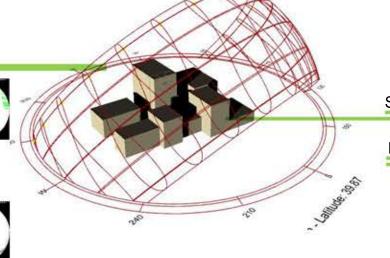
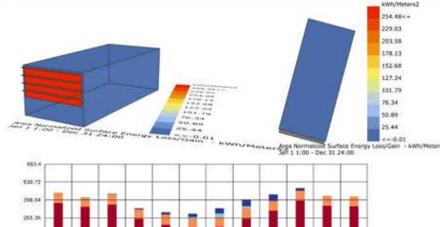
Natural Comfort in My Dream Room

ARCH-753 - Building Performance Simulation - Fall 2016, Instructor: Mr. Mostapha Sadeghipour, Student: Mitra Sajjadi



Sun Path Diagram Applied to Final Model

Energy Analysis of Final Design Approach





Philadelphia International Ap PA USA TMY3

100.00<=

UDLI Percentage of Time Between 100-2000

90.00

80.00

70.00

60.00

50.00

40.00 30.00 20.00 10.00

The Best Percentage achieved is 50.04 and still

21 March 15:00 21 March 9:00 21 March 12:00 21 June 9:00 21 June 15:00 21 June 12:00

21 December 12:00 21 December 15:00

Poin in Time Daylighting Analysis

Almost all the time we have just imperceptible glare which is basically no glare and so we don't have any problem. Just in some cases same as the result is daylighting analysis we have glare issue which is acceptable if we want enough daylight.



Percentage of Cold hours: 30.71 % Depth and Number of Blinds: 0.3 & 4 R value for Wall: 34.4

R value for Window: 0.7 R value for Roof: 34.4 Thermal Mass: 4 inch concrete Air Change hour: 2

Min Indoor Temperature for Natural Ventilation: 25 Min Outdoor Temperature for Natural Ventilation: 15

Accordance to Daylighting Analysis, Glare seem to be just a slight problem in March noon and afternoon time 0: illuminance 21 MAR 15:00 0: illuminance 21 MAR 9:00 21 MAR 12:00 0: illuminance 21 JUN 9:00 0: illuminance 21 JUN 12:00 0: illuminance 21 JUN 15:00 2000.00<= 1830.00 1660.00 1490.00 1320.00 1150.00 980.00 810.00 640.00 470.00 21 DEC 9:00 21 DEC 12:00 21 DEC 15:00

The percentage of time room is well daylit is a really good amount and the result seem to be satisfying. Those parts with less percentage of UDLI are just corridors and closed spaces.

annual analysis

percentage of cold hours is more than percentage of hot hours. That may be cause of natural ventilation and infilteration rate, but the overall achievement seems to be reasonable and acceptable.

