Task 1 Considering the same example you solved in the previous assignment (radiative heat transfer between two parallel plates), how many shields with epsilon = 0.1 should you add in order to have the new heat transfer rate to be 1% of the case without shields ?

. two parallel plates without shield.

$$\dot{Q}_{12\,no\,shield} = \frac{A\delta\,(T_1^4 - T_2^4)}{\frac{1}{\varepsilon_1} + \frac{1}{\varepsilon_2} - 1} = 3625.37A\ (w).$$
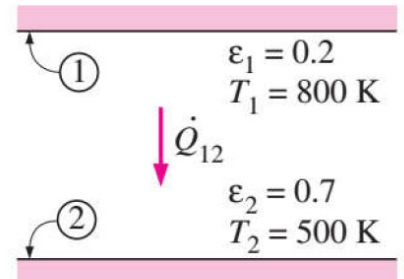
· new heat transfer $\dot{Q}_{new} = 1\%\ \dot{Q}_{12\,no} = 36.25A\ (w).$

$\cdot \frac{1}{n+1}\ \dot{Q}_{12\,no\,shield} = \dot{Q}_{new}. = 36.25A$

$$\frac{1}{n+1} \cdot \frac{A\delta\,(T_1^4 - T_2^4)}{\left(\frac{1}{\varepsilon} + \frac{1}{\varepsilon} - 1\right)} = 36.25A$$

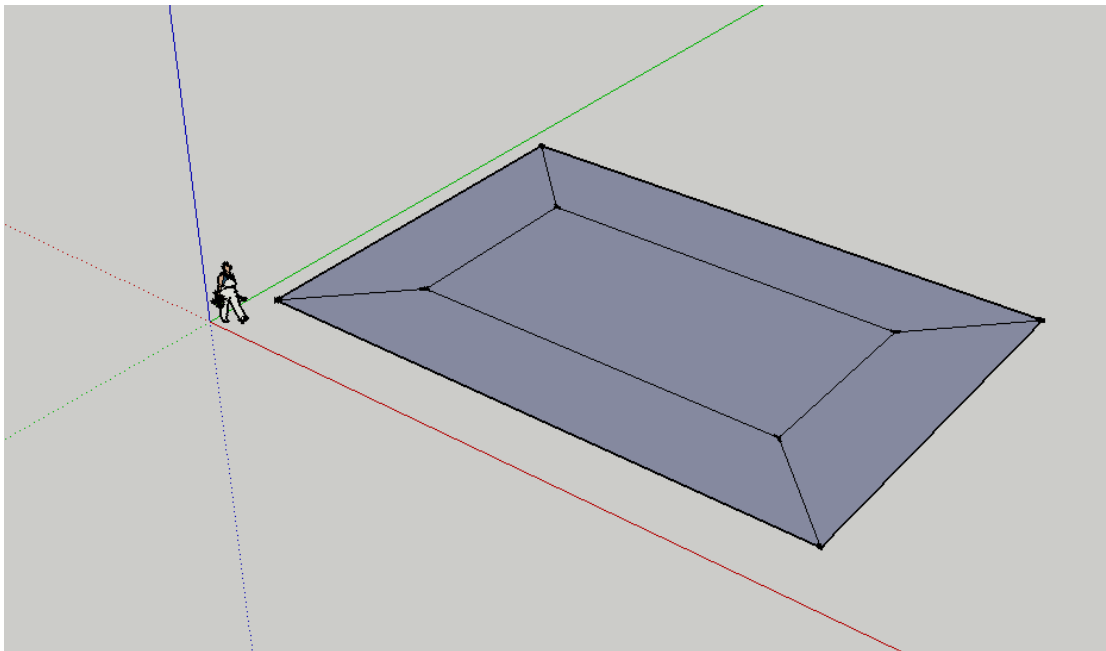$$A \cdot 3.67\times10^{-8} \cdot \frac{800^4 - 500^4}{\frac{1}{0.1} + \frac{1}{0.1} - 1} = (n+1) \cdot 36.25A$$

$$n = 28.$$

$\varepsilon_1 = 0.2$
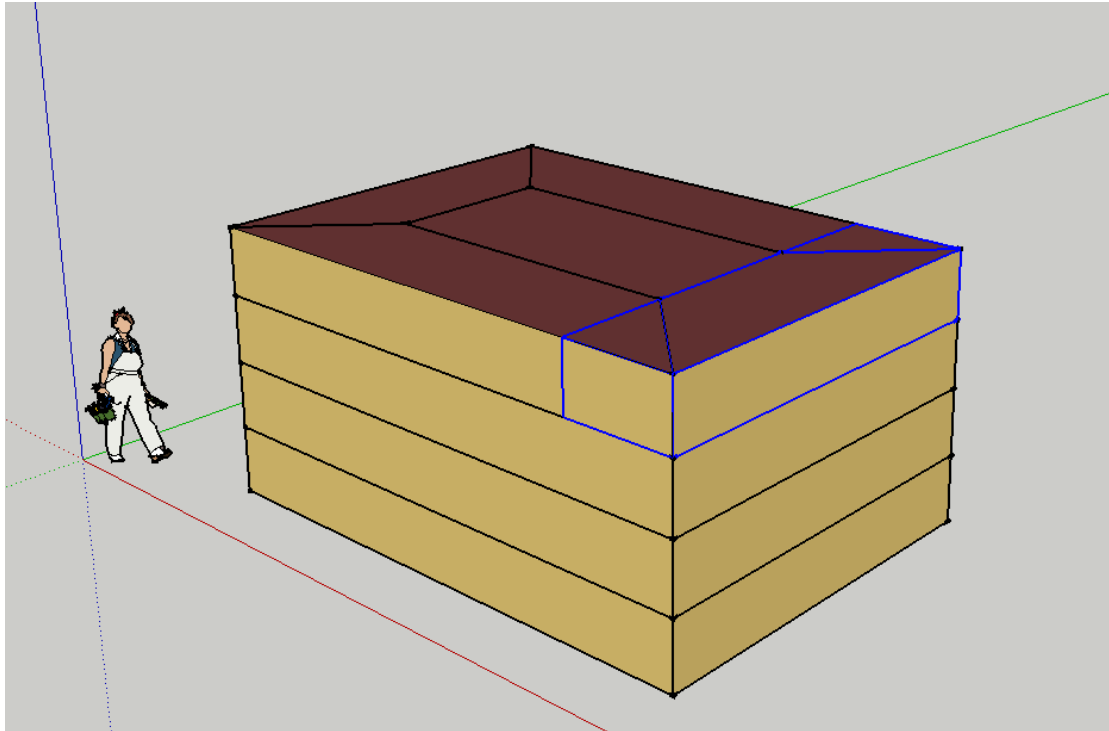$T_1 = 800$ K
$\dot{Q}_{12}$
$\varepsilon_2 = 0.7$
$T_2 = 500$ K

Task 2*You should create a pdf file with screenshots of all of the steps we went through (clearly from your own file) and explain briefly the reason behind the use of each step (in your own words!)
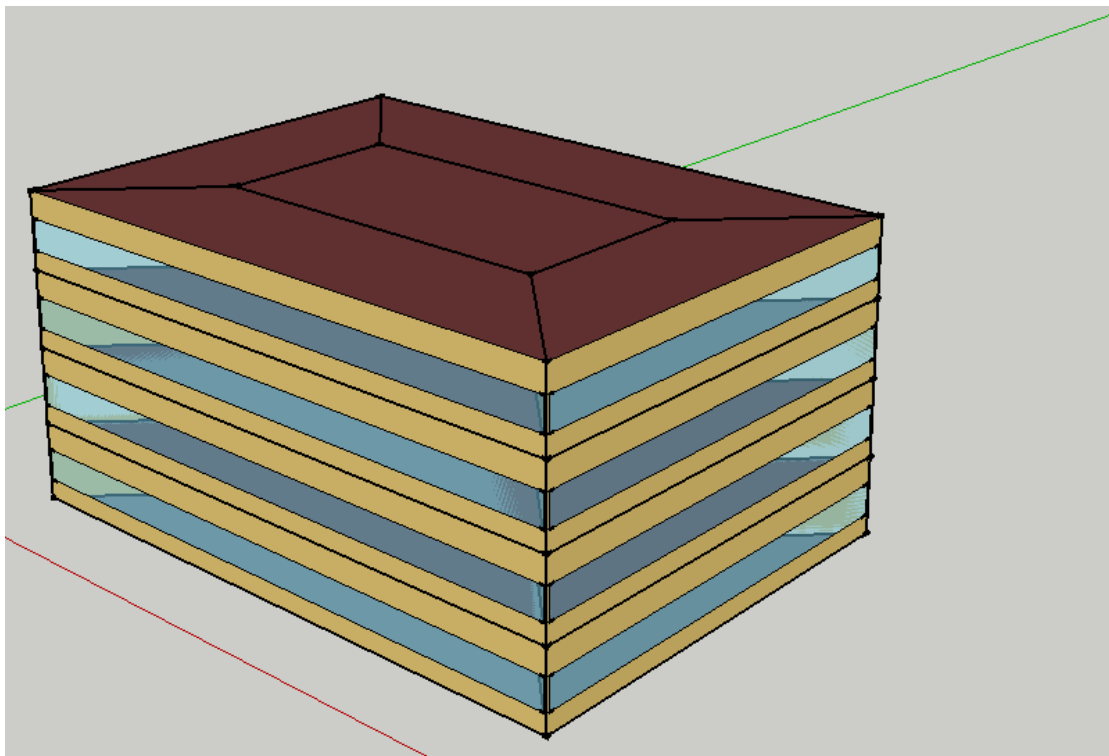
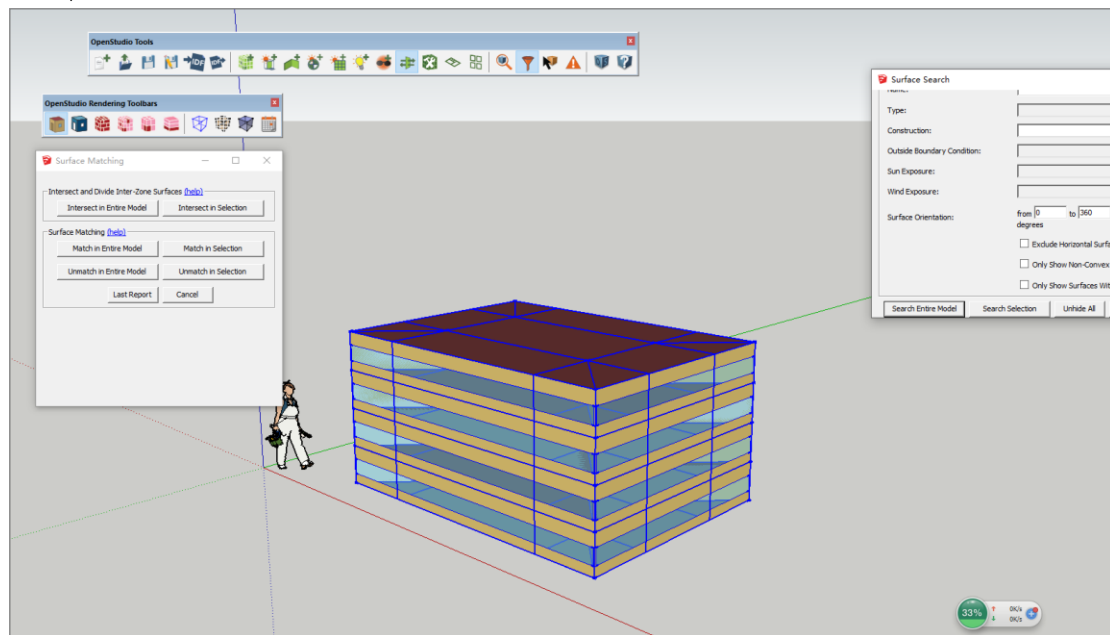1. draw the shape of the building

2. Create space from the diagram to set up each floor
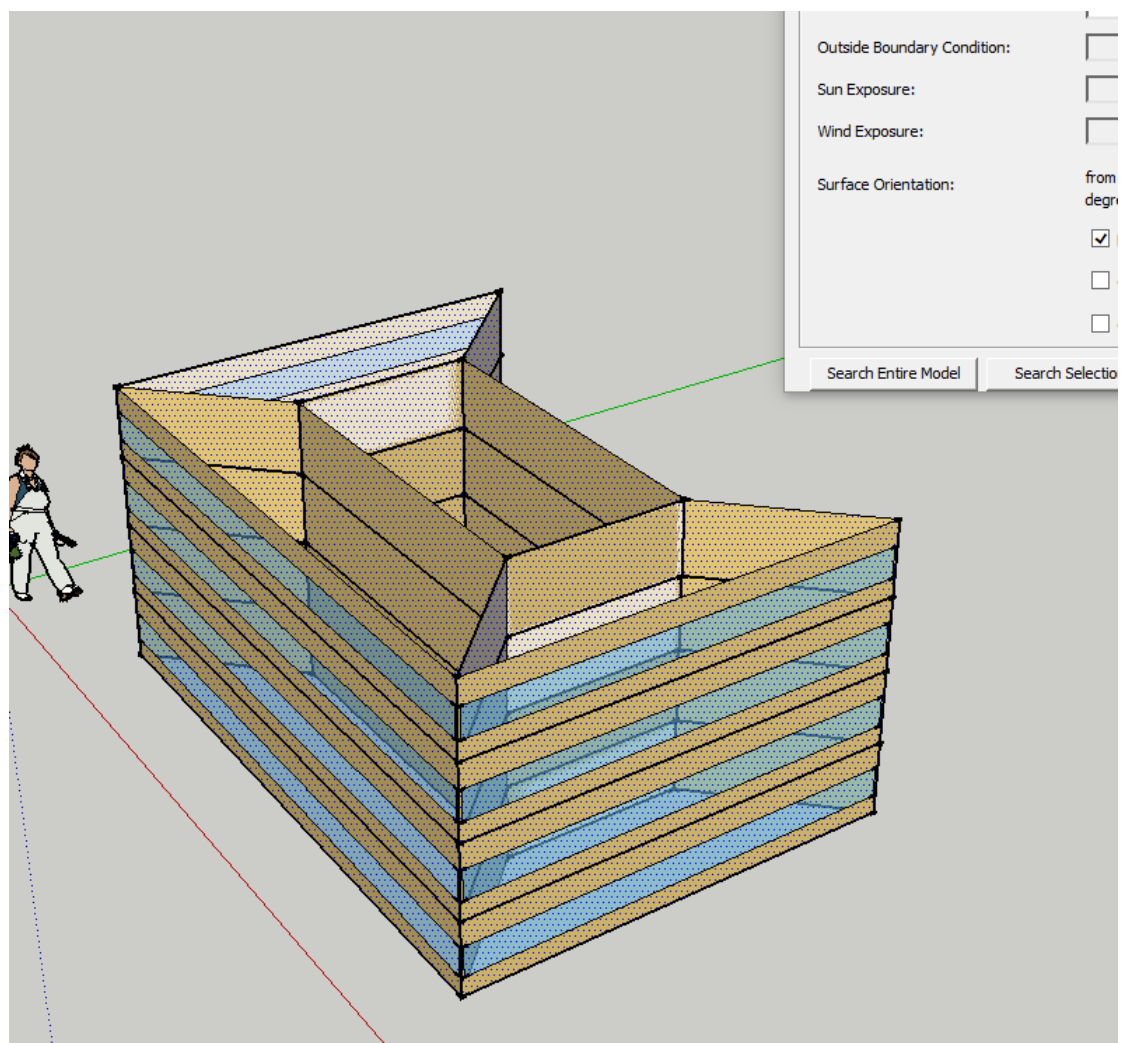

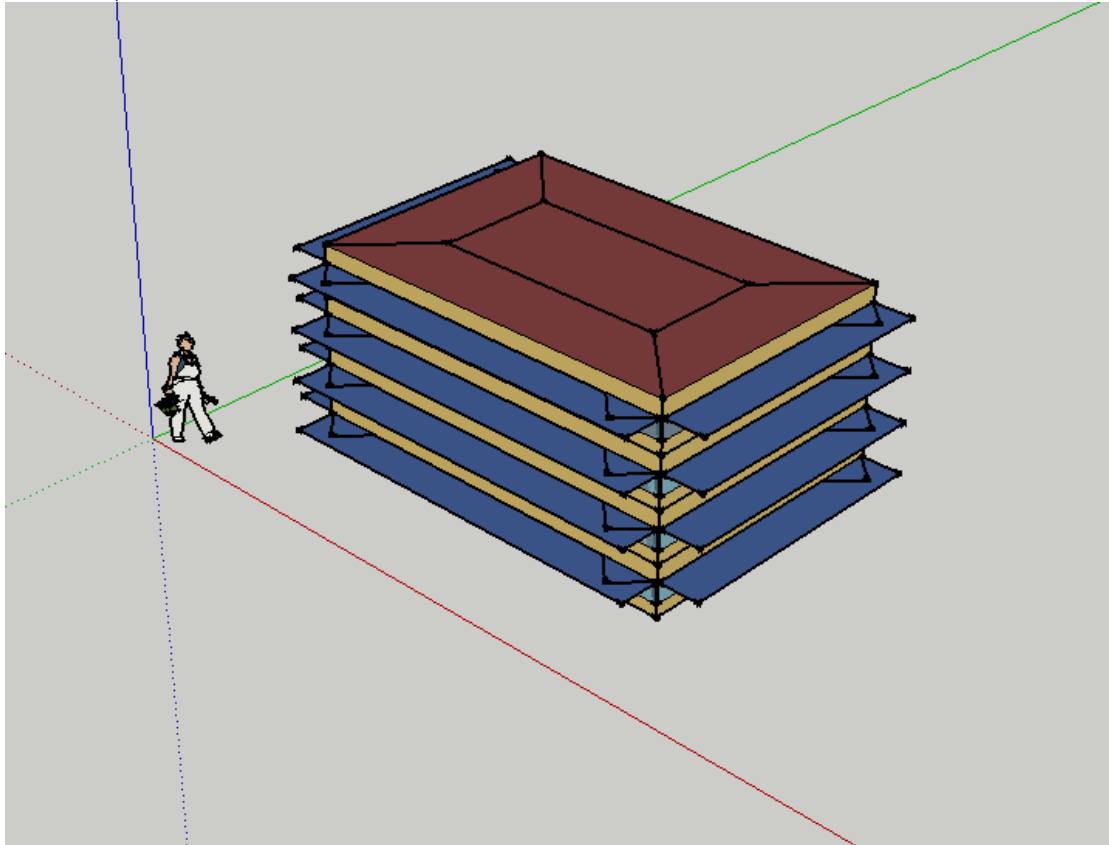3. Use "surface matching tool "so that we can do options on the surface
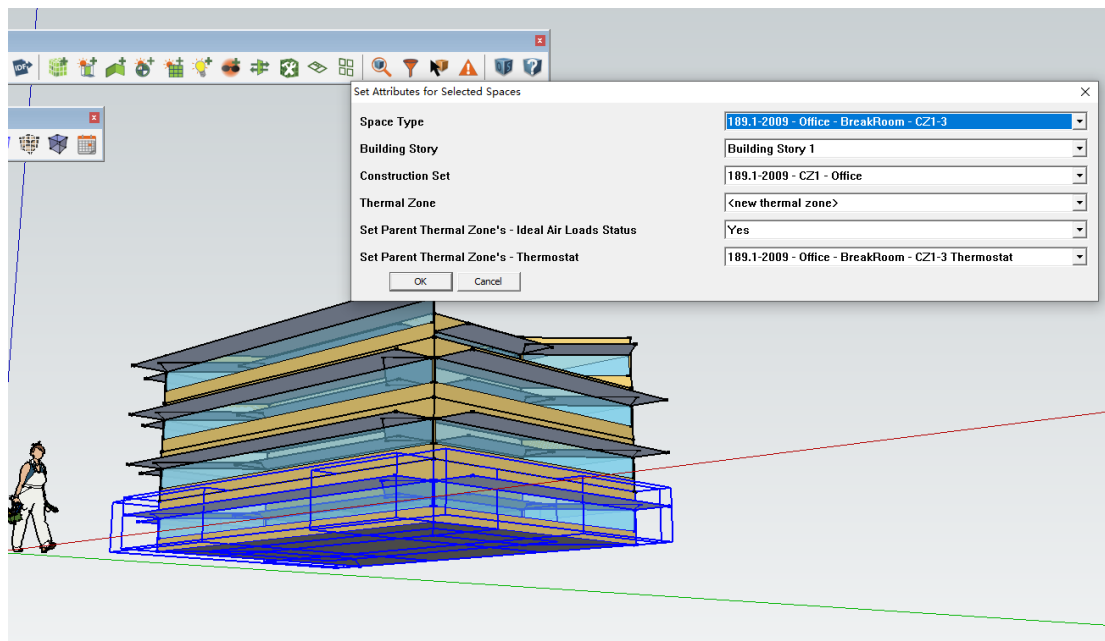
4. Open the window on the wall
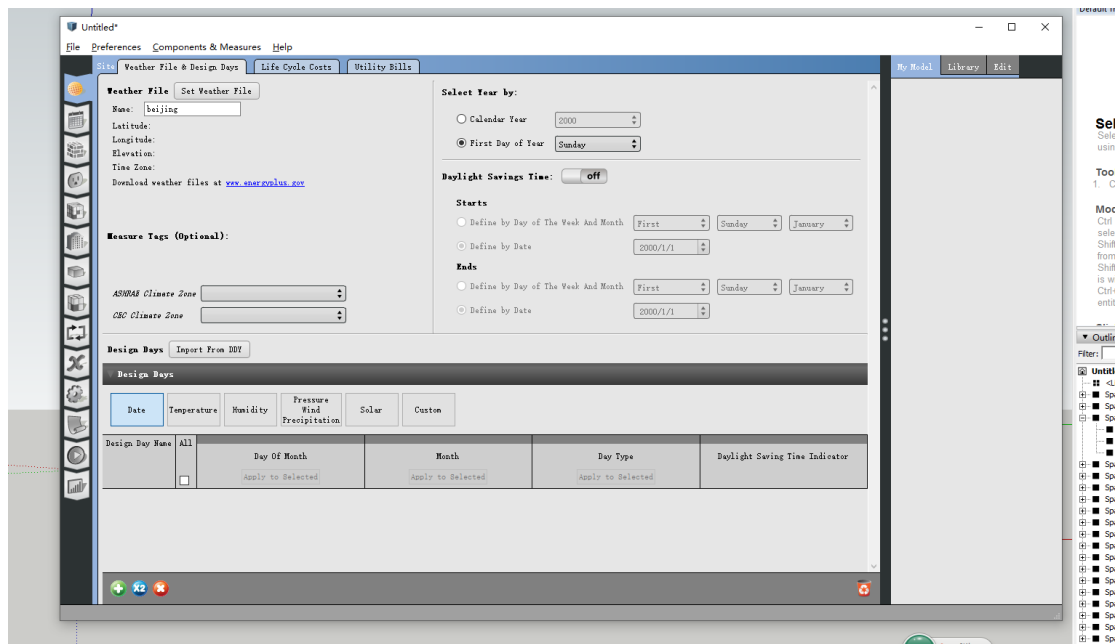

5. Select the surfaces

6. set up the shaders

7. Choose the space as a thermal zone and add specifications

8.After mention launch the open studio and add the weather data

9.get the results and save