Solar Radiation

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Politecnico di Milano
MSc. Sustainable Architecture and Landscape Design
Fabiola Anahí Mogrovejo León

Task 1. Provide a summary of the main concepts that went through about solar radiation (formulas are not needed)

Solar Radiation

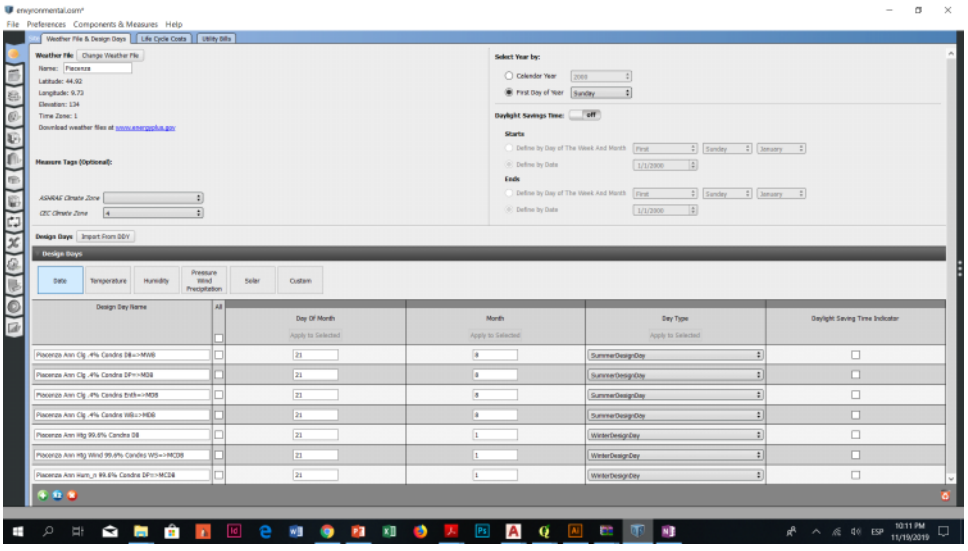
An electromagnetic energy emitted by the sun (5778K); this energy does not reach the earth's surface constantly, its amount varies during the day, from season to season and depends on the cloudiness, the angle of incidence and the reflectance of the surfaces. The radiation that a m2 of a horizontal surface receives is known as global radiation and is the result of the sum of direct, diffuse and reflected radiation.

Diffuse radiation is that which comes from the atmosphere, by dispersion of part of the solar radiation in it. In the sunniest days without the presence of clouds, this type of radiation can be approximately 15% of the global, but on cloudy days when the amount of direct radiation is reduced, this type of radiation increases considerably.

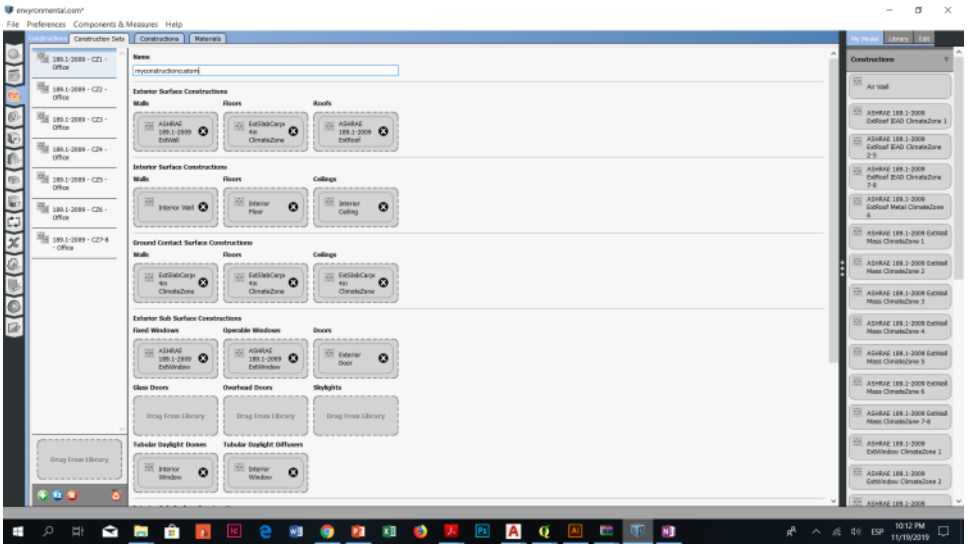
The reflected radiation is that reflected by the earth's surface. The amount of radiation depends on the reflection coefficient of the surface. On the other hand, horizontal surfaces do not receive any reflected radiation, because they do not "see" terrestrial surface, while vertical surfaces are the ones that receive the most.

Summarizing, solar radiation depends on the position of the Sun, the weather, the season, the altitude, the location, the surface and the lenght of the day

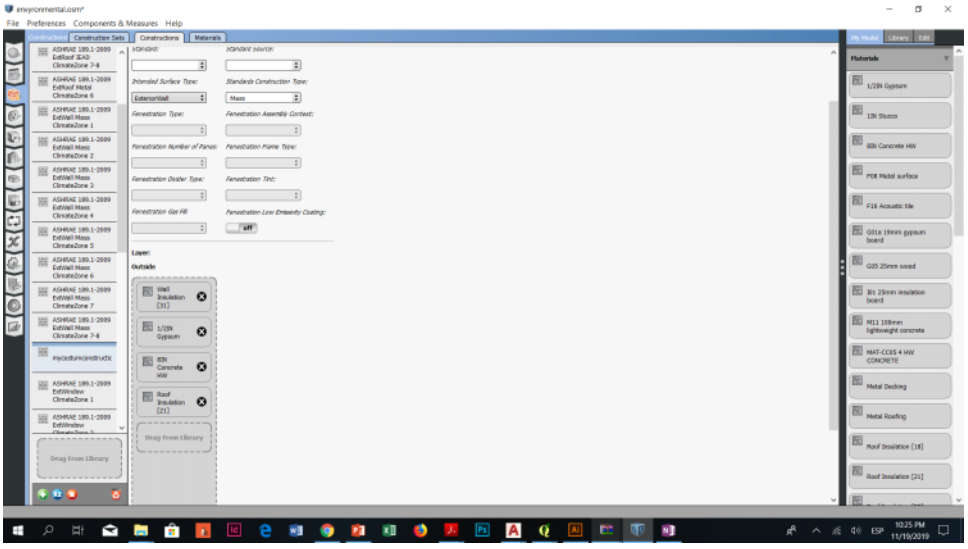
Task 2. Create a pdf file with screenshots of all of the steps we went through in the second lesson on openStudio and explain briefly the reason behind the use of each step (in your own words!)



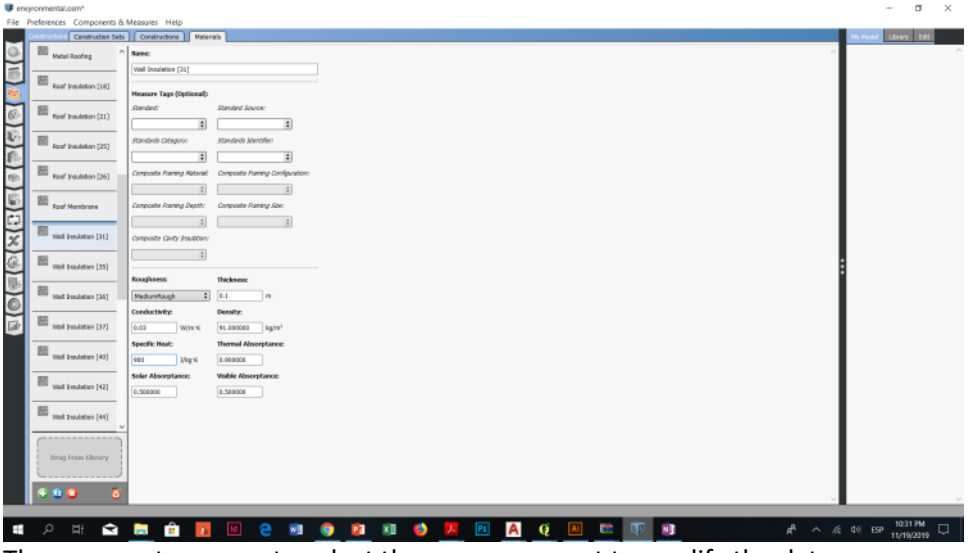
The weather data has to be imported.



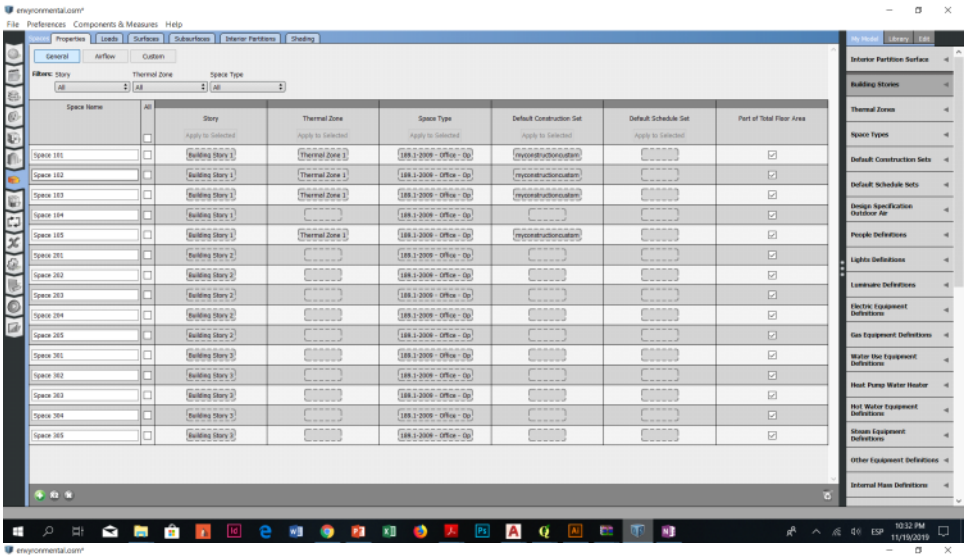
We create a new construction custom and choose the materials.

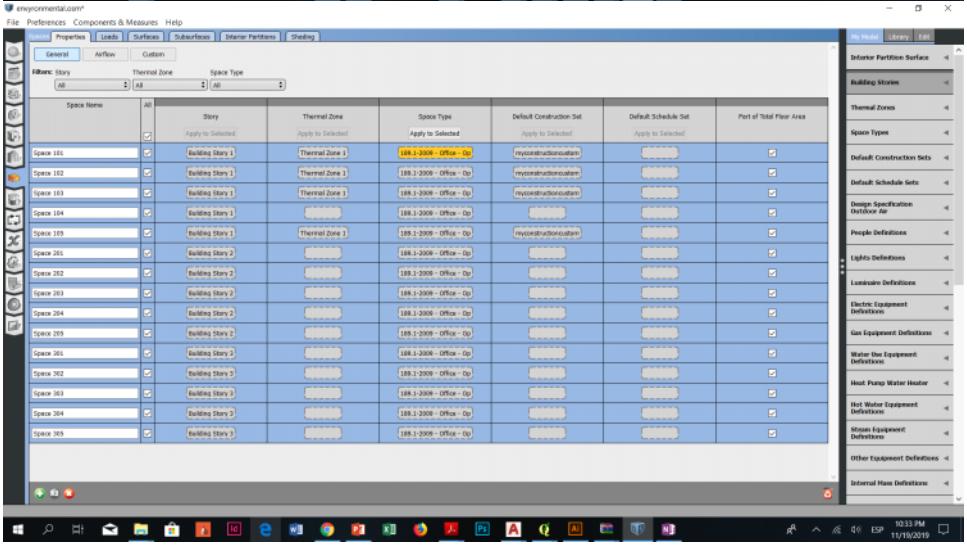


Then, we change the correct data of conductivity, density, thermal absorptance, solar absorptance, And specific heat.

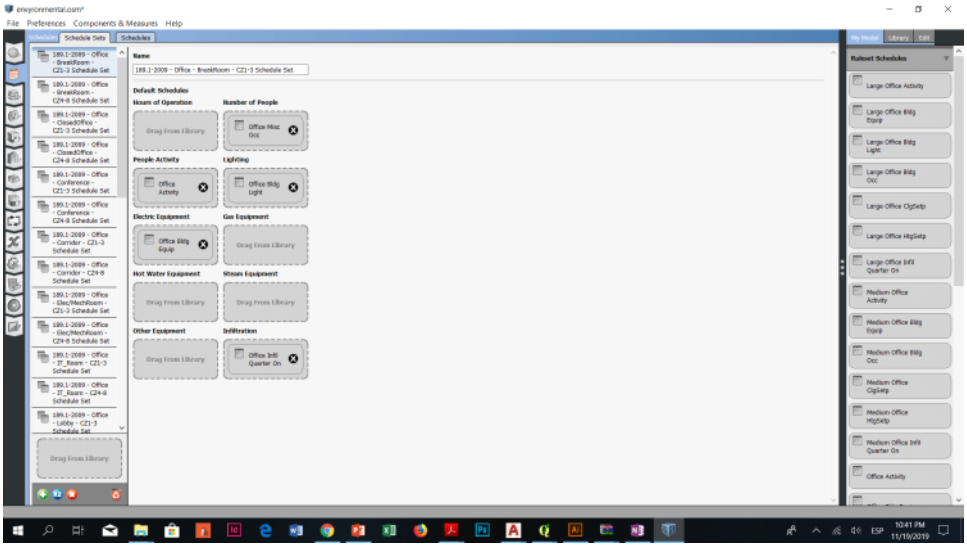


Then, we go to spaces to select the space we want to modify the data

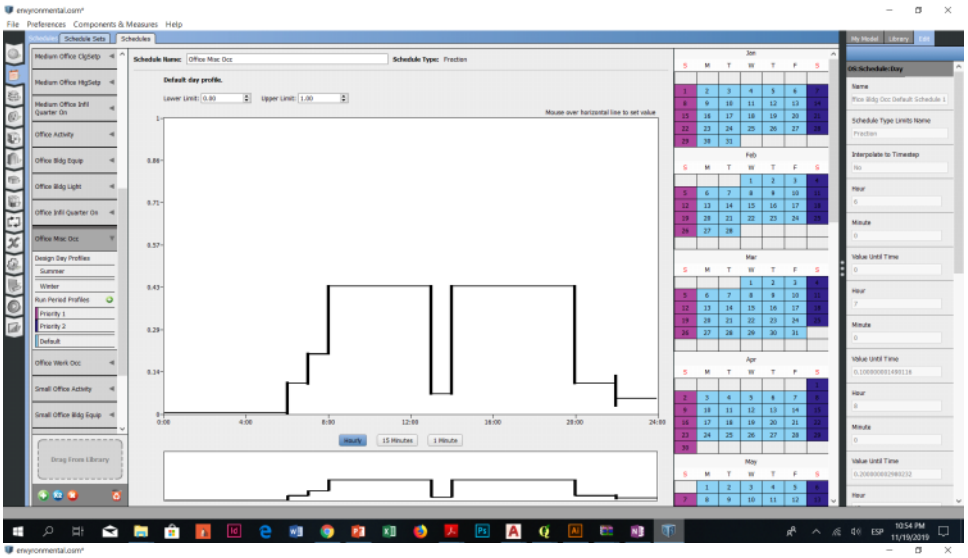


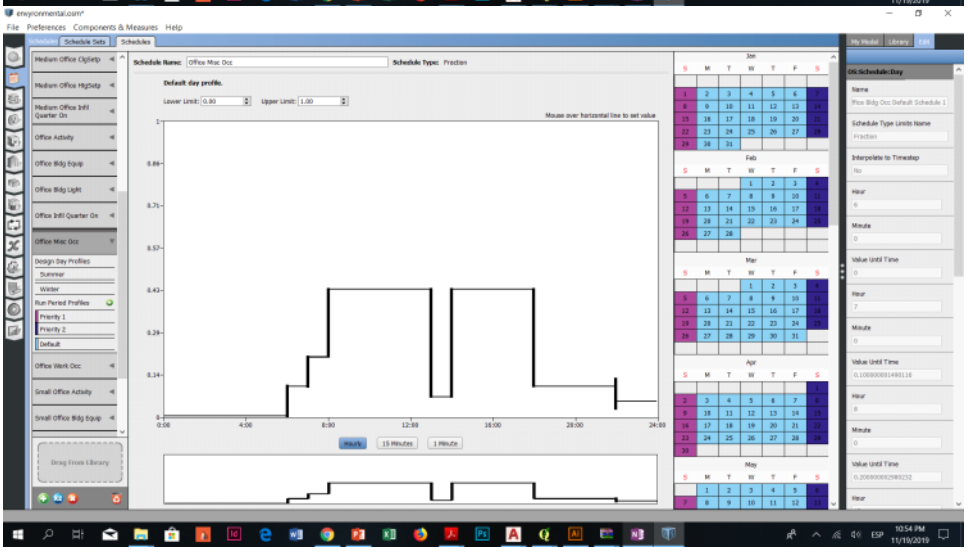


Then, we choose the schedule that this space will have in the future.



We can modify the hours of occupation of the space in this part





Then we can add a schedule in the different priorities.