Week 7_ TGeorge

1. Provide a summary of the main concepts that went through about solar radiation

2. Create a pdf file with screenshots of all of the steps we went through in the second lesson on open Studio and explain briefly the reason behind the use of each step

OPERATIVE TEMPERATURE

It is the virtual ambient temperature with which the sum of the radiative thermal and convective linearized flow is exchanged which exchanges with the air and all the other surfaces.

Solar Radiation

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. The energy that comes to the earth is modified due to the phenomenon of dispersion and absorption. Solar radiation absorption is due to some atmospheric components which absorb the incident radiation in specific wavelength bands which modifies its energetic spectrum. Solar radiation available on the Earth's surface for conversion in other energy forms (such as solar electrical energy) depends on: the suns position, the weather condition, the site's sea level, and the daylight hours.

Mean Radiant Temperature

The Mean Radiant temperature of a given surface is the temperature of the equivalent black enclosure with which it would exchange the same radiative flux exchanged with all the other surfaces.

Solar energy: availability

The solar radiation, available on the Earth's surface for conversion in other energy forms, depends on the sun position, the weather condition, the site altitude over the sea level, and the daylight hours.

Absorption of solar radiation

Solar radiation absorption is due to some atmospheric components, especially ozone, water and carbon dioxide. The stratospheric ozone absorbs almost all the ultraviolet component of solar radiation.

Air Mass

The sun to the zenith crosses the minimum thickness of the atmosphere, the sun with an elevated zenith angle crosses a large thickness of the atmosphere.

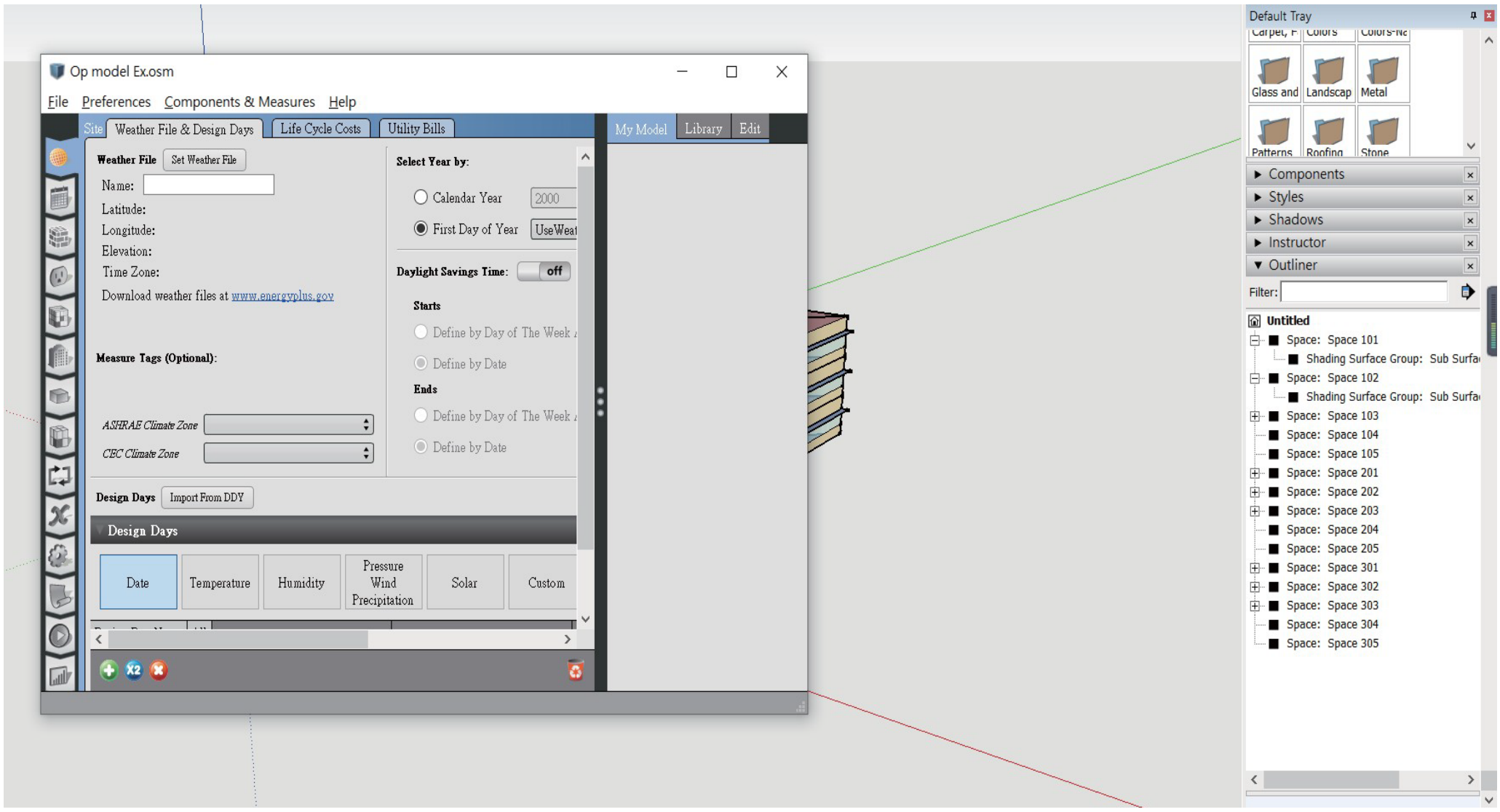
The solar radiation density

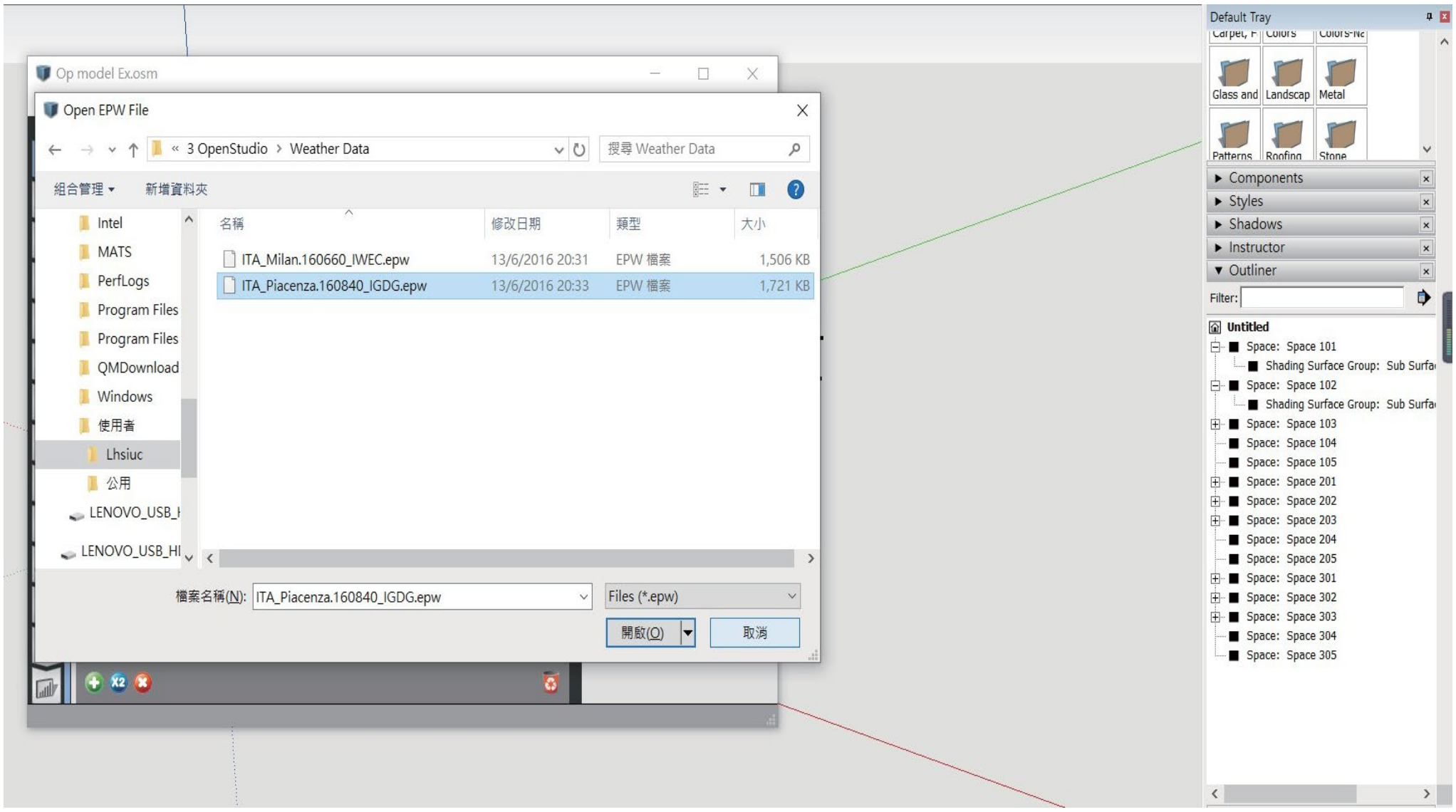
The maximum yearly average solar radiation density is the solar constant, which is the solar irradiance, its value is 1367 W/m^2.

Diffuse and direct beam solar radiation

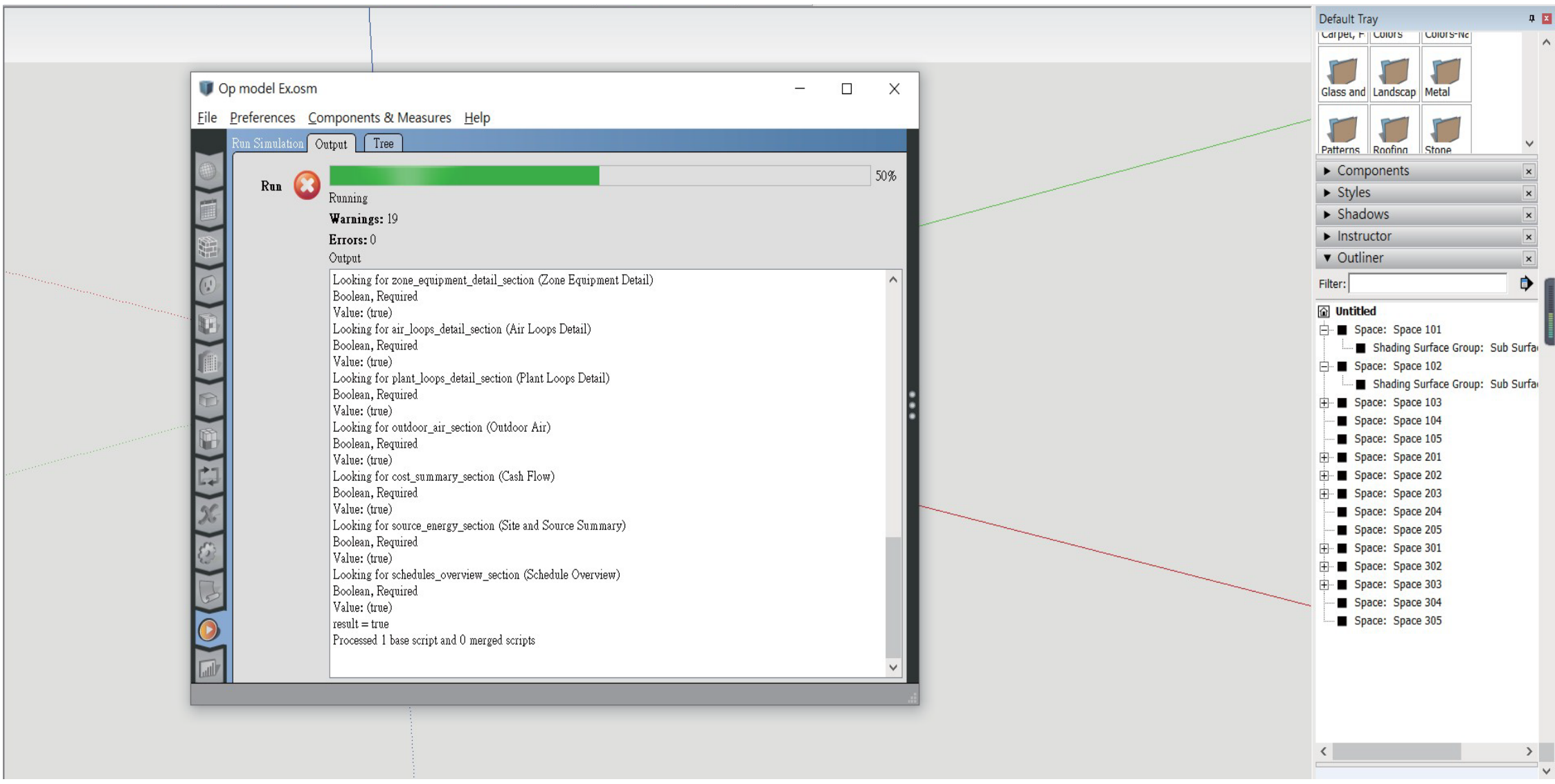
The solar radiation reaching the Earth's surface can be divided into two types of solar radiation: Direct beam solar radiation and diffuse solar radiation. Diffuse solar radiation does not throw sharp shadows and cannot be focused. The sum of the diffuse and direct beam solar radiation is called global solar radiation.

Adding weather data.

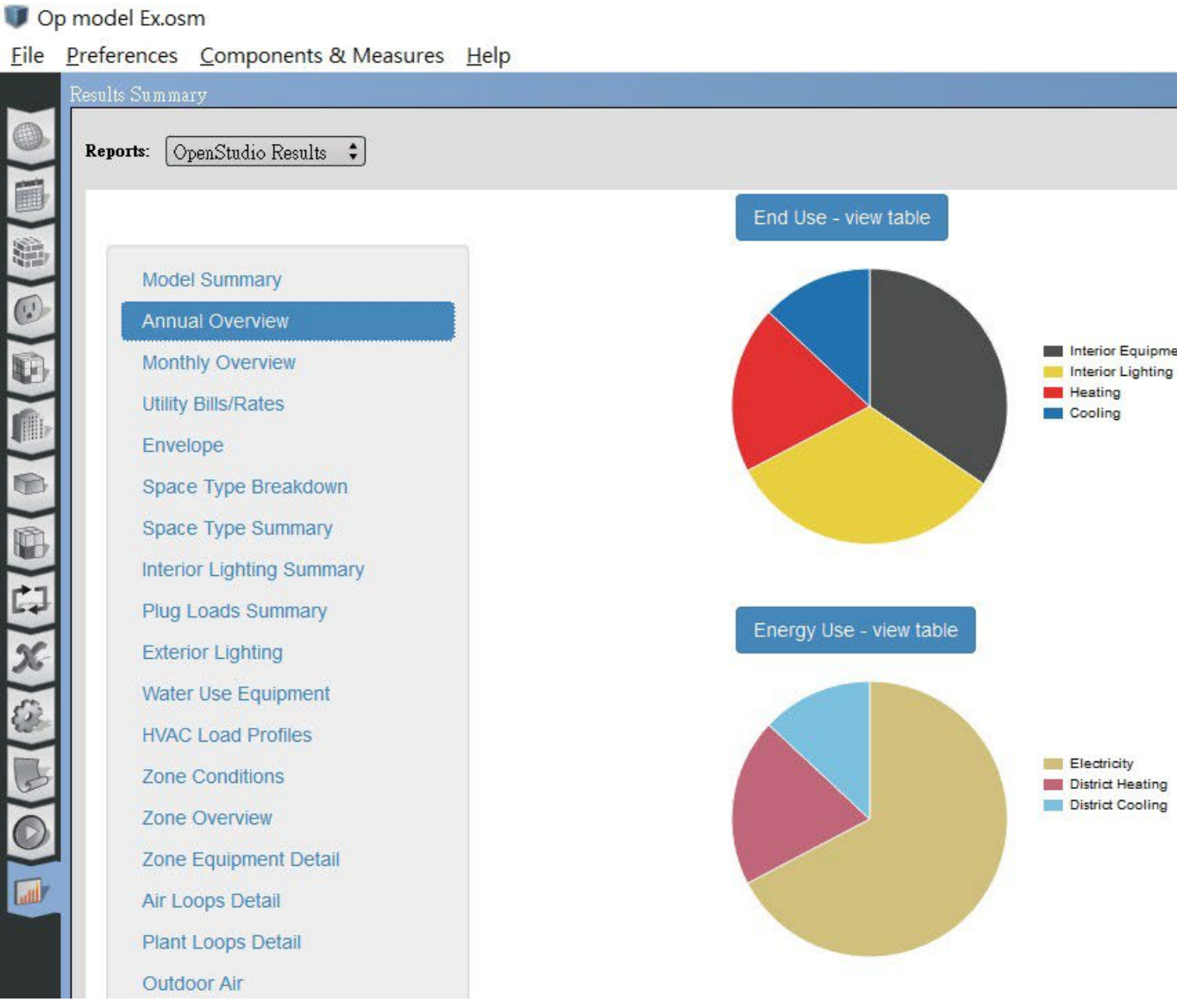




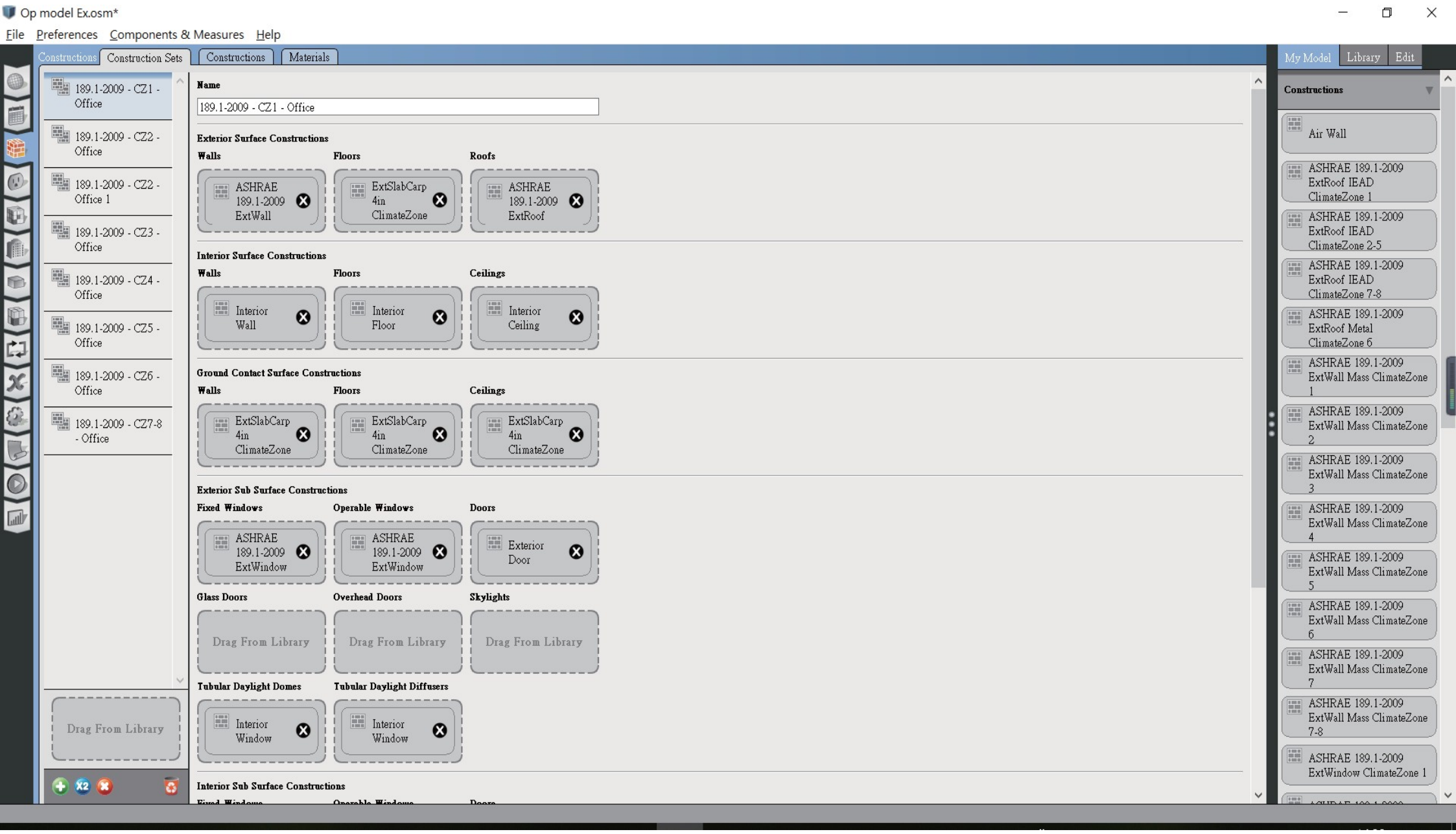
Run the analysis



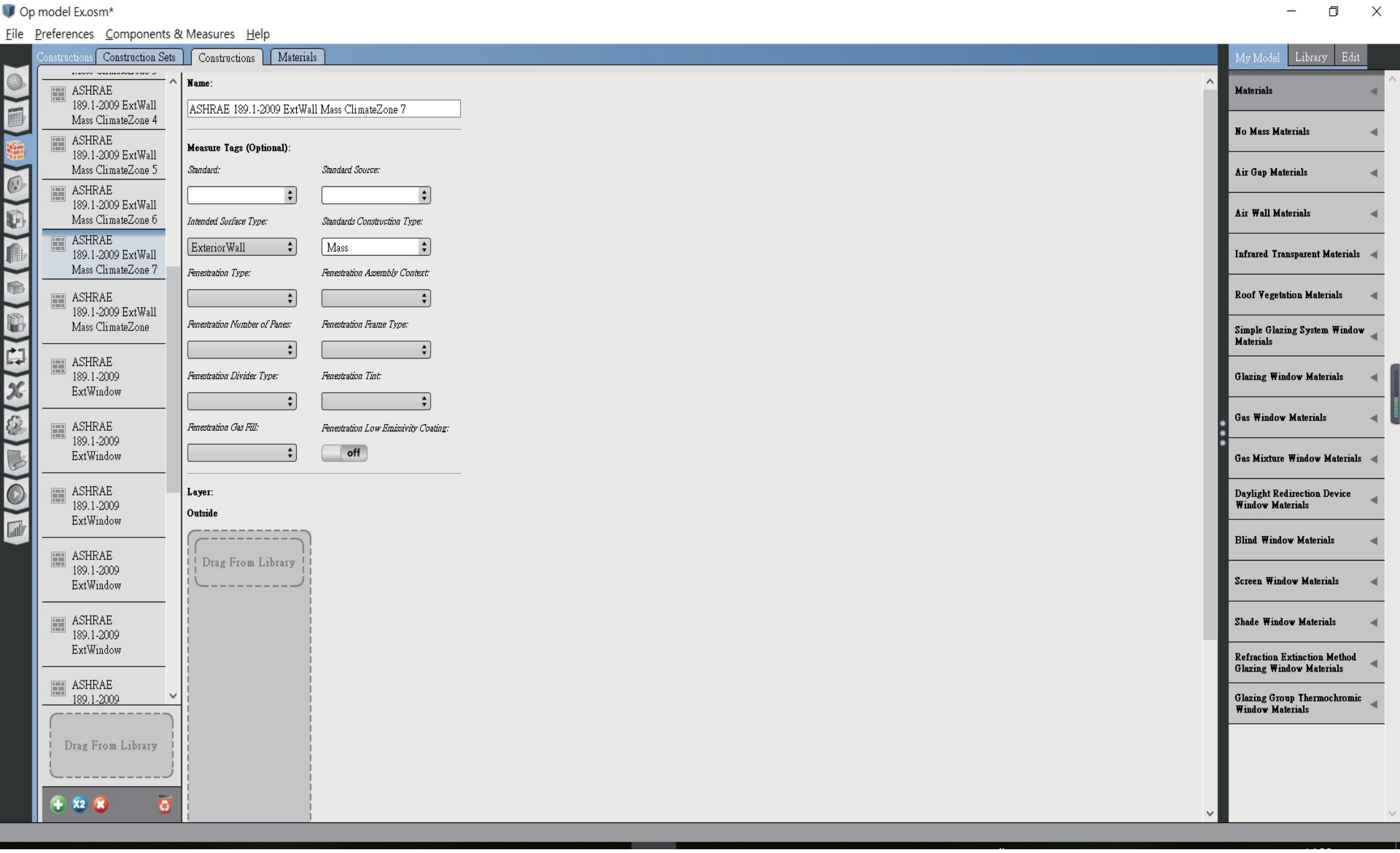
Represented analysis

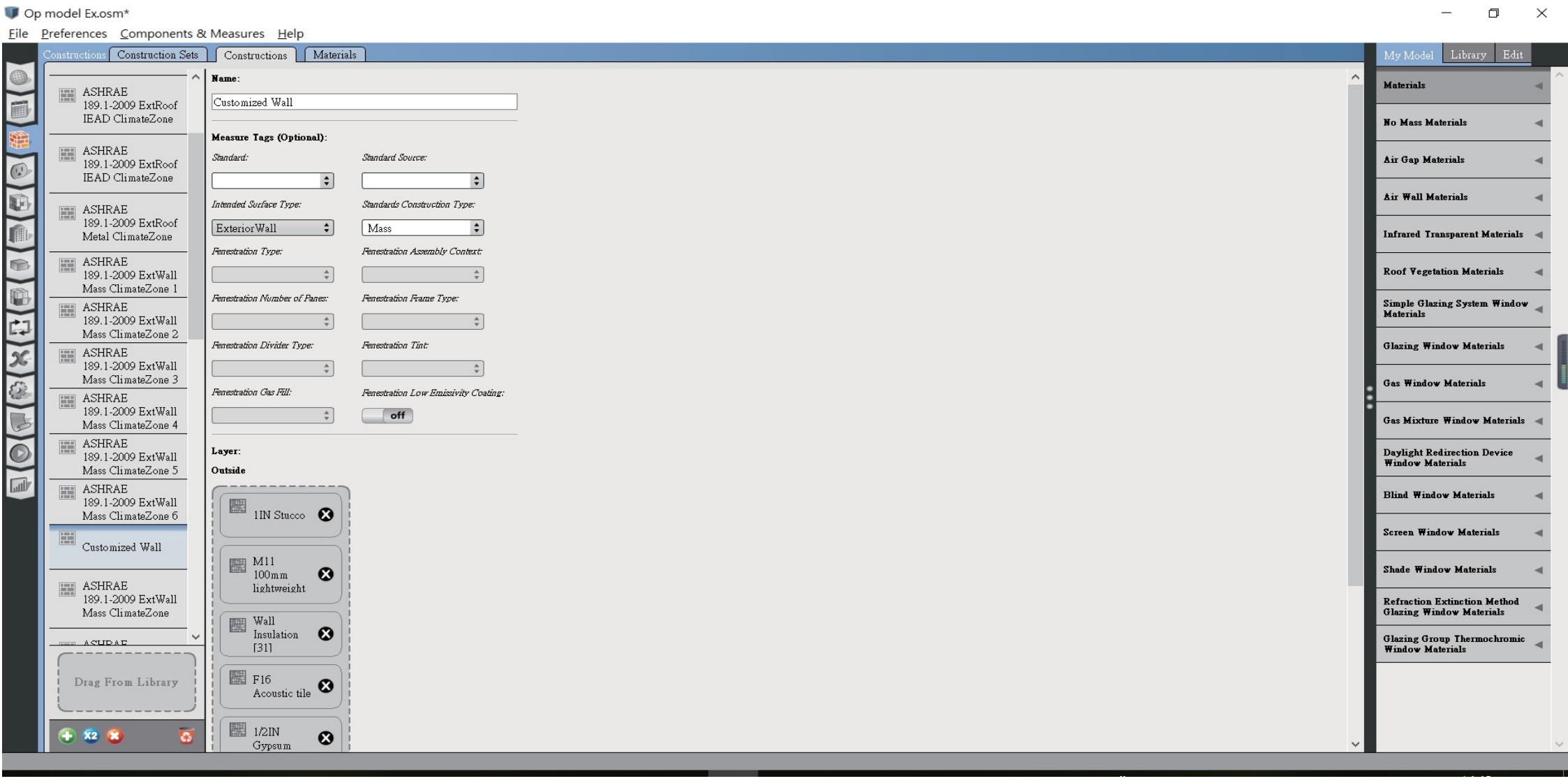


The construction sets

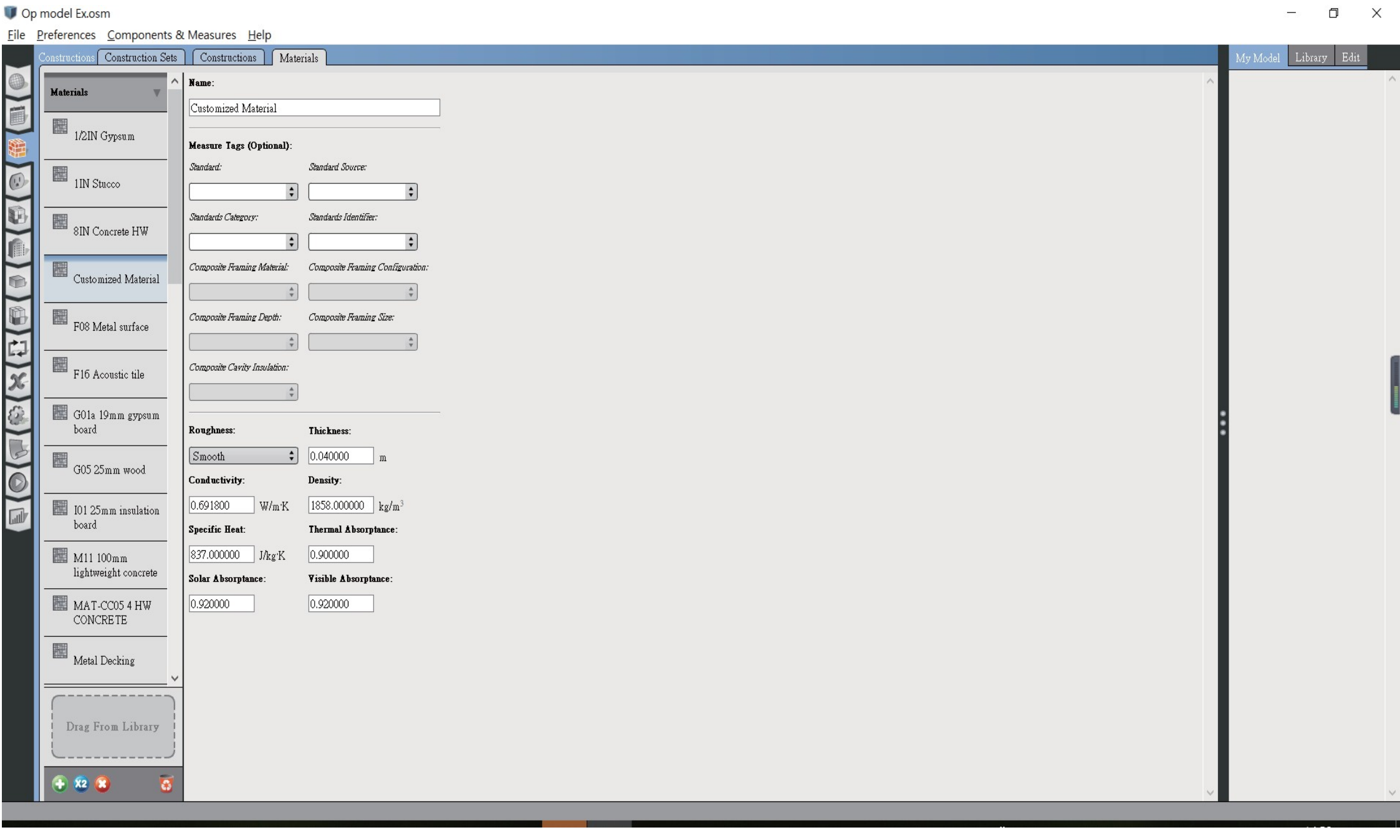


Customizing the walls





Customizing materials



Applying the customized walls to construction