

WEEK 6 MONDRAGON RASCON, ALEJANDRA

martes, 12 de noviembre de 2019 06:45 p. m.

RADIATION

Task 1 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?

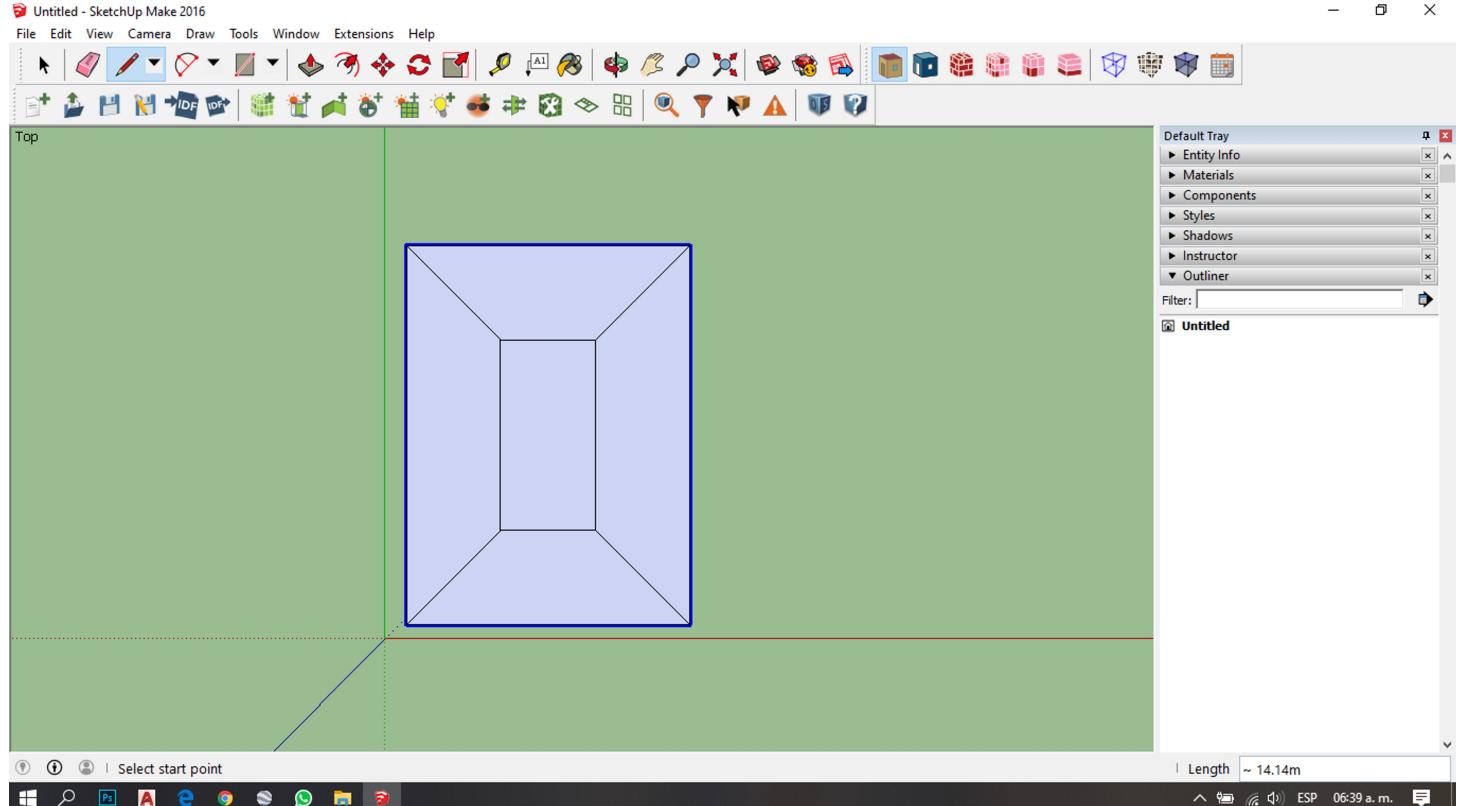
$$N = \frac{\frac{5.67 \times 10^{-8}}{36.25} (800^4 - 500^4) - \left(\frac{1}{0.2} + \frac{1}{0.7} - 1 \right)}{\frac{1}{0.1} + \frac{1}{0.1} - 1}$$
$$= 28 \text{ SHIELDS}$$

$$q \ N \text{ shields} =$$
$$\left(\frac{1}{N+1} \right) q \text{ no shields}$$

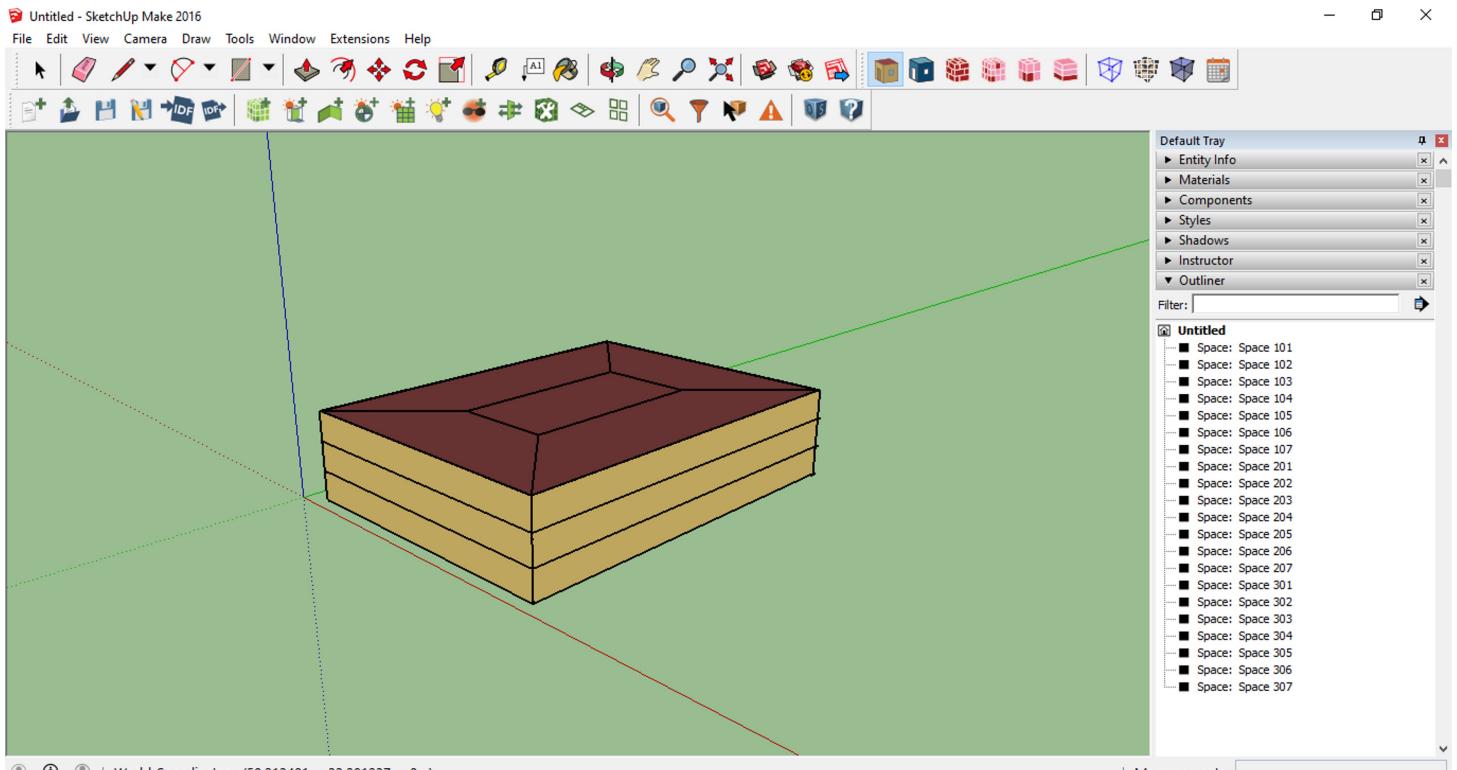
$$1\%(N+1)=100\%$$
$$N = \left(\frac{100\%}{1\%} \right) 1 = 99$$

Task 2. You should create a pdf file with screenshots of all of
the steps we went through

- Start sketchup and begin drawing the rectangle with a 10 m offset, and connecting lines

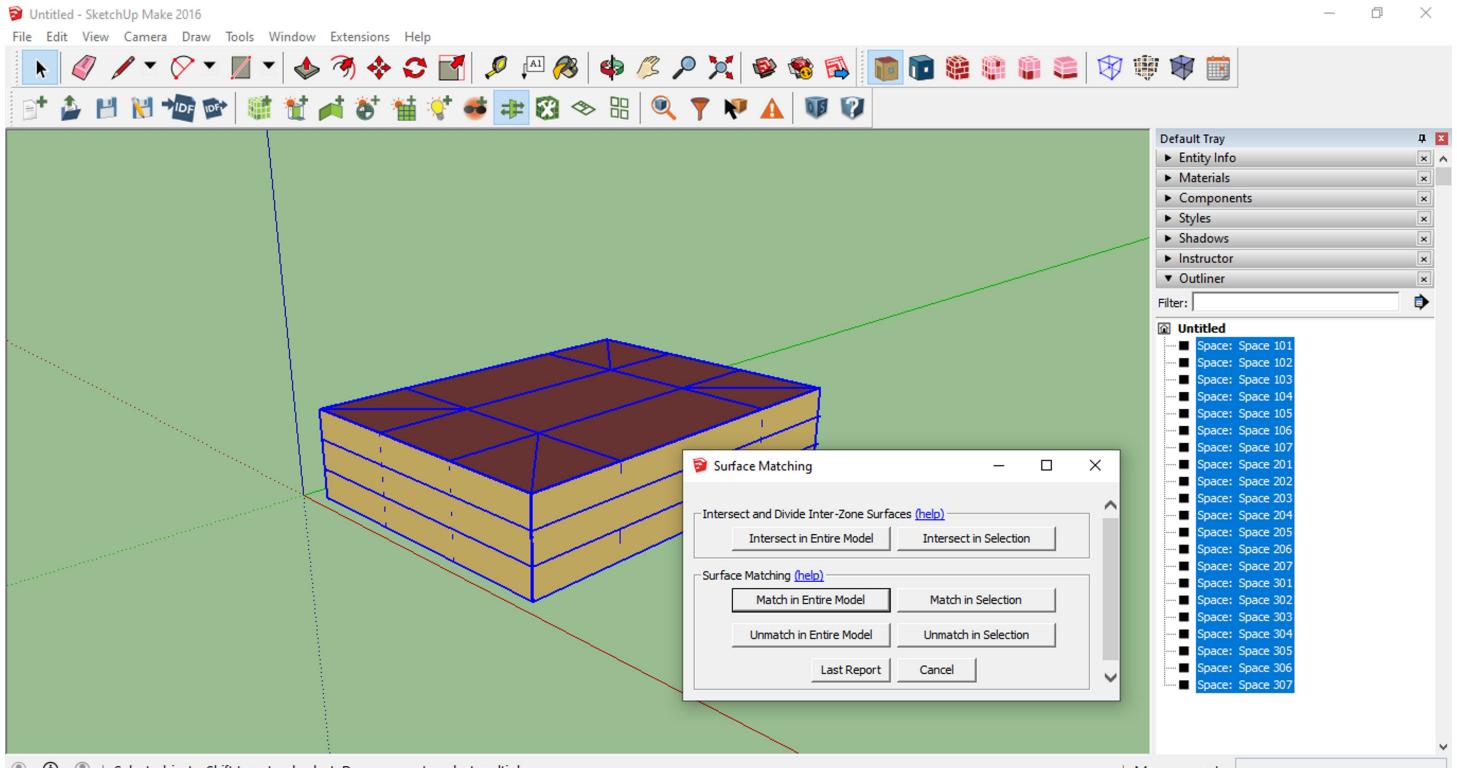


-select the rectangle and click the button crete spaces from
diagram, we have to have 3 floors

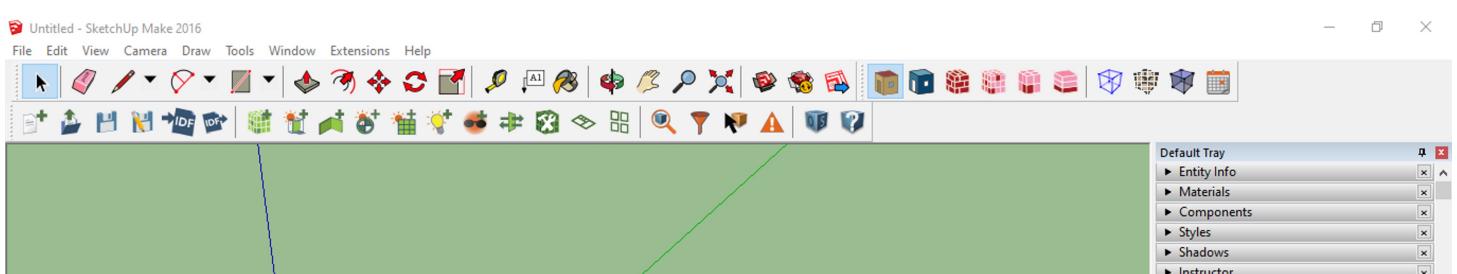


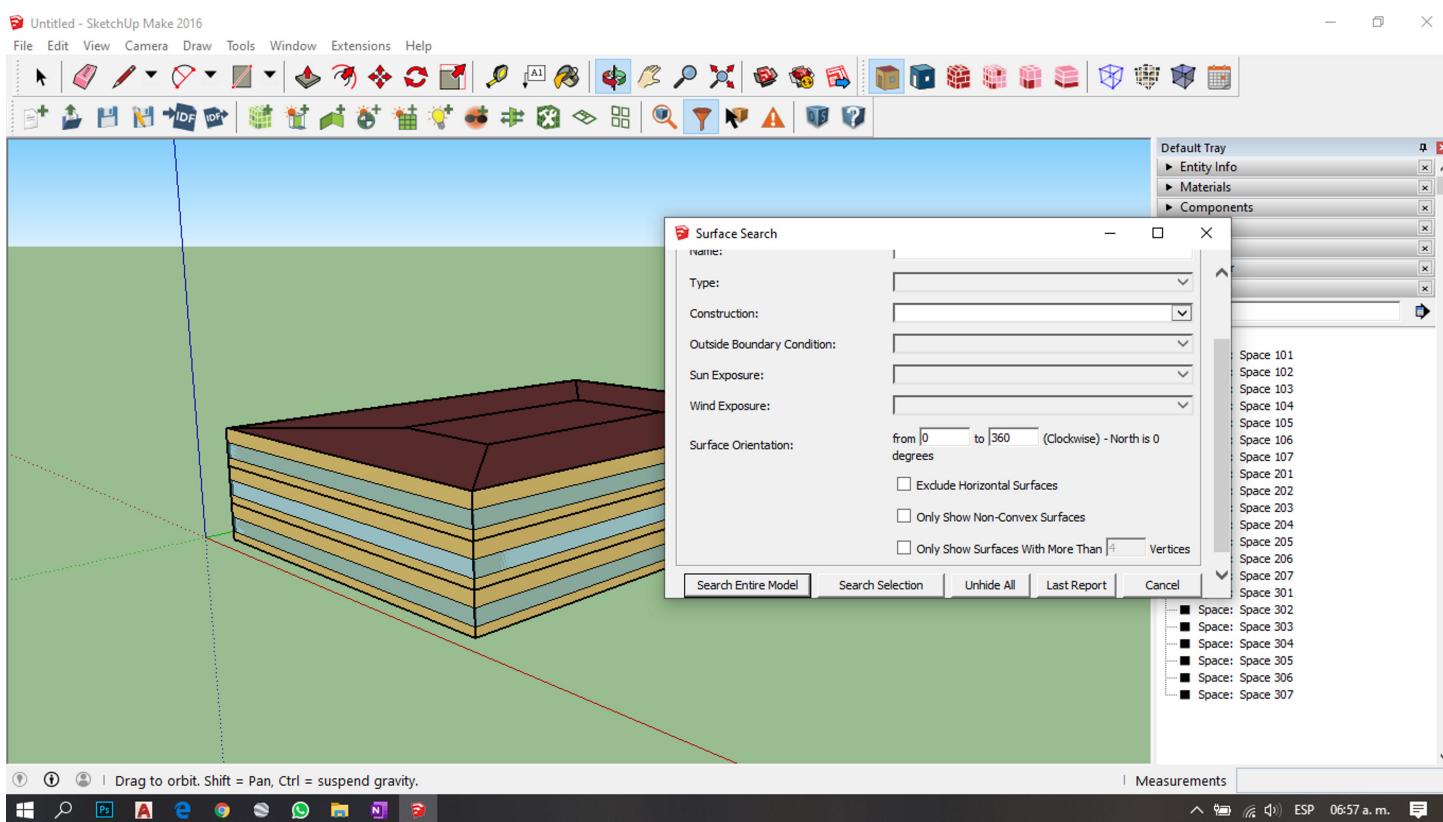
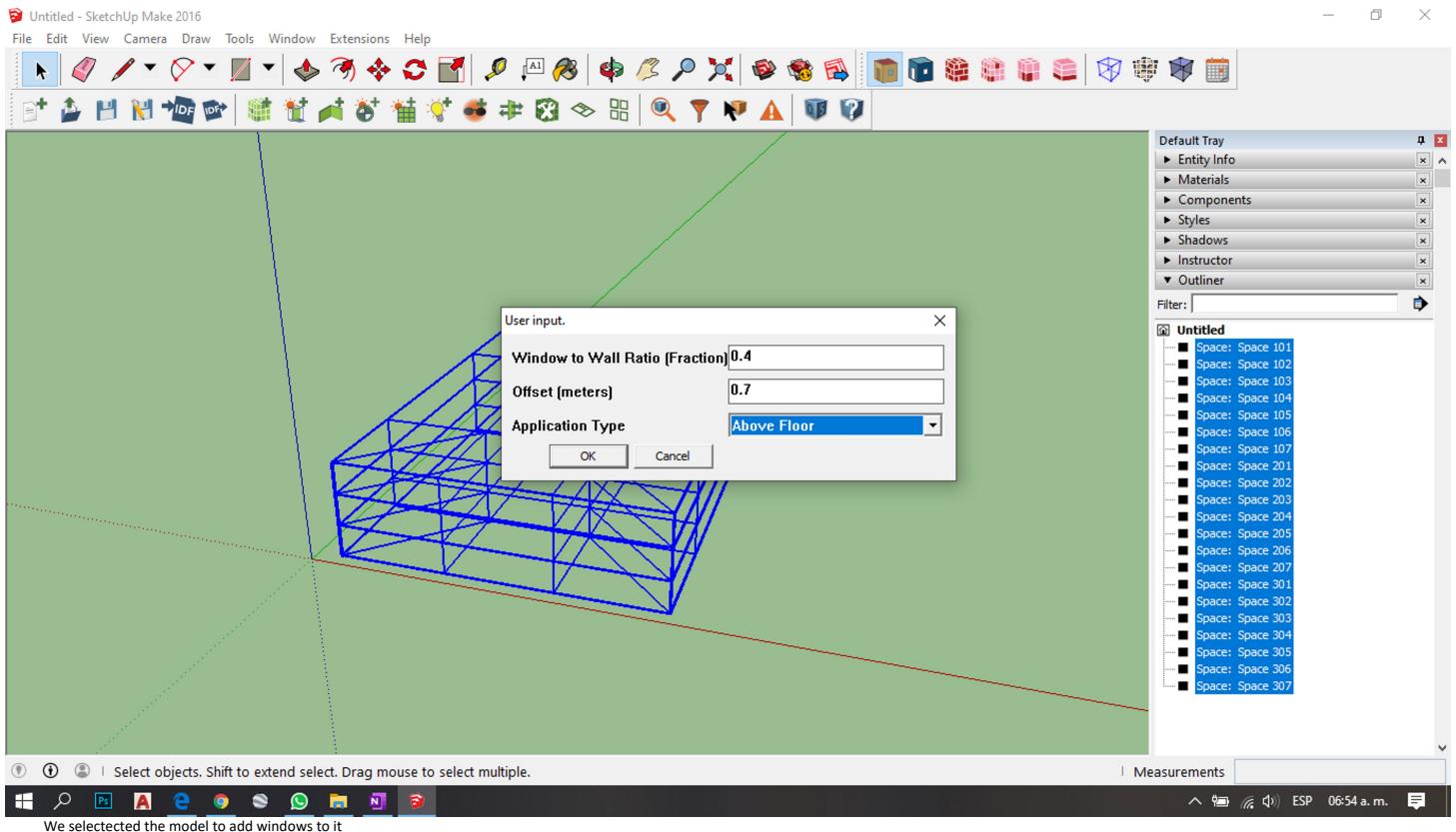
this is helping us to build what we want to analyze.

- We have to match first the entire model to put the windows

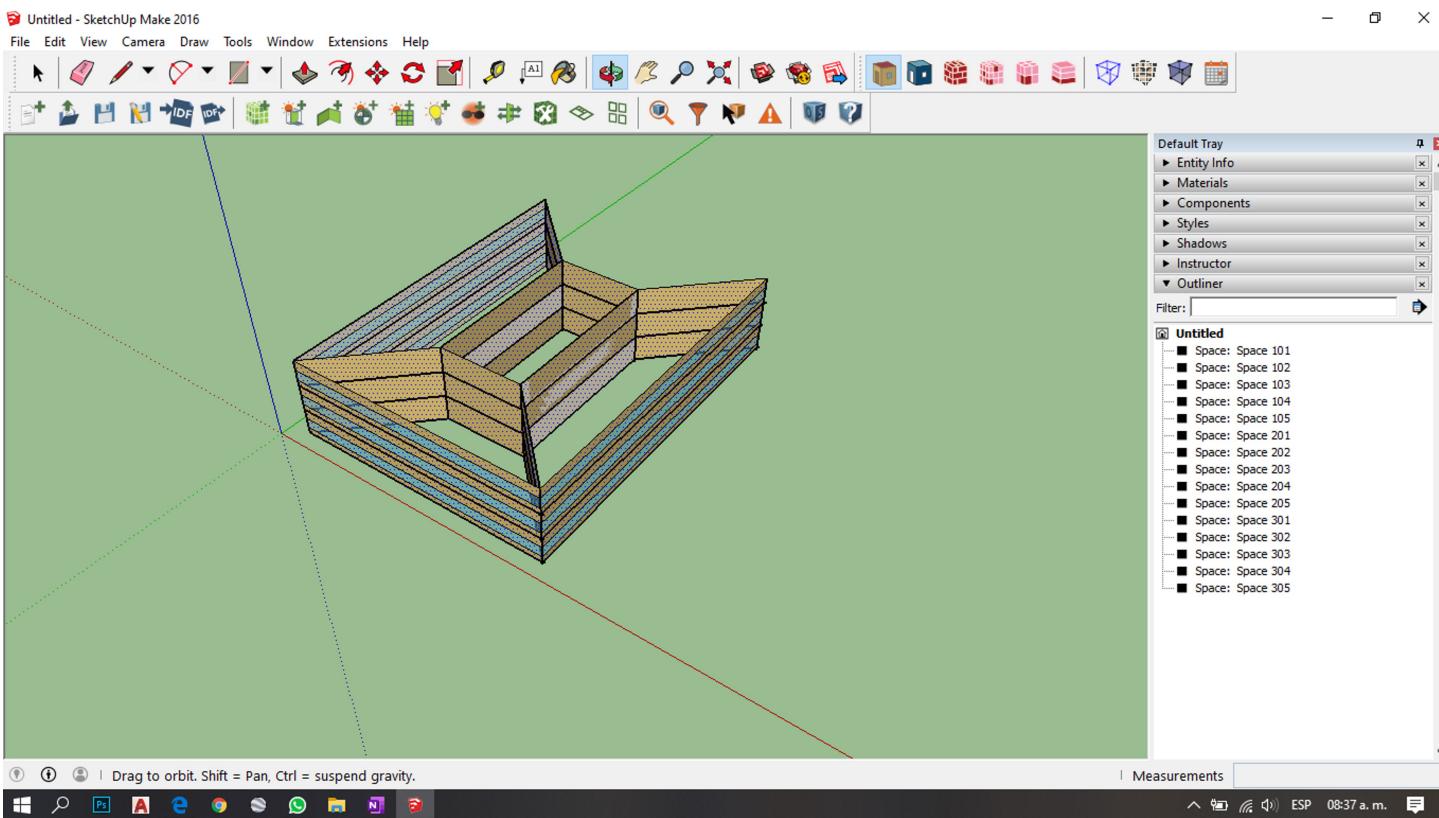


- We select the extensions then openstudio and we add the windows to the model

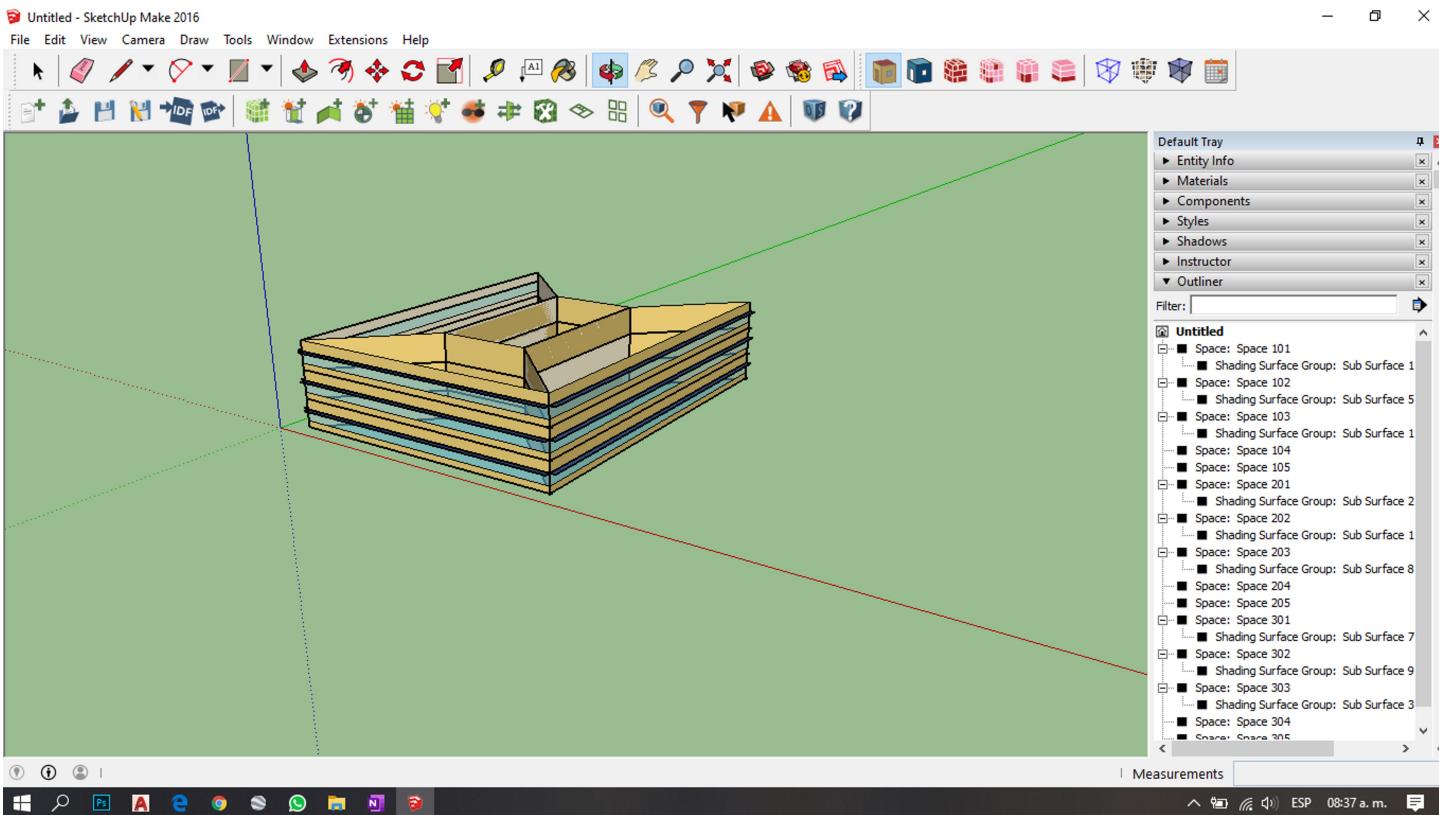




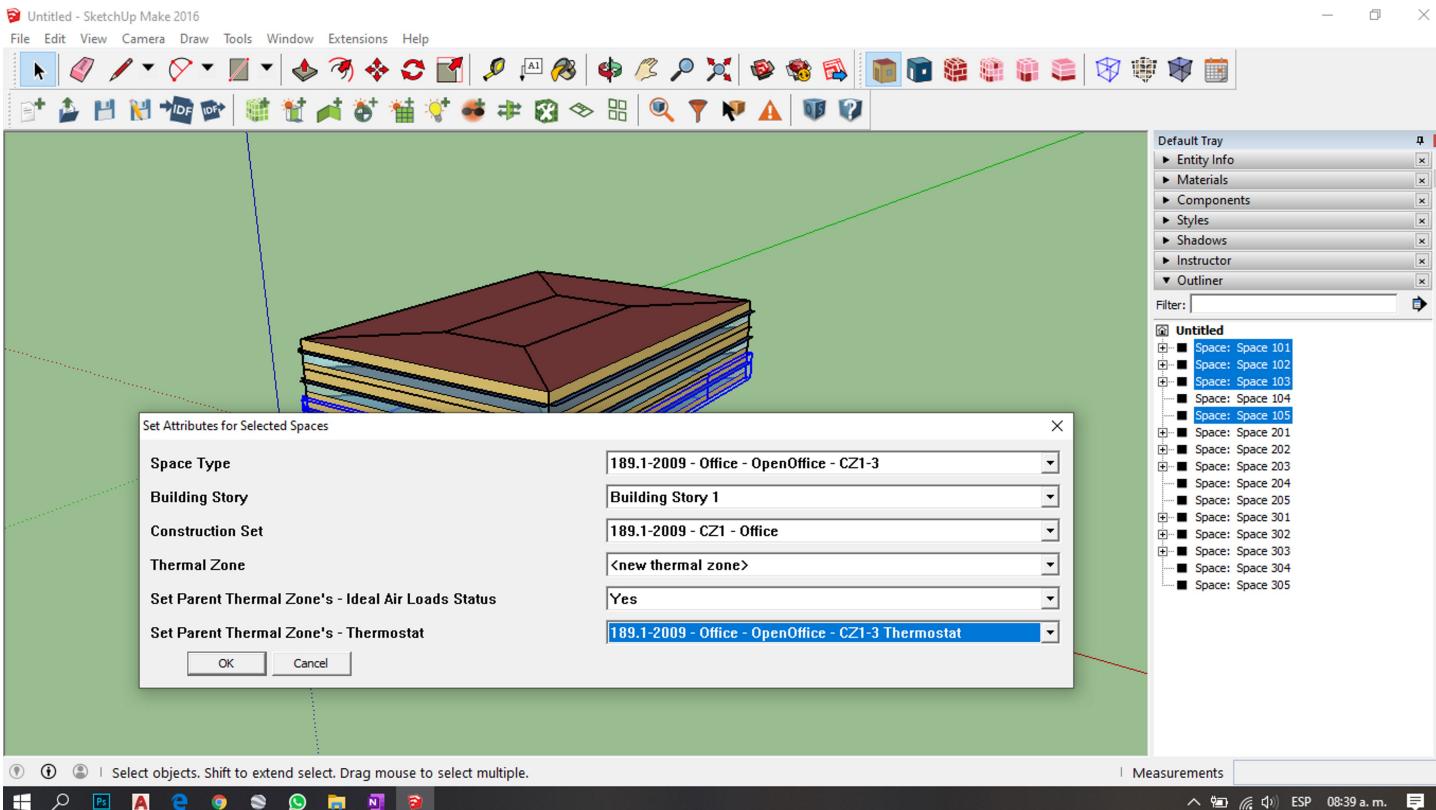
In surface search we look for all the surfaces from 46- 270



From extensions we add the overhang for the windows



Add the attributes for each zone



Openstudio and upload the data from the weather

Design Day Name	All	Day Of Month	Month	Day Type	Daylight Saving Time Indicator
cenza Ann Clg .4% Condns DB=>MWB	<input type="checkbox"/>	21	8	SummerDesignDay	<input type="checkbox"/>
cenza Ann Clg .4% Condns DP=>MDB	<input type="checkbox"/>	21	8	SummerDesignDay	<input type="checkbox"/>
cenza Ann Clg .4% Condns Enth=>MDB	<input type="checkbox"/>	21	8	SummerDesignDay	<input type="checkbox"/>
cenza Ann Clg .4% Condns WB=>MDB	<input type="checkbox"/>	21	8	SummerDesignDay	<input type="checkbox"/>
Placenza Ann Htg 99.6% Condns DB	<input type="checkbox"/>	21	1	WinterDesignDay	<input type="checkbox"/>
Htg Wind 99.6% Condns WS=>MCDB	<input type="checkbox"/>	21	1	WinterDesignDay	<input type="checkbox"/>
Ann Hum_n 99.6% Condns DP=>MCDB	<input type="checkbox"/>	21	1	WinterDesignDay	<input type="checkbox"/>

Run the simulationof the program

ale.osm

File Preferences Components & Measures Help

Run Simulation Output Tree

Run Finished
Warnings: 10 Errors: 0

Output

```

Continuing Simulation at 03/02 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=03/22
Continuing Simulation at 03/22 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=04/11
Continuing Simulation at 04/11 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=05/01
Continuing Simulation at 05/01 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=05/21
Continuing Simulation at 05/21 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=06/10
Continuing Simulation at 06/10 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=06/30
Continuing Simulation at 06/30 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=07/20
Continuing Simulation at 07/20 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=08/09
Continuing Simulation at 08/09 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=08/29
Continuing Simulation at 08/29 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=09/18
Continuing Simulation at 09/18 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=10/08
Continuing Simulation at 10/08 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=10/28
Continuing Simulation at 10/28 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=11/17
Continuing Simulation at 11/17 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=12/07
Continuing Simulation at 12/07 for RUN PERIOD 1
Updating Shadowing Calculations, Start Date=12/27
Continuing Simulation at 12/27 for RUN PERIOD 1
Writing tabular output file results using HTML format.
Computing Life Cycle Costs and Reporting
Writing final SQL reports
EnergyPlus Run Time=00hr 01min 1.01sec
Script executing from: C:/Users/alemr/AppData/Local/Temp/OpenStudio.S13796/resources/run/6-UserScript-0
Found UserScript 'OpenStudio Results'.
result = true
Processed 1 base script and 0 merged scripts

```

And we get The results from the analysis

ale.osm

File Preferences Components & Measures Help

Results Summary

Reports: EnergyPlus Results Open ResultsViewer for Detailed Reports

Program Version: EnergyPlus, Version 8.5.0-c87e61b44b, YMD=2019.11.13 08:47 [Table of Contents](#)

Tabular Output Report in Format: HTML

Building: Building 1

Environment: RUN PERIOD 1 ** Piacenza - ITA IGDG WMO#=160840

Simulation Timestamp: 2019-11-13 08:48:02

Report: Annual Building Utility Performance Summary [Table of Contents](#)

For: Entire Facility

Timestamp: 2019-11-13 08:48:02

Values gathered over 8760.00 hours

Site and Source Energy

	Total Energy [GJ]	Energy Per Total Building Area [MJ/m ²]	Energy Per Conditioned Building Area [MJ/m ²]
Total Site Energy	2372.70	659.08	659.08
Net Site Energy	2372.70	659.08	659.08
Total Source Energy	6126.52	1701.81	1701.81