

Ali Ahmadi

task6

Question1) As we had in previous assignment:

$$Q_{12}=3625.3$$

$$(1/100)Q=36.253$$

if we have $(1/100)$ of transfer so we can conclude that the additional Coefficient which we have in the new formula equals $1/100$

as the formula is:

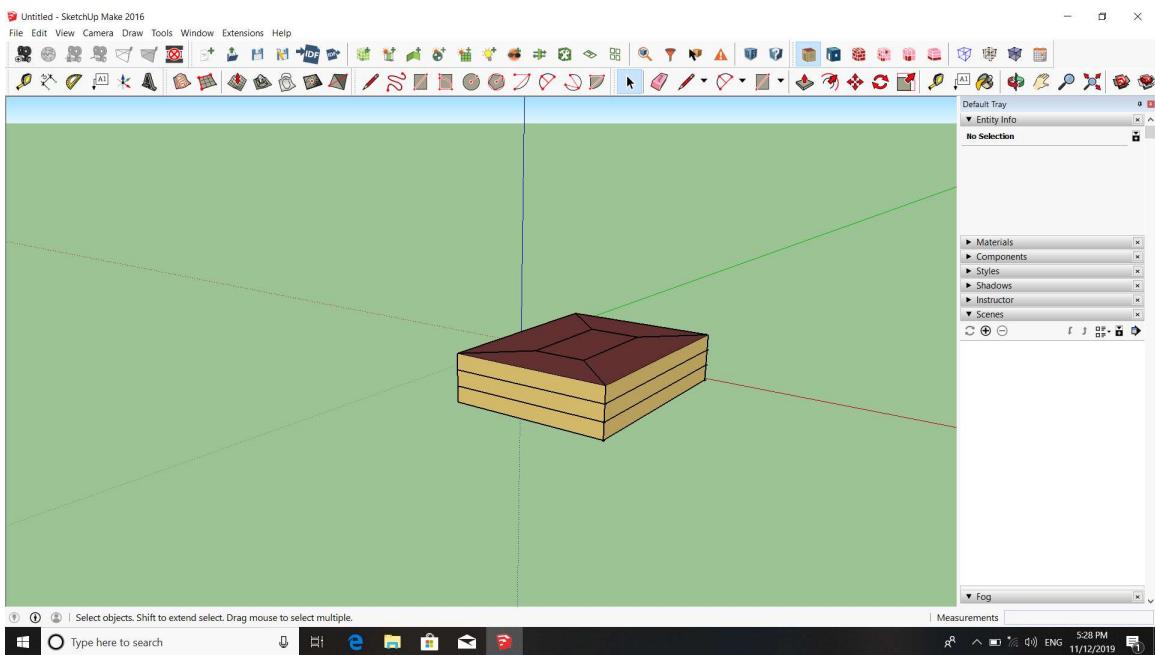
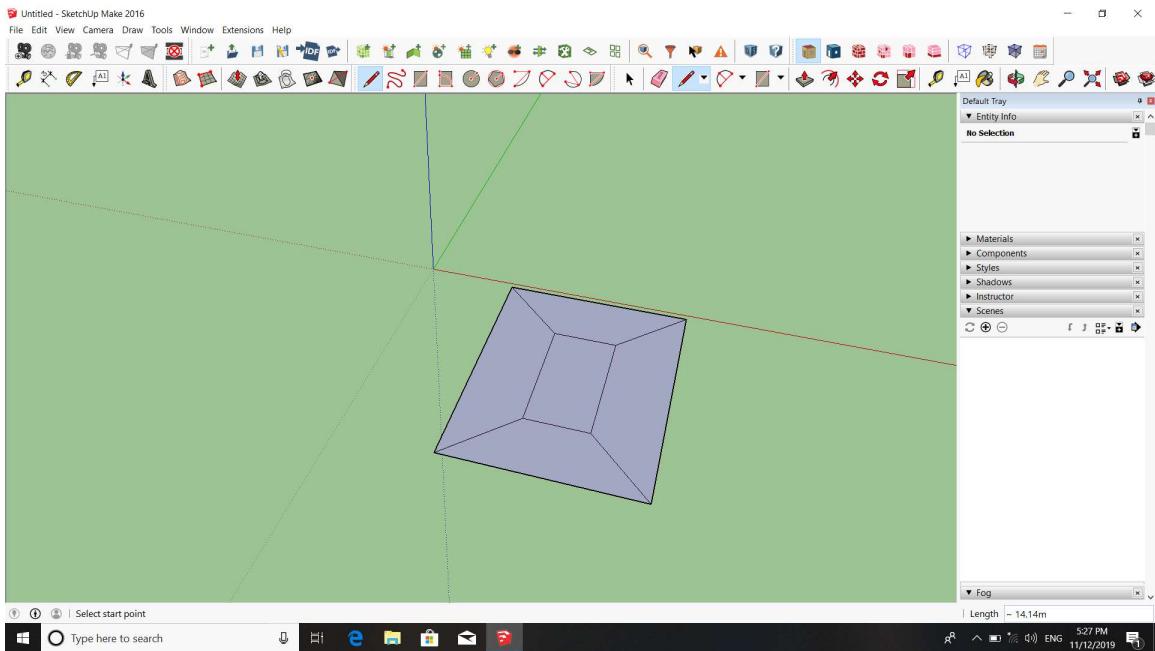
$$Q_{12,\text{shields}} = (A\sigma(T_1^4 - T_2^4)) / (\mathbf{n+1})((1/\varepsilon) + (1/\varepsilon) - 1)$$

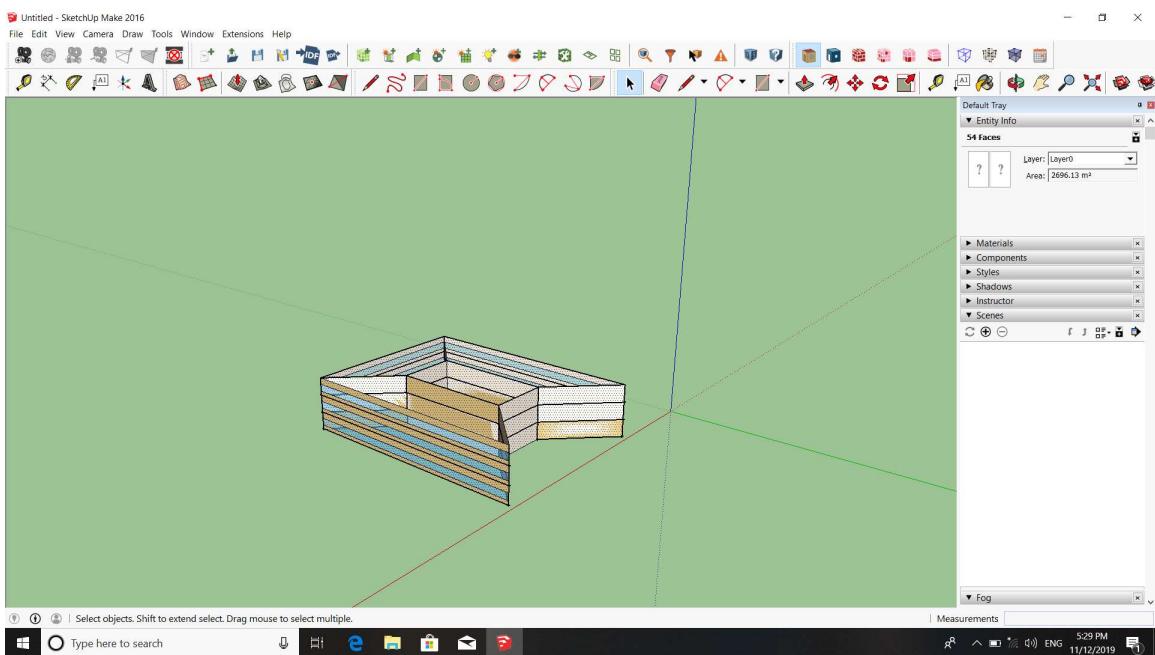
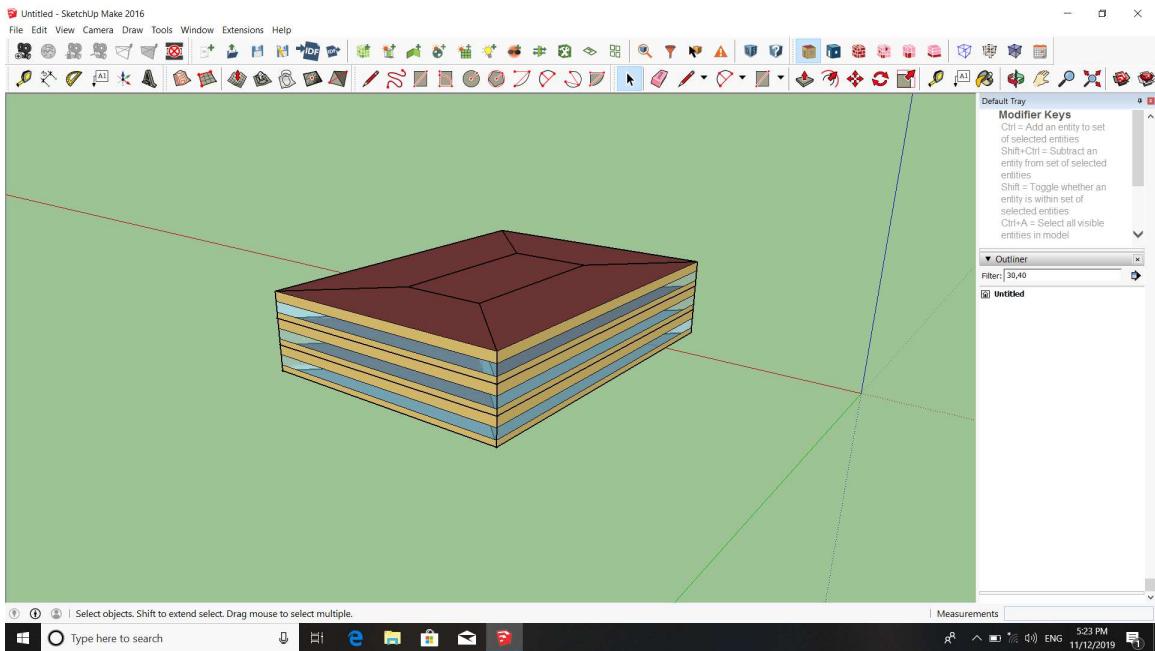
$$\text{so: } 1/(n+1) = 1/100$$

$$100=n+1$$

$$n=99 \text{ shields}$$

Question2) As we experienced in previous session i followed the principles step by step by to provide the analysis of that building by the help of the climate data of Piacenza.





thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Sizing Period Design Days

	Maximum Dry Bulb (F)	Daily Temperature Range (R)	Humidity Value	Humidity Type	Wind Speed (mph)	Wind Direction
PIACENZA ANN CLG_4% CONDENS DB=>MWB	91.58	21.42	72.96	Wetbulb [F]	5.14	90.0
PIACENZA ANN CLC_4% CONDENS DP=>MDB	81.32	21.42	73.4	Depoint [F]	5.14	90.0
PIACENZA ANN CLC_4% CONDENS ENTH=>MDB	86.54	21.42	32.2	Enthalpy [Btu/lb]	5.14	90.0
PIACENZA ANN CLG_4% CONDENS WB=>MDB	86.18	21.42	76.28	Wetbulb [F]	5.14	90.0
PIACENZA ANN HTG 99.6% CONDENS DB	21.02	0.0	21.02	Wetbulb [F]	4.47	250.0
PIACENZA ANN HTG WIND 99.6% CONDENS WS=>MCDB	42.44	0.0	42.44	Wetbulb [F]	19.91	250.0
PIACENZA ANN HUM_99.9% CONDENS DP=>MCDB	38.3	0.0	11.66	Depoint [F]	4.47	250.0

Unmet Hours Summary

Time Setpoint Not Met	Time (hr)
During Heating	0.0
During Cooling	0.0
During Occupied Heating	0.0
During Occupied Cooling	0.0

Unmet Hours Tolerance

Tolerance for Time Setpoint Not Met	Temperature (F)
Heating	0.36
Cooling	0.36

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Model Summary

- Annual Overview
- Monthly Overview
- Utility Bills/Rates
- Envelope
- Space Type Breakdown
- Space Type Summary
- Interior Lighting Summary
- Plug Loads Summary
- Exterior Lighting
- Water Use Equipment
- HVAC Load Profiles
- Zone Conditions
- Zone Overview
- Zone Equipment Detail
- Air Loops Detail
- Plant Loops Detail
- Outdoor Air
- Cash Flow
- Site and Source Summary
- Schedule Overview

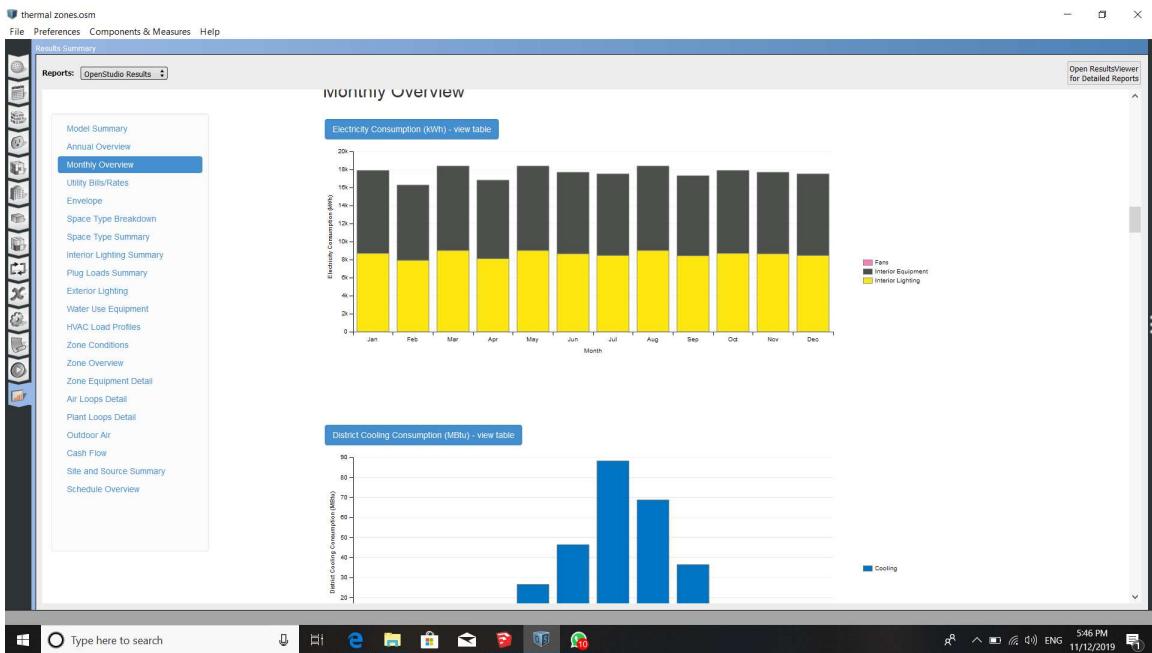
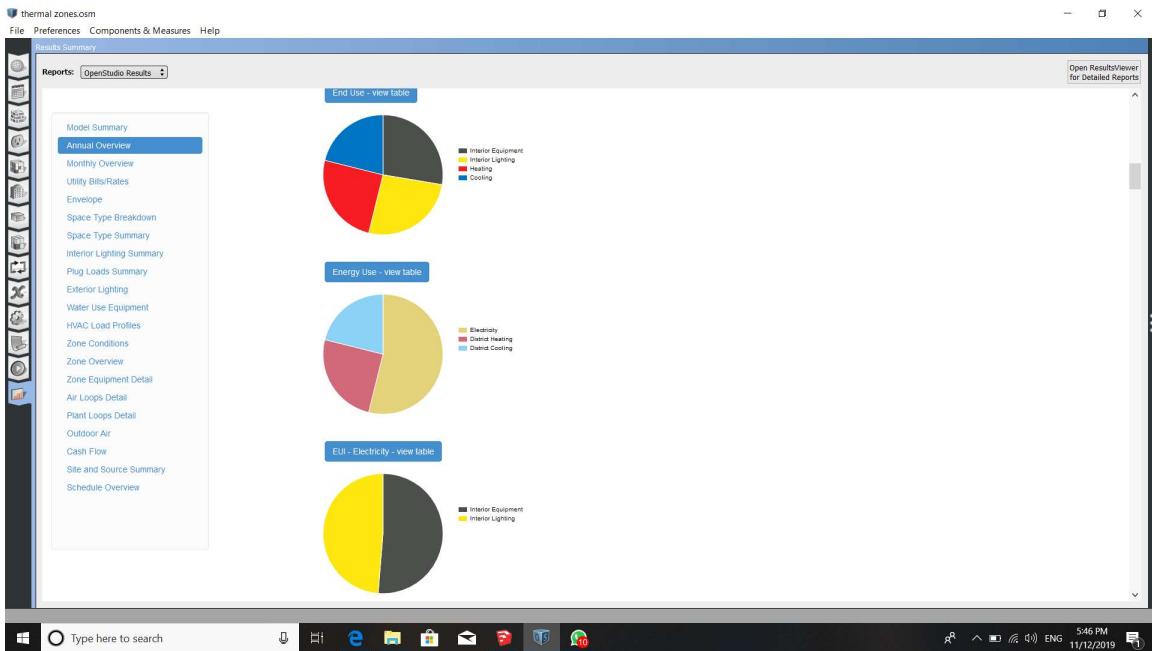
Unmet Hours Tolerance

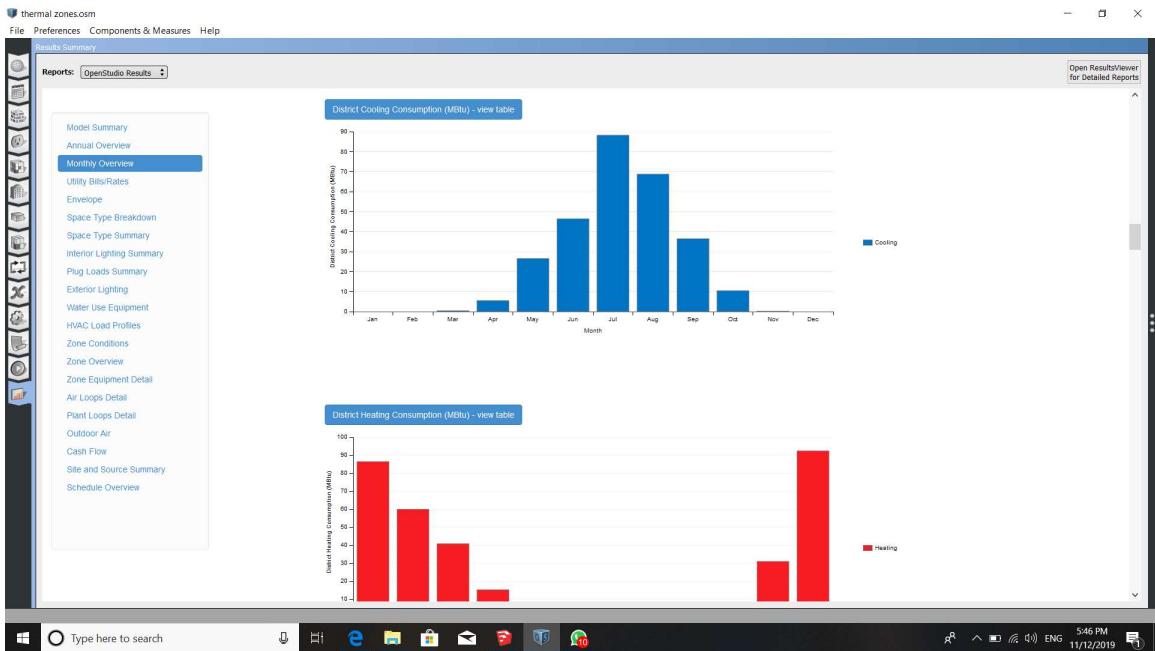
Tolerance for Time Setpoint Not Met	Temperature (F)
Heating	0.36
Cooling	0.36

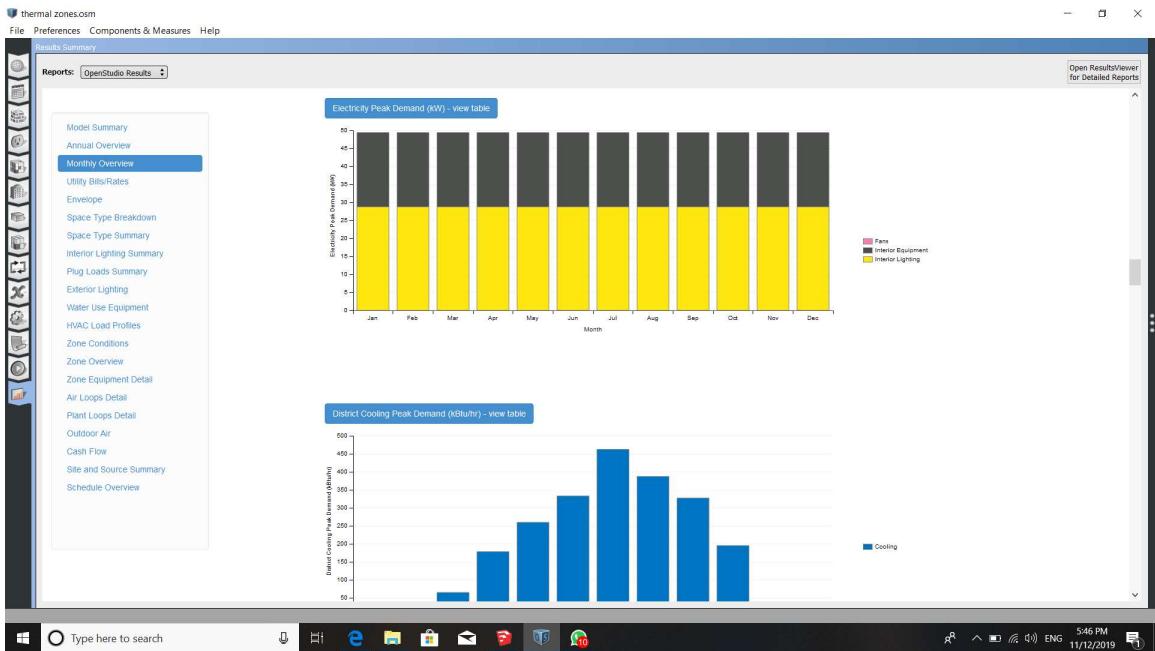
Annual Overview

End Use - view table

Energy Use - view table







thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Model Summary
Annual Overview
Monthly Overview
Utility Bills/Rates
Envelope
Space Type Breakdown
Space Type Summary
Interior Lighting Summary
Plug Loads Summary
Exterior Lighting
Water Use Equipment
HVAC Load Profiles
Zone Conditions
Zone Overview
Zone Equipment Detail
Air Loops Detail
Plant Loops Detail
Outdoor Air
Cash Flow
Site and Source Summary
Schedule Overview

District Heating Peak Demand (kBtu/hr) - view table

Month	District Heating Peak Demand (kBtu/hr)
Jan	~650
Feb	~650
Mar	~600
Apr	~550
May	~350
Jun	~150
Jul	~50
Aug	~50
Sep	~400
Oct	~500
Nov	~600
Dec	~750

Legend: Heating

Utility Bills/Rates
No Data to Show for Utility Bills/Rates

Envelope

Base Surface Constructions

Construction	Net Area (ft ²)	Surface Count	R Value (ft ² h ⁻¹ R/Btu)
ASHRAE 189.1-2009 ExtRoof IEAD ClimateZone 1	10,764	4	19.96
ASHRAE 189.1-2009 ExtRoof IEAD ClimateZone 2-5	2,153	1	24.73
ASHRAE 189.1-2009 ExtWall Mass ClimateZone 1	8,268	12	5.76

5:46 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Model Summary
Annual Overview
Monthly Overview
Utility Bills/Rates
Envelope
Space Type Breakdown
Space Type Summary
Interior Lighting Summary
Plug Loads Summary
Exterior Lighting
Water Use Equipment
HVAC Load Profiles
Zone Conditions
Zone Overview
Zone Equipment Detail
Air Loops Detail
Plant Loops Detail
Outdoor Air
Cash Flow
Site and Source Summary
Schedule Overview

Utility Bills/Rates
No Data to Show for Utility Bills/Rates

Envelope

Base Surface Constructions

Construction	Net Area (ft ²)	Surface Count	R Value (ft ² h ⁻¹ R/Btu)
ASHRAE 189.1-2009 ExtRoof IEAD ClimateZone 1	10,764	4	19.96
ASHRAE 189.1-2009 ExtRoof IEAD ClimateZone 2-5	2,153	1	24.73
ASHRAE 189.1-2009 ExtWall Mass ClimateZone 1	8,268	12	5.76

Sub Surface Constructions

Construction	Area (ft ²)	Surface Count	U-Factor (Btu/ft ² h ⁻¹ R)
ASHRAE 189.1-2009 ExtWindow ClimateZone 1	5,512	12	

WWR & Skylight Ratio

Description	Total (%)	North (%)	East (%)	South (%)	West (%)
Gross Window-Wall Ratio	40.0	40.0	40.0	40.0	40.0
Gross Window-Wall Ratio (Conditioned)	40.0	40.0	40.0	40.0	40.0
Skylight-Roof Ratio	0.0				

5:46 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Model Summary
Annual Overview
Monthly Overview
Utility Bills/Rates
Envelope
Space Type Breakdown
Space Type Summary
Interior Lighting Summary
Plug Loads Summary
Exterior Lighting
Water Use Equipment
HVAC Load Profiles
Zone Conditions
Zone Overview
Zone Equipment Detail
Air Loops Detail
Plant Loops Detail
Outdoor Air
Cash Flow
Site and Source Summary
Schedule Overview

Sub Surface Constructions

Construction	Area (ft ²)	Surface Count	U-Factor (Btu/ft ² ·h·R)
ASHRAE 189.1-2009 ExtWindow ClimateZone 1	5,512	12	

WWR & Skylight Ratio

Description	Total (%)	North (%)	East (%)	South (%)	West (%)
Gross Window-Wall Ratio	40.0	40.0	40.0	40.0	40.0
Gross Window-Wall Ratio (Conditioned)	40.0	40.0	40.0	40.0	40.0
Skylight-Roof Ratio	0.0				

Space Type Breakdown

Space Type Breakdown - view table

Space Type Summary

189.1-2009 - Office - OpenOffice - C21-3
(12 spaces and 3 thermal zones)

Open ResultsViewer For Detailed Reports

Type here to search

547 PM ENG 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Model Summary
Annual Overview
Monthly Overview
Utility Bills/Rates
Envelope
Space Type Breakdown
Space Type Summary
Interior Lighting Summary
Plug Loads Summary
Exterior Lighting
Water Use Equipment
HVAC Load Profiles
Zone Conditions
Zone Overview
Zone Equipment Detail
Air Loops Detail
Plant Loops Detail
Outdoor Air
Cash Flow
Site and Source Summary
Schedule Overview

Space Type Breakdown

Space Type Breakdown - view table

Space Type Summary

189.1-2009 - Office - OpenOffice - C21-3
(12 spaces and 3 thermal zones)

Definition	Value	Unit	Inst. Multiplier
189.1-2009 - Office - OpenOffice - C21-3 People Definition	0.0052	people/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Electric Equipment Definition	0.7100	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Lights Definition	0.9900	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Infiltration	0.0585	cfm/ext surf area ft ²	
189.1-2009 - Office - OpenOffice - C21-3 Ventilation (outdoor air method Sum)	20.0000	cfm/person	

189.1-2009 - Office - OpenOffice - C24-8
(3 spaces and 0 thermal zones)

Open ResultsViewer For Detailed Reports

Type here to search

547 PM ENG 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Space Type Summary

189.1-2009 - Office - OpenOffice - C21-3
(12 spaces and 3 thermal zones)

Definition	Value	Unit	Inst. Multiplier
189.1-2009 - Office - OpenOffice - C21-3 People Definition	0.0052	people/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Electric Equipment Definition	0.7100	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Lights Definition	0.9900	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C21-3 Infiltration	0.0595	cfm/ext surf area ft ²	
189.1-2009 - Office - OpenOffice - C21-3 Ventilation (outdoor air method Sum)	20.0000	cfm/person	

189.1-2009 - Office - OpenOffice - C24-8
(3 spaces and 0 thermal zones)

Definition	Value	Unit	Inst. Multiplier
189.1-2009 - Office - OpenOffice - C24-8 People Definition	0.0052	people/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Electric Equipment Definition	0.7100	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Lights Definition	0.9900	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Infiltration	0.0446	cfm/ext surf area ft ²	
189.1-2009 - Office - OpenOffice - C24-8 Ventilation (outdoor air method Sum)	20.0000	cfm/person	

Interior Lighting Summary

Interior Lighting Summary

547 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Space Type Summary

189.1-2009 - Office - OpenOffice - C24-8
(3 spaces and 0 thermal zones)

Definition	Value	Unit	Inst. Multiplier
189.1-2009 - Office - OpenOffice - C24-8 People Definition	0.0052	people/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Electric Equipment Definition	0.7100	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Lights Definition	0.9900	W/ft ²	1.0
189.1-2009 - Office - OpenOffice - C24-8 Infiltration	0.0446	cfm/ext surf area ft ²	
189.1-2009 - Office - OpenOffice - C24-8 Ventilation (outdoor air method Sum)	20.0000	cfm/person	

Interior Lighting Summary

Interior Lighting Summary

Zone	Lighting Power Density (W/ft ²)	Total Power (W)	Schedule Name	Scheduled Hours/Week (hr)	Actual Load Hours/Week (hr)	Return Air Fraction	Consumption (kWh)
THERMAL ZONE 1 189.1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45
THERMAL ZONE 2 189.1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45
THERMAL ZONE 3 189.1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45

Plug Loads Summary

Electric Plug Load Consumption

547 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Interior Lighting Summary

Zone	Lighting Power Density (W/ft ²)	Total Power (W)	Schedule Name	Scheduled Hours/Week (hr)	Actual Load Hours/Week (hr)	Return Air Fraction	Consumption (kWh)
THERMAL ZONE 1 189 1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45
THERMAL ZONE 2 189 1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45
THERMAL ZONE 3 189 1-2009 - OFFICE - OPENOFFICE - C21-3 LIGHTS	0.99	10656.27	OFFICE BLDG LIGHT	61.85	61.85	0.0000	34369.45

Plug Loads Summary

Electric Plug Load Consumption	Electricity Annual Value (kWh)
InteriorEquipment Electricity Zone: THERMAL ZONE 1	36200.0
InteriorEquipment Electricity Zone: THERMAL ZONE 2	36200.0
InteriorEquipment Electricity Zone: THERMAL ZONE 3	36200.0

Exterior Lighting
No Data to Show for Exterior Lighting

Water Use Equipment
No Data to Show for Water Use Equipment

HVAC Load Profiles

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Plug Loads Summary

Electric Plug Load Consumption	Electricity Annual Value (kWh)
InteriorEquipment Electricity Zone: THERMAL ZONE 1	36200.0
InteriorEquipment Electricity Zone: THERMAL ZONE 2	36200.0
InteriorEquipment Electricity Zone: THERMAL ZONE 3	36200.0

Exterior Lighting
No Data to Show for Exterior Lighting

Water Use Equipment
No Data to Show for Water Use Equipment

HVAC Load Profiles

Monthly Load Profiles - view table

Month	Avg. Outdoor Temp (F)	Heating Load (Btu/h)	Cooling Load (Btu/h)
1	65	85	25
2	68	65	20
3	72	45	15
4	75	10	10
5	78	5	25
6	80	10	40
7	82	15	60
8	80	20	75
9	78	30	60
10	75	40	40
11	72	50	25
12	68	65	20

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Exterior Lighting
No Data to Show for Exterior Lighting

Water Use Equipment
No Data to Show for Water Use Equipment

HVAC Load Profiles

Monthly Load Profiles - view table

Month	Heating Load (°F)	Cooling Load (°F)	Average Outdoor Air Dry Bulb Temp (°F)
Jan	~90	0	~40
Feb	~70	0	~42
Mar	~40	0	~45
Apr	~10	~5	~50
May	0	~25	~55
Jun	0	~45	~60
Jul	0	~90	~68
Aug	0	~69	~65
Sep	0	~40	~60
Oct	~10	~10	~55
Nov	~30	0	~50
Dec	~90	0	~45

Zone Conditions

Temperature (Table values represent hours spent in each temperature range)

Zone	Unmet Htg (hr)	Unmet Htg - Occ (hr)	< 56 (F)	56-61 (F)	61-66 (F)	66-68 (F)	68-70 (F)	70-72 (F)	72-74 (F)	74-76 (F)	76-78 (F)	78-83 (F)	>= 88 (F)	Unmet Clg (hr)	Unmet Clg - Occ (hr)	Mean Temp (F)
THERMAL ZONE 1	0	0	0	1060	1045	552	2394	1279	725	1105	0	0	0	0	0	69.1 (F)
THERMAL ZONE 2	0	0	0	1126	715	275	1988	872	703	2251	331	217	0	0	0	70.3 (F)
THERMAL ZONE 3	0	0	0	1569	628	219	2206	758	572	2361	257	294	0	0	0	69.9 (F)

Type here to search

5:47 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Zone Conditions

Temperature (Table values represent hours spent in each temperature range)

Zone	Unmet Htg (hr)	Unmet Htg - Occ (hr)	< 56 (F)	56-61 (F)	61-66 (F)	66-68 (F)	68-70 (F)	70-72 (F)	72-74 (F)	74-76 (F)	76-78 (F)	78-83 (F)	>= 88 (F)	Unmet Clg (hr)	Unmet Clg - Occ (hr)	Mean Temp (F)
THERMAL ZONE 1	0	0	0	1060	1045	552	2394	1279	725	1105	0	0	0	0	0	69.1 (F)
THERMAL ZONE 2	0	0	0	1126	715	275	1988	872	703	2251	331	217	0	0	0	70.3 (F)
THERMAL ZONE 3	0	0	0	1569	628	219	2206	758	572	2361	257	294	0	0	0	69.9 (F)

Zone Overview

Zone Summary

Area (ft²)	Conditioned (Y/N)	Part of Total Floor Area (Y/N)	Volume (ft³)	Multiplier	Gross Wall Area (ft²)	Window Glass Area (ft²)	Lighting (W/ft²)	People (ft²/person)	Plug and Process (W/ft²)
THFOMAI	Y	Y	10761.05	1.00	4505.18	1857.90	0.00	10.52	0.71

Type here to search

5:47 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Zone Overview

Zone Summary

	Area (ft ²)	Conditioned (Y/N)	Part of Total Floor Area	Volume (ft ³)	Multplier	Gross Wall Area (ft ²)	Window Glass Area	Lighting (W/ft ²)	People (ft ² /person)	Plug and Process (W/ft ²)
THERMAL ZONE 1	10763.91	Yes	Yes	107639.1	1.00	4593.18	1837.29	0.99	190.52	0.71
THERMAL ZONE 2	10763.91	Yes	Yes	107639.1	1.00	4593.18	1837.29	0.99	190.52	0.71
THERMAL ZONE 3	10763.91	Yes	Yes	107639.1	1.00	4593.18	1837.29	0.99	190.52	0.71
Total	32291.73			322917.31		13779.53	5511.77	0.99	190.52	0.71
Conditioned Total	32291.73			322917.31		13779.53	5511.77	0.99	190.52	0.71
Unconditioned Total	0.0			0.0		0.0	0.0	0.0	0.0	0.0
Not Part of Total	0.0			0.0		0.0	0.0	0.0	0.0	0.0

Zone Sensible Cooling and Heating Sensible Sizing

	Heating/Cooling	Calculated Design Load	Design Load With Sizing Factor	Calculated Design Air Flow (ft ³ /min)	Design Air Flow With Sizing Factor (ft ³ /min)	Date/Time Of Peak	Outdoor Temperature at Peak Load (F)	Outdoor Humidity Ratio at Peak Load (lbWater/lbAir)
THERMAL ZONE 1	Cooling	7.44 (ton)	8.56 (ton)	4587.38	5276.01	8/21 15:30:00	90.93	0.01
THERMAL ZONE 1	Heating	94.87 (kBtu/h)	118.58 (kBtu/h)	2565.96	3205.87	1/21 06:00:00	21.02	0.0
THERMAL ZONE 2	Cooling	10.55 (ton)	12.14 (ton)	6504.96	7479.65	8/21 15:45:00	90.61	0.01

Type here to search

547 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Zone Sensible Cooling and Heating Sensible Sizing

	Heating/Cooling	Calculated Design Load	Design Load With Sizing Factor	Calculated Design Air Flow (ft ³ /min)	Design Air Flow With Sizing Factor (ft ³ /min)	Date/Time Of Peak	Outdoor Temperature at Peak Load (F)	Outdoor Humidity Ratio at Peak Load (lbWater/lbAir)
THERMAL ZONE 1	Cooling	7.44 (ton)	8.56 (ton)	4587.38	5276.01	8/21 15:30:00	90.93	0.01
THERMAL ZONE 1	Heating	94.87 (kBtu/h)	118.58 (kBtu/h)	2565.96	3205.87	1/21 06:00:00	21.02	0.0
THERMAL ZONE 2	Cooling	10.55 (ton)	12.14 (ton)	6504.96	7479.65	8/21 15:45:00	90.61	0.01
THERMAL ZONE 2	Heating	99.82 (kBtu/h)	124.78 (kBtu/h)	2699.45	3373.26	1/21 06:00:00	21.02	0.0
THERMAL ZONE 3	Cooling	12.13 (ton)	13.95 (ton)	7475.41	8596.3	8/21 17:00:00	88.57	0.01
THERMAL ZONE 3	Heating	156.39 (kBtu/h)	195.49 (kBtu/h)	4227.17	5284.49	1/21 06:00:00	21.02	0.0

Zone Equipment Detail
No Data to Show for Zone Equipment Detail

Air Loops Detail
No Data to Show for Air Loops Detail

Plant Loops Detail
No Data to Show for Plant Loops Detail

Outdoor Air

Average and Minimum Outdoor Air During Occupied Hours

Average Number of Occupants	Nominal Number of Occupants	Zone Volume	Avg. Mechanical Ventilation (cfh)	Min. Mechanical Ventilation (cfh)	Avg. Infiltration	Min. Infiltration	Avg. Simple Ventilation (cfh)	Min. Simple Ventilation (cfh)
-----------------------------	-----------------------------	-------------	-----------------------------------	-----------------------------------	-------------------	-------------------	-------------------------------	-------------------------------

Type here to search

547 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Zone Equipment Detail
No Data to Show for Zone Equipment Detail

Air Loops Detail
No Data to Show for Air Loops Detail

Plant Loops Detail
No Data to Show for Plant Loops Detail

Outdoor Air

Average and Minimum Outdoor Air During Occupied Hours

	Average Number of Occupants	Nominal Number of Occupants	Zone Volume (ft ³)	Avg. Mechanical Ventilation (ach)	Min. Mechanical Ventilation (ach)	Avg. Infiltration (ach)	Min. Infiltration (ach)	Avg. Simple Ventilation (ach)	Min. Simple Ventilation (ach)
THERMAL ZONE 1	31.55	56.51	107639	0.0	0.0	0.051	0.001	0.324	0.001
THERMAL ZONE 2	31.55	56.51	107639	0.0	0.0	0.051	0.001	0.324	0.001
THERMAL ZONE 3	31.55	56.51	107639	0.0	0.0	0.171	0.002	0.324	0.001

Cash Flow
No Data to Show for Cash Flow

Site and Source Summary

Site and Source Energy

Total Energy (kBtu)	Energy Per Total Building Area (kBtu/ft ²)	Energy Per Conditioned Building Area (kBtu/ft ²)

5:47 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

No Data to Show for Plant Loops Detail

Outdoor Air

Average and Minimum Outdoor Air During Occupied Hours

	Average Number of Occupants	Nominal Number of Occupants	Zone Volume (ft ³)	Avg. Mechanical Ventilation (ach)	Min. Mechanical Ventilation (ach)	Avg. Infiltration (ach)	Min. Infiltration (ach)	Avg. Simple Ventilation (ach)	Min. Simple Ventilation (ach)
THERMAL ZONE 1	31.55	56.51	107639	0.0	0.0	0.051	0.001	0.324	0.001
THERMAL ZONE 2	31.55	56.51	107639	0.0	0.0	0.051	0.001	0.324	0.001
THERMAL ZONE 3	31.55	56.51	107639	0.0	0.0	0.171	0.002	0.324	0.001

Cash Flow
No Data to Show for Cash Flow

Site and Source Summary

Site and Source Energy

Total Energy (kBtu)	Energy Per Total Building Area (kBtu/ft ²)	Energy Per Conditioned Building Area (kBtu/ft ²)
Total Site Energy 1340952.7	41.5	41.5
Net Site Energy 1340952.7	41.5	41.5
Total Source Energy 3799088.0	117.6	117.6
Net Source Energy 3799088.0	117.6	117.6

5:48 PM 11/12/2019

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

No Data to Show for Cash Flow

Site and Source Summary

Site and Source Energy

	Total Energy (kBtu)	Energy Per Total Building Area (kBtu/ft ²)	Energy Per Conditioned Building Area (kBtu/ft ²)
Total Site Energy	1340952.7	41.5	41.5
Net Site Energy	1340952.7	41.5	41.5
Total Source Energy	3799068.0	117.6	117.6
Net Source Energy	3799068.0	117.6	117.6

Site to Source Energy Conversion Factors

	Site=>Source Conversion Factor
Electricity	3.167
Natural Gas	1.084
District Cooling	1.056
District Heating	3.613

Schedule Overview

Schedule Overview - view table

Large Office ClgSetp

Large Office HtgSetp

Medium Office ClgSetp

thermal zones.osm

File Preferences Components & Measures Help

Results Summary

Reports: OpenStudio Results

Schedule Overview

Schedule Overview - view table

Large Office ClgSetp

Large Office HtgSetp

Medium Office ClgSetp

Medium Office HtgSetp

Office Activity

Office Bldg Equip

