

## Assignment 7

### Question 1

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

Solar radiation is energy emitted by the sun, particularly electromagnetic energy. Solar radiation when reaches atmosphere is modified, which means that incoming Solar radiation can be scattered, reflected or absorbed. Scattering of solar radiation occurs when the radiation strikes very small objects in Earth's atmosphere, such as air molecules, tiny water drops etc, which disperse the solar radiation in all directions. Absorption is different from scattering, because absorption involves more than a change in the direction of the radiation. Absorption of radiation involves the conversion of electromagnetic radiation into heat energy.

There is always a direct and diffused radiation. However the direct can be stopped (example in architectural point of view with shades) but not the diffused one.

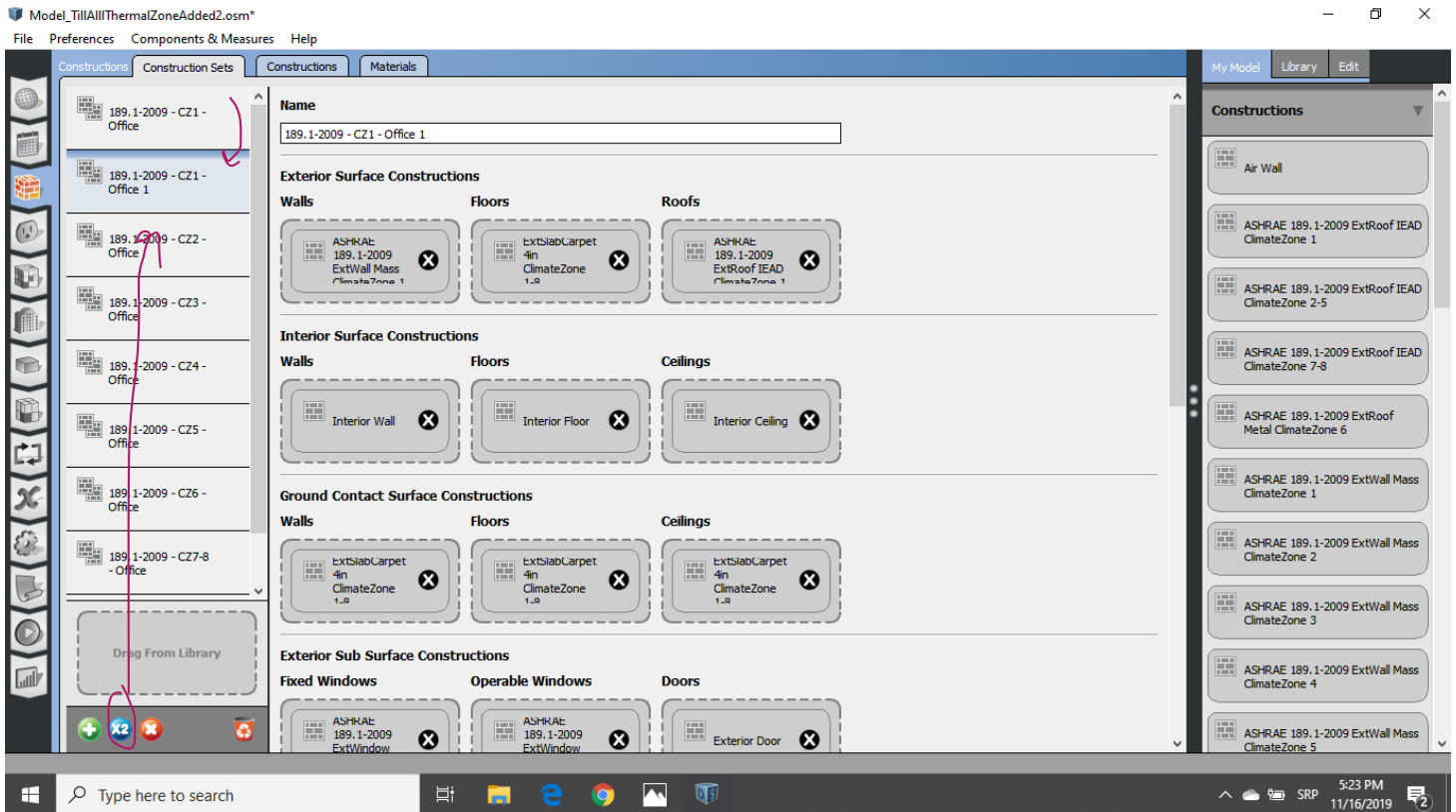
In general Solar radiation on Earth depends on different factors such as: Position of the Sun (that changes depending on the season), weather, sunshine hours and sea level.

When it comes to solar radiation measurement, there are 3 main instruments designed including: pyrheliometer (direct solar radiation), pyranometer (that measures total solar irradiance (amount incoming to certain point from all directions) and pyranometer with shadow band (which measures diffused irradiance)).

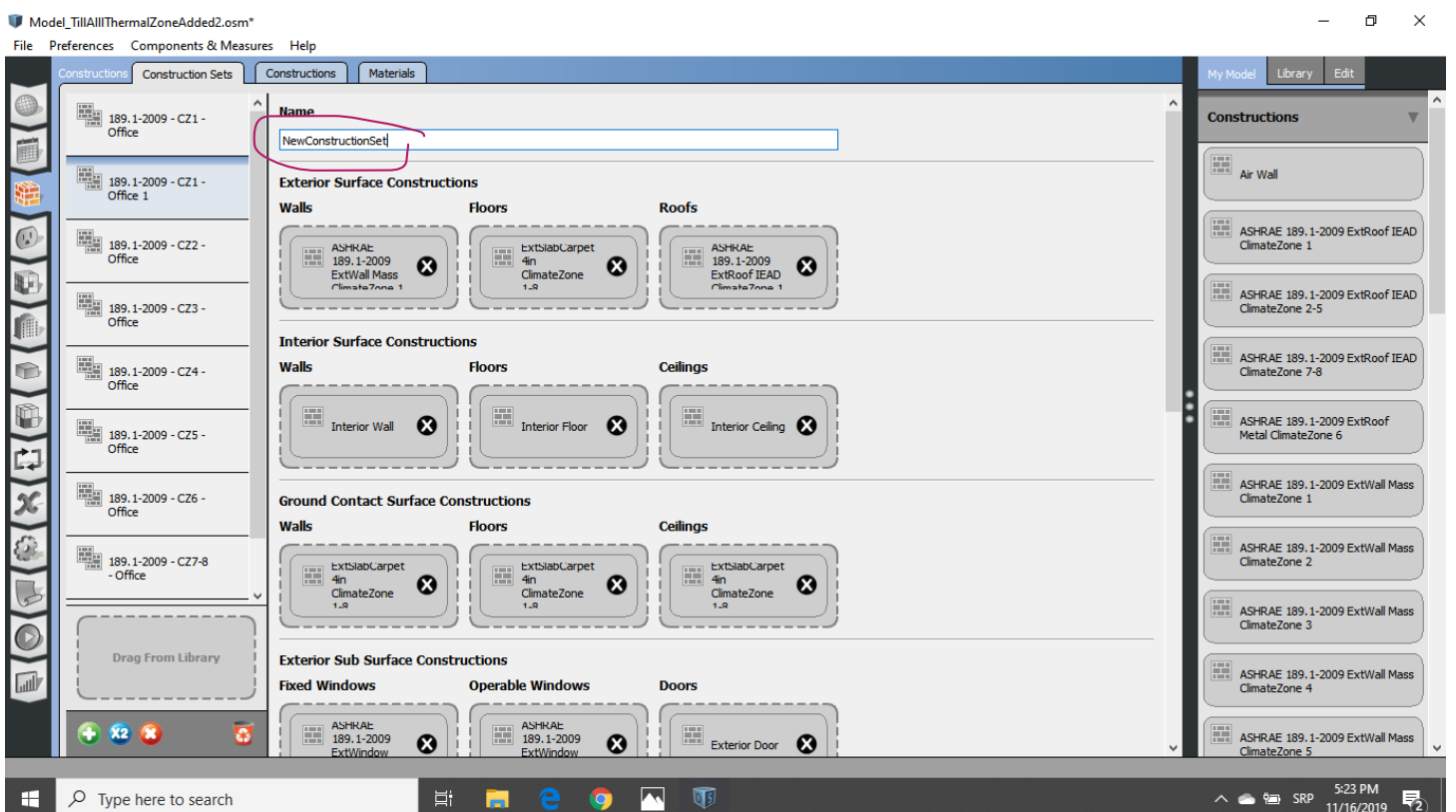
### Question 2

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!)

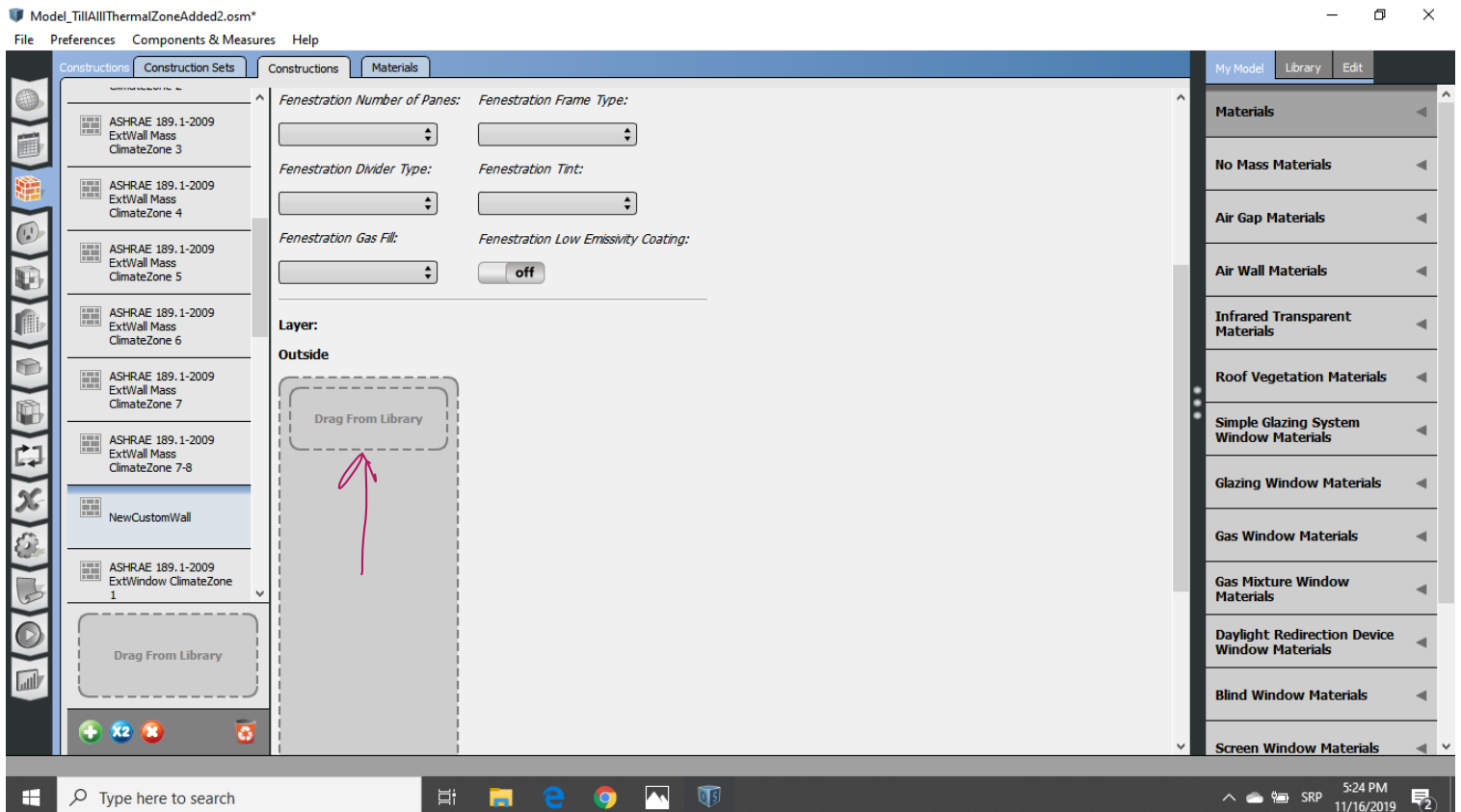
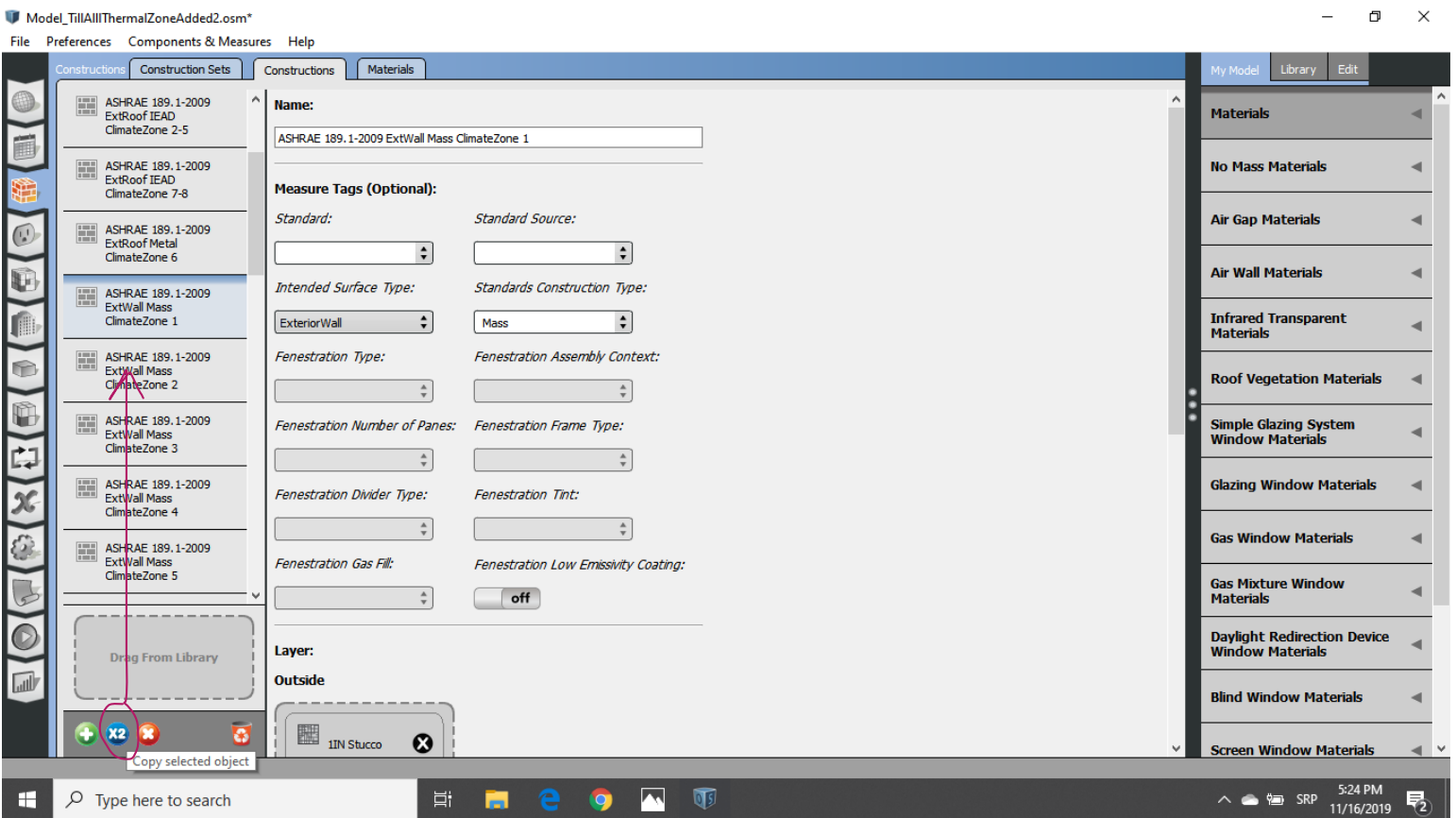
After inserting data of specific location, next step is costumizing construction sets.



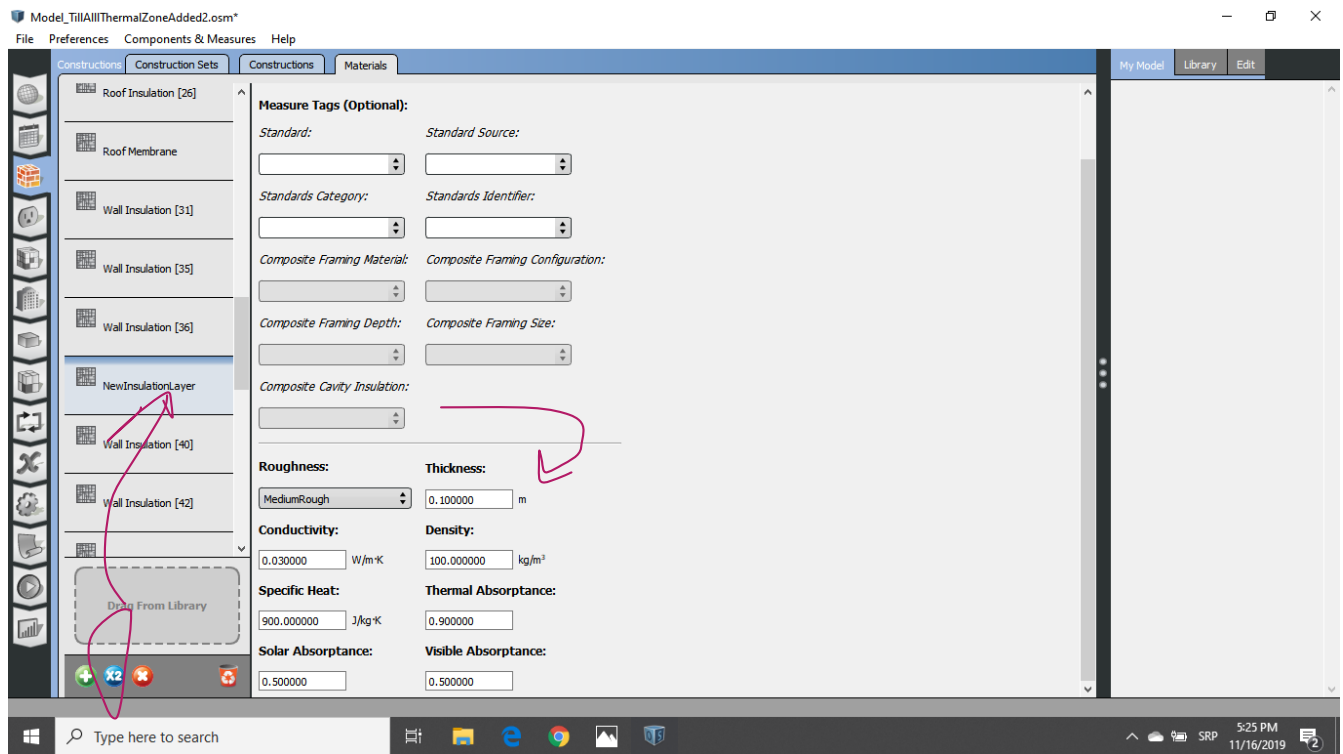
First thing is duplicating construction set and renaming it.



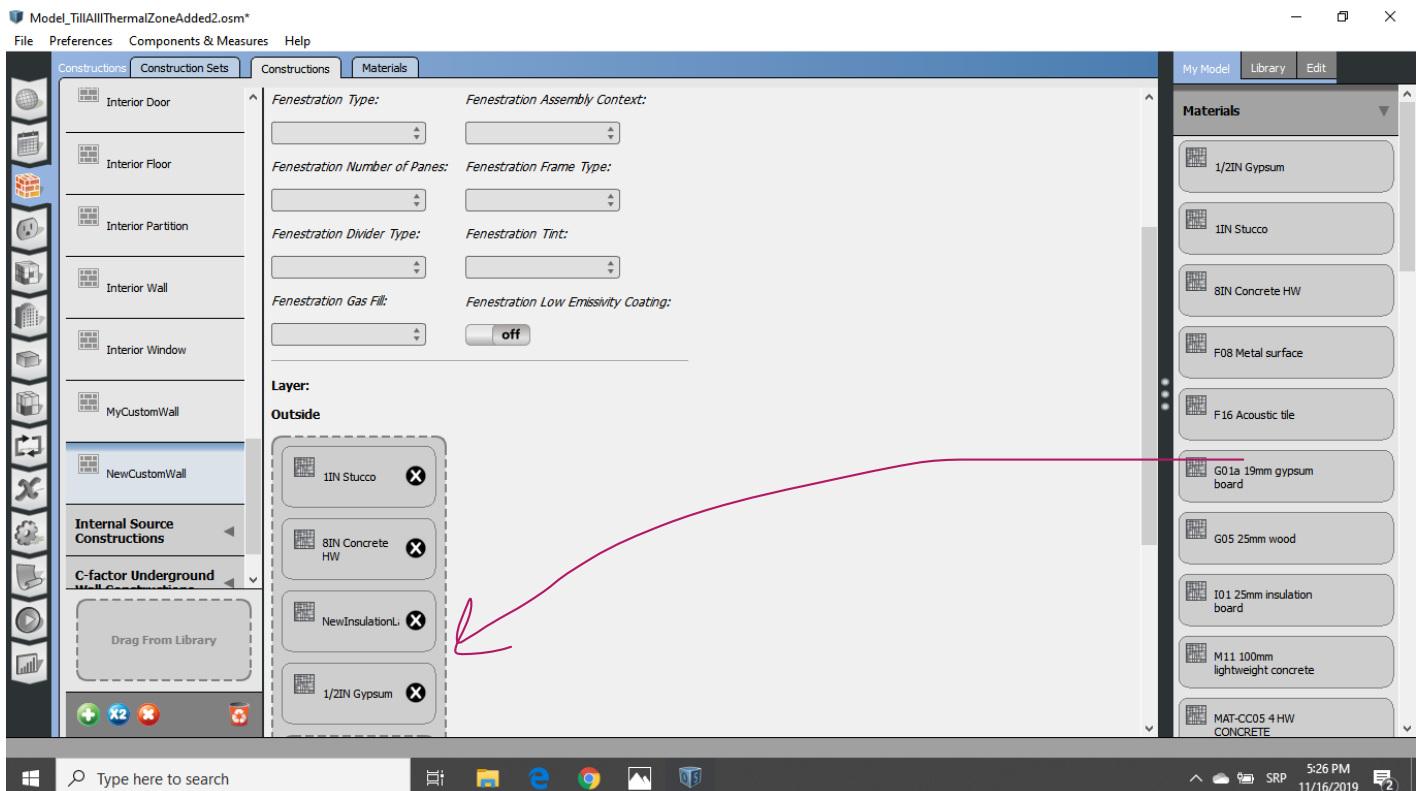
In construction tab to create a custom one, the step is duplicating construction and removing existing layers.



In materials tab, new materials are created by duplicating and costumizing properties.



And then, the new material is added to new customized wall. ( dragging new material to layers of construction wall)



In the construction set, new wall is inserted to Walls part of construction.

