TASK 1 – SOLAR RADIATION

Solar radiation is the energy that is created and emitted by the sun. This energy travels through the atmosphere when coming through the surface of the earth. During this, dispersion and absorption phenomena occurs. As a result, the spectral distribution and irradiance is modified.

Dispersion: OR scattering macroscopic effect is spreading the one single ray of waves into multiple around the world.

The solar radiation absorption is due to the materials in the atmosphere such as ozone, water and carbon dioxide. The materials absorbs the radiation in specific wavelengths. For example, ozone absorbs almost all the ultraviolet part of the wavelength in the solar radiation.

Depending on the angle of sun from the earths surface, the thickness that the radiative energy travels through the atmosphere is different. If the sun is perpendicular to the athmosphere, the travel distance of the energy within the thickness is the shortest however if the angle has a bigger angle to the surface, the travel length elongates. Therefore the absorption and dispersion phenomena occur more. SO the avaible solar radiation on the surface anywhere on the earth depends on

-The angle between the point on the surface and suns position.

-The weather condition

-Sites altitude

-Sunshine hours

Measurement Instruments for the solar radiation are:

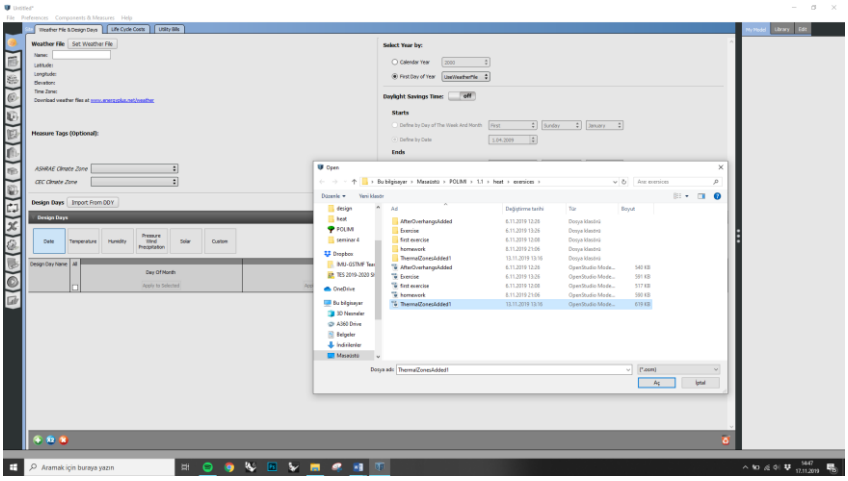
-Pyranometer: Measures the total solar irradiance as both direct and diffuse

-Pyranometer with shadowband: Only measures the diffuse irradiance.

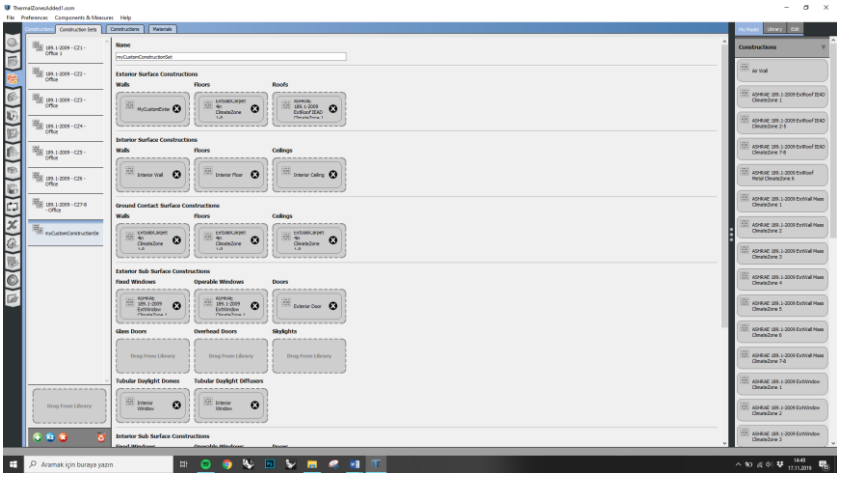
-Normal Pyrheliometer: This instruments tracks he sun and grasps a disk image of sun on the bottom of a tube which results in measurement of normal direct radiation.

Week 7 – AOzyurt (Azra Ahsen Ozyurt)

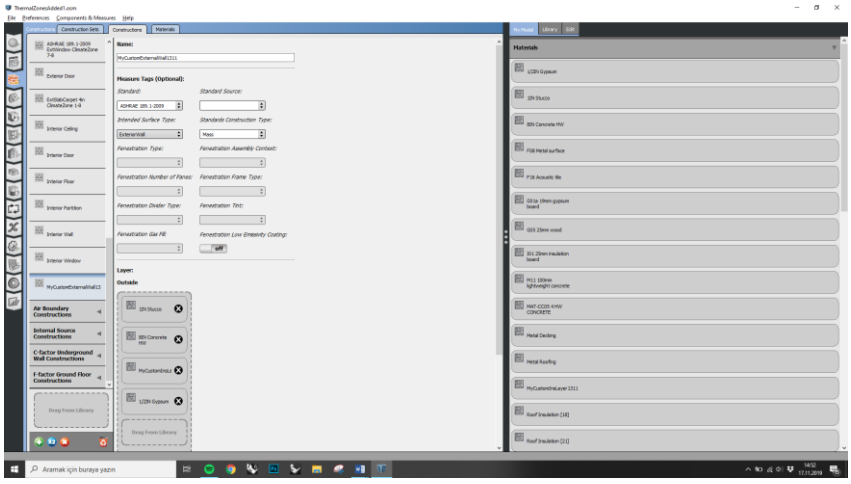
TASK 2 – OPEN STUDIO WORK



I have the file I created in sketch up and uploaded to the openstudio program. Here I have already imported weather and design day files. This is my base file now.



I open the construction sets tab and here I see what kind of elements are used in the calculations for my building is done by means of walls, floor and roofs. From the tab on the left I can add and change types of walls etc.



From the construction tab, I can modify types of walls and create my own to use in the construction sets tab.

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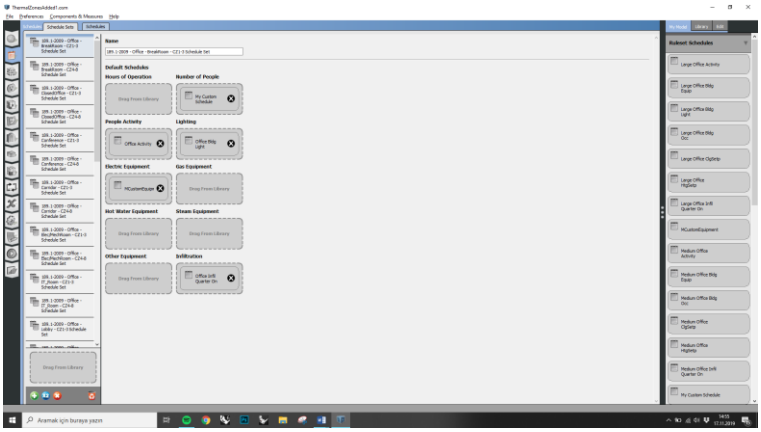
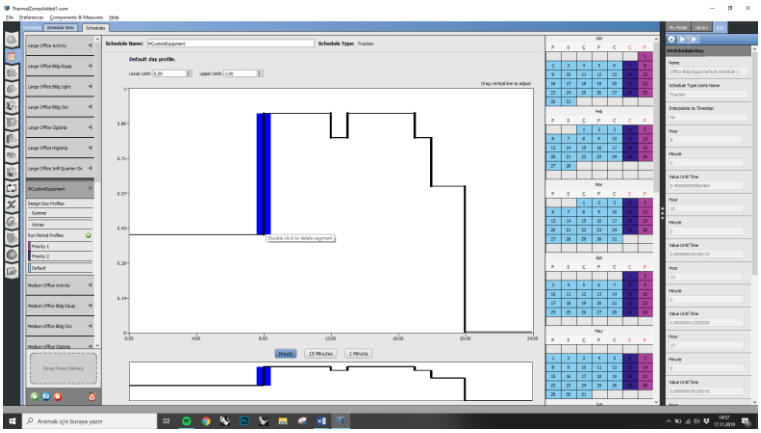
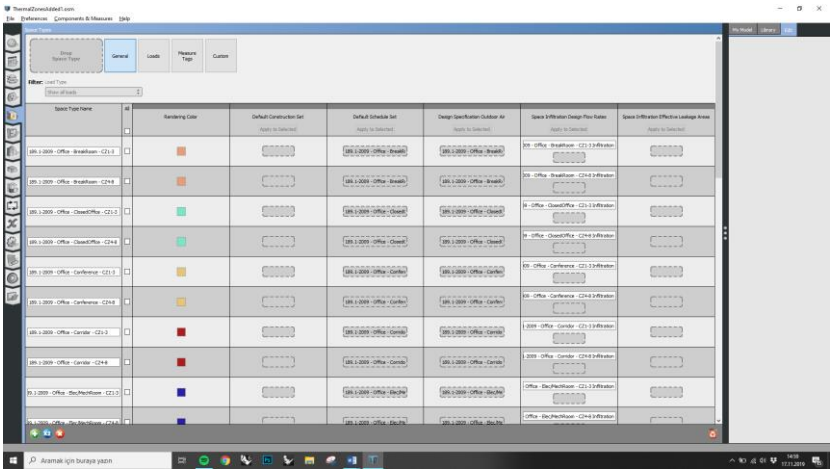


I am now on the schedules, schedule sets tab. This is where the amount of time consumed or created as energy is defined in the building.



On the scedules tab, I can create and/or use existing schedules for anything. For the equipment, working times etc. And I can use the information I have created in the schedules tab. I can apply all this to spaces from the left tab on the schedule tabs.



On the spaces tab, I can define all the things I have changed to my project and make the program calculate them all for my calculations.