

# WEEKLY SUBMISSION - TASK 07

- POTHUGANTI CHAITANYA - Personal Code : 10711998
- Politecnico di Milano - M.Arch Sustainable Architecture & Landscape Design
- DATE : 18 NOV 2019

## SUMMARY :

### SOLAR RADIATION:

Solar radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy. About half of the radiation is in the visible short-wave part of the electromagnetic spectrum. The other half is mostly in the near-infrared part, with some in the ultraviolet part of the spectrum.

### DIRECT AND DIFFUSE SOLAR RADIATION:

As sunlight passes through the atmosphere, some of it enters the surface of the Earth direct and undisturbed. Beam solar radiation throws sharp shadows and can be focused.

Another component of sunlight is the diffuse solar radiation, on its way through the atmosphere it is absorbed, scattered, or reflected by dust, water vapor, clouds, pollutants, etc. It does not throw sharp shadows and cannot be focused.

The sum of the diffuse and direct beam solar radiation is called global solar radiation

### ATMOSPHERIC ABSORPTION

Solar radiation absorption is due to some atmospheric components which absorb the incident radiation in specific wavelength bands which modifies its energetic spectrum

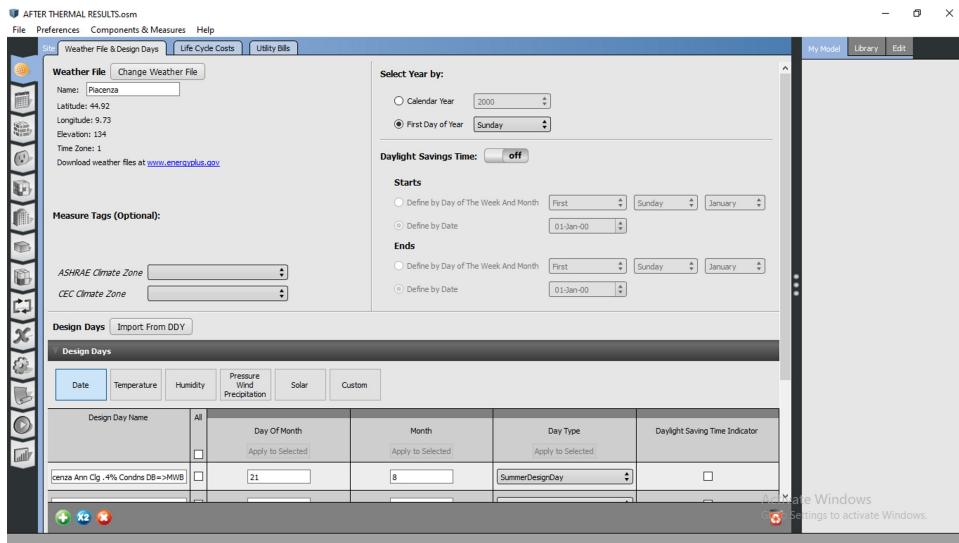
When the sun is perpendicular to the plan of the horizon, it crosses the minimum thickness of the atmosphere When the sun is at an angle it crosses a large thickness of the atmosphere.

### SOLAR RADIATION 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.

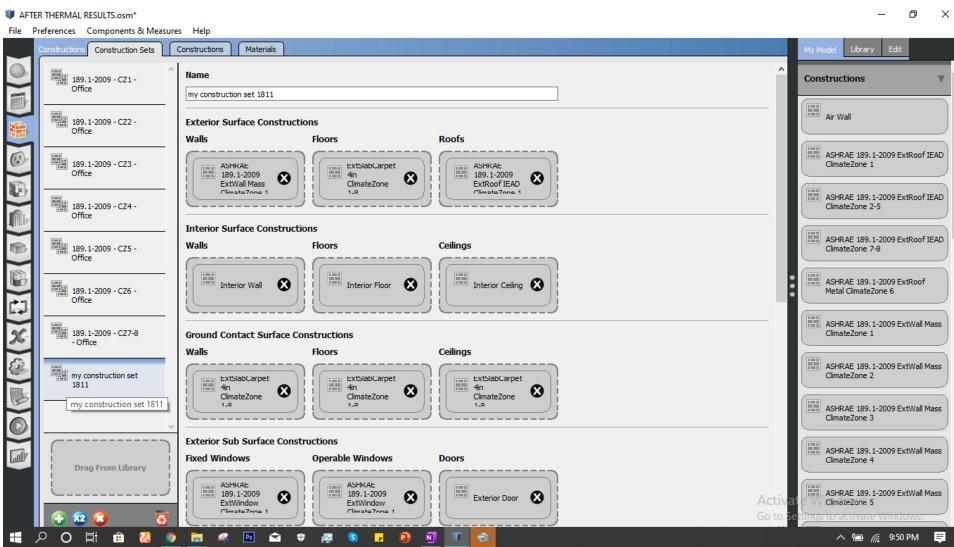
## STEP BY STEP PROCEDURE IN OPEN STUDIO:

### STEP 1: OPEN THE OPEN STUDIO FILE OF YOUR PREVIOUS WORK AND UPLOAD THE CLIMATE DATA

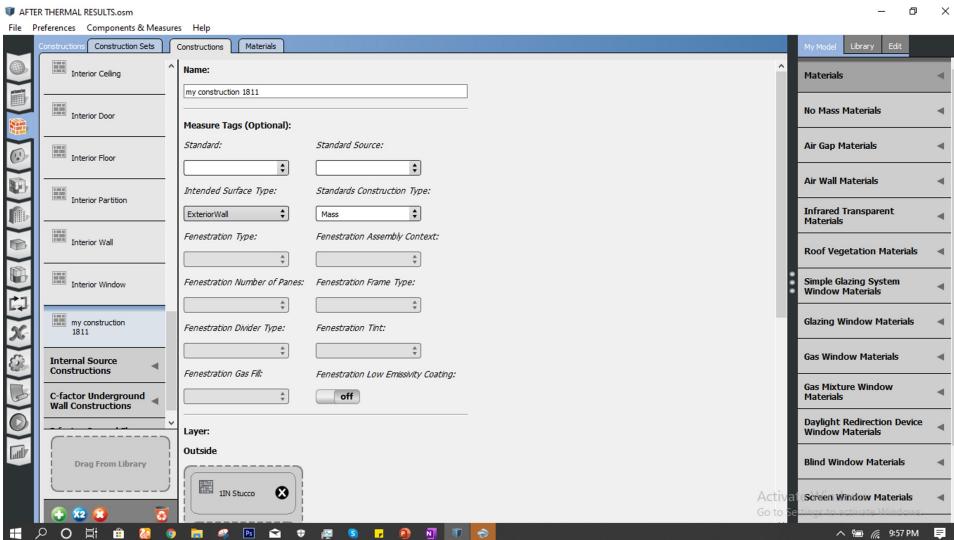


### STEP 2: GO TO CONSTRUCTION COMMAND TO CUSTOMIZE THE BUILDING ATTRIBUTES.

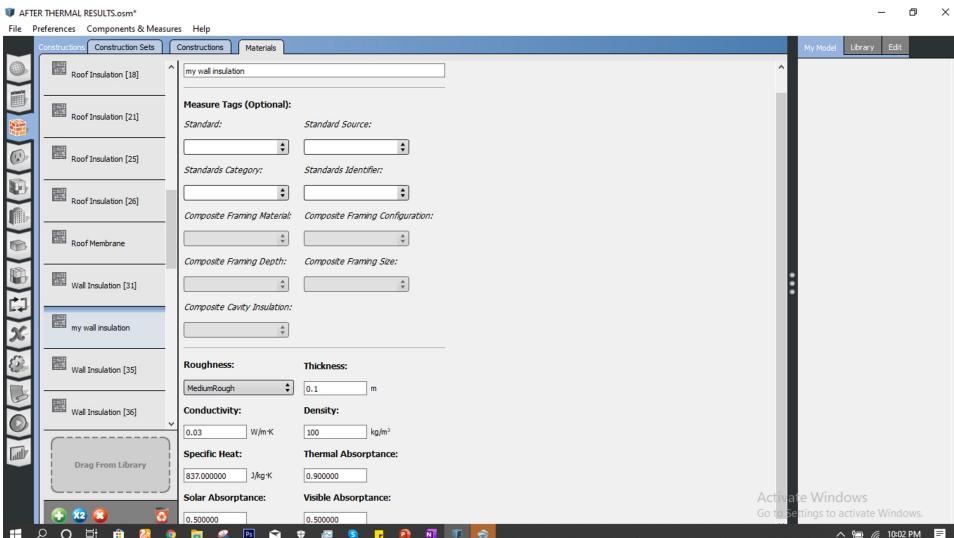
BEFORE CHANGING THE DEFAULT MATERIALS CREATE A COPY SET AND RENAME IT ACCORDING TO YOUR OWN DESIGN.



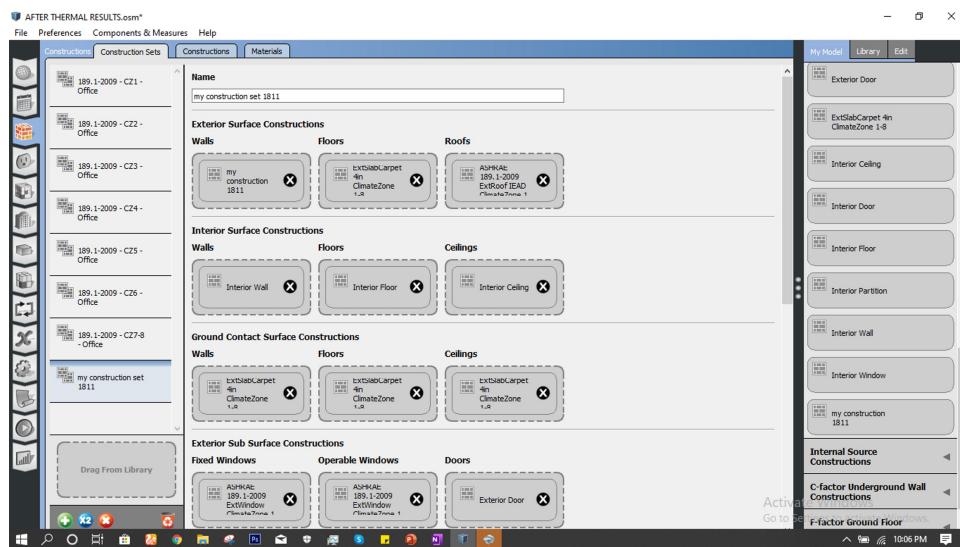
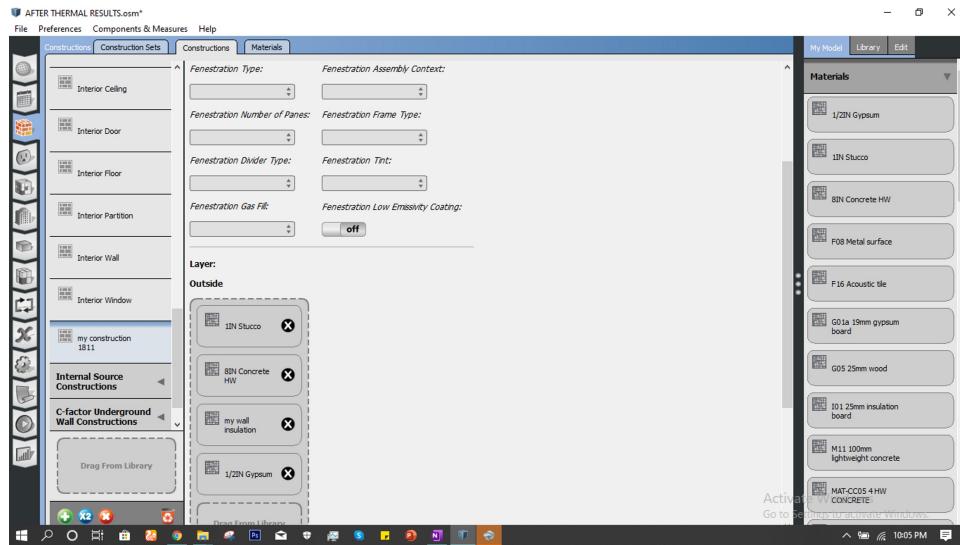
### STEP 3: CHANGE THE MATERIAL OF THE WALL ACCORDING TO YOUR DESIGN BY CREATING A NEW CONSTRUCTION.



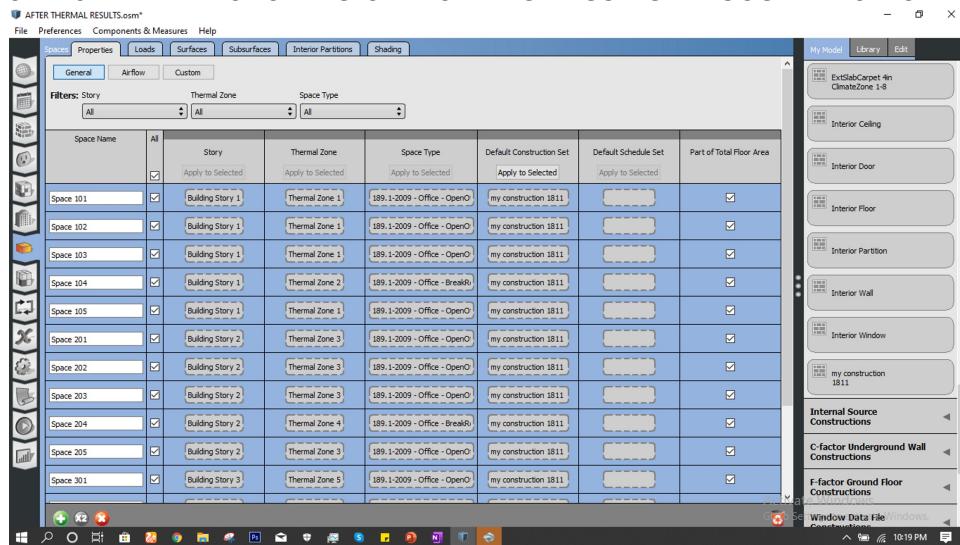
### STEP 4: AFTER DUPLICATING THE DEFAULT WALL ADD THE MATERIALS OF YOUR CHOICE BEFORE THAT WE CAN CREATE A MATERIAL OF OUR CHOICE ALSO BY GOING THROUGH THE MATERIAL SECTION.



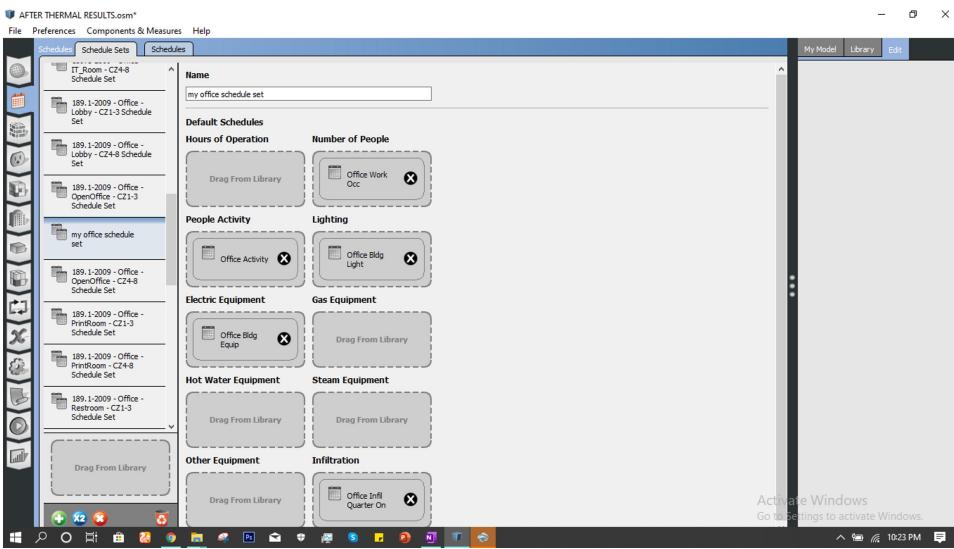
## STEP 5: APPLY ALL THESE CHANGES IN CONSTRUCTION SET



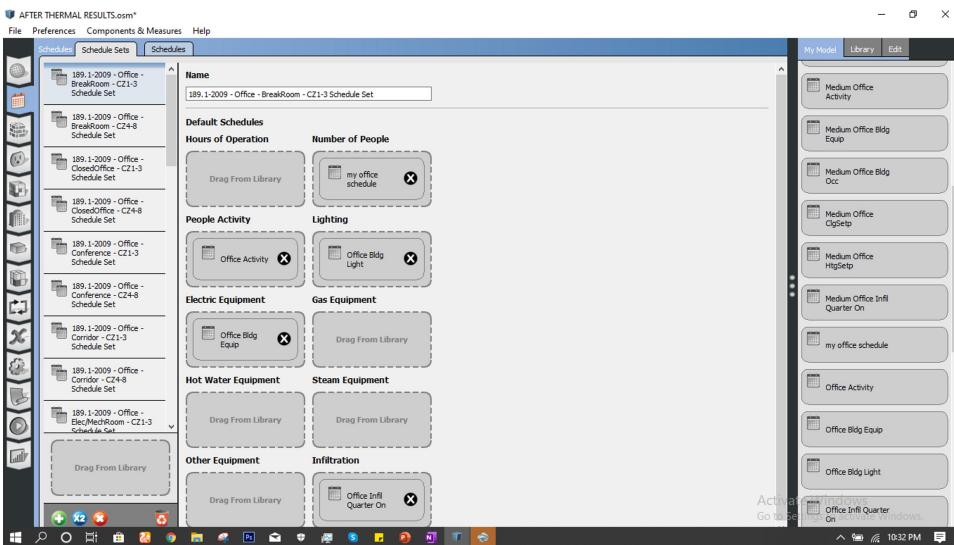
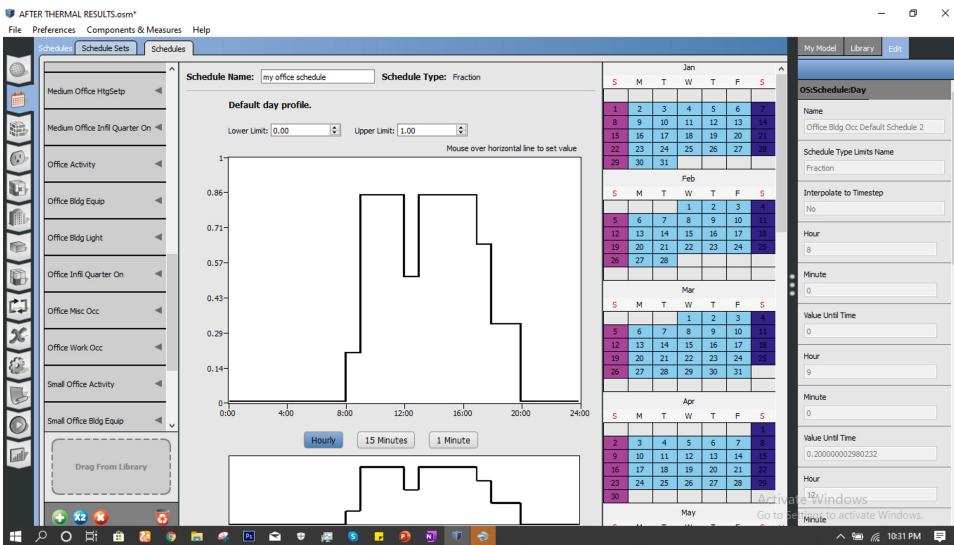
## STEP 6: APPLY THESE CHANGES IN BUILDING BY GOING THROUGH THE SPACE WINDOW



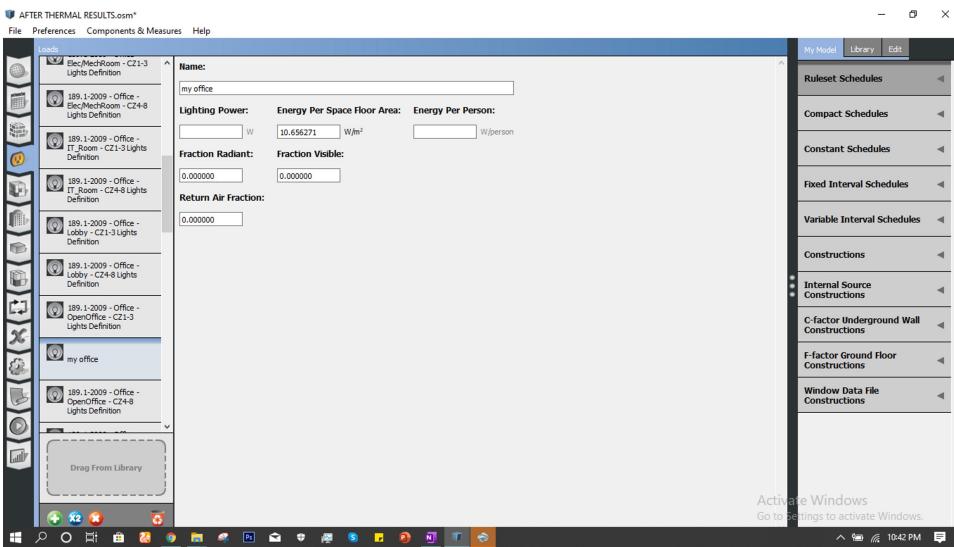
## STEP 7: GO TO SCHEDULE SETS TO CHANGE THE SCHEDULES OF ACTIVITIES, EQUIPMENT, ETC.



## STEP 8: CHANGE THE SCHEDULE ACCORDING TO OUR DATA



## STEP 9: GO TO LOADS CONTROL TO CHANGE THE LIGHTING, ELECTRICAL EQUIPMENT ETC..



## STEP 10: APPLY ALL THE CHANGES TO THE BUILDING AND RUN TO GET THE RESULTS

