DAYLIGHT ANALYSIS II

DAYLIGHT ANALYSIS
GALRE ANALYSIS
UDI

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Arch 753 Building Performance Simulation
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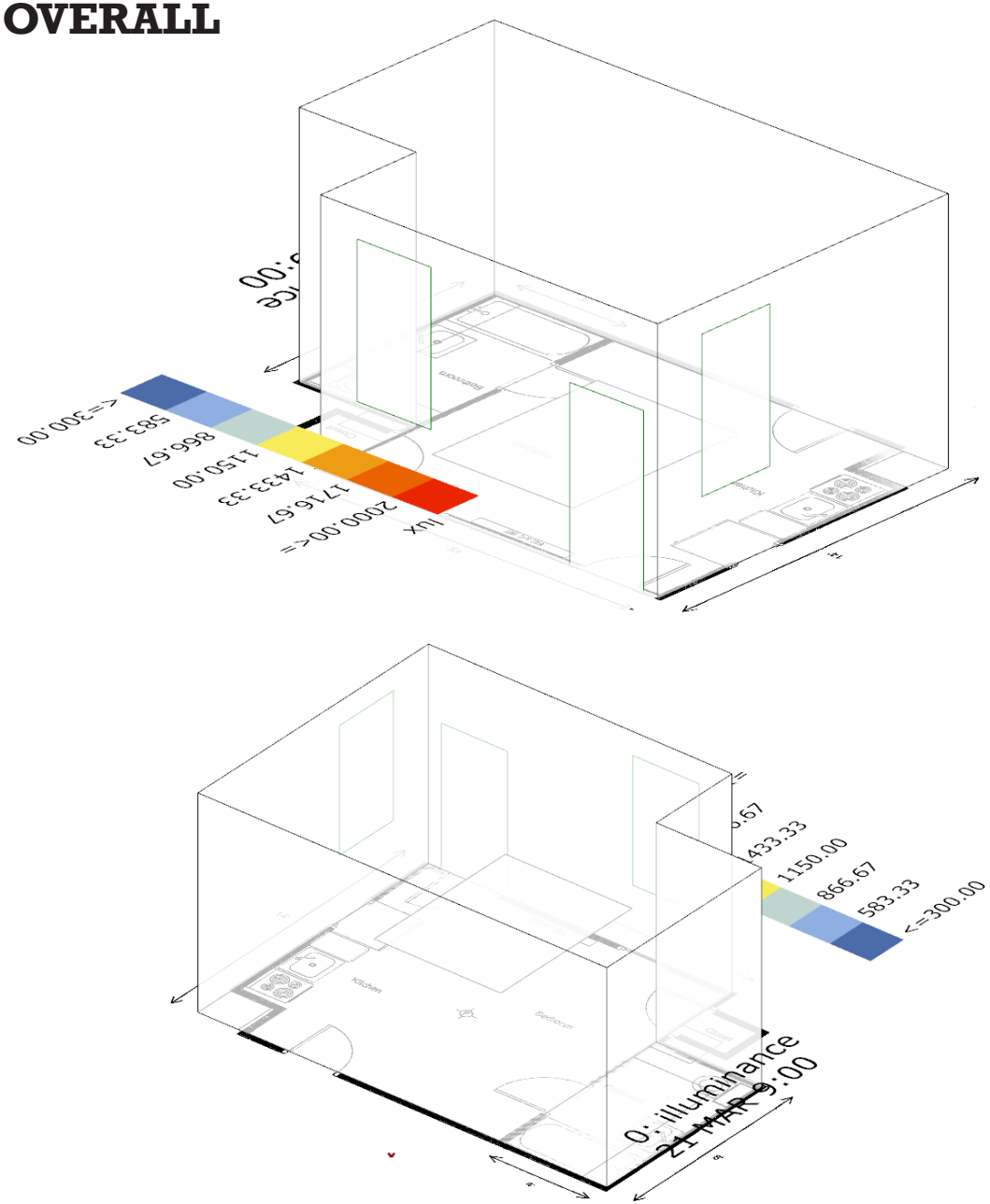
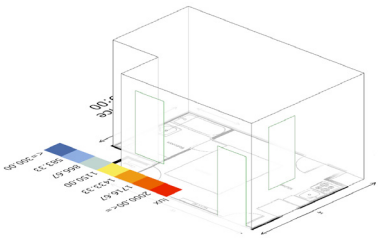
University of Pennsylvania
School of Design

OVERALL

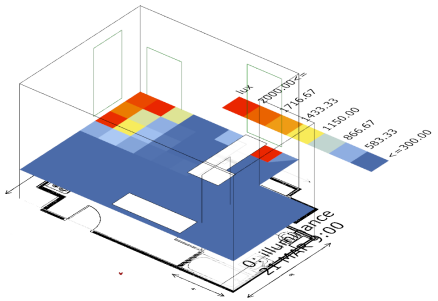


My apartment has only two windows and one door. This makes my apartment very cold in winter. Also in the apartment, the light is not very sufficient.

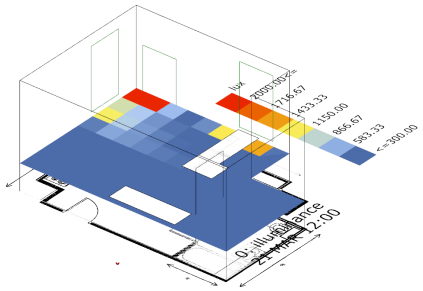
CURRENT SITUATION



For now, the daylight analysis show that the interior sunshine environment is insufficient. My first proposal is to make the windows' size bigger.



9am Mar 21



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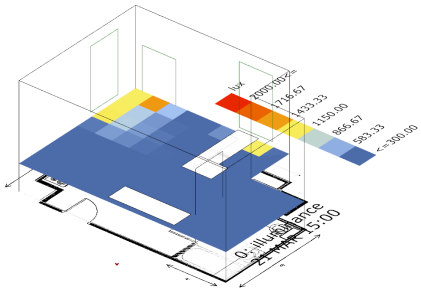

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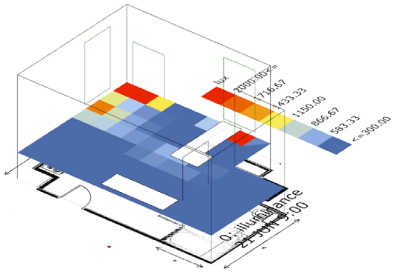

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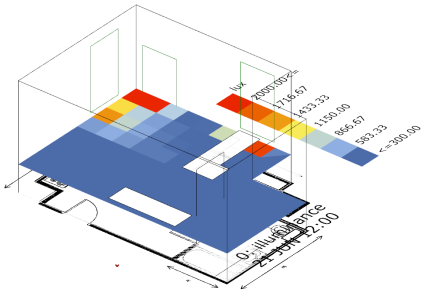

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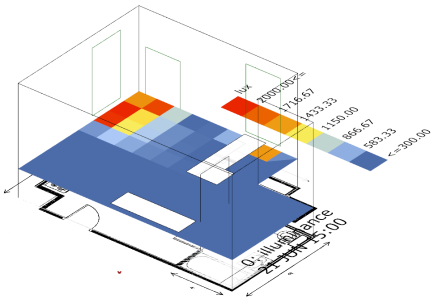

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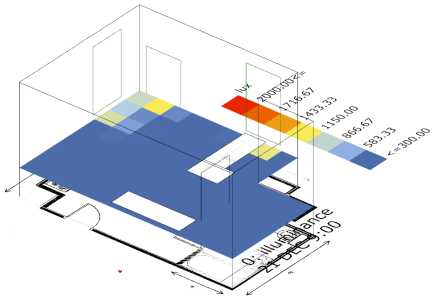

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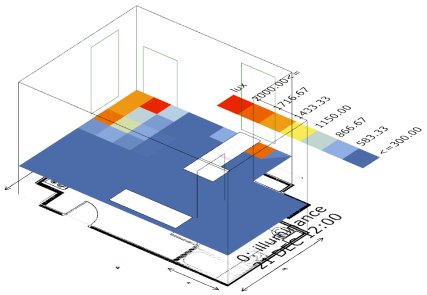

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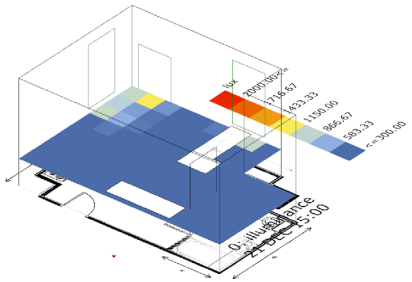

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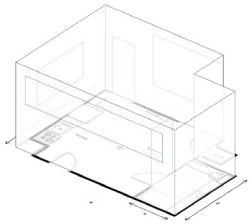
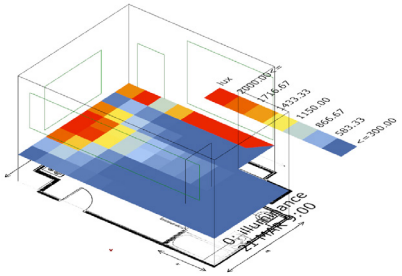
CHANGE NORTH WINDOW'S SIZE



After increasing the size of the north window, the daylight analysis shows that the interior light is getting better. I would like to keep increasing the size of the other windows.



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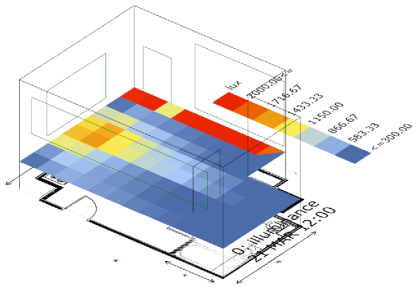

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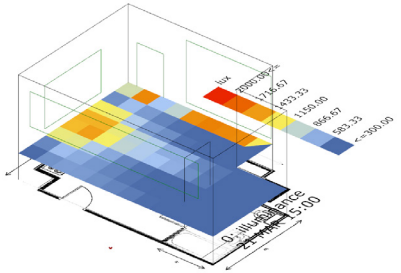

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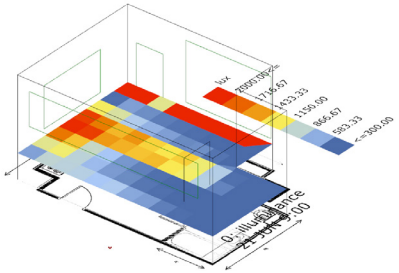

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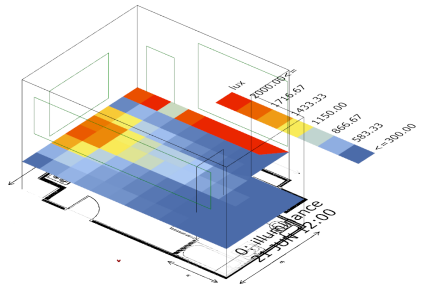

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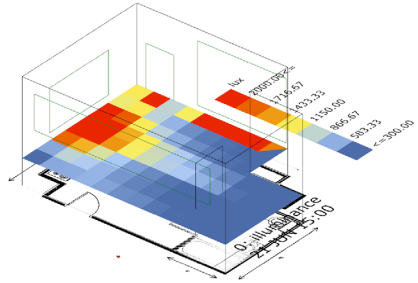

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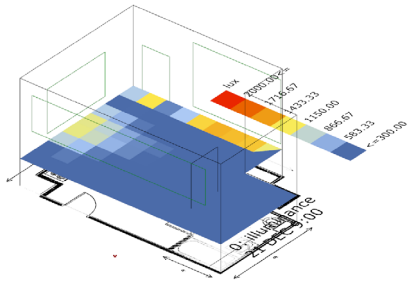

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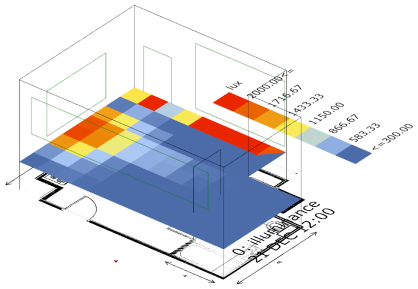

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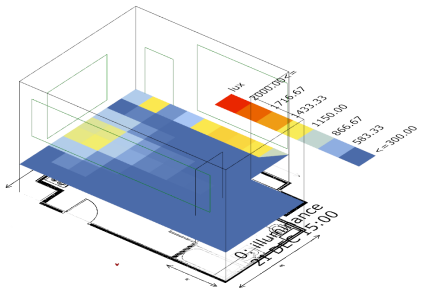

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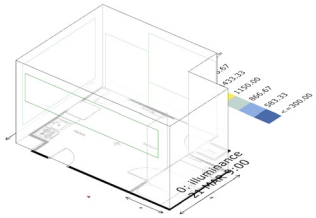
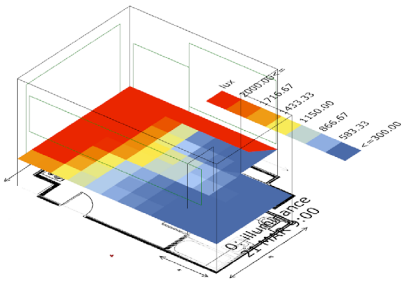
OPEN NEW WINDOW AND CHANGE DOOR'S SIZE



After increasing the size of the door and open it to make it as one of the window when analyzing it, the interior light environment gets better. Also I kept increasing the north window's size and the light now is more than 2000lux. The good thing is the very inside of my apartment get get some sunshine in March and June. I also opened a new window on the west wall, it faces to the corridor but not exterior. It helps a little.



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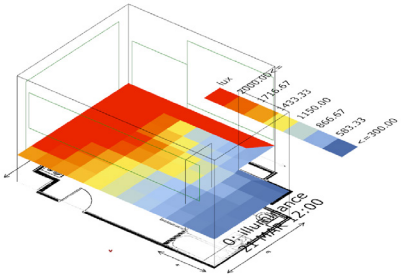

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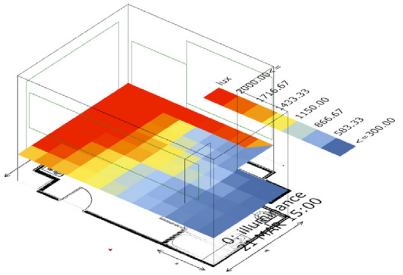

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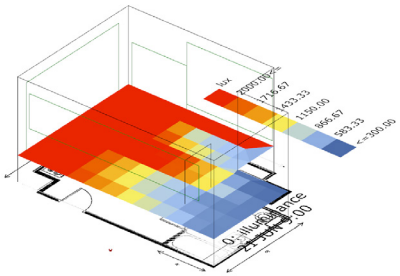

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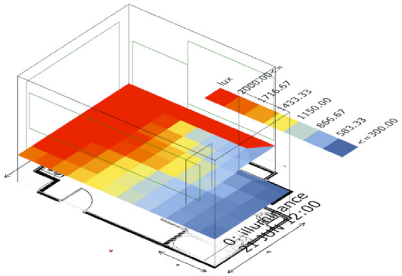

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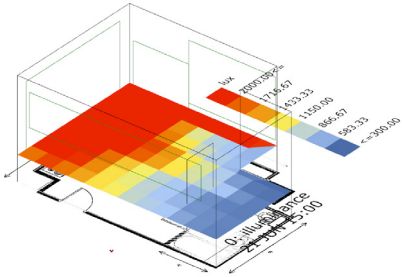

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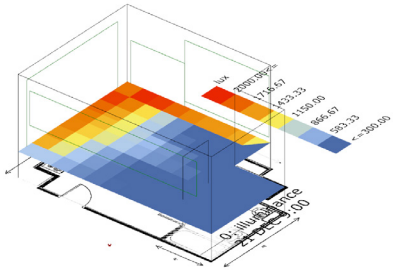

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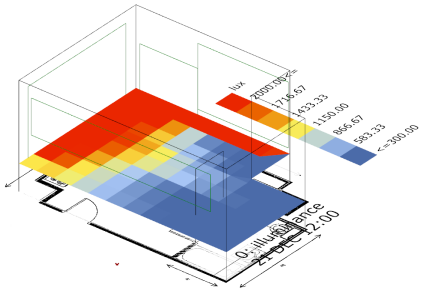

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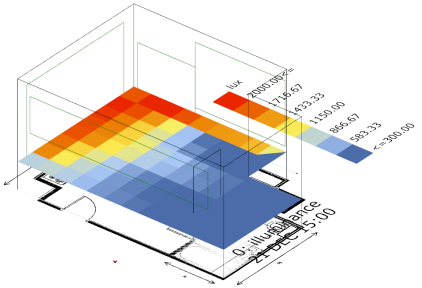

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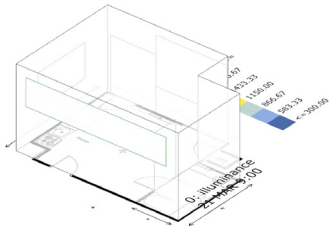
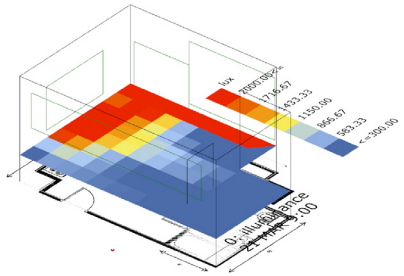
DECREASE THE NORTH WINDOW'S SIZE



According to the former analysis, the light is out of the boundary we set, 2000lux, so I decreased the north window's size. From the analysis now we can see that only in June the sunshine is too much. This range is acceptable for me.



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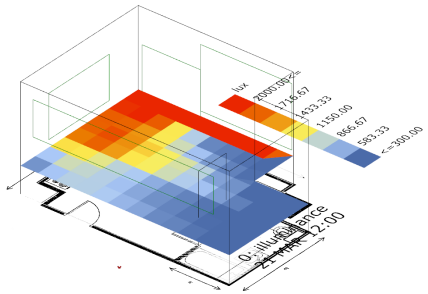

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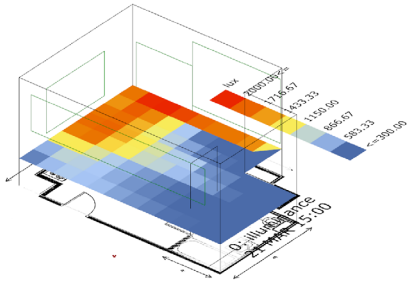

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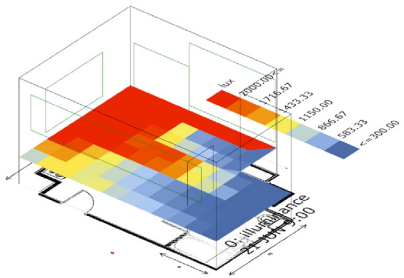

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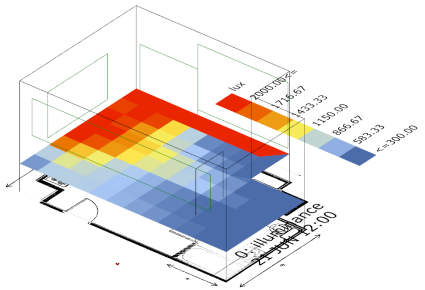

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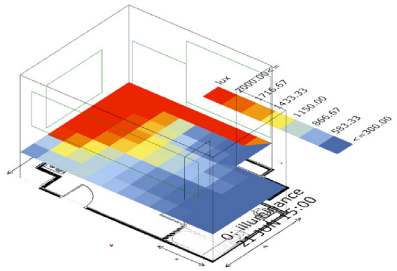

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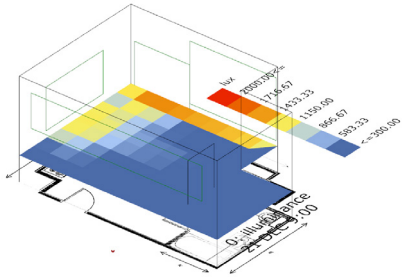

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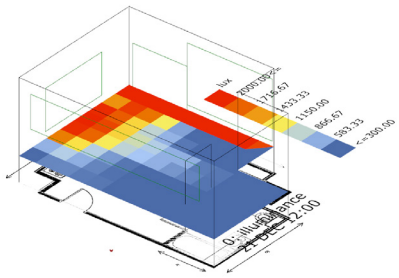

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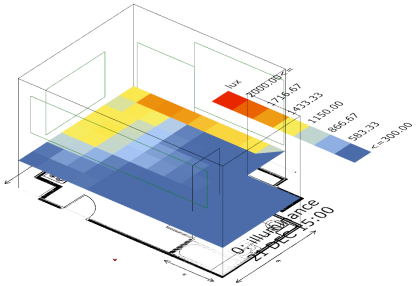
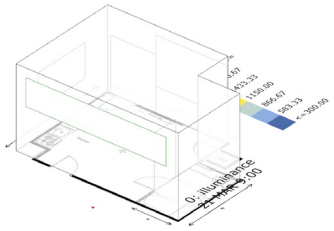
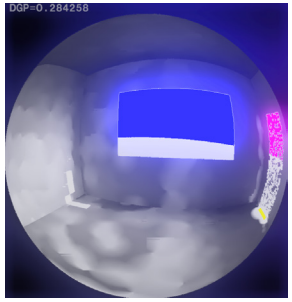


15pm Dec 21

GLARE ANALYSIS



The daylight glare probability(DGP) should under 0.35 to be imperceptible. According to the analysis, the average DGP is under 0.28 which is unperceptible and acceptable for me. The maxmimum DGP happens at June 21st, 9am, as 0.328985.



9am Mar 21
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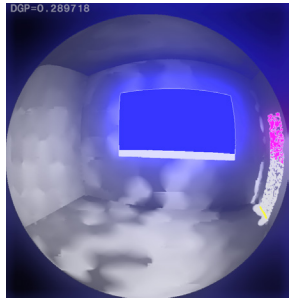

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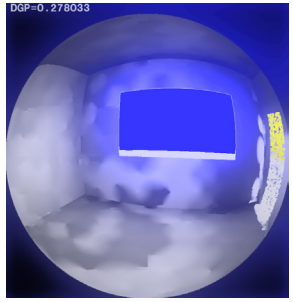

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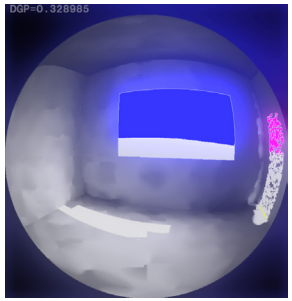

9am Jun 21
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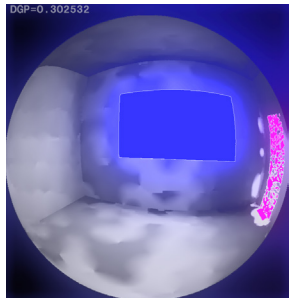

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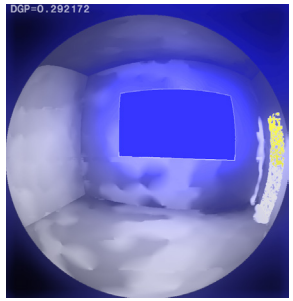

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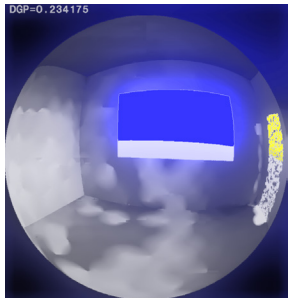

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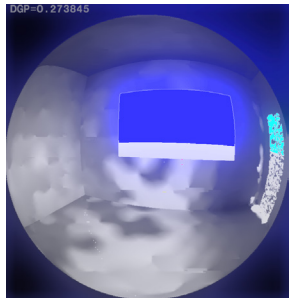

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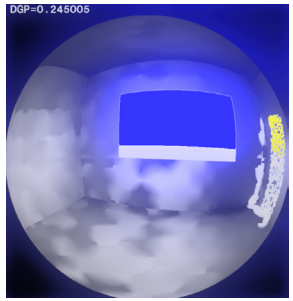

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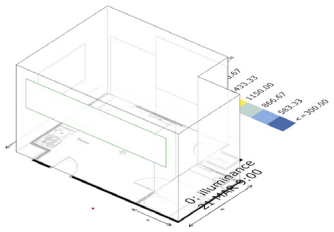
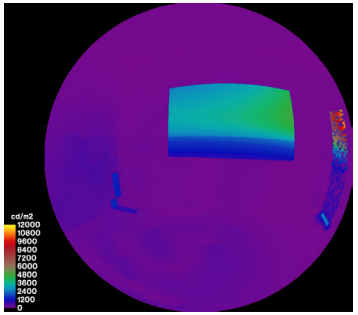
GLARE ANALYSIS





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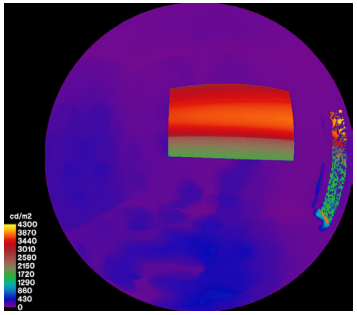

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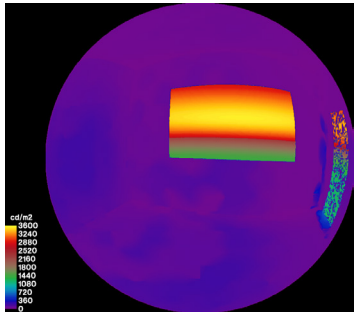

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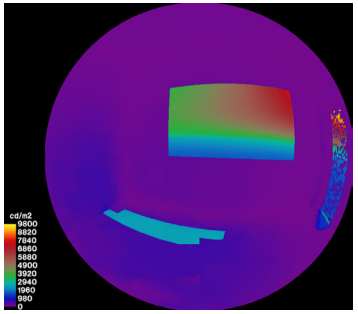
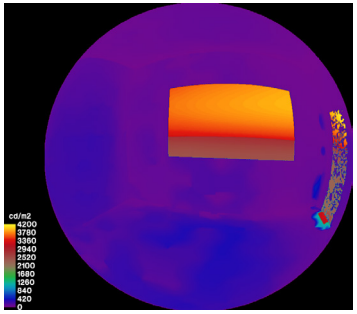
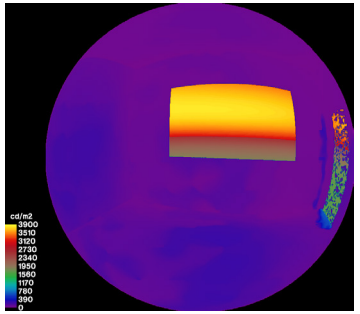


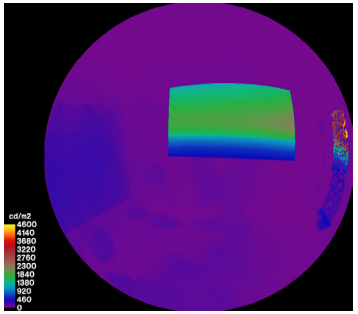
9am Jun 21



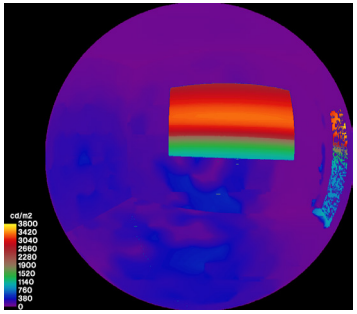
12pm Jun 21



15pm Jun 21



9am Dec 21



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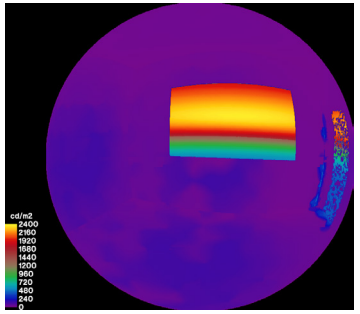
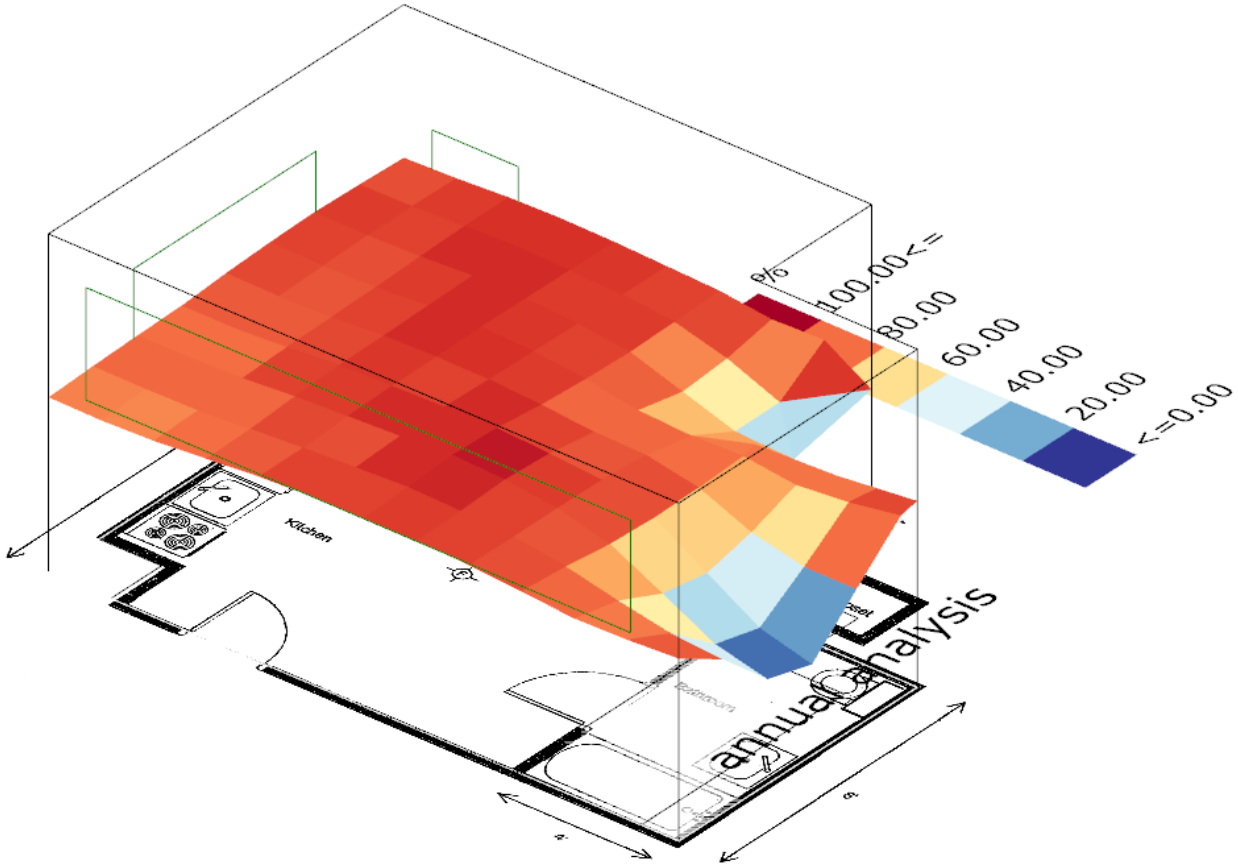


15pm Dec 21

ANNUAL DAYLIGHT ANALYSIS:UDI



UDLI 100-2000 evaluation result

From the Annual Daylight Analysis, we can see that after the improvement, most of the area in the apartment is in good daylight performance. However because of the existing disadvantage of the plan of the apartment, the northwest corner is lack of daylight.