Week 7_Qureshi, Nahid

Question 1: Provide a summary of the main concepts that went through about solar radiation.

Solar Radiation
Solar Radiation is an energy radiated from the sun in the form of electromagnetic waves, including visible and ultraviolet light and infrared radiation.
The energy that comes to the earth is modified due to the phenomenon of dispersion and absorption.

Solar Radiation Density
The maximum yearly average solar radiation density is the solar constant, which is the solar irradiance, its value is 1367 W/m^2

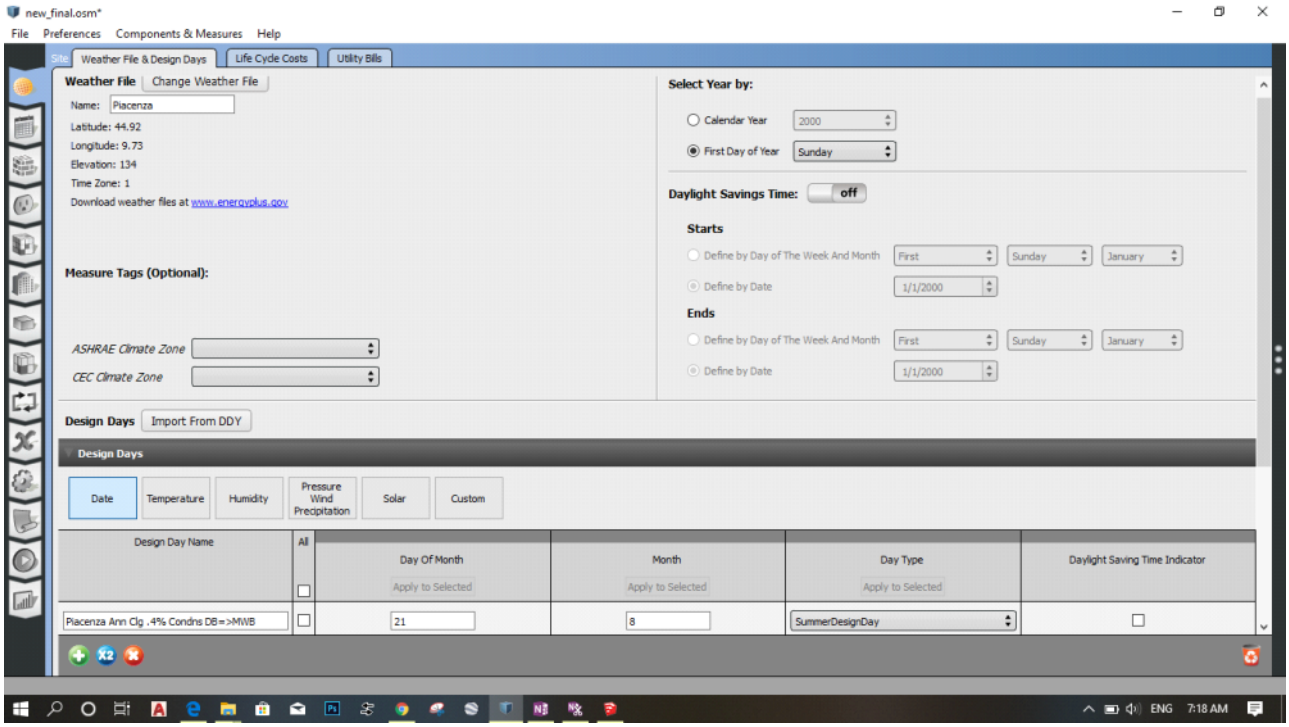
Direct (beam) and Diffuse Radiation
The solar radiation reaching the Earth's surface can be divided into two types of solar radiation: Direct beam solar radiation and diffuse solar radiation.
As sunlight passes through the atmosphere, some of it enters the surface of the Earth direct and undisturbed the so called beam solar radiation. Beam solar radiation throws sharp shadows and can be focused. Another component of sunlight is the diffuse solar radiation, on its way through the atmosphere it is absorbed , scattered , or reflected by dust, water vapor, clouds, pollutants, etc. Diffuse solar radiation does not throw sharp shadows and cannot be focused .

Atmospheric Absorption
Atmospheric absorption is absorption by the earth's atmosphere of most of the X-rays and ultraviolet and infrared radiation emitted by the sun, except visible light.

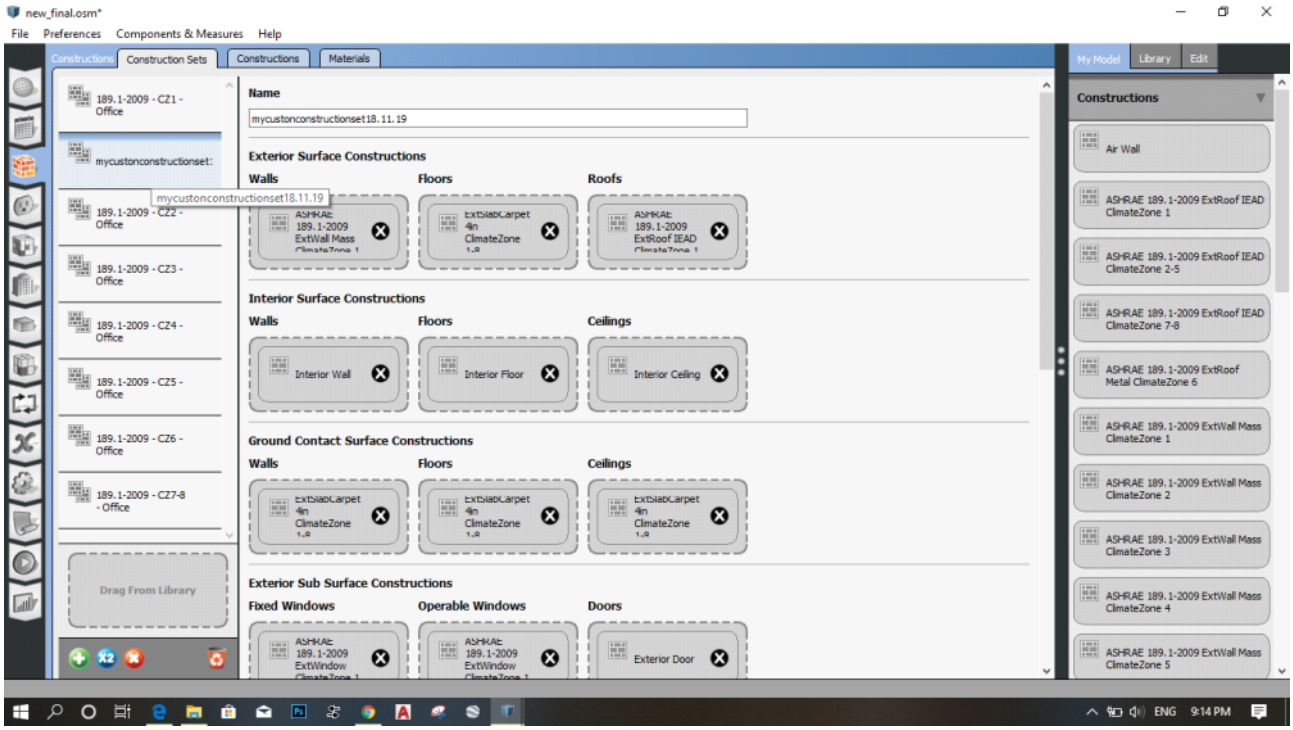
Solar Radiation
The solar radiation depends on:
1. The sun position in the sky, which changes daily and seasonally.
2. The weather condition
3. The site altitude over the sea level
4. Sunshine hours

Question 2
Create a pdf file with screenshots of all of the steps we went through in the second lesson on open Studio and explain briefly the reason behind the use of each step.

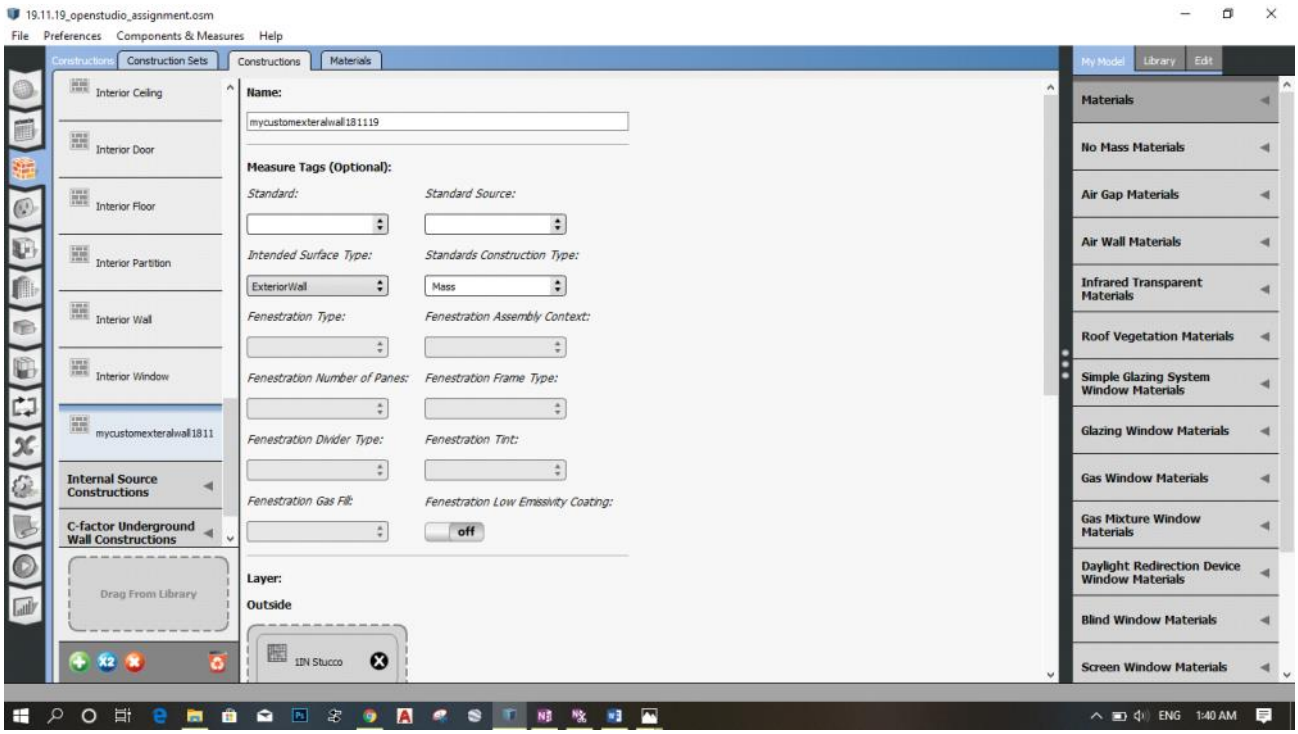
Insert the "weather data" of Piacenza in open office



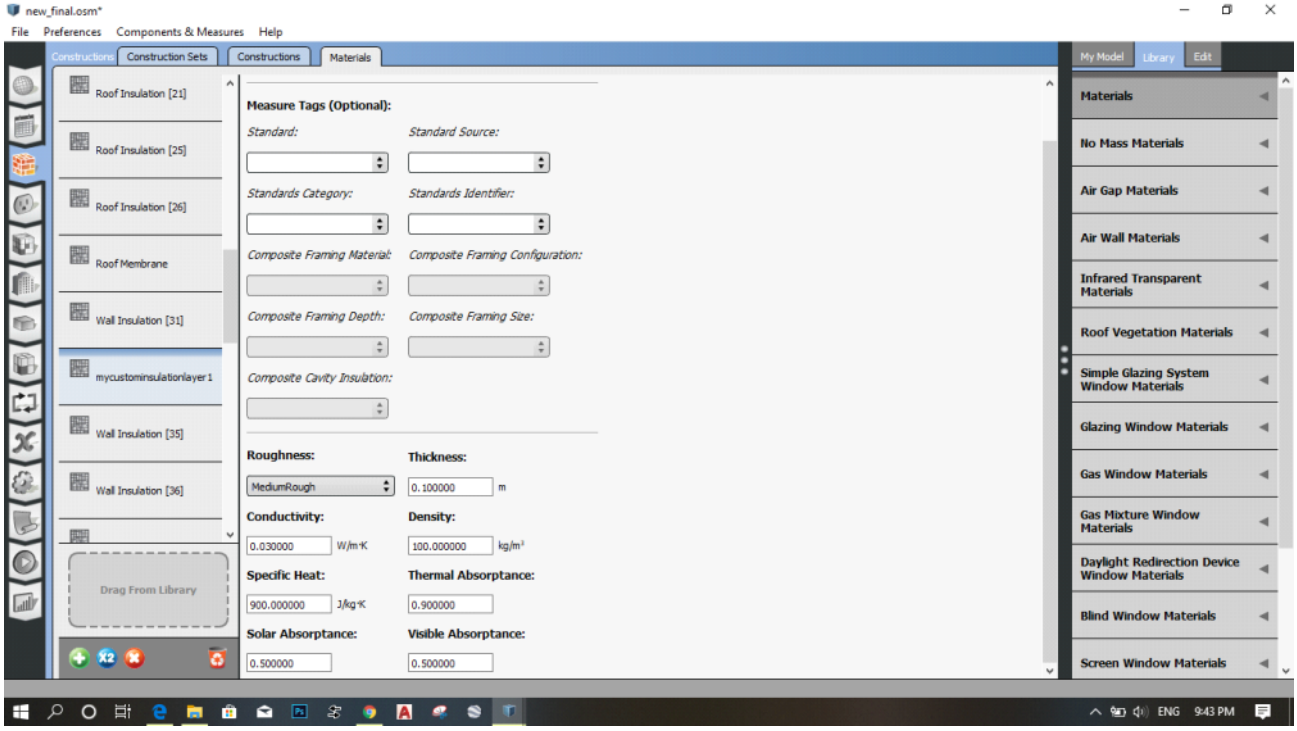
Go to the "construction sets" command to start customize the building by creating a new wall, by coping the existing one.



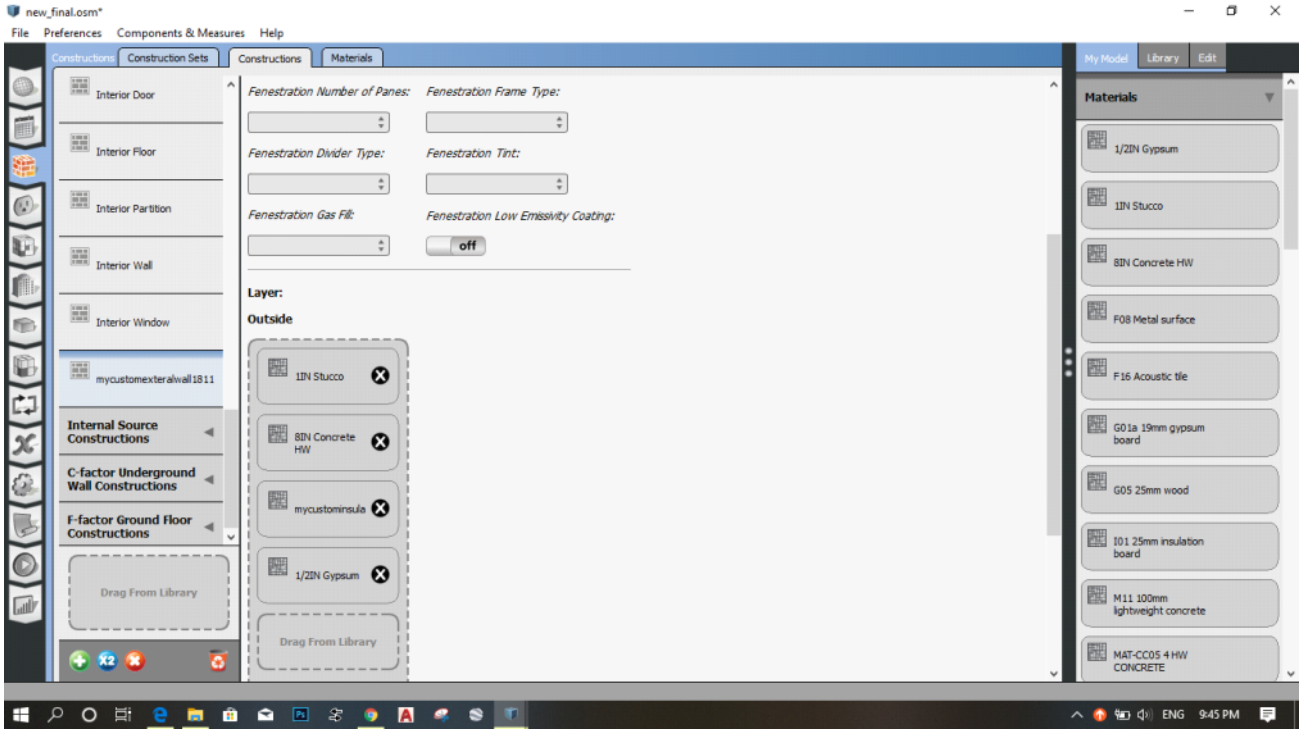
Select "construction" tab, start customizing the wall.



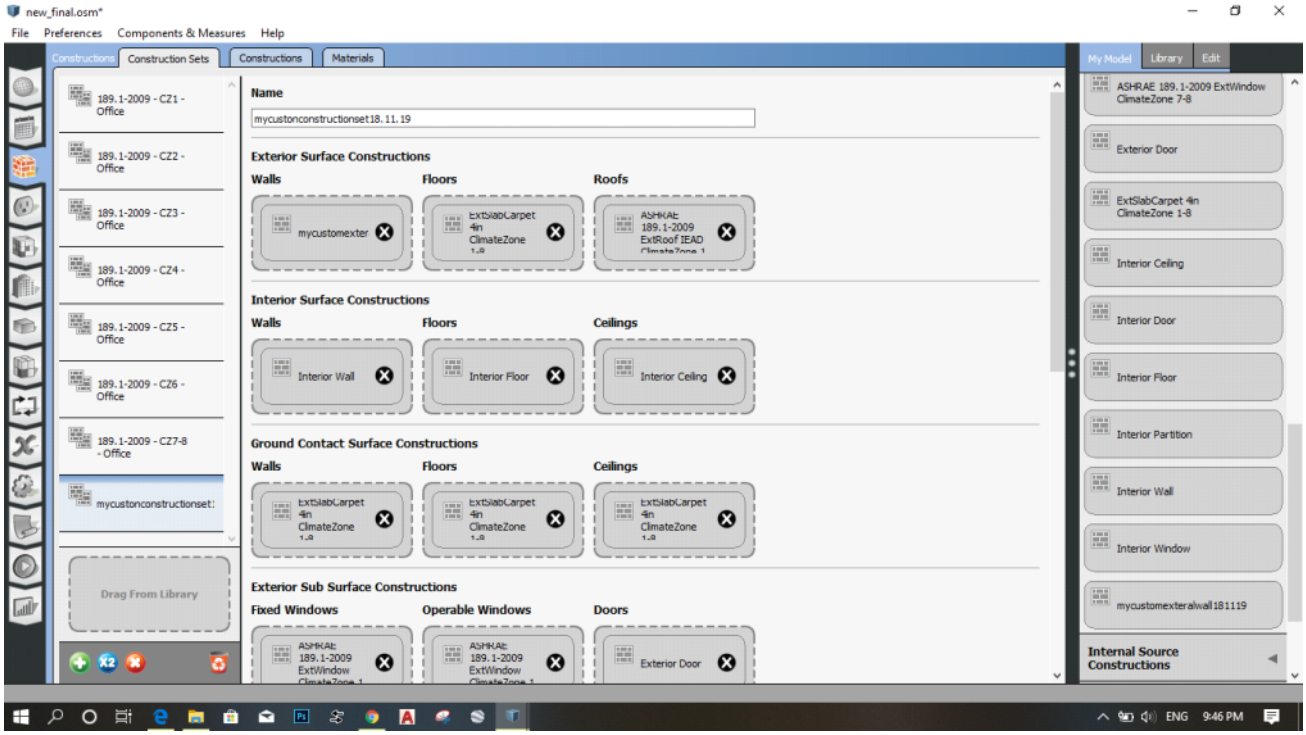
Decide the type of materials that should be part of it. To change and check the characteristics of the materials we have to go to the "material" tab and duplicate the existing again and change the properties accordingly.



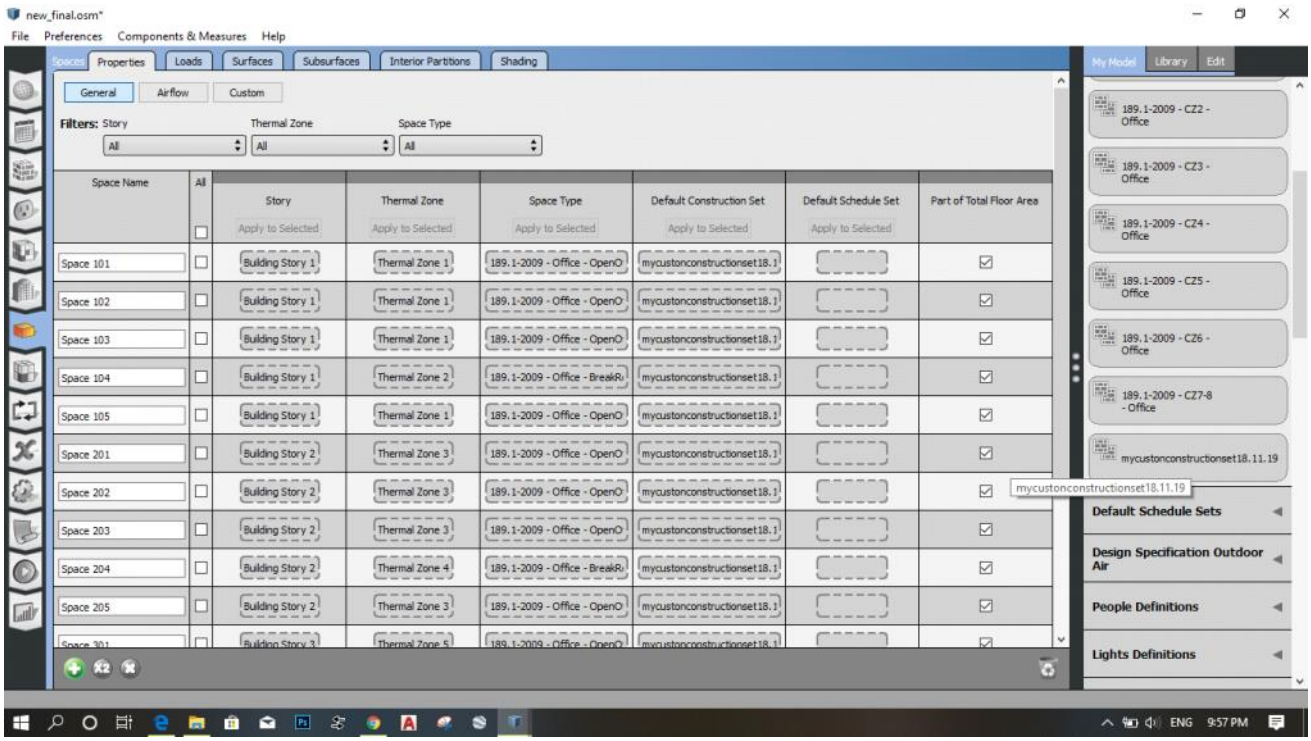
Then we have to go back to "construction" option and there we have to replace the new material with the existing one from "my model"



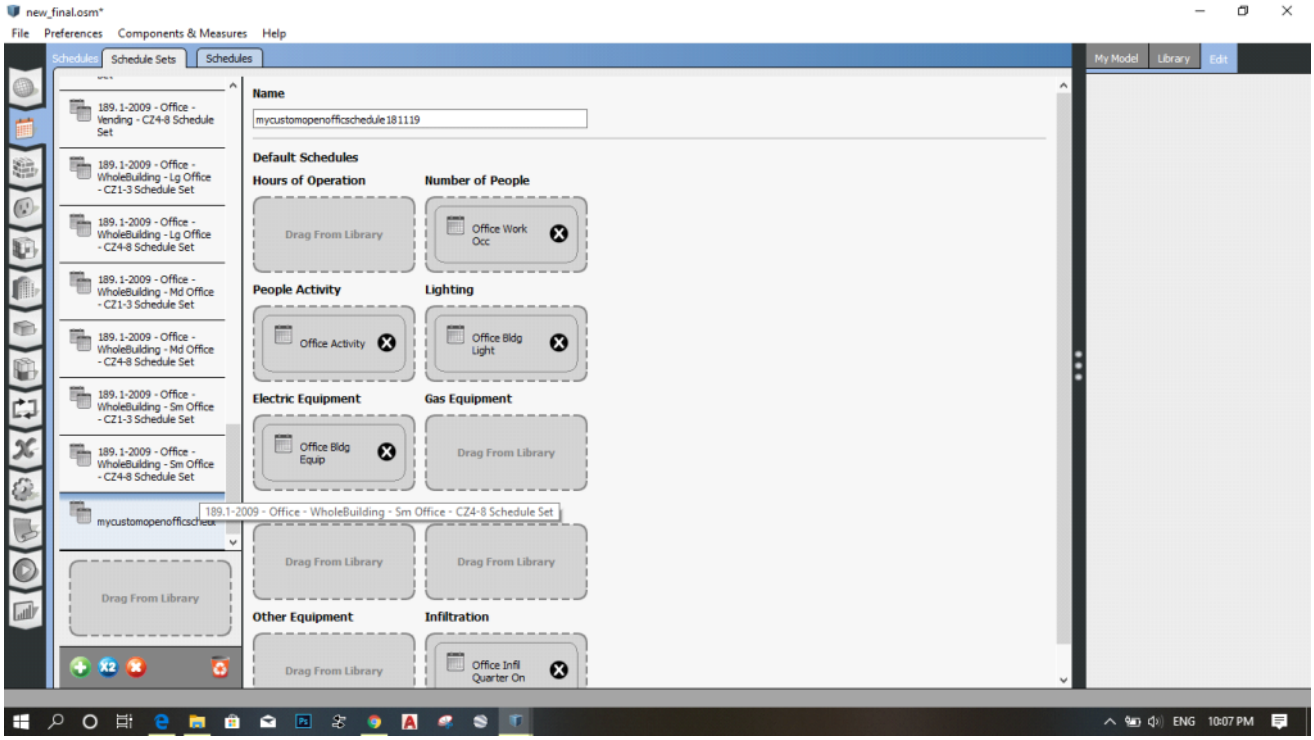
Insert the customize wall in the building data.



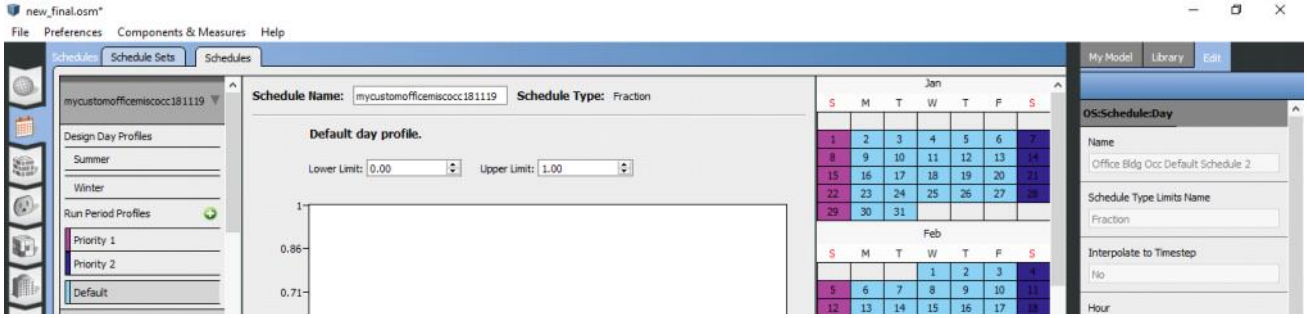
Go to the "space" window and insert the project layer with our modifications applying it to the whole building.

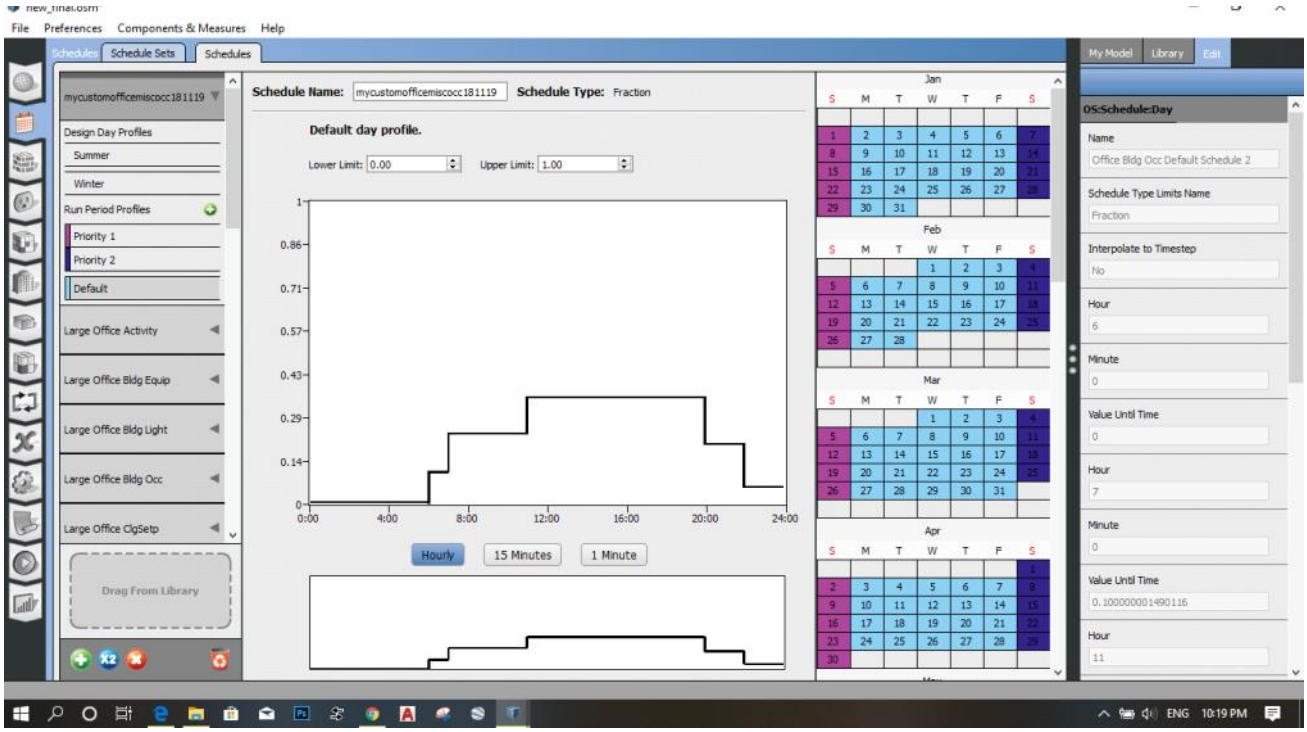


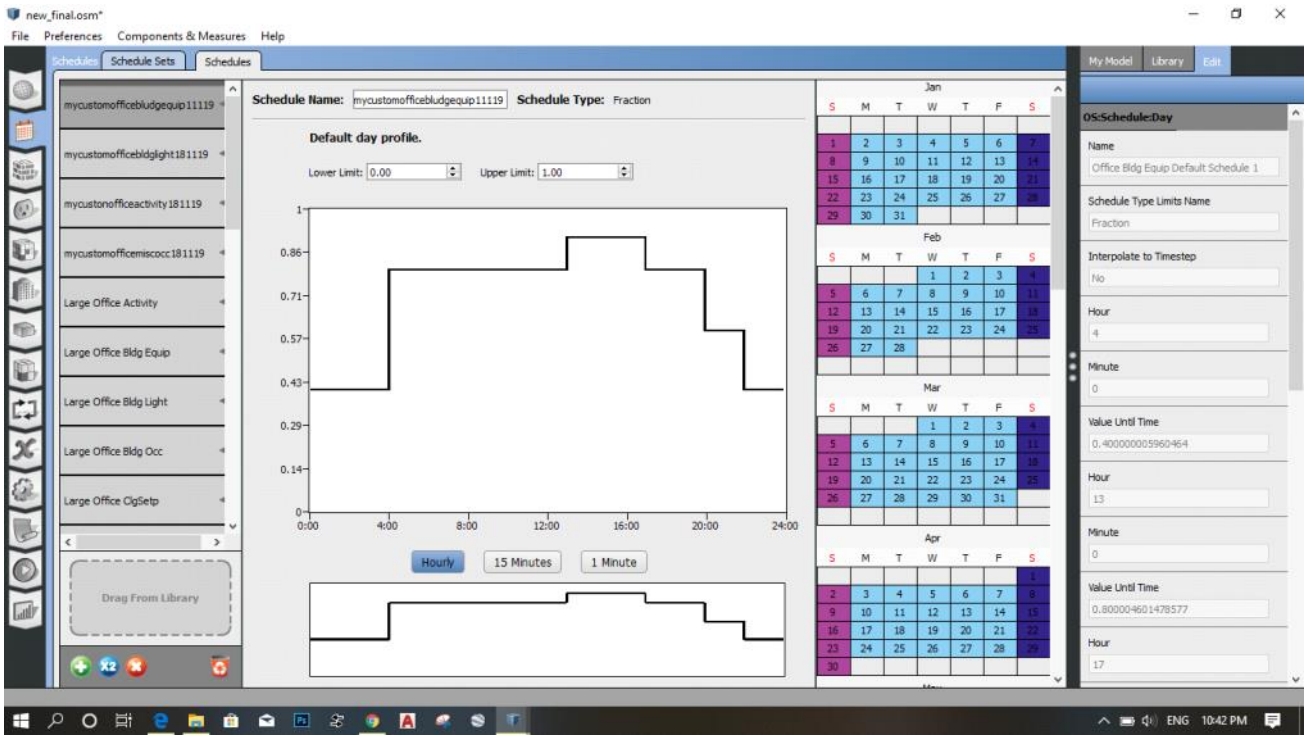
Go to "schedule sets" to enter all the information related to different activities, equipment, occupancy, lights etc.



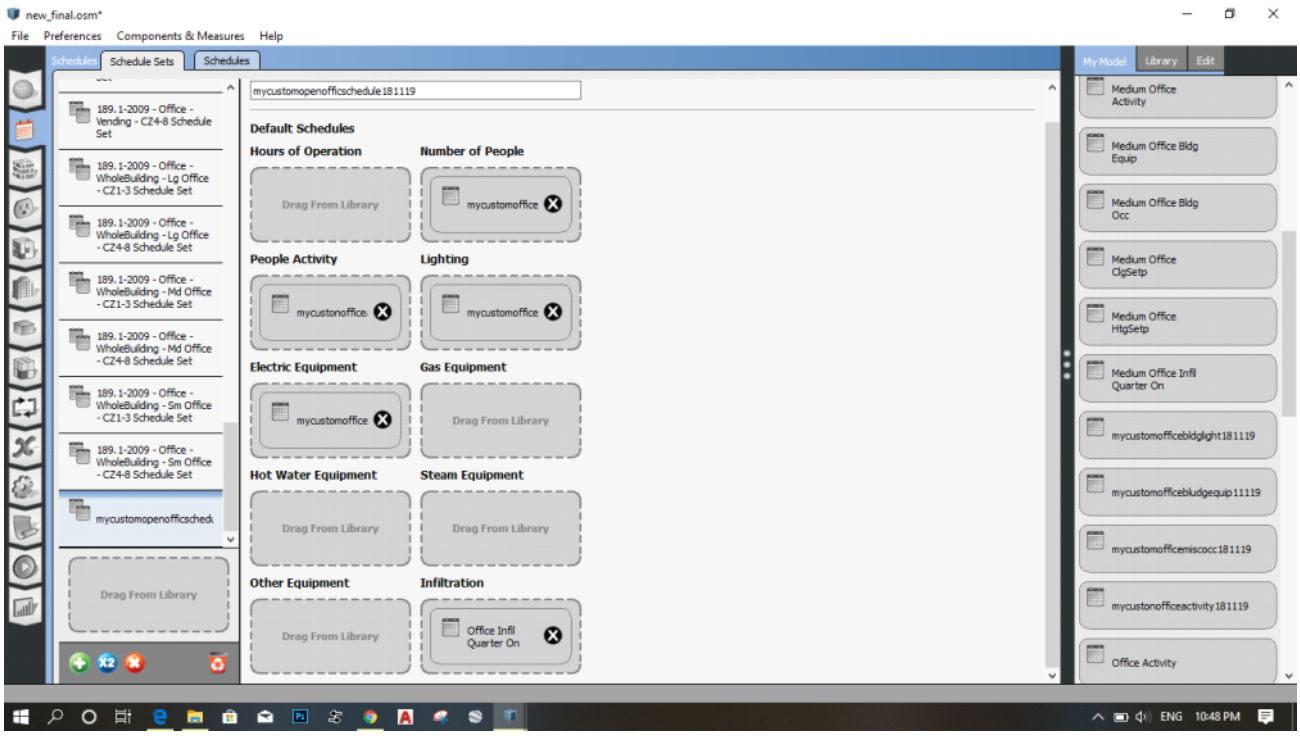
Select "schedule" command to enter all the information related to different activities, equipment, occupancy, lights etc. Can change the priorities according to the building use.



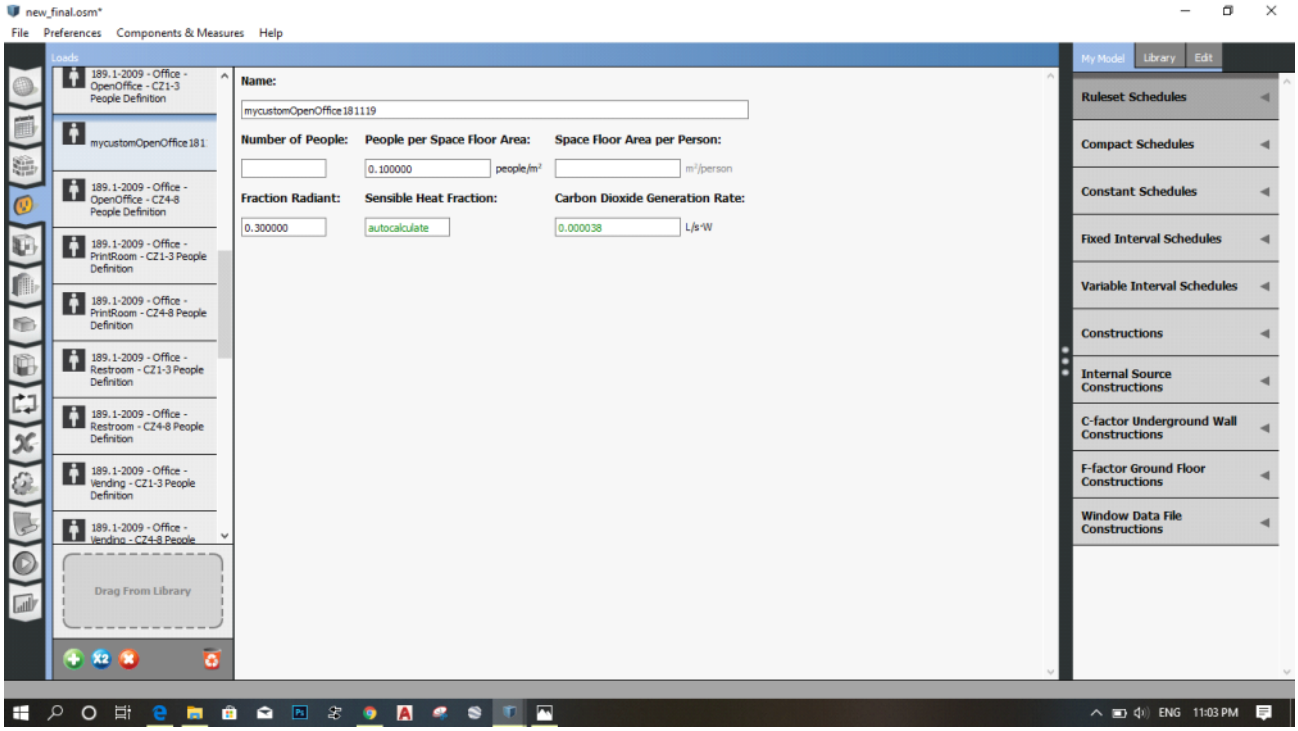


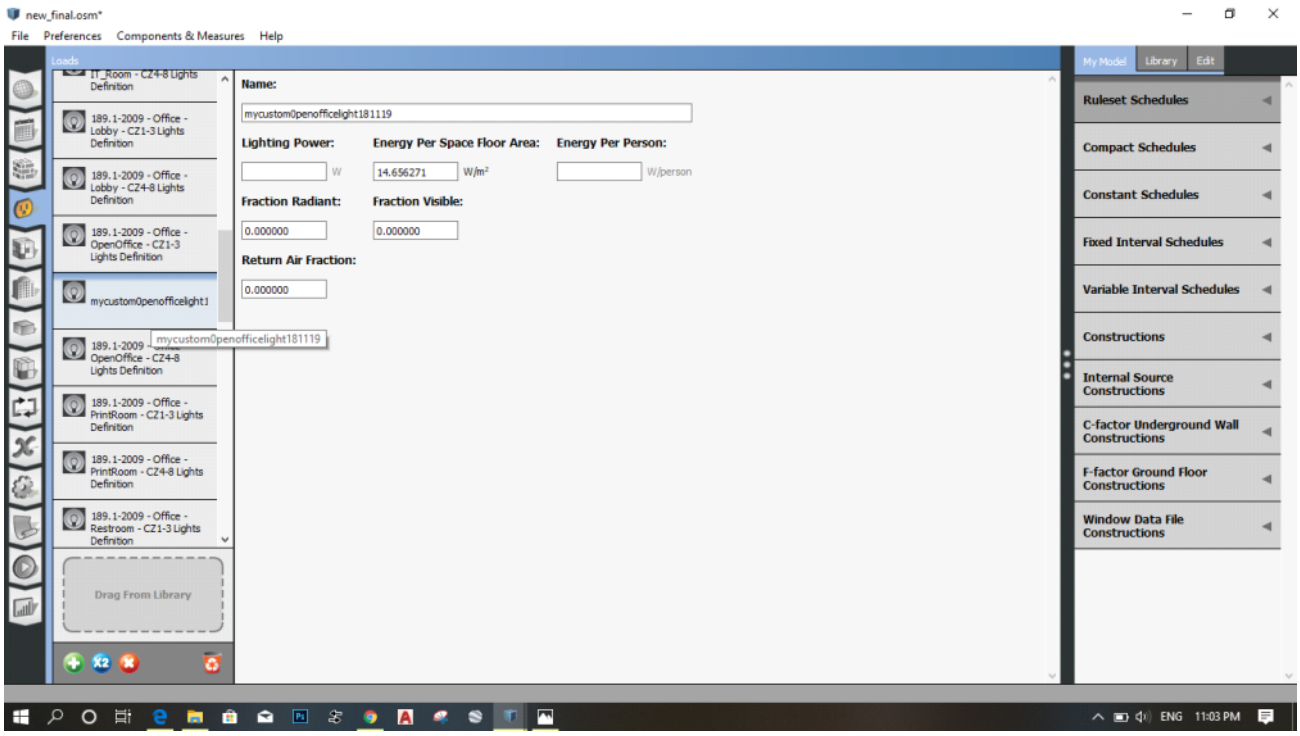


Then we have to go back to "schedule sets" option and replace the schedules with the existing one



Now go to the "loads" command to change other specifications, like people, light, electricity etc.




new_final.osm*
File
Preferences
Components & Measures
Help
Loads
189.1-2009 - Office - Lobby - CZ1-3 Lights Definition
189.1-2009 - Office - Lobby - CZ4-8 Lights Definition
189.1-2009 - Office - OpenOffice - CZ1-3 Lights Definition
mycustom0penofficelight1
189.1-2009 - Office - OpenOffice - CZ4-8 Lights Definition
189.1-2009 - Office - PrintRoom - CZ1-3 Lights Definition
189.1-2009 - Office - PrintRoom - CZ4-8 Lights Definition
189.1-2009 - Office - Restroom - CZ1-3 Lights Definition
Drag From Library
Name:
mycustom0penofficelight181119
Lighting Power:
W
Energy Per Space Floor Area:
14.656271
W/m²
Energy Per Person:
W/person
Fraction Radiant:
0.000000
Fraction Visible:
0.000000
Return Air Fraction:
0.000000
My Model
Library
Edit
Ruleset Schedules
Compact Schedules
Constant Schedules
Fixed Interval Schedules
Variable Interval Schedules
Constructions
Internal Source Constructions
C-factor Underground Wall Constructions
F-factor Ground Floor Constructions
Window Data File Constructions
ENG
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