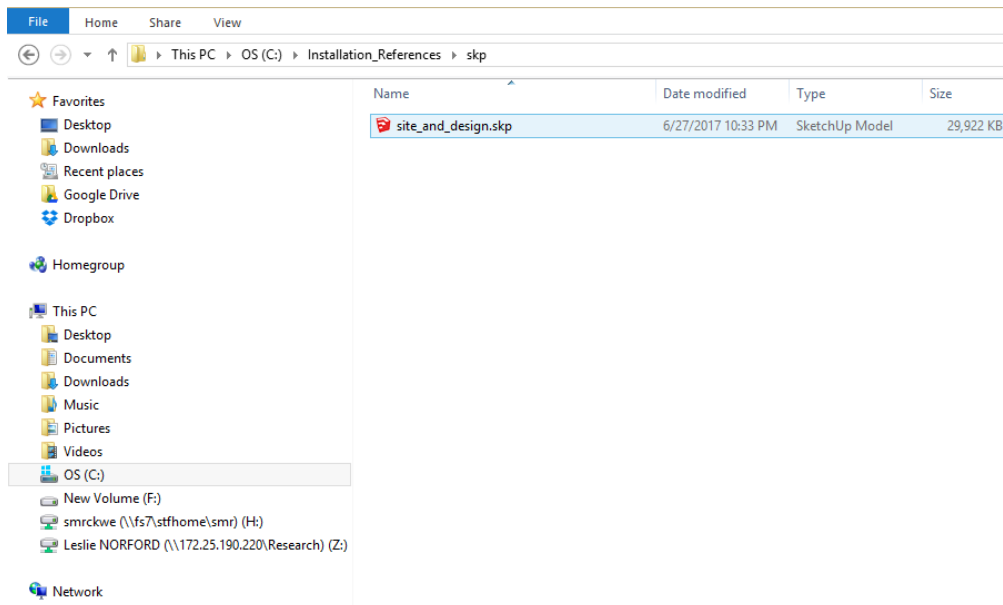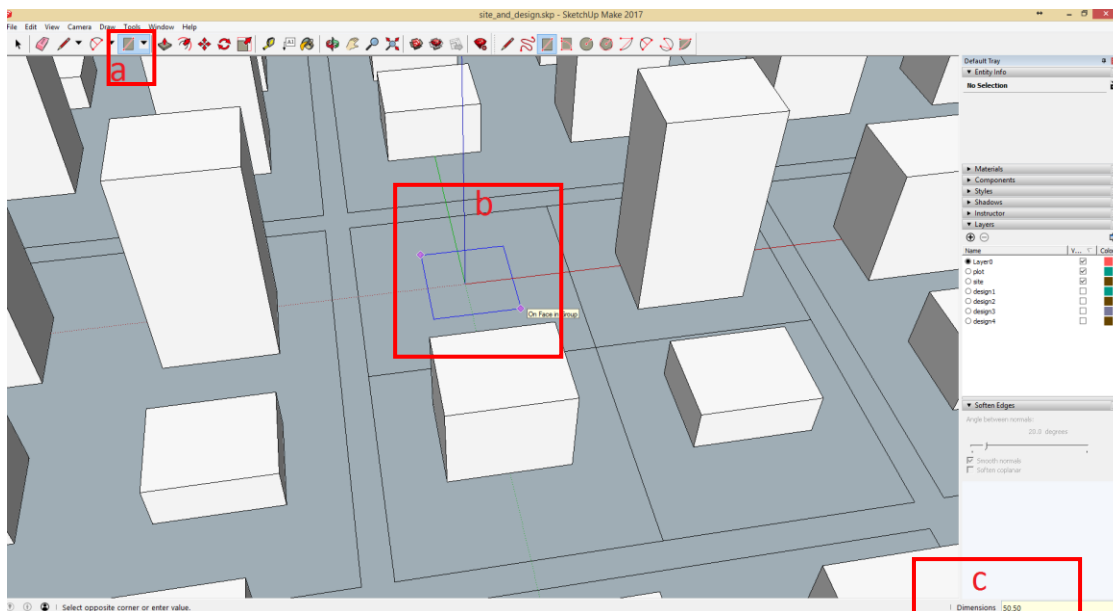You must have read the installation guide for pyliburo and installed pyliburo before attempting this exercise.

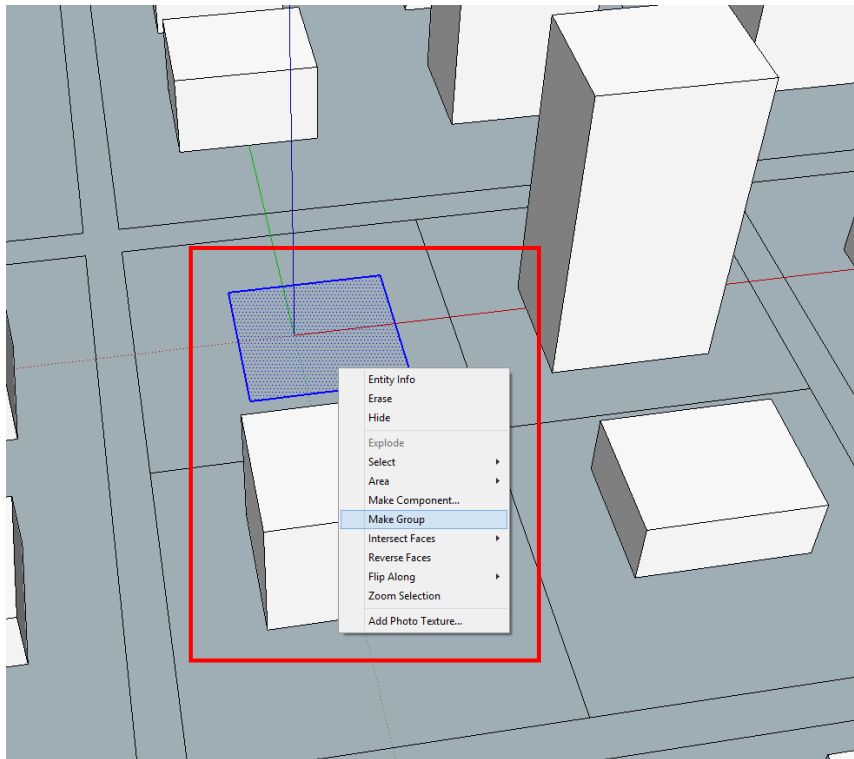## 1.) Go to c:\\Reference_Installations\\skp\\site_and_design.skp and open the file

2.) Open the file and draw a square on the plot.
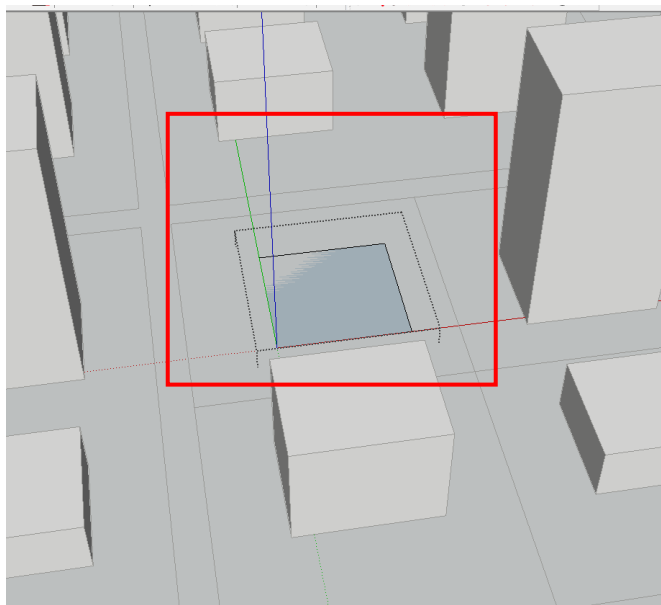   a.   use the square tool.
   b. Draw a square
    c. Key in 50,50

3.) Double click on the square to select the surface and its edges. Left click and group the square.

Entity Info
Erase
Hide

Explode
Select   ▶
Area   ▶
Make Component...
Make Group
Intersect Faces ▶
Reverse Faces
Flip Along   ▶
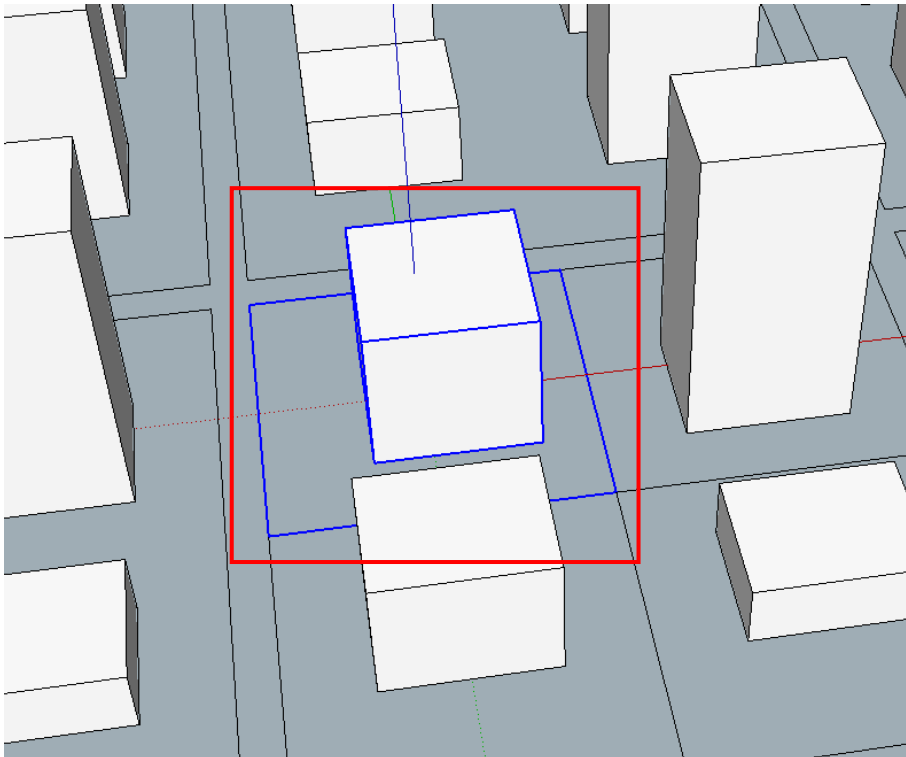Zoom Selection

Add Photo Texture...

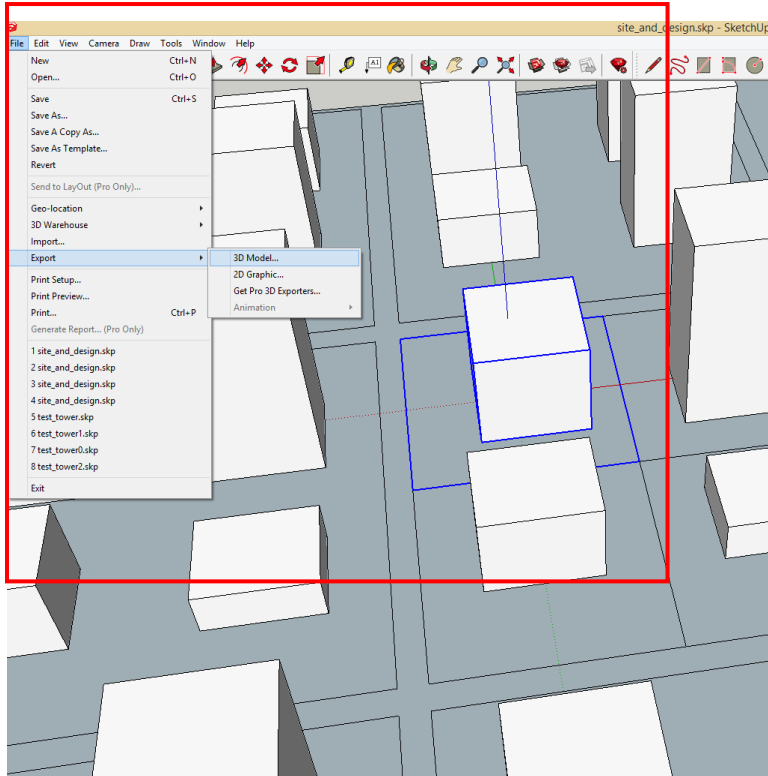4.) Double click on the grouped square to be able to edit the square.

5.) a.) Click on the Push/Pull tool. B.) Extrude the square by 48 metre c.) by typing in 48.
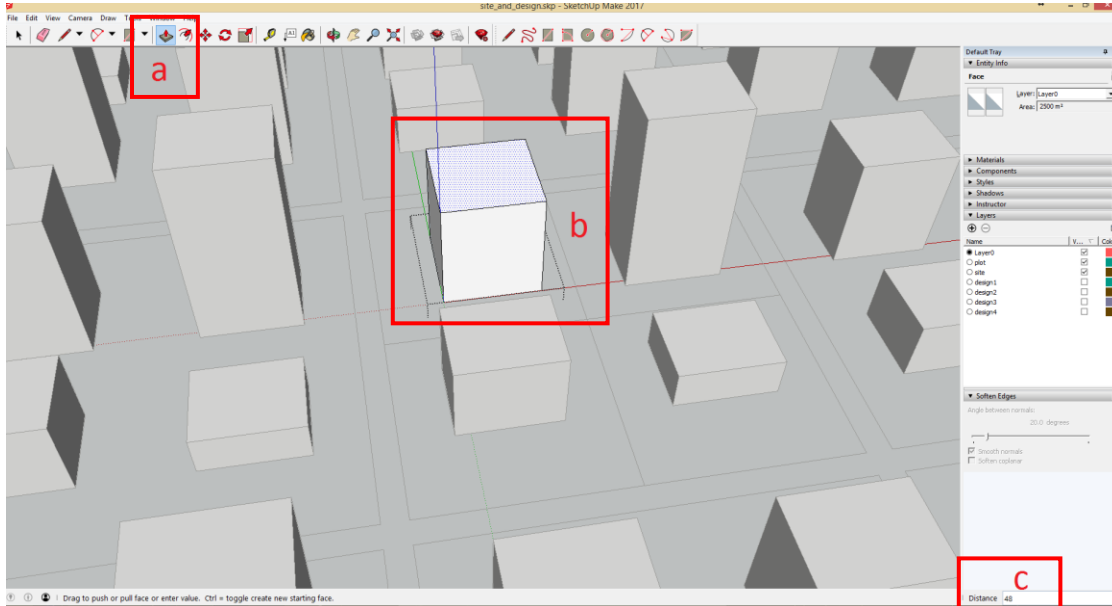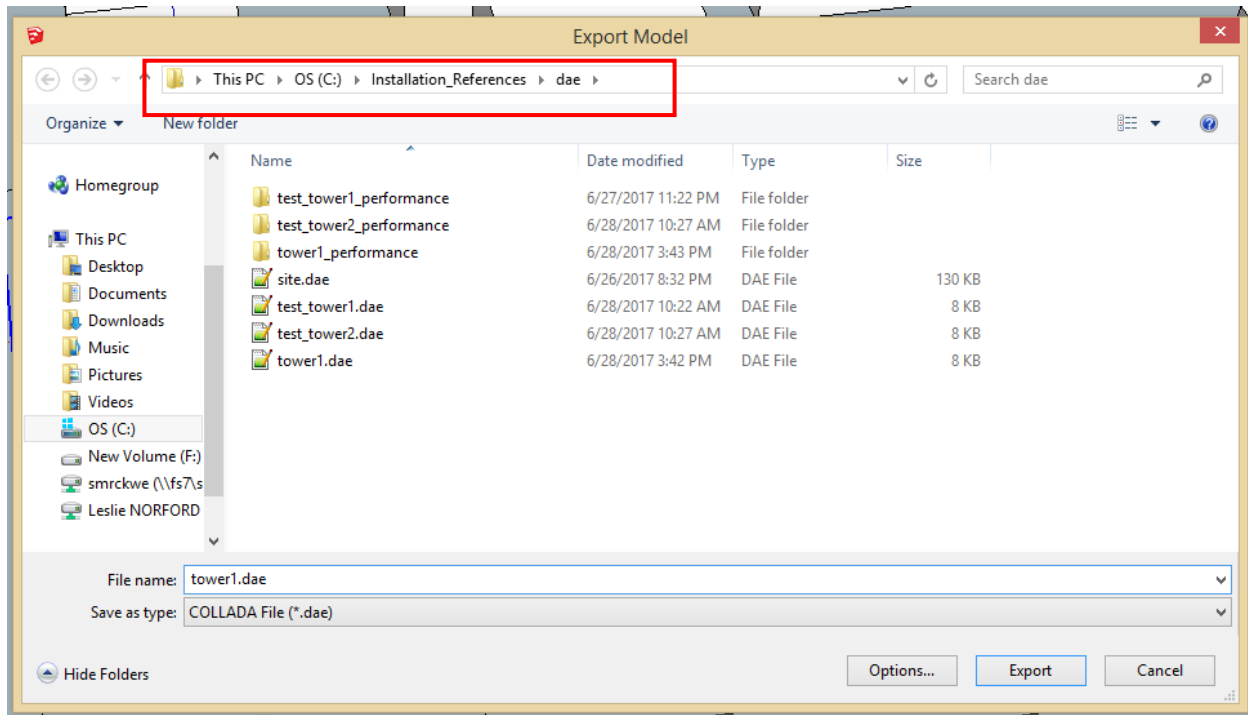

6.) Select both the building and the plot by holding down the "shift" key on your keyboard while selecting with your mouse.
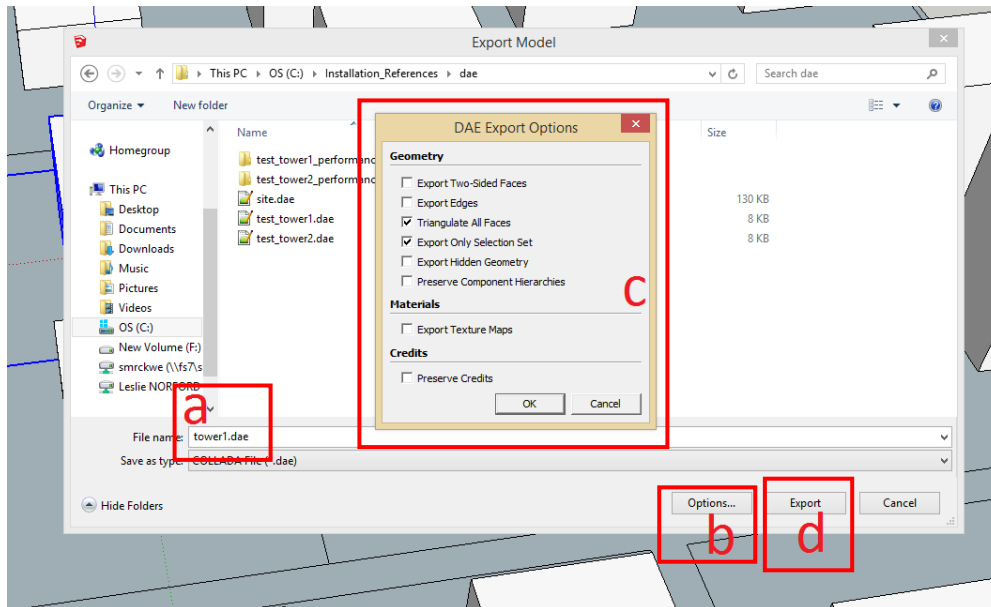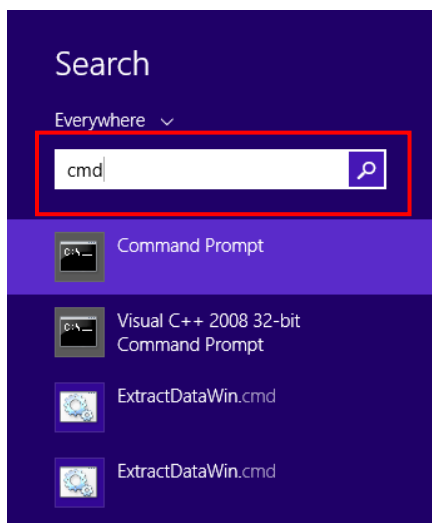
7.)Go to file - export- 3d Model

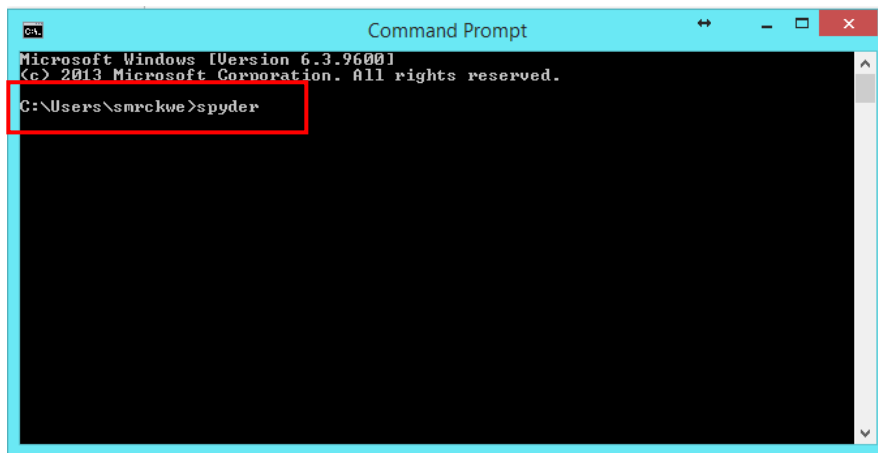## 8.)Navigate to the c:\\Installation_References\\dae folder

9.) In the export option window a.) change the file name to tower1.dae (do not put any spacing in your filename) b.) click on the options tab c.) only tick "triangulate all faces" and "export only selection set" and click ok d.) click "export"
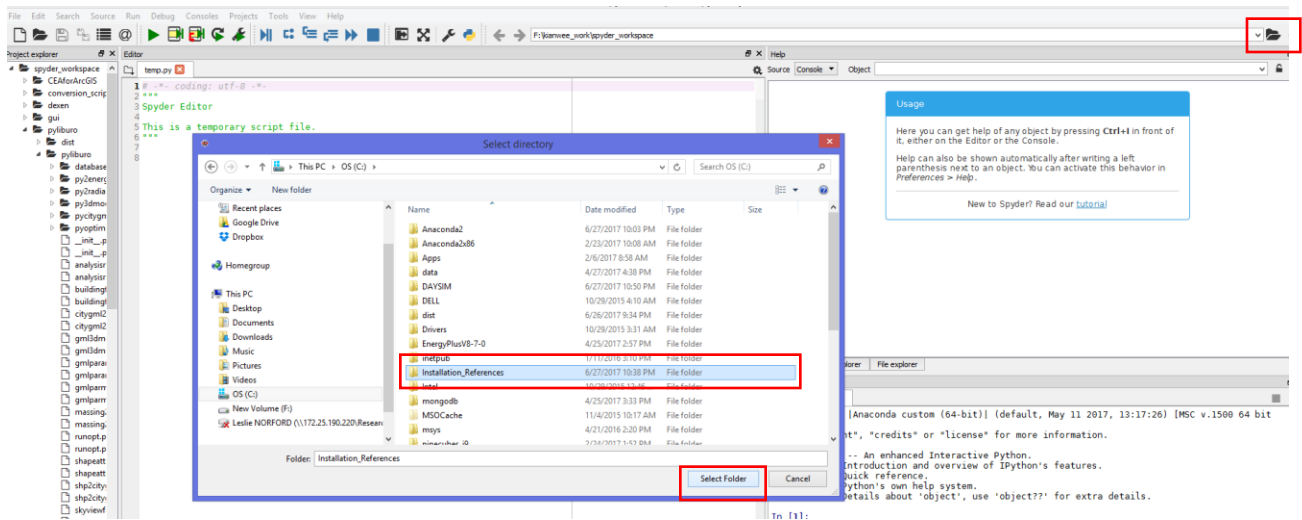

10.) Once exported, go to search and type in "cmd", then click on "command prompt"
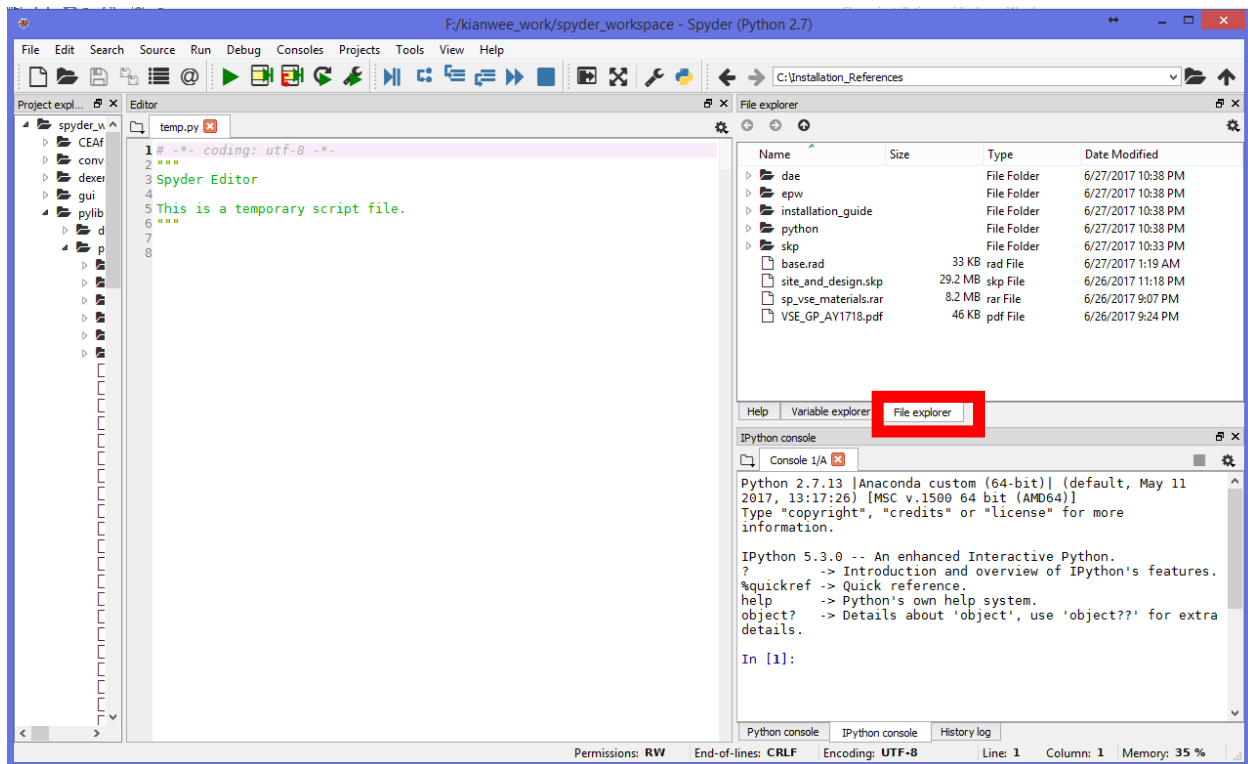
11.)   In the command prompt type in spyder and enter

12.)   Spyder will load and open. Click on the folder icon in spyder, and navigate to the "c:\Installation_References" folder. Click on the " Installation_References" and click "Select Folder"

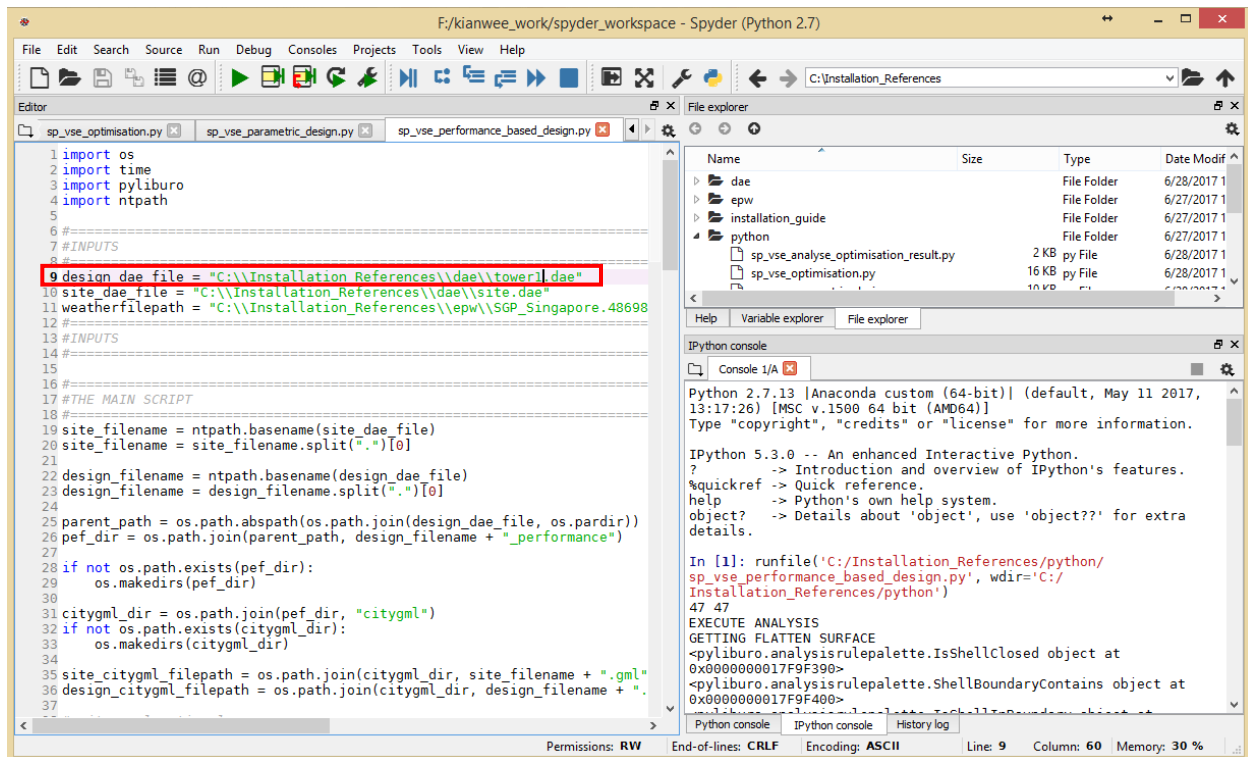## 13.) Click on "File Explorer" to see all the files in the "Installation_References" folder

14.)   Click on the down arrow at the "python" folder, and double click on the "sp_vse_performance_based_design.py". The script will appear on the left window.
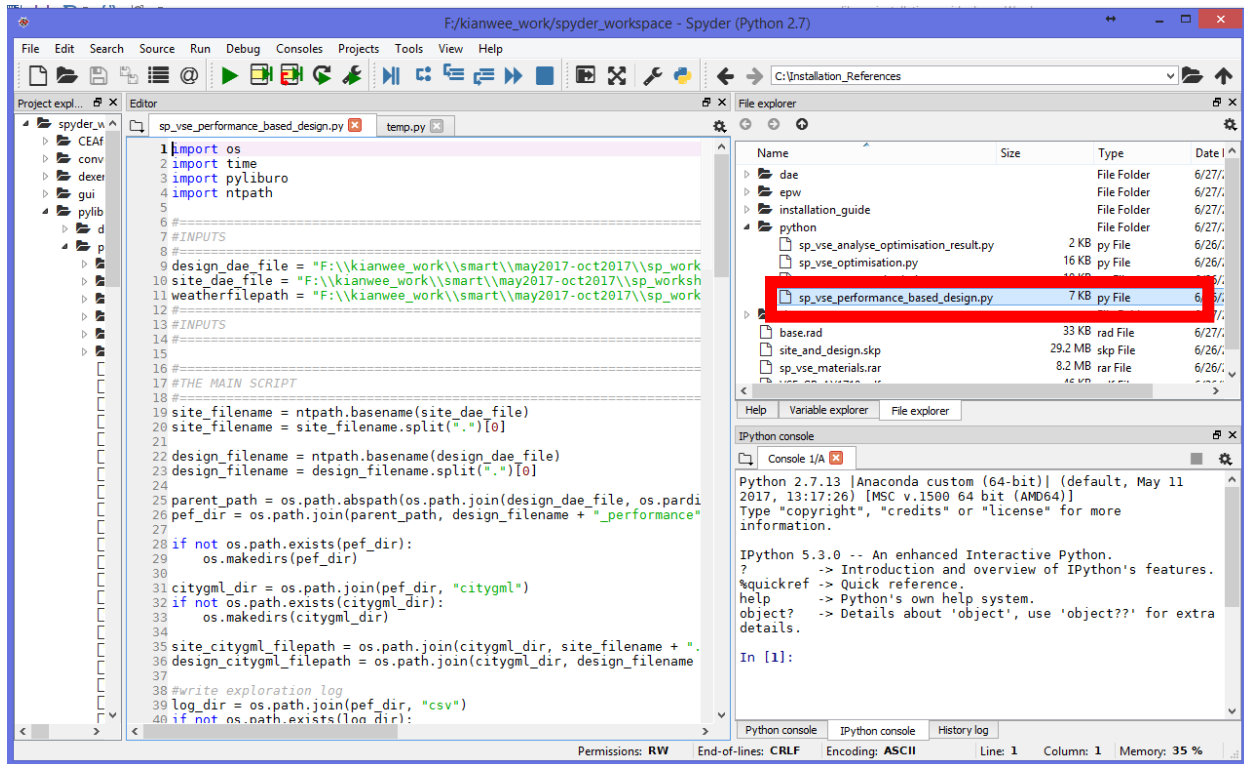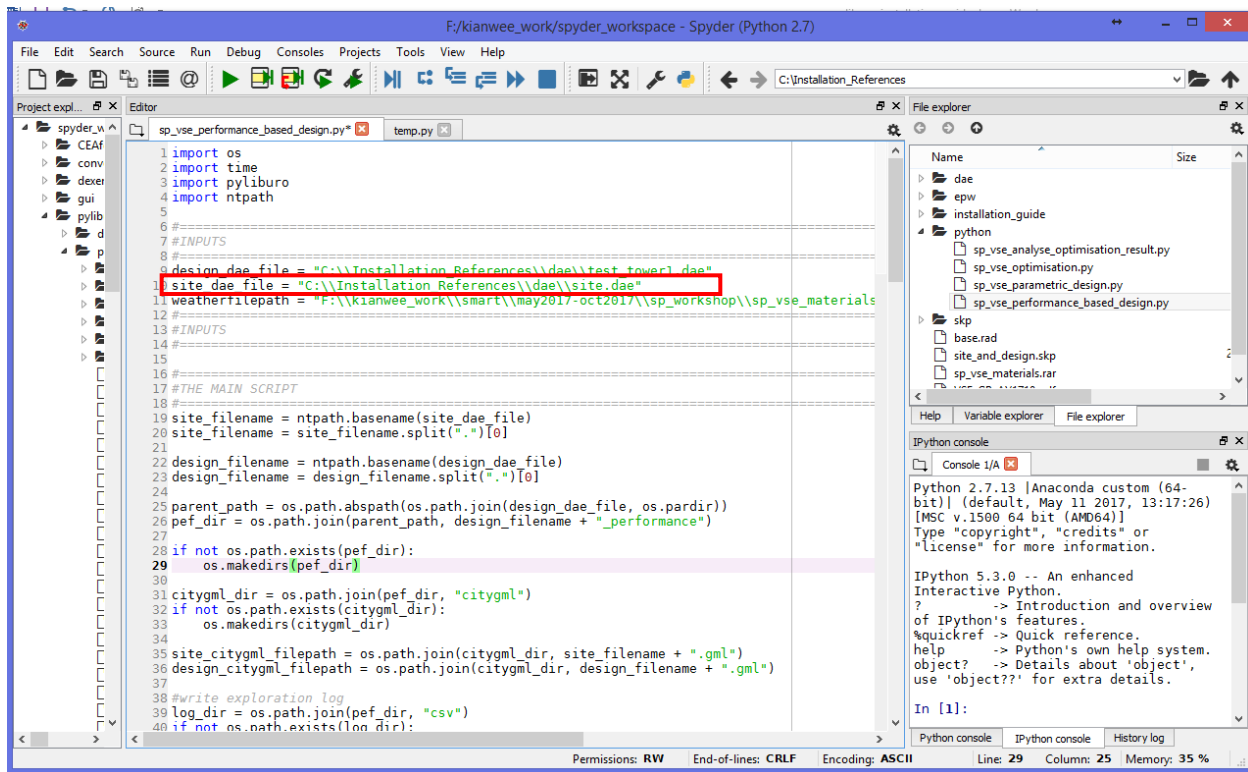
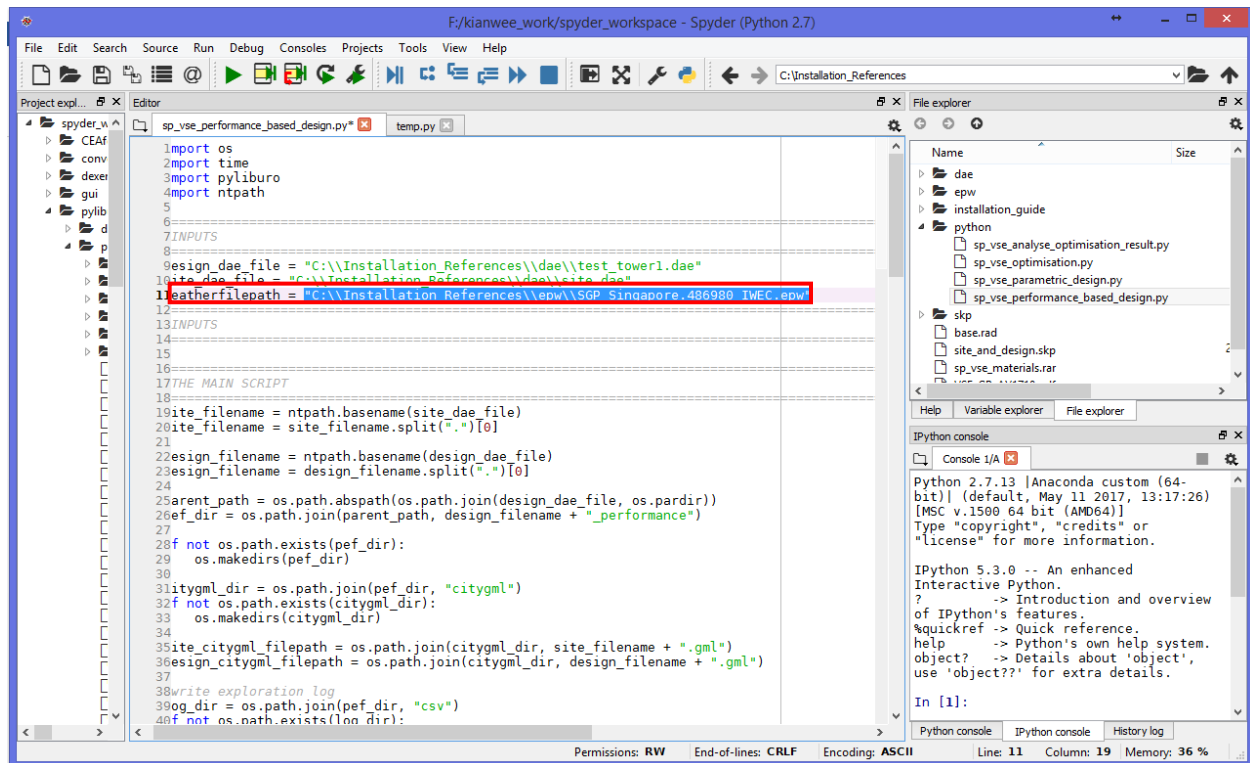**15.)** In the script change the "design_dae_file" to where you export your design

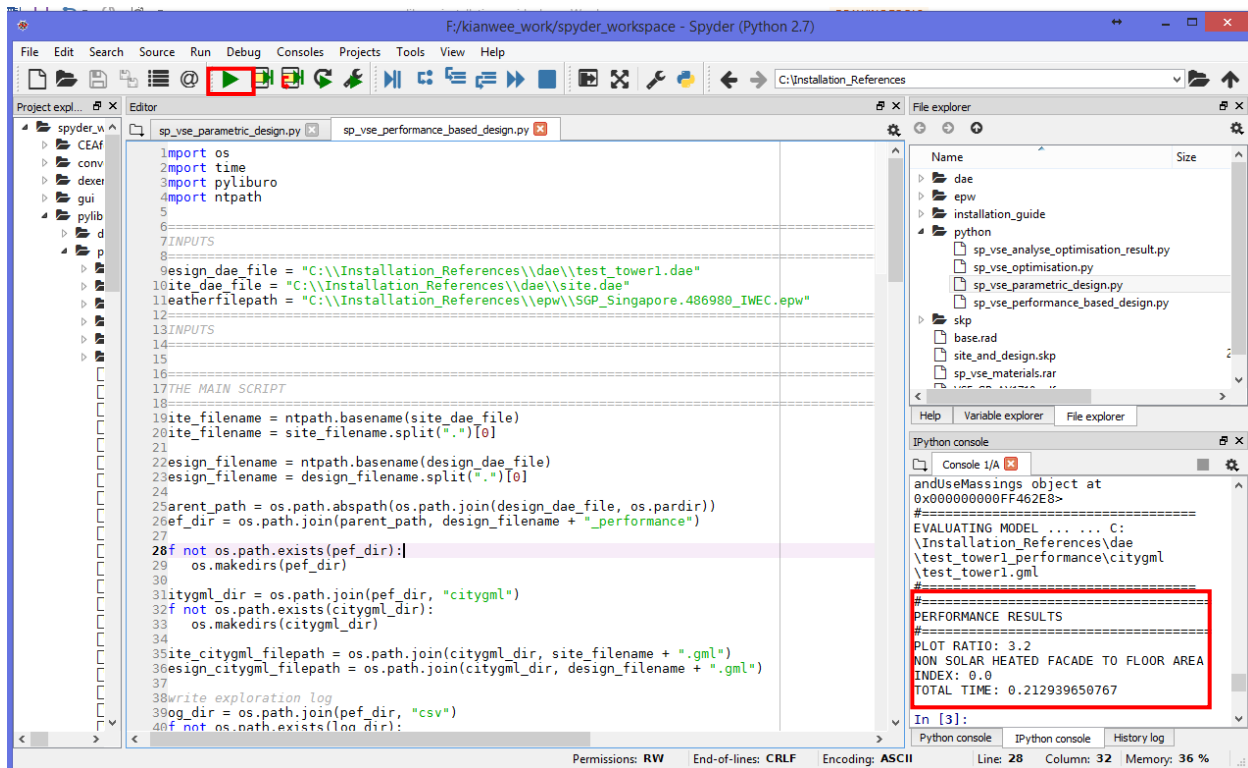"C:\\Installation_References\\dae\\tower1.dae"

16.) In the script change the "site_dae_file" to
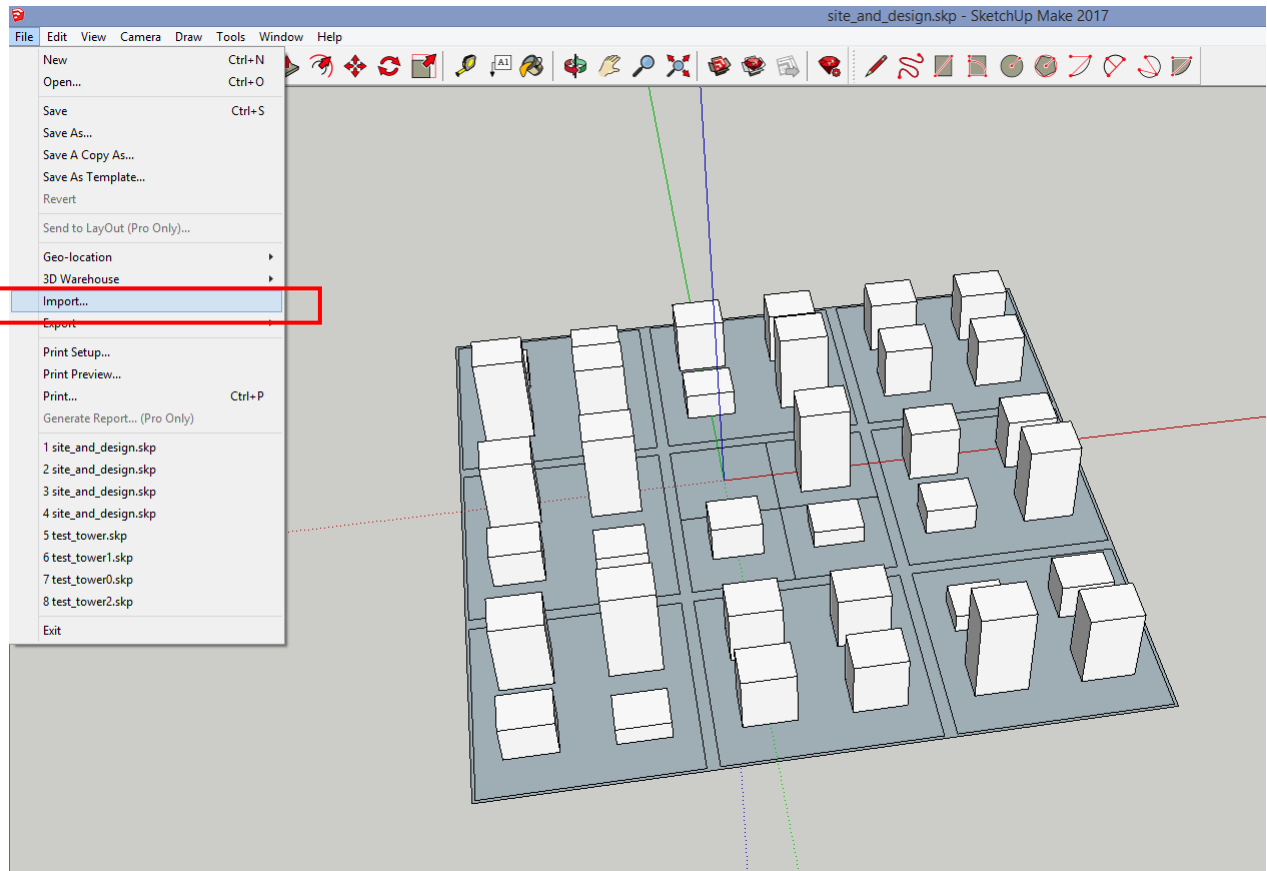"C:\\Installation_References\\dae\\site.dae"

17.) In the script change the "weatherfilepath" to "C:\\Installation_References\\epw\\SGP_Singapore.486980_IWEC.epw"
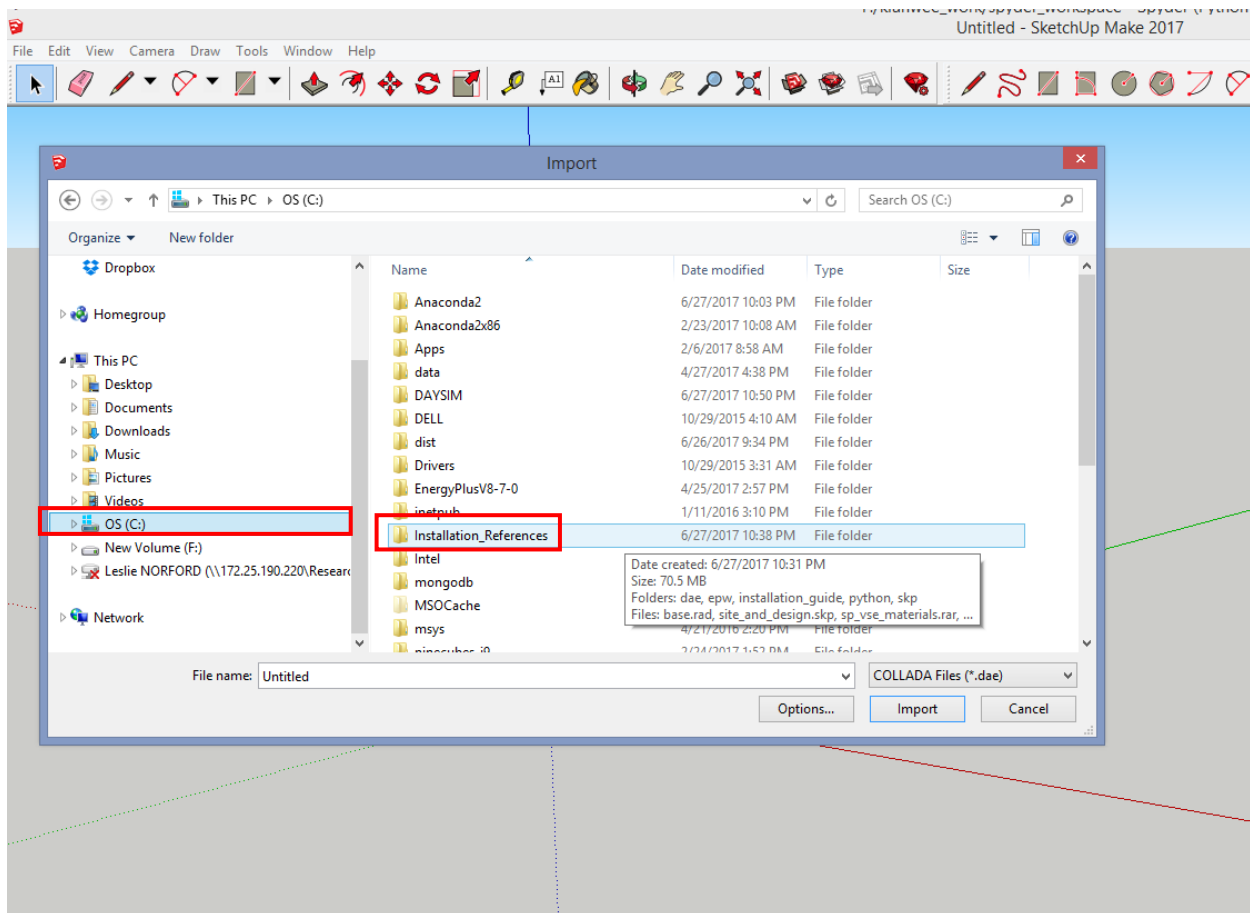
18.) Click the run button as shown in the figure and the script will run the analysis and show you the performance of the design.
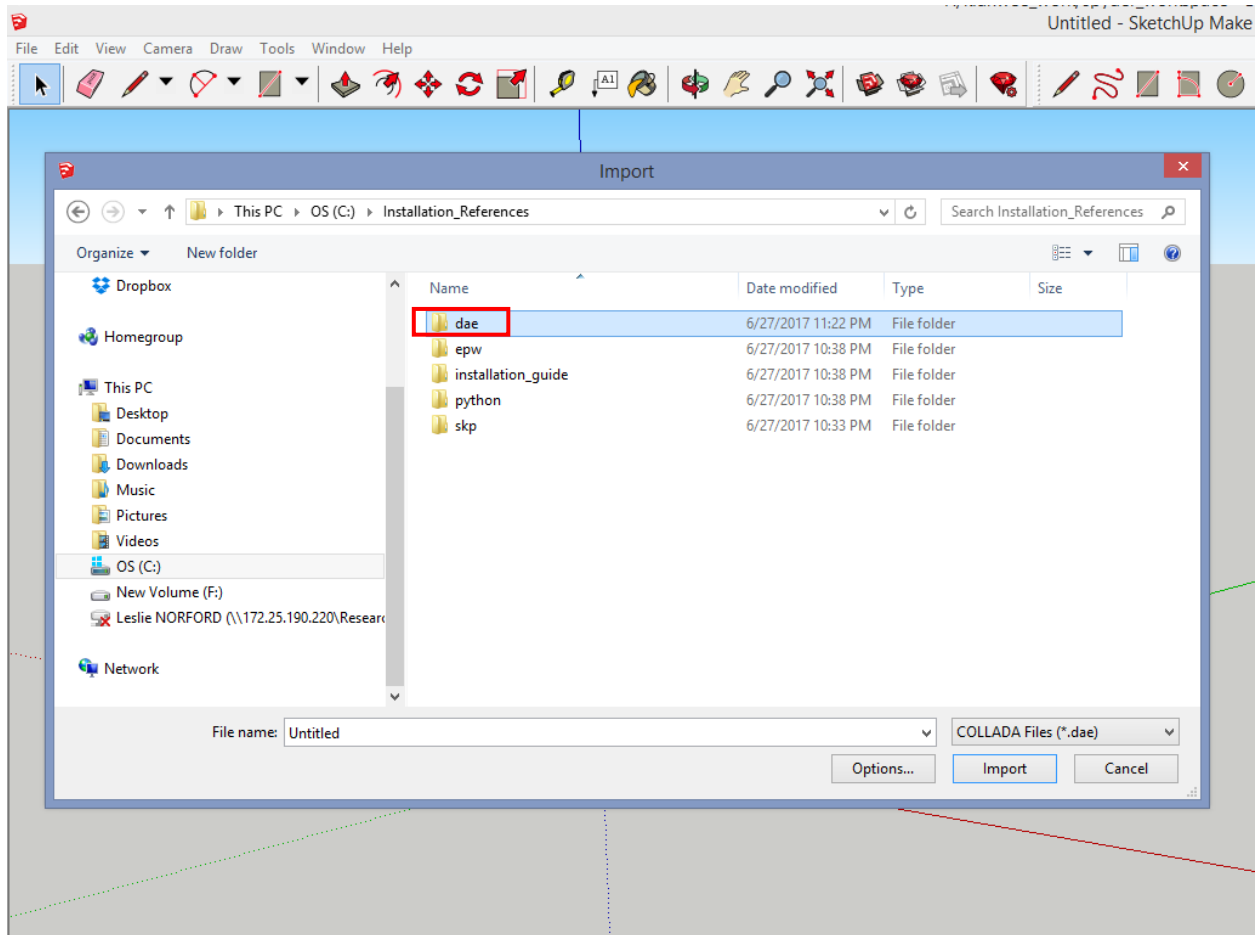
**19.)** Go to sketchup – file – import

20.) Go the folder c:\Installation_References double click to enter the folder

21.) In the "Installation_References" folder double click to enter the "dae" folder

22.) In the "dae" folder double click "tower1_performance" to enter the folder. Every time you run a performance analysis, the python code will generate a performance folder based on your filename, thus tower1_performance.
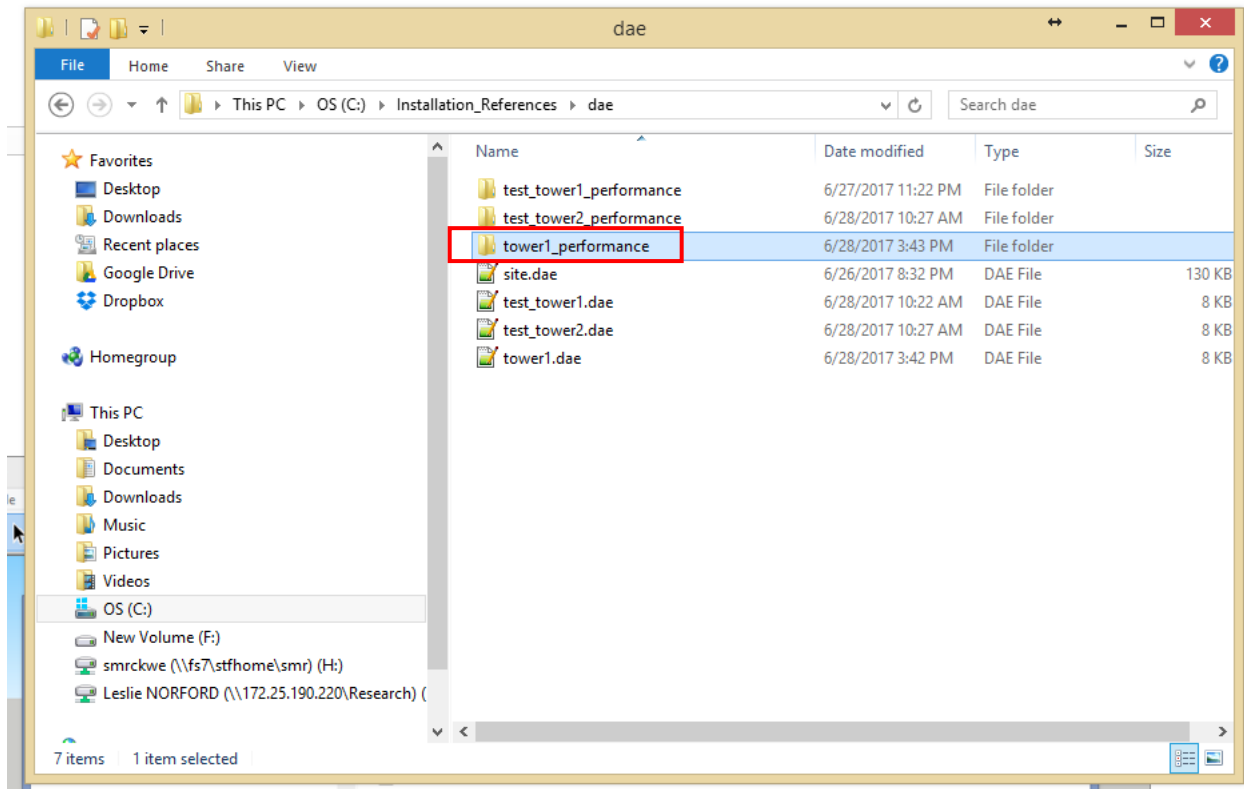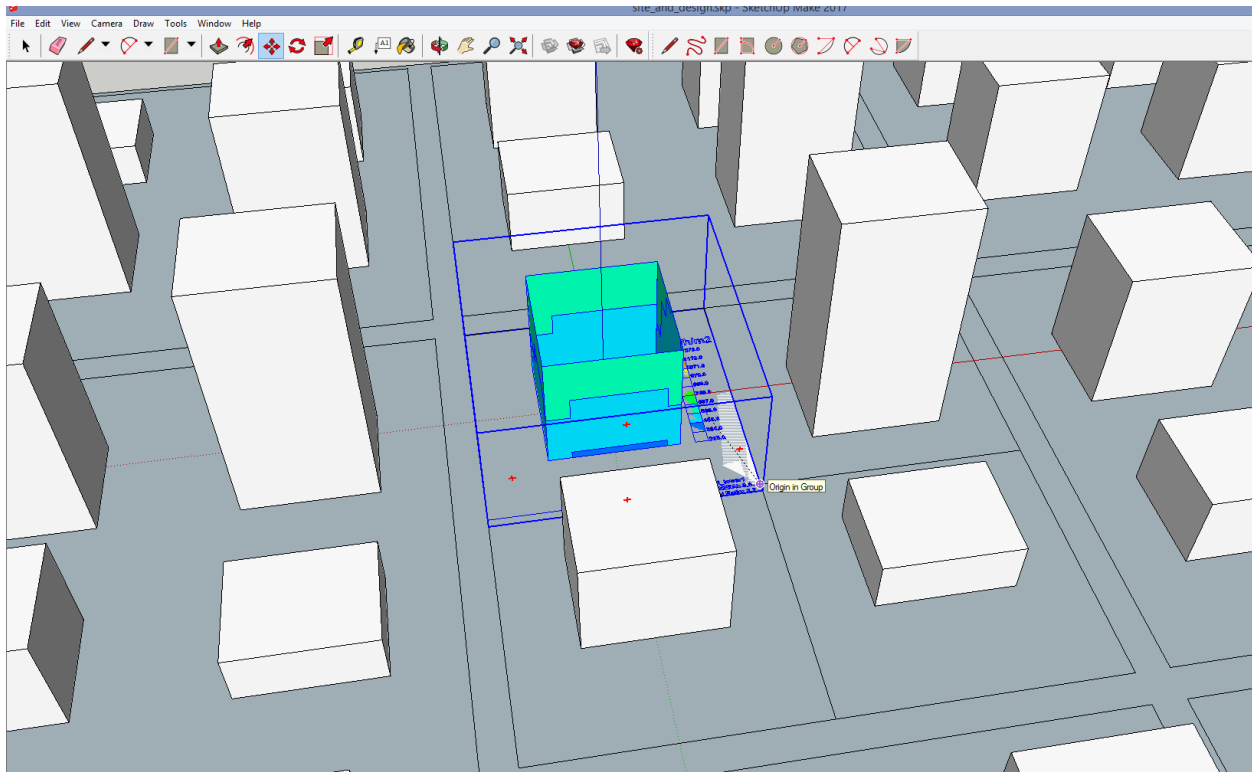
23.) In the "test_tower1_performance" folder double click "dae" to enter the folder
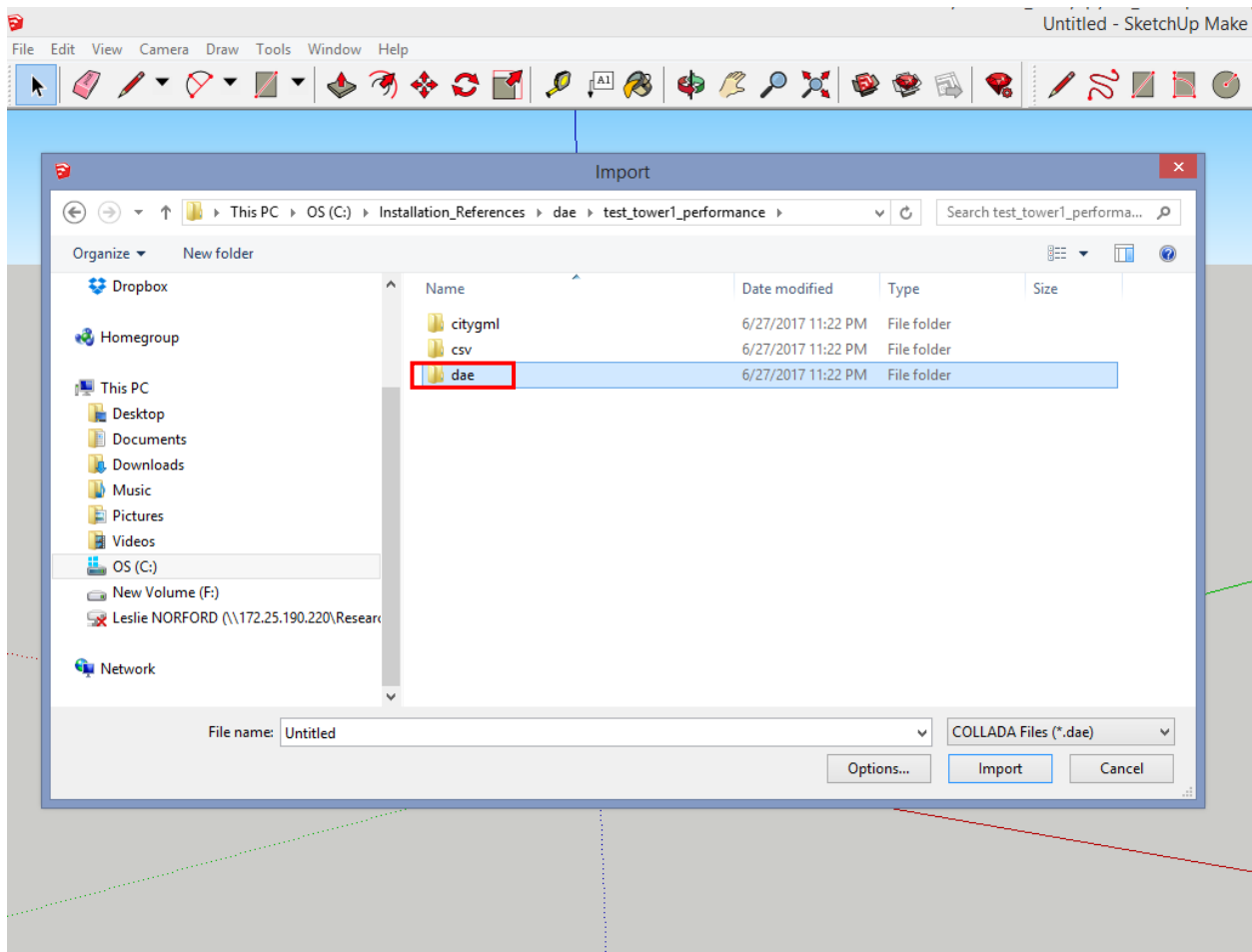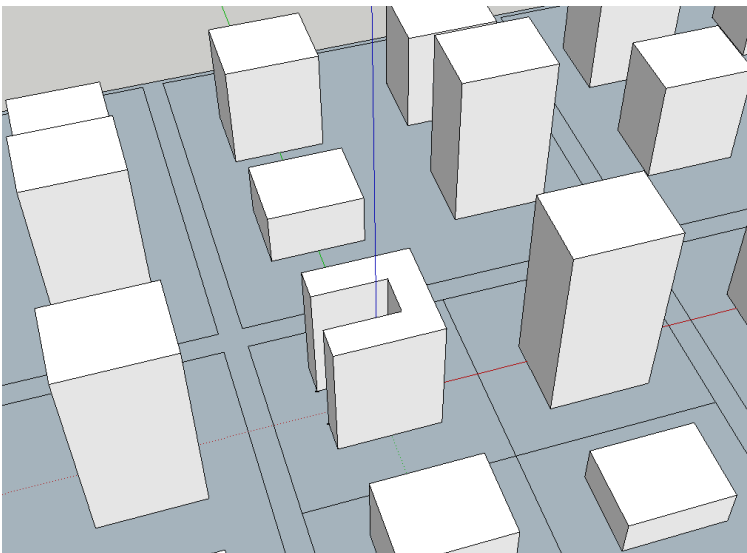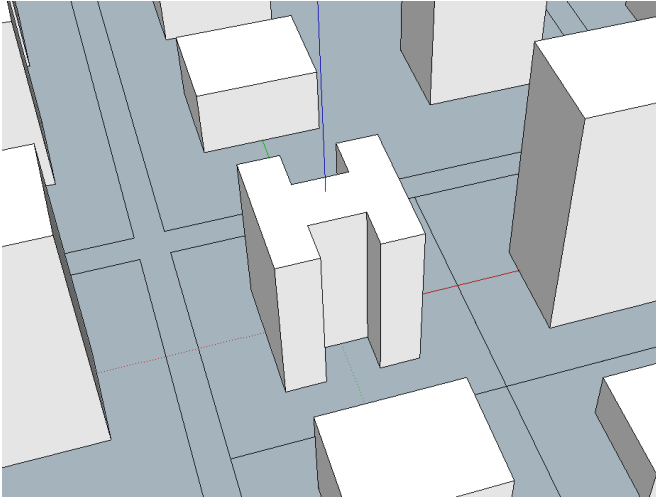
24.) In the "dae" folder double click the "tower1nshffai.dae" file to import the results into sketchup.
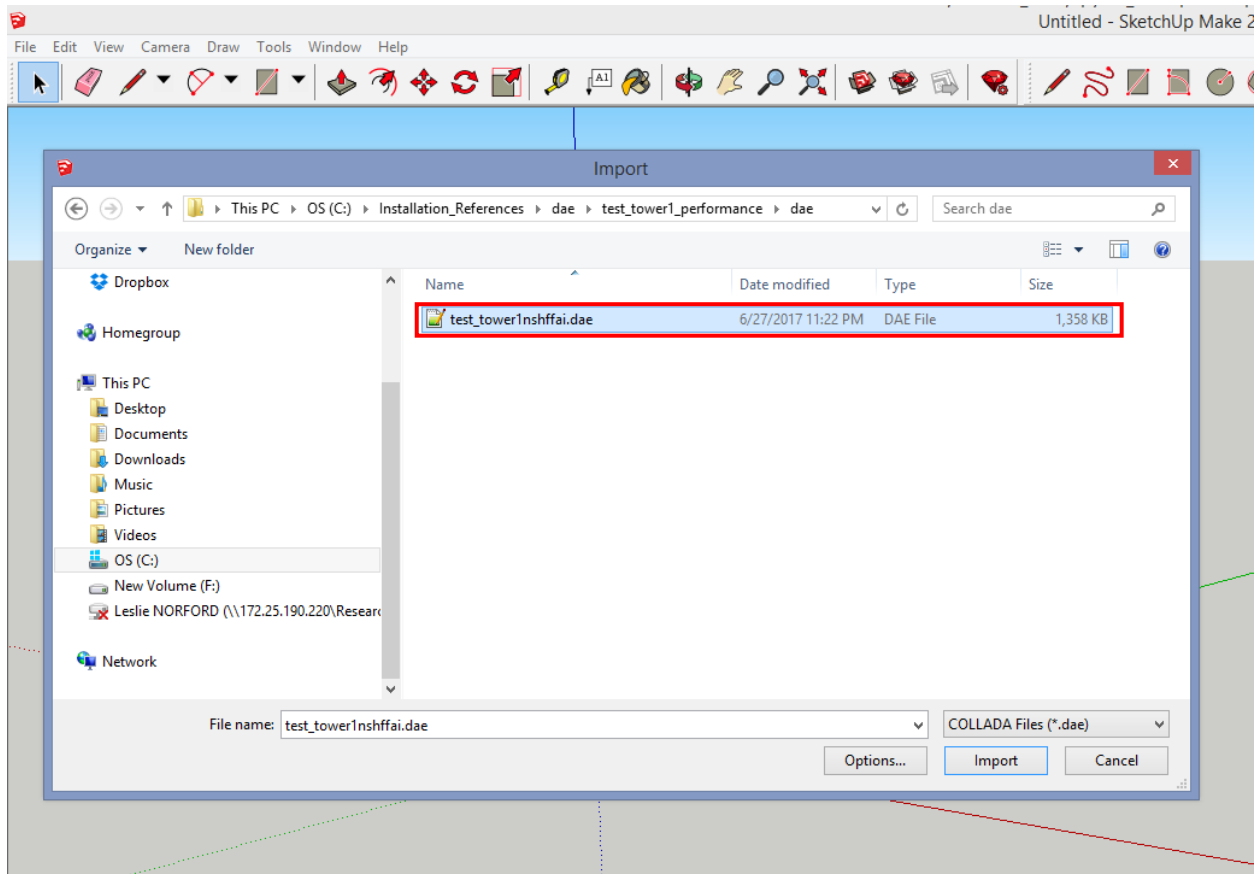
25.)   Import the file and put it in place to view the results.

26.) Repeat the exercise with different building geometries such as:

27.) When modelling please remember to keep your geometries as a solid. A solid should encompass a volume, it should not have overlapping surfaces.