

Week 7

Question 1:

Solar radiation is the radiant energy emitted by the sun, particularly electromagnetic energy. Its temperature is 5800 K similar to the blackbody. Half of the emitted solar energy is in the visible short-wave of the electromagnetic spectrum. The other part is in the infrared and ultraviolet spectrum.

Solar radiation reaches earth's surface as (1) direct solar radiation, (2) diffuse solar radiation, and (3) reflected radiation.

Solar radiation depends on (1) position of the sun (2) the weather condition (3) the length of the day (4) the site altitude above the sea level

Dispersion is a phenomenon that occurs when the sun rays reaching the earth are not perpendicular to the earth's surface and the light spreads over a greater area. So, the energy is decreased and then the temperature is decreased as well. Dispersion is caused due to the rotation of the earth.

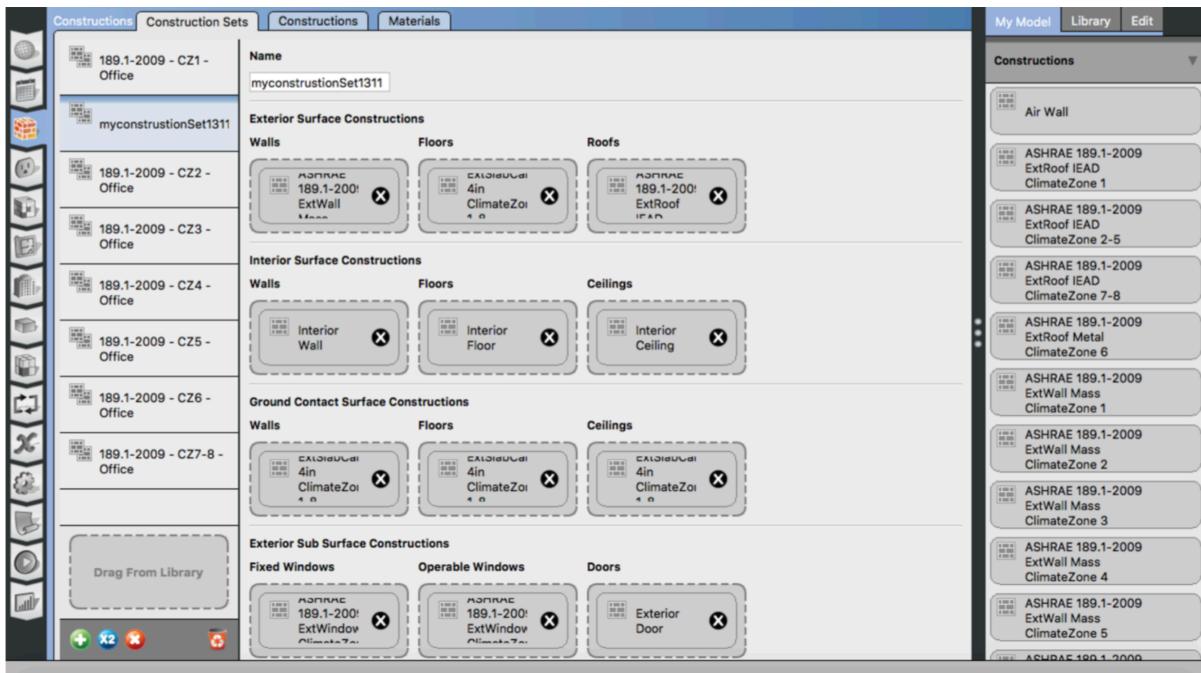
Scattering is a phenomenon that occurs when the solar radiation passes through air. Some of the wavelengths are deflected by the molecules of gas or small particles suspended in the atmosphere – about 25% of the electromagnetic waves are deflected or scattered. These particles act as a prism and is responsible for the different colors of the sky. For example, the violet color of the sun during sunset and sunrise.

When the particles are large in size (high moisture content), white clouds appear with a white fog. This phenomenon is called diffuse reflection.

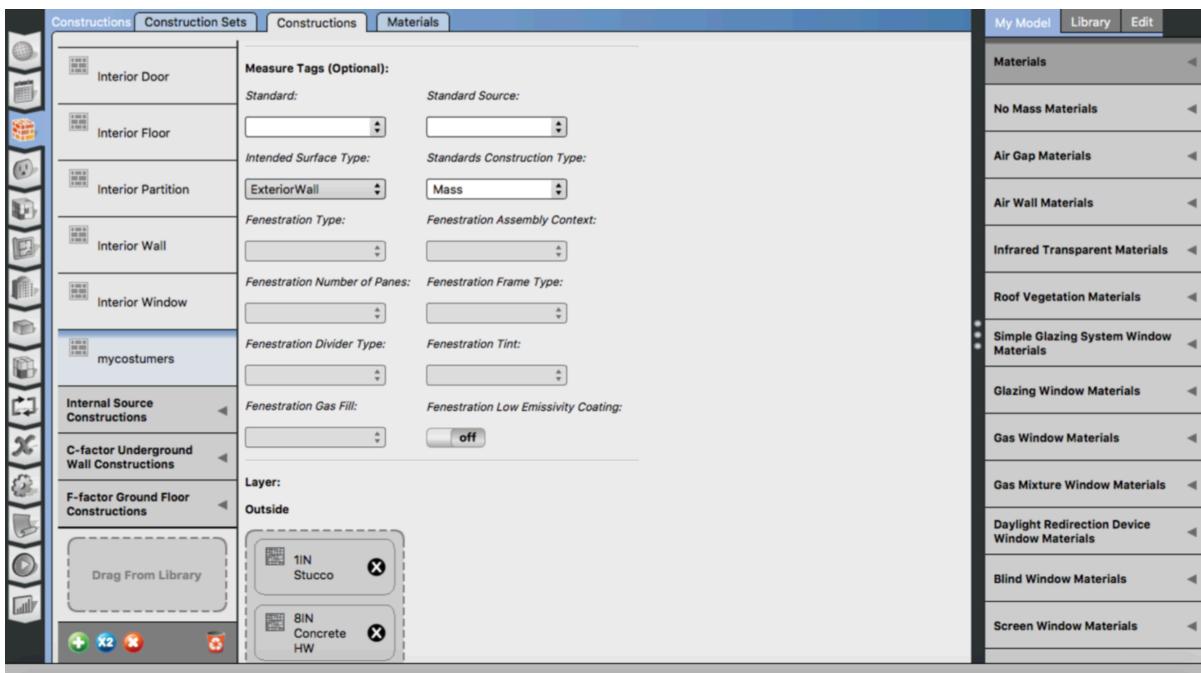
Reflection occurs when the surfaces reflects some of the incident radiation into the medium which through the radiation was emitted. Earth reflects an average of 36% of the radiated insolation. The reflective ability of any surface is called its Albedo.

Question 2:

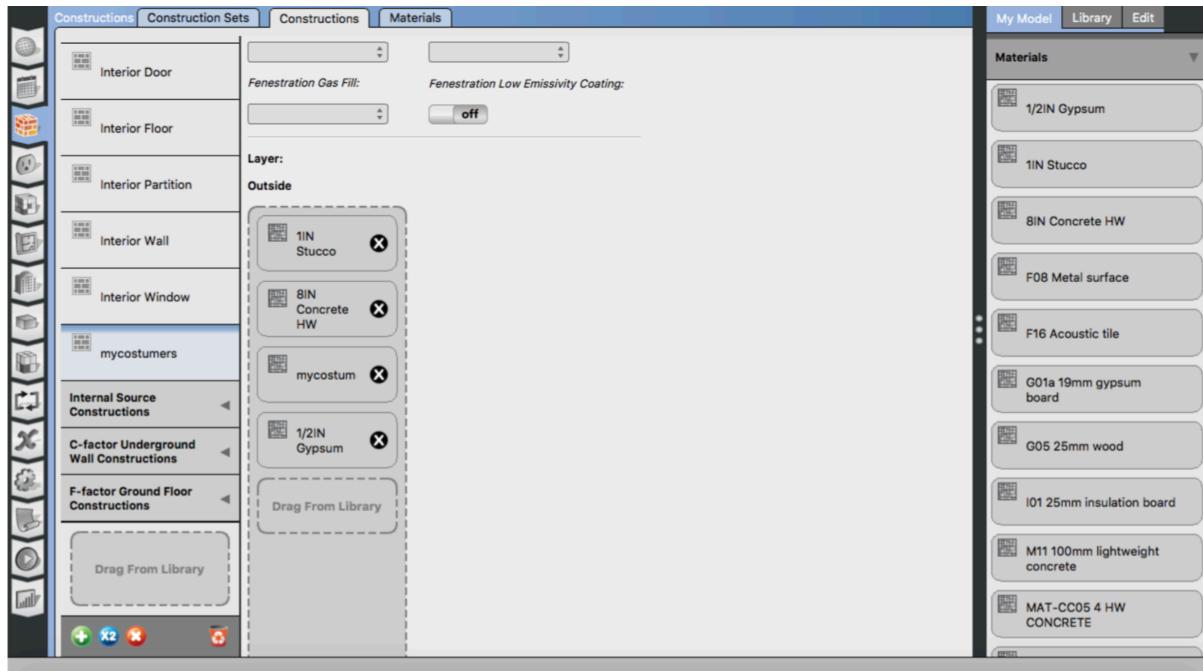
- 1- Go to Construction panel and start customizing the building by creating a new wall by copying the existing one.



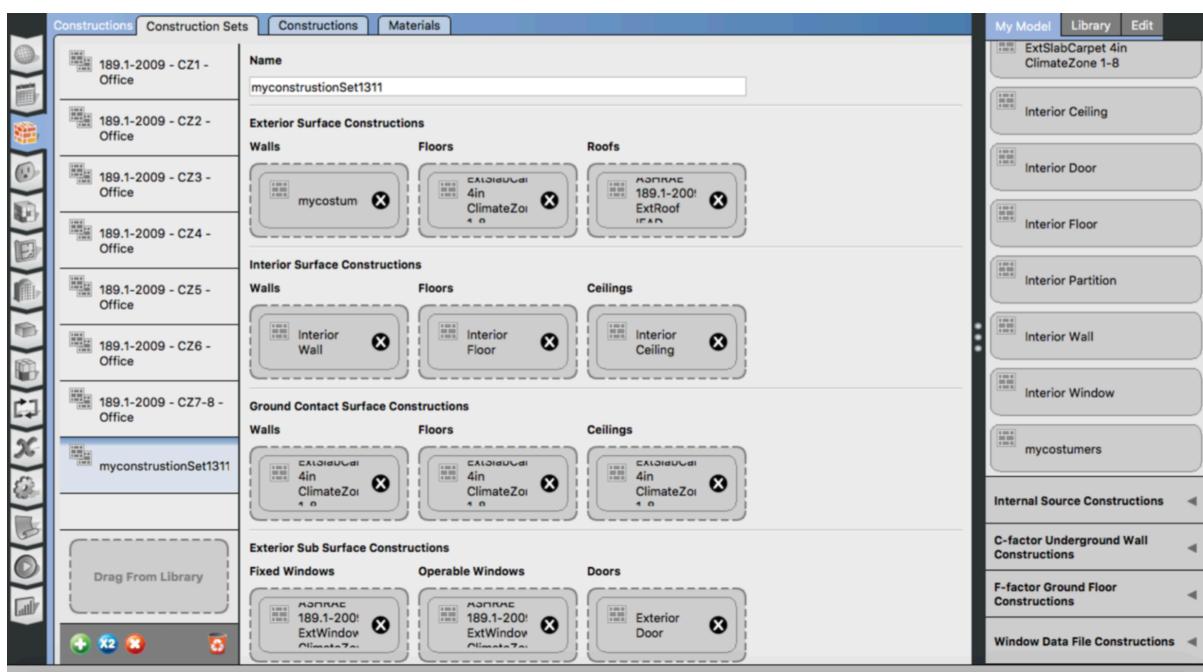
- 2- Customize the wall components from outside to inside in construction sets window.



3- Choose the type of wall insulation.



4- Insert the wall into the building's data



5- Go to space panel and insert the project layer with the modification.

Space Name	All	Story	Thermal Zone	Space Type	Default Construction Set	Default Schedule Set	Part of Total
Space 101	✓	Building Story 1	Thermal Zone 1	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 102	✓	Building Story 1	Thermal Zone 1	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 103	✓	Building Story 1	Thermal Zone 1	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 104	✓	Building Story 1	Thermal Zone 2	189.1-2009 - Office - E	myconstructionSet1311		✓
Space 105	✓	Building Story 1	Thermal Zone 1	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 201	✓	Building Story 2	Thermal Zone 3	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 202	✓	Building Story 2	Thermal Zone 3	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 203	✓	Building Story 2	Thermal Zone 3	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 204	✓	Building Story 2	Thermal Zone 4	189.1-2009 - Office - E	myconstructionSet1311		✓
Space 205	✓	Building Story 2	Thermal Zone 3	189.1-2009 - Office - C	myconstructionSet1311		✓
Space 301	✓	Building Story 3	Thermal Zone 5	189.1-2009 - Office - C	myconstructionSet1311		✓

6- return to Schedule Sets to enter all the information related to activities and other equipment.

