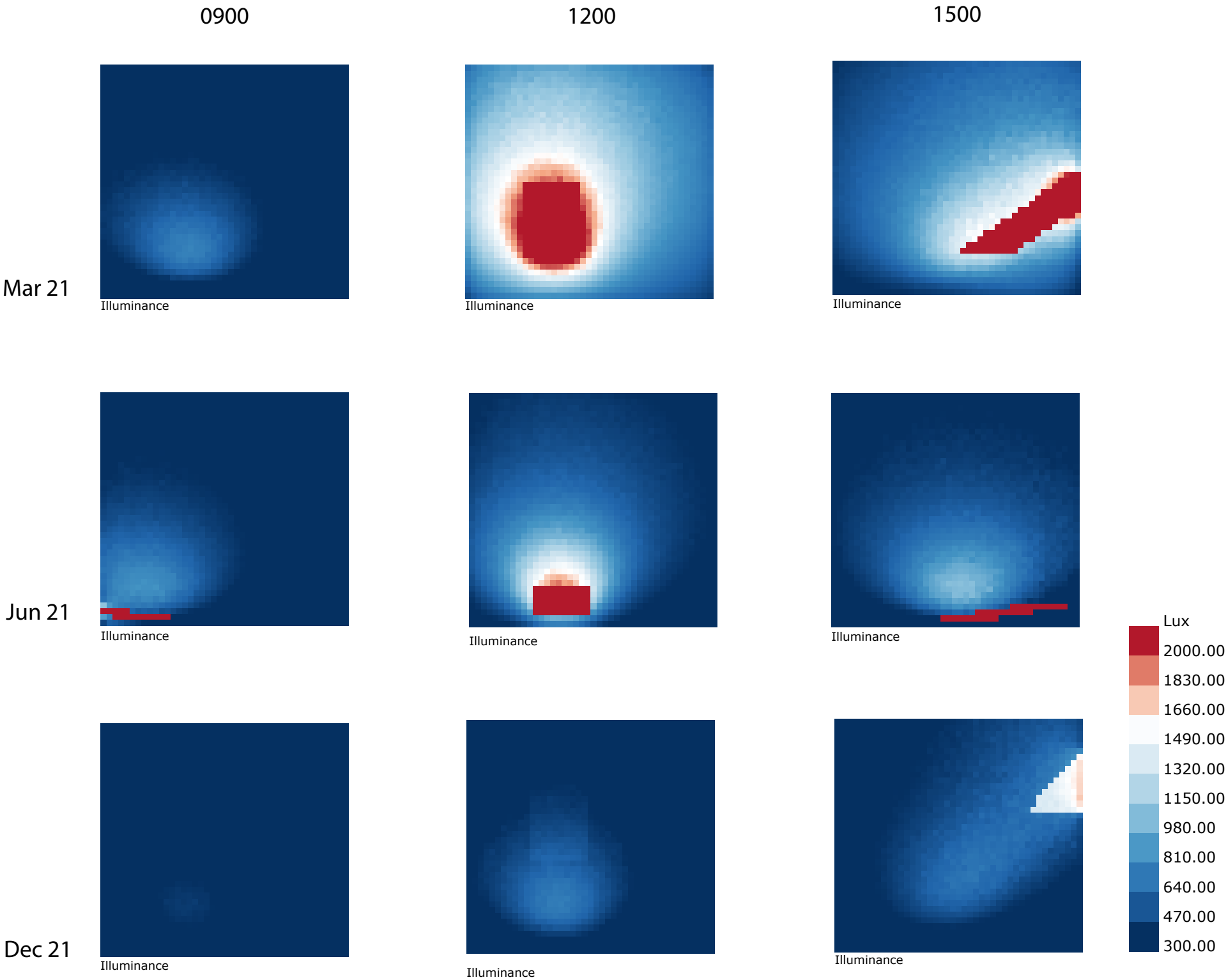
Daylighting Design for “Dream Room”

Philadelphia
110 N 34th Street

Initial Analysis - without any changes



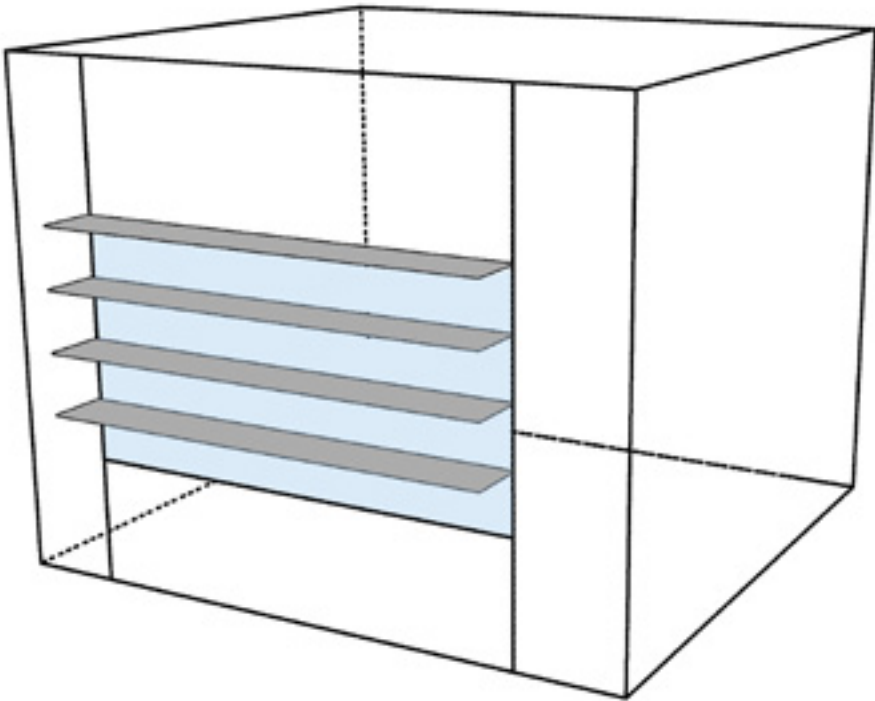
Size of Window: 1m



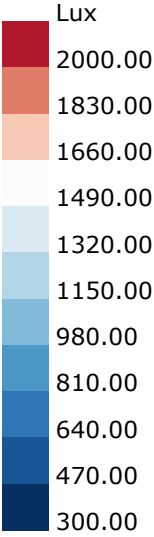
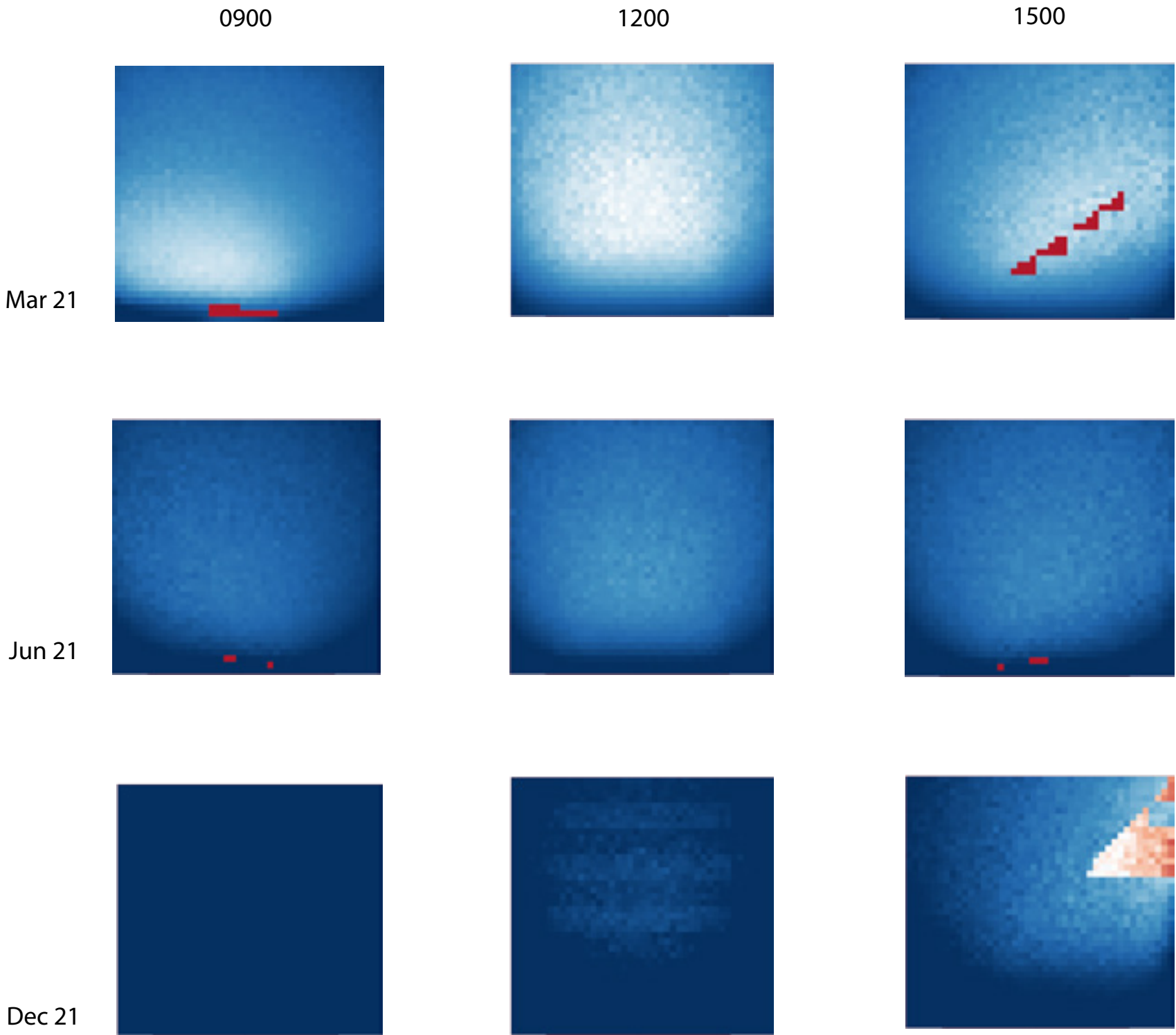
Daylighting Design for “Dream Room”

Philadelphia
110 N 34th Street

Horizontal Shading



Horizontal Shading: 0.5 m
Decreasing the size of the horizontal
shading devices increases the day-
lighting and reduces glare

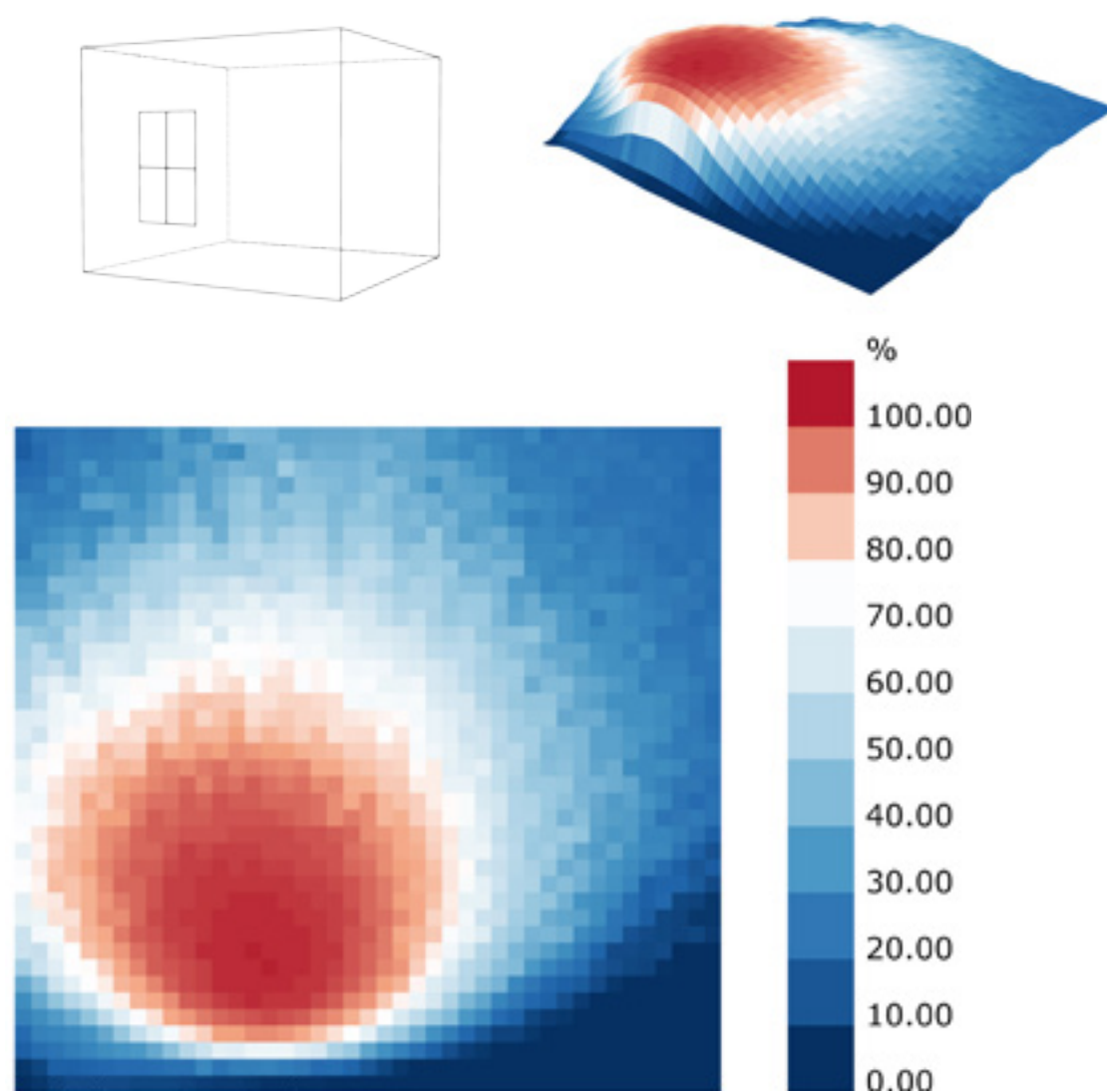


ANNUAL ANALYSIS FOR “DREAM ROOM“

comparison between baseline & shading option
Occupy Hours: 9am to 3pm

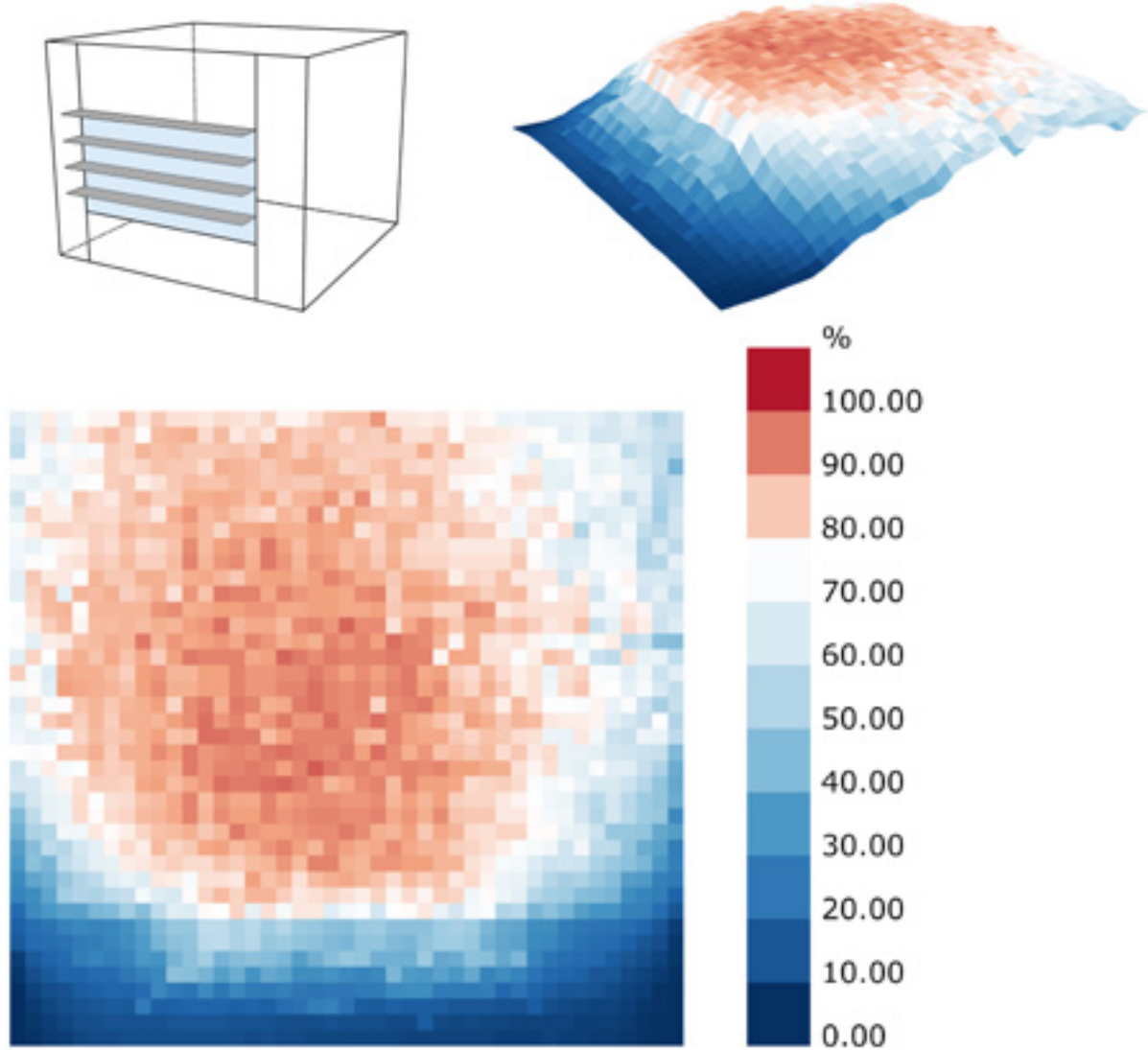
Philadelphia
110N 34th Street

Baseline Analysis



% Useful Daylight Illuminance
Range: 100 to 2000 Lux

Larger window and shading

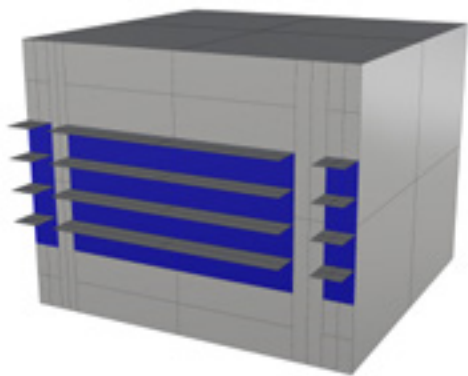


% Useful Daylight Illuminance
Range: 100 to 2000 Lux

Although larger window and shading improves the useful daylight Illuminance, there are still few areas which require useful daylighting.

ANNUAL ANALYSIS FOR “DREAM ROOM”
NEW PROPOSED DESIGN - Option 1

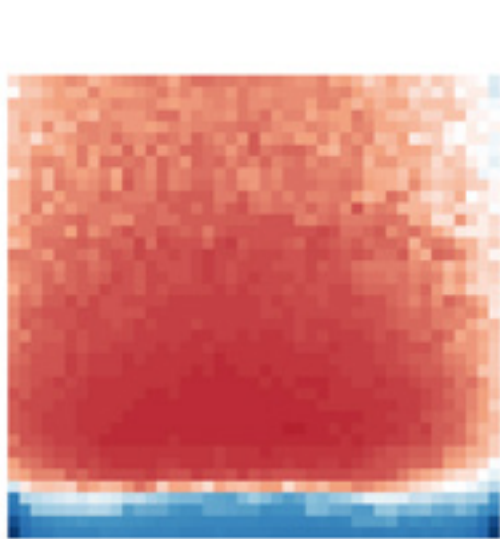
Philadelphia
110N 34th Street



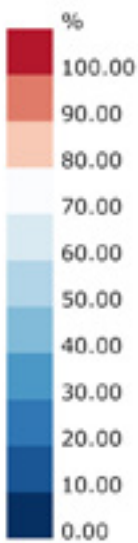
Occupany Hours: 9am to 3pm
Ambient bounces: 3
Glass: Single Pane

Two small windows are added to increase the day-
lighting of the rooms. This gives proper lighting and
the louvres protect from high illuminance levels.

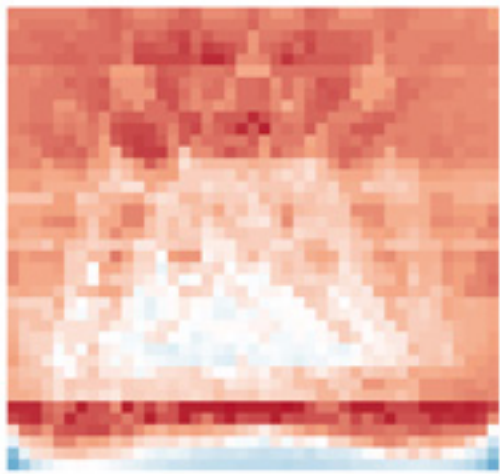
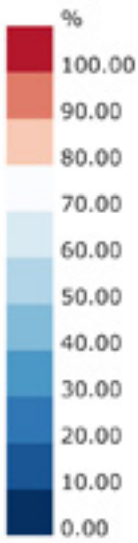
This solution works because a 70-100% of UDI falls
in the category of 100-2000 lux



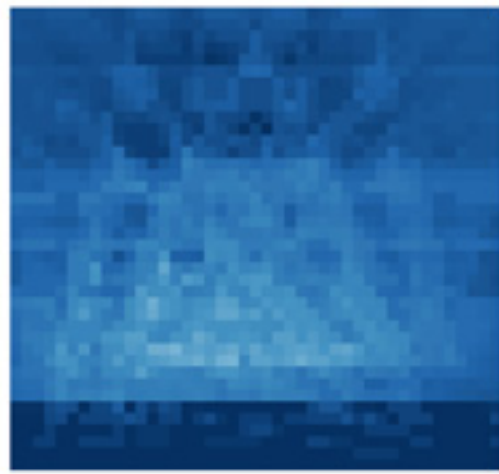
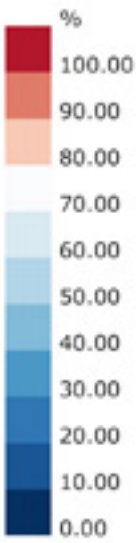
% Daylight Autonomy



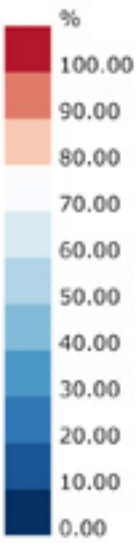
% Useful Daylight Illuminance
>100 Lux



% Useful Daylight Illuminance
100 - 2000 Lux

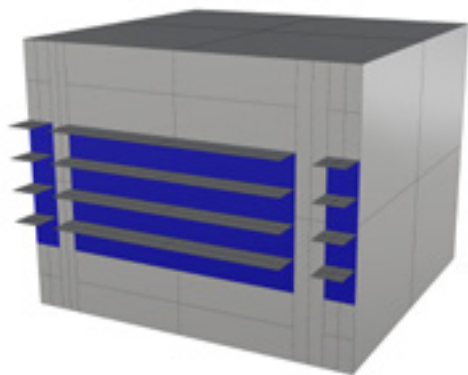


% Useful Daylight Illuminance
>2000 Lux



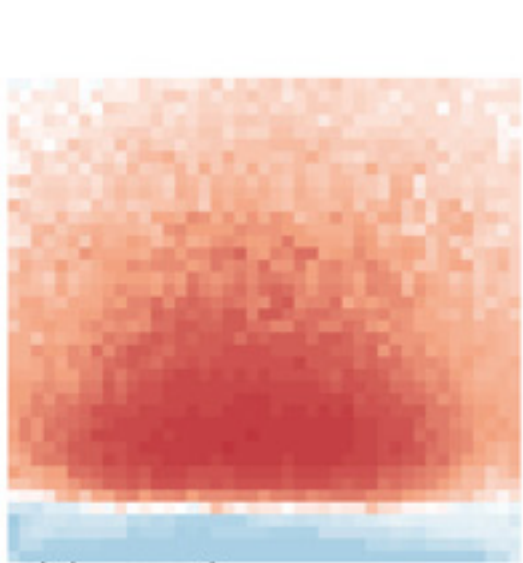
ANNUAL ANALYSIS FOR “DREAM ROOM”
NEW PROPOSED DESIGN - Option 2

Philadelphia
110N 34th Street

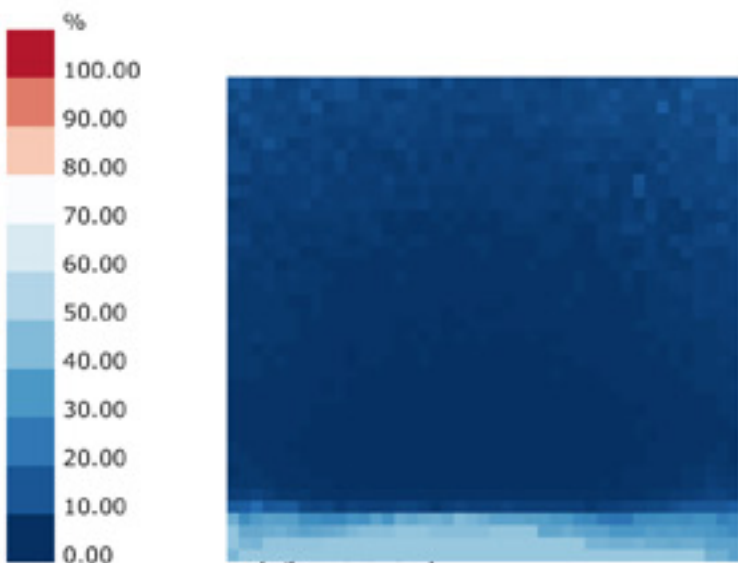


Occupany Hours: 9am to 3pm
Ambient bounces: 4
Glass: Double Pane

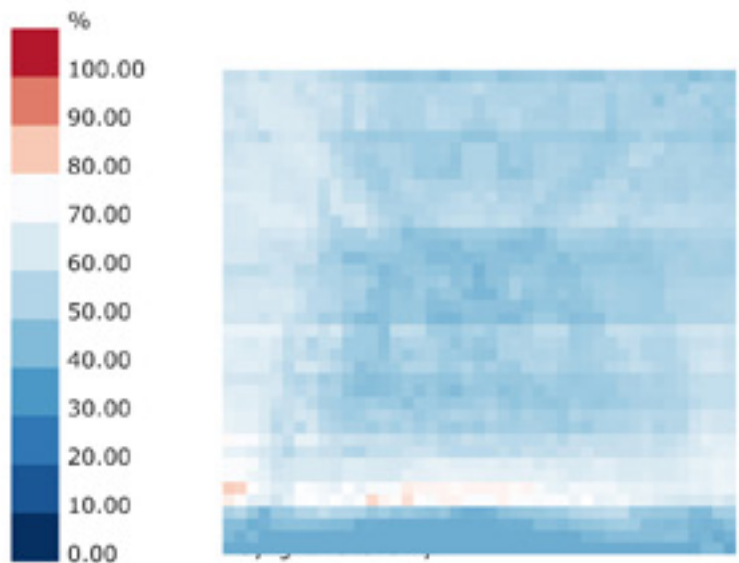
Increasing the transmittance of the walls, ceiling and changing the glass to double pane (although double pane doesn't contribute to the increase) showed that only 40-60% of UDI falls in the category of 100-2000 Lux because the amount of UDI above >2000 Lux is high.
Hence this option is not viable.



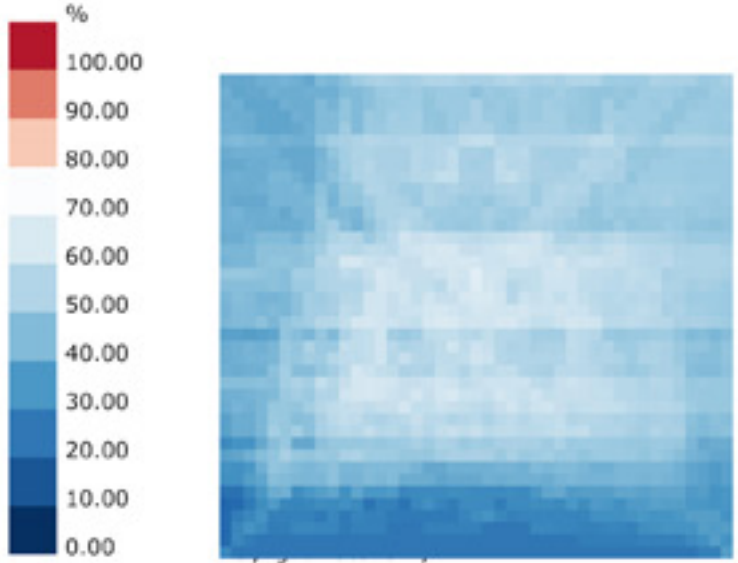
% Daylight Autonomy



% Useful Daylight Illuminance
>100 Lux



% Useful Daylight Illuminance
100 - 2000 Lux



% Useful Daylight Illuminance
>2000 Lux

ANNUAL ANALYSIS FOR “DREAM ROOM”
Glare Design Analysis

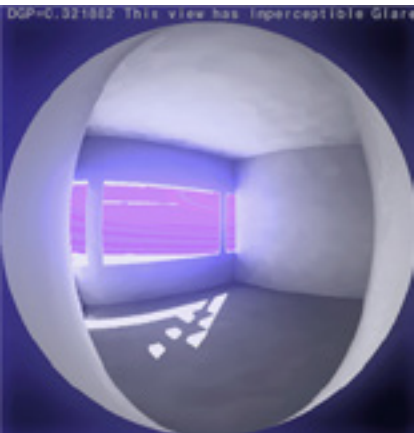
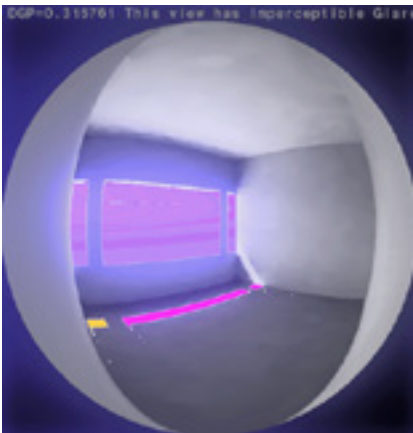
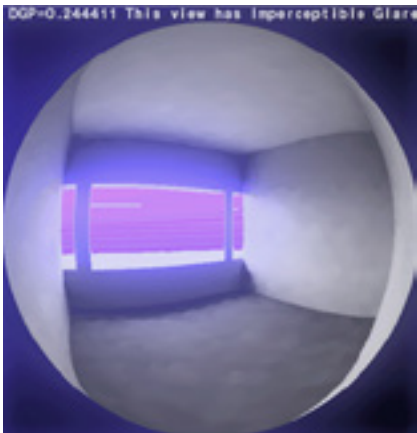
Philadelphia
110N 34th Street

0900

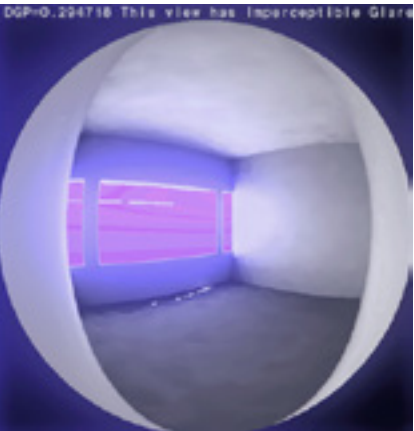
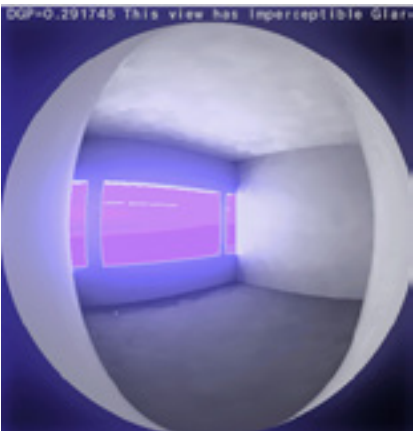
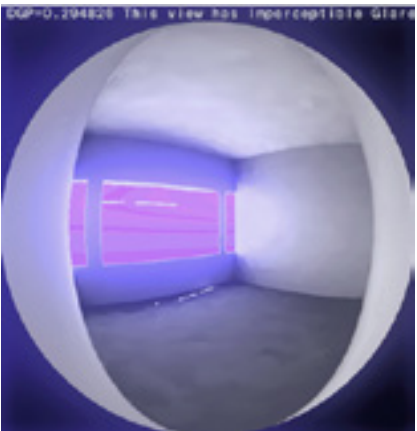
1200

1500

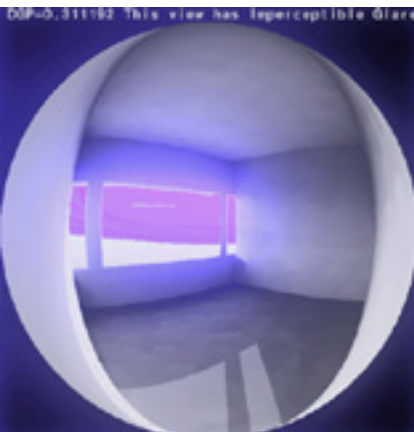
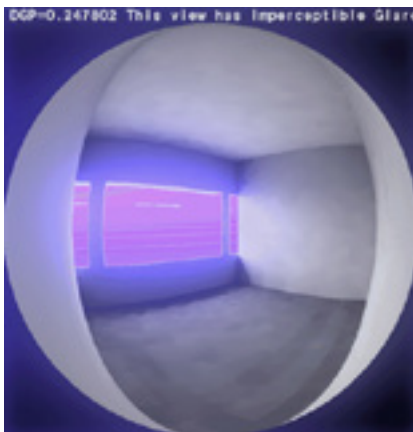
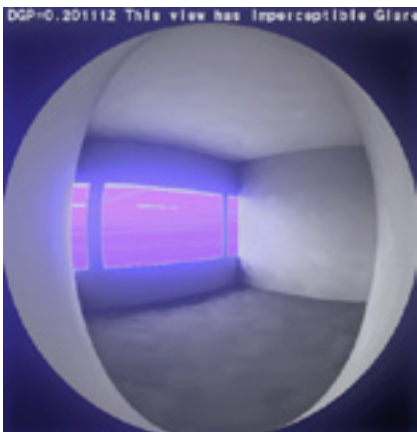
Mar 21



Jun 21



Dec 21



Option 1 of the new proposed Design was studied for glare analysis.

For the new proposed design, the glare levels for all shown situations are less than 0.35 DGP . This shows that they are all impercibtibale glare which is acceptable.