

WEEK 7 – ASSIGNMENT

**** Task 1**** Provide a summary of the main concepts that went through about solar radiation
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Radiation from the sun sustains life on earth and determines climate. The energy flow within the sun results in a surface temperature of around 5800 K, so the spectrum of the radiation from the sun is similar to that of a 5800 K blackbody with fine structure due to absorption in the cool peripheral solar gas

The irradiance of the sun on the outer atmosphere when the sun and earth are spaced at 1 AU - the mean earth/sun distance of 149,597,890 km - is called the solar constant. Currently accepted values are about 1360 W m^{-2}

Solar radiation is measured in wavelengths or frequency. As light travels in a wave, a wavelength is defined as the distance from peak to peak and is measured in nanometers (nm).

The solar spectral irradiance is a measure of the brightness of the entire Sun at a wavelength of light. Important spectral irradiance variations are seen in many wavelengths, from the visible and IR, through the UV, to EUV and X-ray.

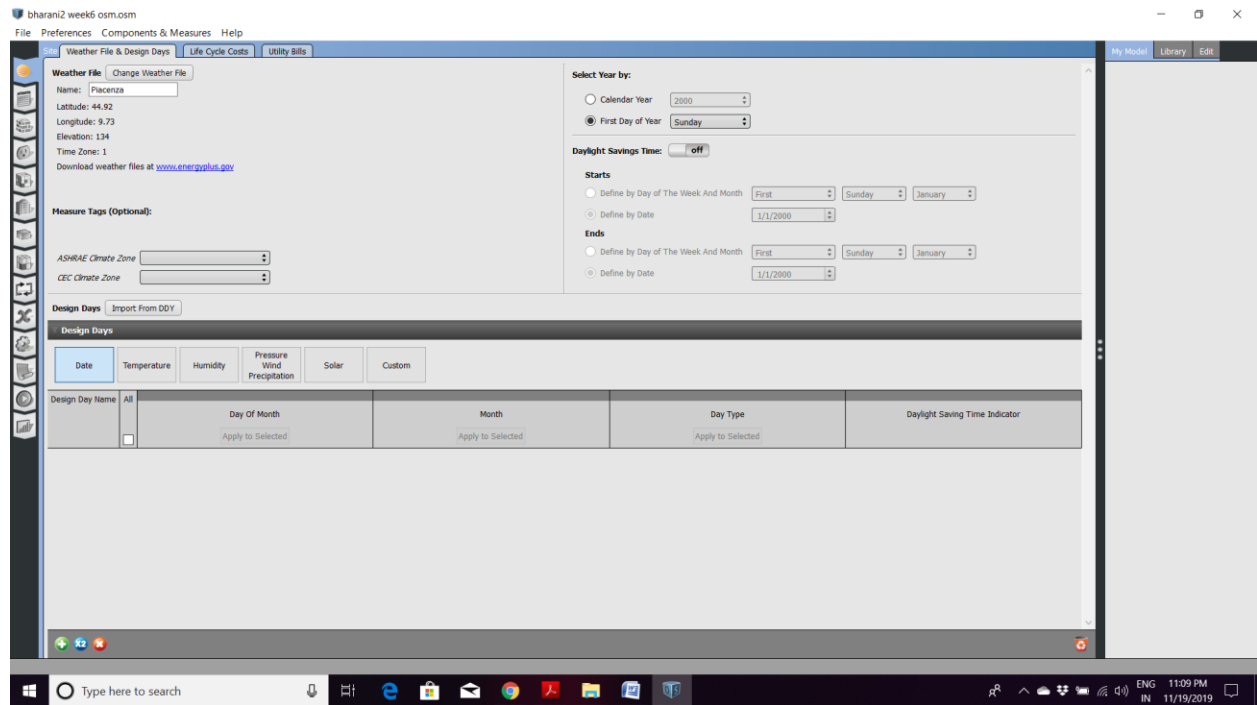
The electromagnetic spectrum encompasses all types of radiation ⁵. The part of the spectrum that reaches Earth from the sun is between 100 nm and 1 mm. This band is broken into three ranges: ultraviolet, visible, and infrared radiation.

Scattering of sunlight in the atmosphere can be categorised into two types:
If sunlight scatters at molecules or particles that are smaller than the wavelength, it is called Rayleigh scattering. Such particles scatter blue light stronger than red light and are the main cause for the blue sky

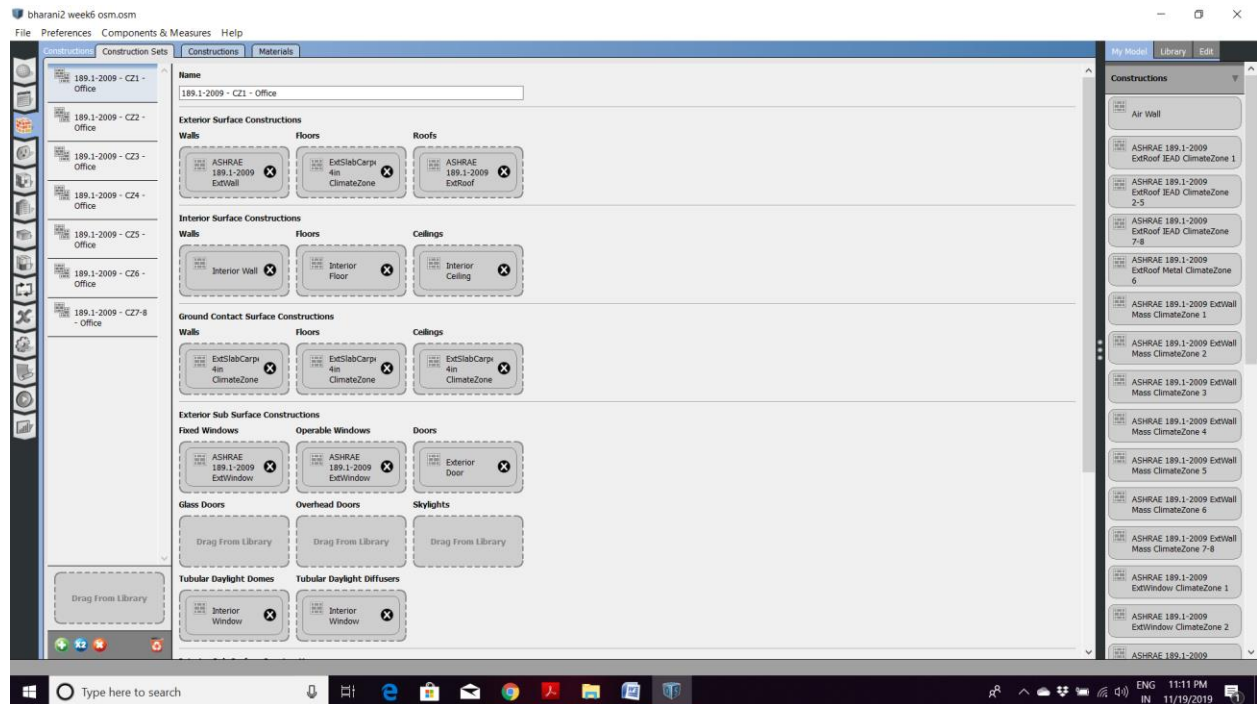
Reflection of light is Reflection is when light bounces off an object. If the surface is smooth and shiny, like glass, water or polished metal, the light will reflect at the same angle as it hit the surface. This is called specular reflection.

Task 2

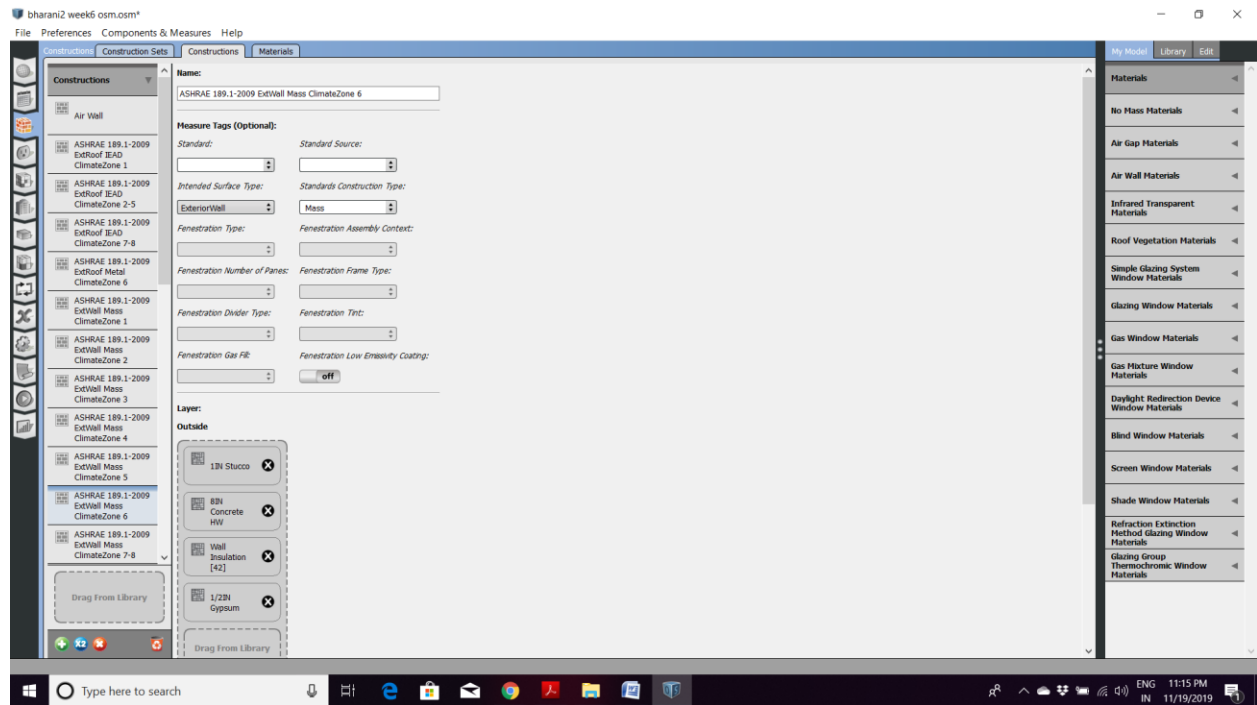
**** Task 2**** Y create a pdf file with screenshots of all of the steps we went through in the second lesson on openStudio and explain briefly the reason behind the use of each step



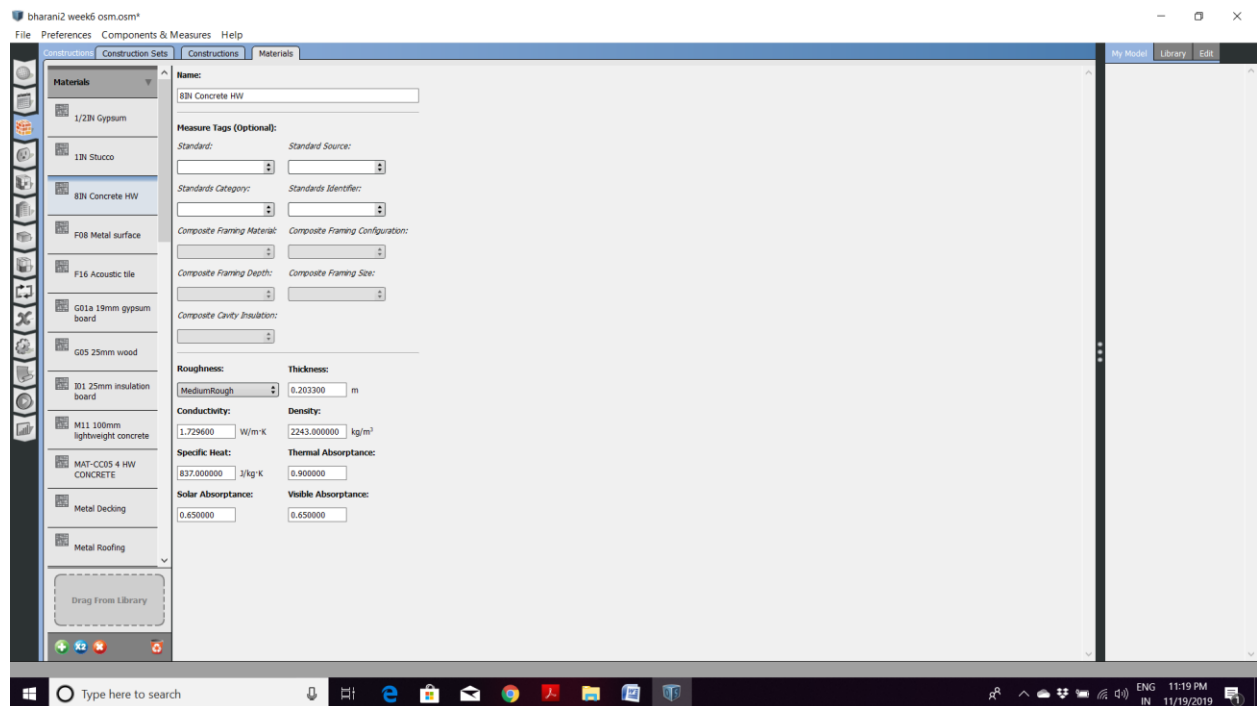
Add the weather data of Piacenza



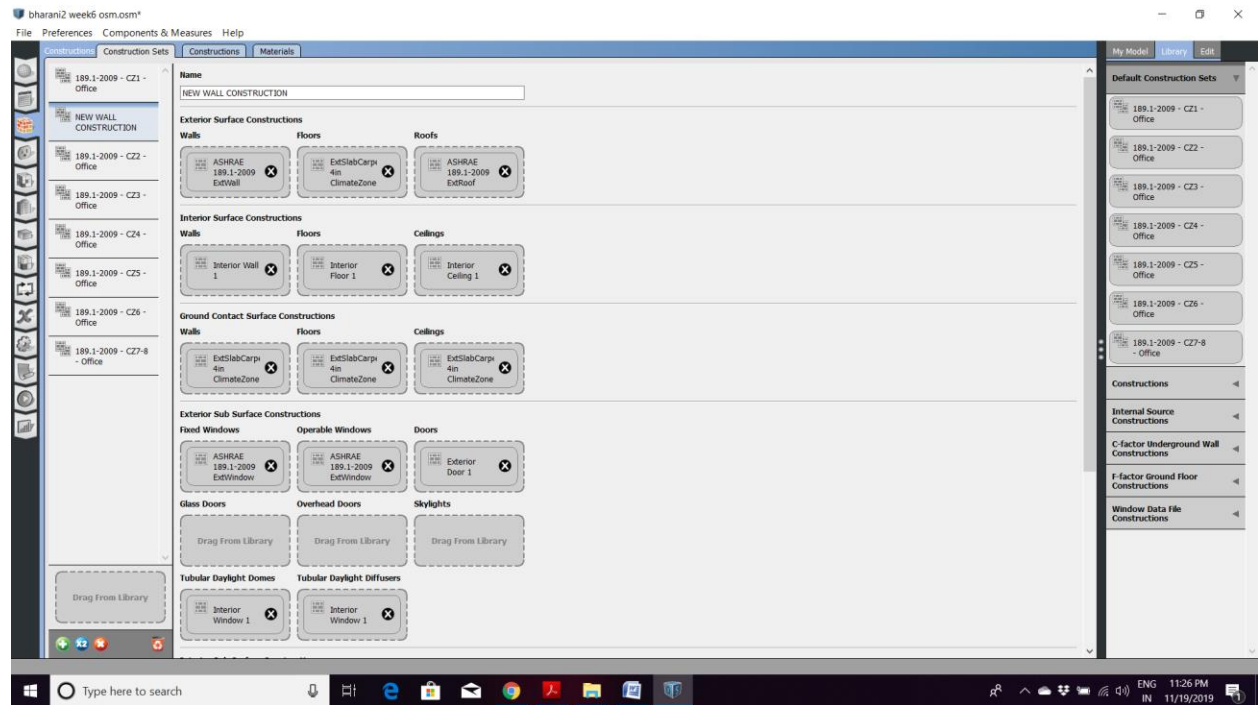
Go to construction tab to create new wall and rename it



Customize the wall in the constructions window.



Click on the materials tab and customize the properties.



Create new wall construction with new materials