WEEK 7_TES ASSIGNMENT – GOPIKUMAR AKSHAYA KUMAR

TASK 1

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

SOLAR RADIATION

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. The spectrum of solar radiation is close to that of a black body with a temperature of about 5800 K. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum.

Solar radiation is radiant (electromagnetic) energy from the sun. It provides light and heat for the Earth and energy for photosynthesis. This radiant energy is necessary for the metabolism of the environment and its inhabitants. The three relevant bands, or ranges, along the solar radiation spectrum are ultraviolet and infrared. Of the light that reaches Earth's surface, infrared radiation makes up 49.4% of while visible light provides 42.3%. Ultraviolet radiation makes up just over 8% of the total solar radiation. Each of these bands has a different impact on the environment.

Most of the solar radiation that reaches Earth is made up of visible and infrared light. Only a small amount of ultraviolet radiation reaches the surface.

The amount and intensity of solar radiation that a location or body of water receives depends on a variety of factors. These factors include latitude, season, time of day, cloud cover and altitude. Not all radiation emitted from the sun reaches Earth's surface. Much of it is absorbed, reflected or scattered in the atmosphere. At the surface, solar energy can be absorbed directly from the sun, called direct radiation, or from light that has been scattered as it enters the atmosphere, called indirect radiation.

SCATTERING

About 25 percent of the incoming solar radiation is scattered or diffused by the atmosphere. Scattering is a phenomenon that occurswhen solar radiation passes through the air and some of the wavelengths are deflected in all directions by molecules of water, suspended particles and water vapor.

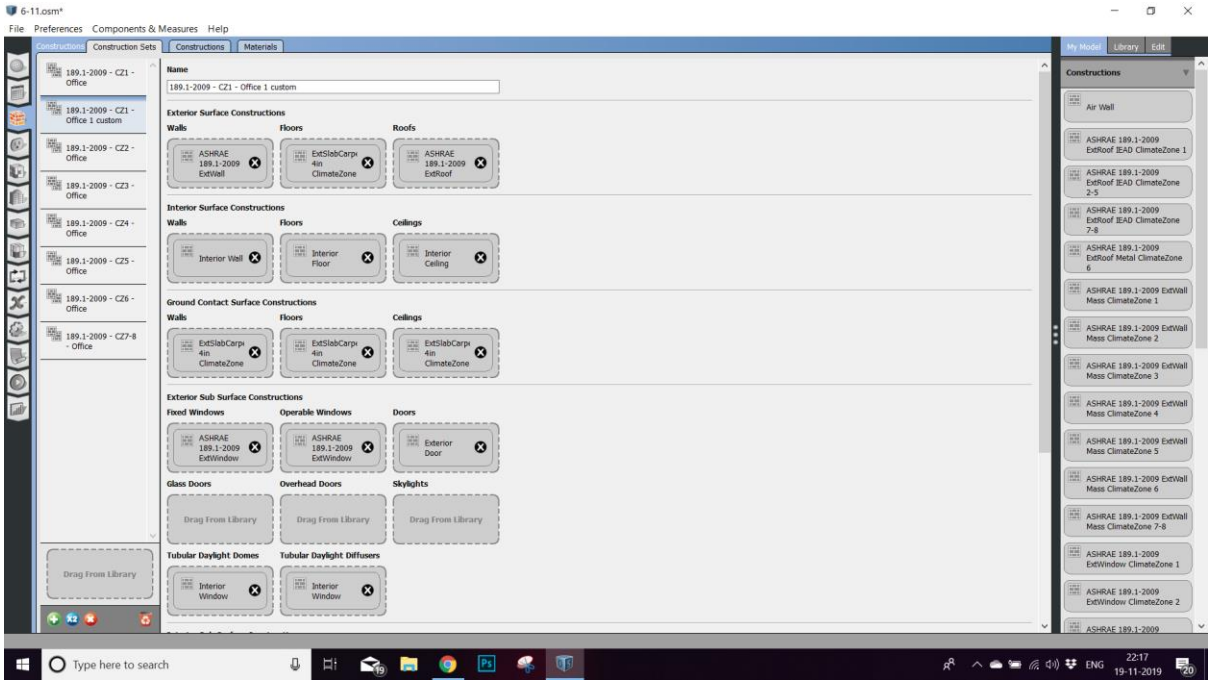
REFLECTION

Reflection is the process whereby a surface turns a portion of the incident back into the medium through which the radiation came. A substance reflects some insolation. This means that the electromagnetic waves simply bounce back into space. Earth reflects an average of 36% of the insolation. The percent of reflectivity of all wavelengths on a surface is known as its albedo.

TASK 2

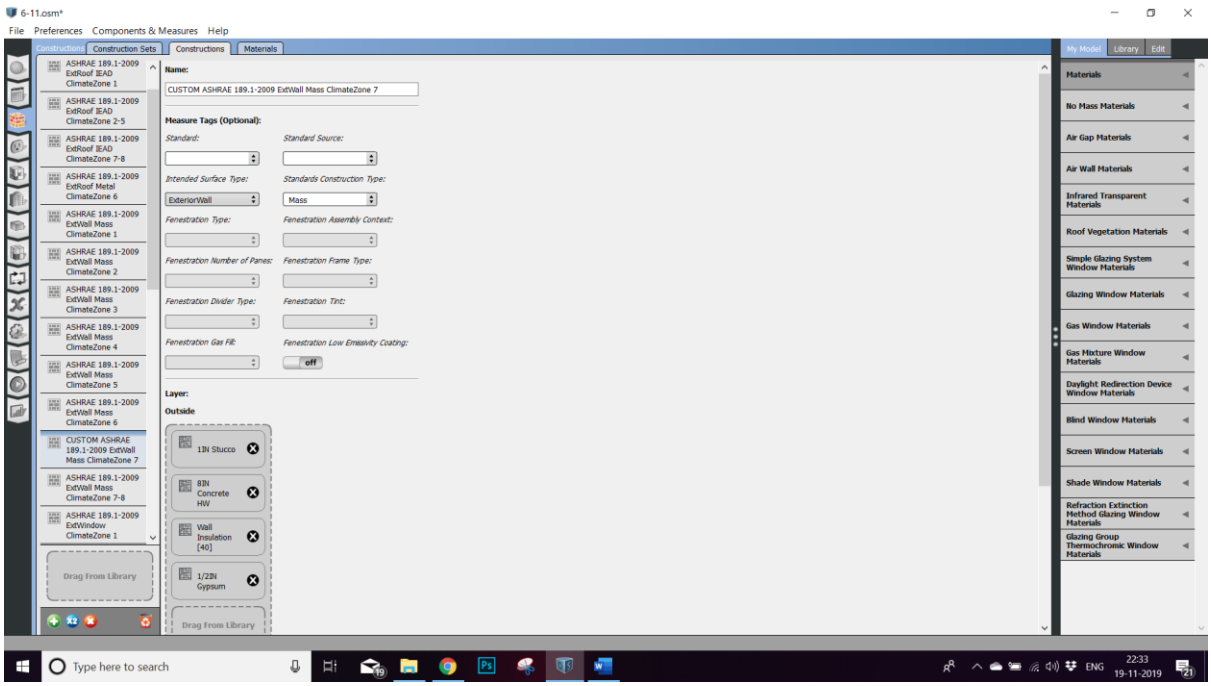
** Task 2** Y create a pdf file with screenshots of all of the steps we went through in the second lesson on openStudio and explain briefly the reason behind the use of each step (in your own words!)

1)OPEN CONSTRUCTION, THEN SELECT CONSTRUCTION SETS AND CREATE A COPY OF EXISTING CZ1 OFFICE 1 AND RENAME IT.

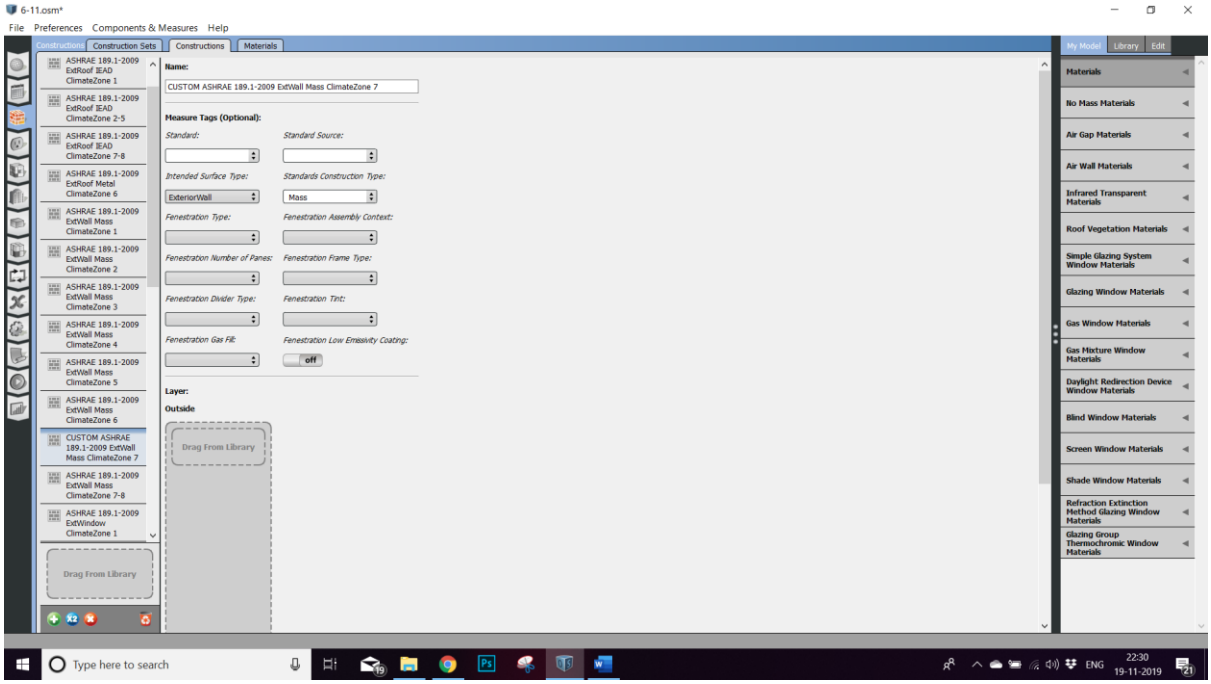


2)DRAG AND DROP ASHRAE CLIMATE ZONE 5 TO THE WALLS SECTION.

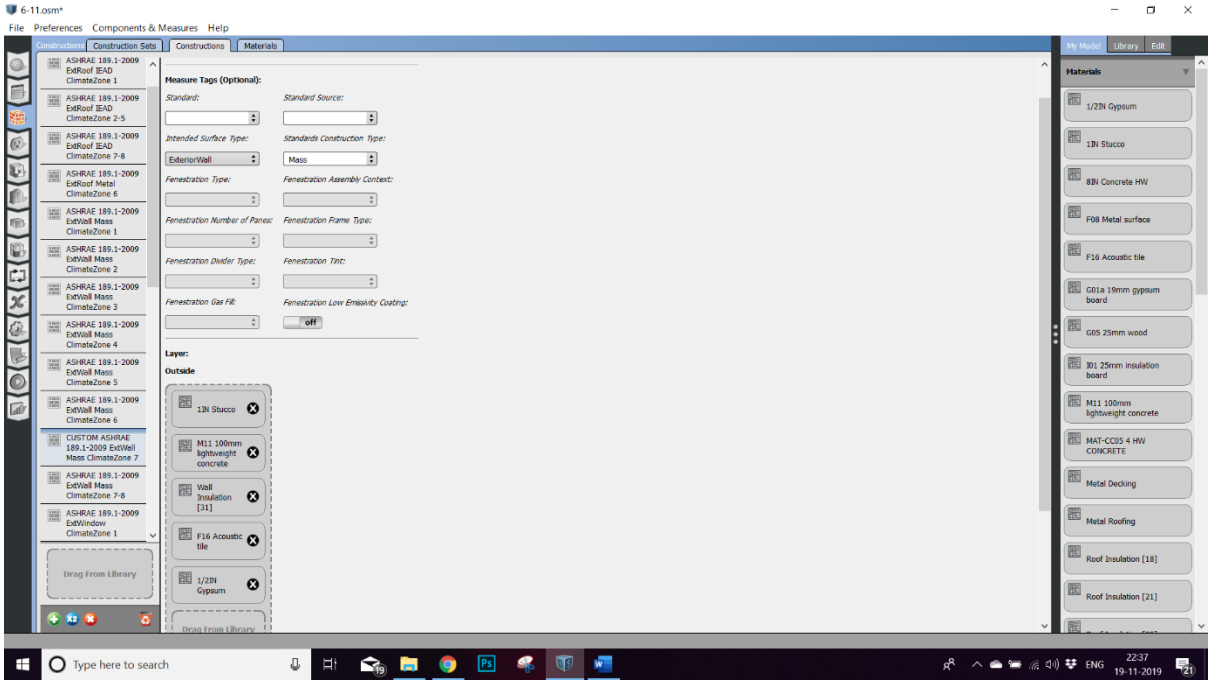
3)NOW SELECT CONSTRUCTION ICON AND DUPLICATE THE ASHRAE CLIMATE ZONE 5 AND RENAME I



4) REMOVE THE LAYERS OF THE OUTSIDE.

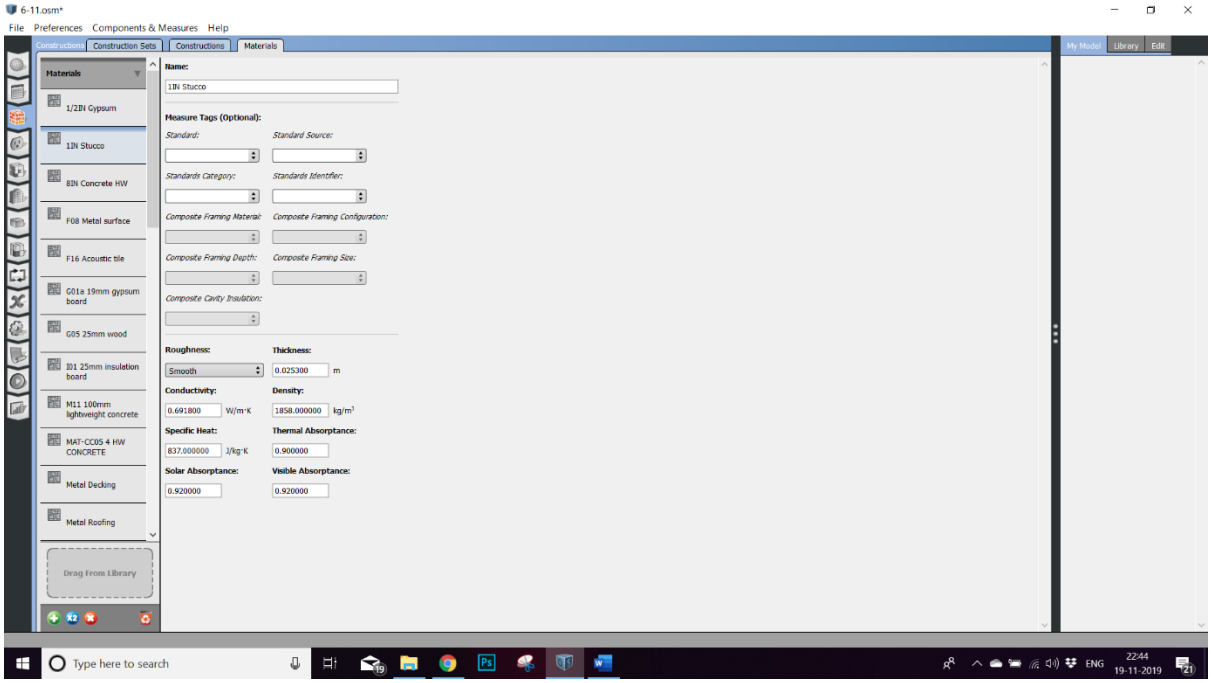


5) NOW DRAG AND DROP THE MATERIALS MENTIONED FROM THE MATERIAL LIBRARY ON THE RIGHT CORNER OF THE SCREEN.



6)THE PROPERTIES OF EACH MATERIAL CAN BE MODIFIED ACCORDING TO THE NEED.

7)IN ORDER TO CHANGE THE PROPERTIES, WE MUST SELECT THE MATERIAL THAT NEED ALTERATION AND GO TO MATERIAL OPTIONS AND CHANGE THE NECESSARY CHANGES.



8) YOU CAN ALSO ADD NEW MATERIALS LIKE THE NEW WALL CREATED WITH REQUIRED PROPERTIES