Technical Environmental Systems Project

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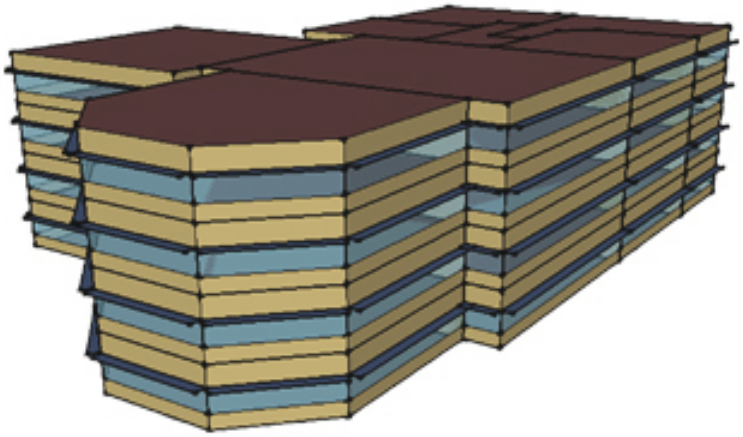
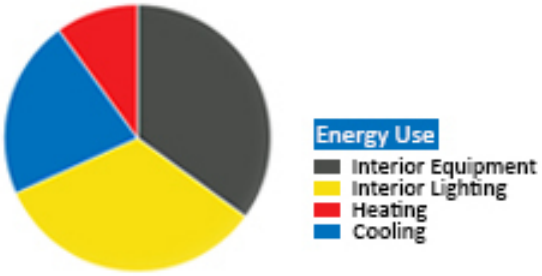
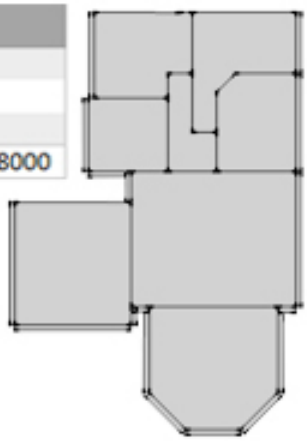
Introduction

In this project three various cities have been studied through OpenStudio in order to discuss the amount of energy needed for the building located in each city and the difference which diverse insulations can make in this case.



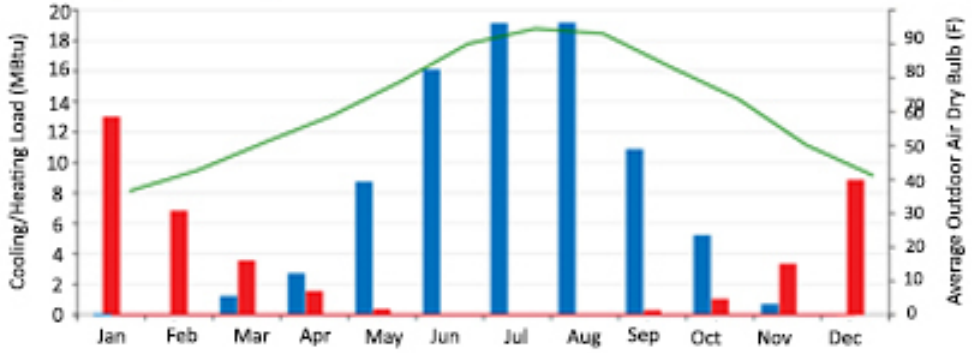


Information	Value	Unit
Net Site Energy	112891.562	kWh
Total Building Area	1091.61	m^2
EUI (Based on Net Site Energy and Total Building Area)	103.417	kWh/m^2
Weather File	Esfahan – IRN ITMY WMO#=408000	



HVAC Load Profiles

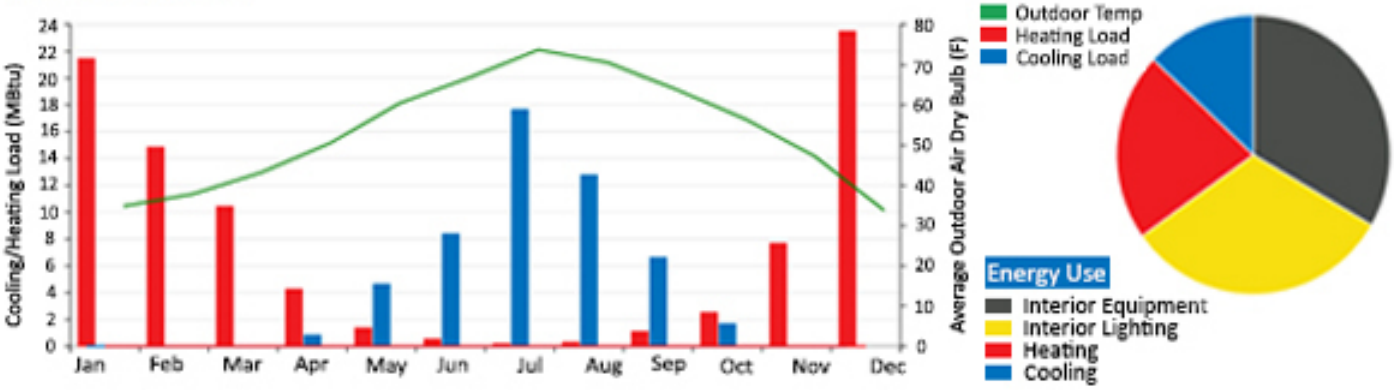
Monthly Load Profiles



Information	Value	Unit
Net Site Energy	118291.689	kWh
Total Building Area	1091.61	m^2
EUI (Based on Net Site Energy and Total Building Area)	108.369	kWh/m^2
Weather File	Piacenza - ITA IGDG WMO#=160840	

HVAC Load Profiles

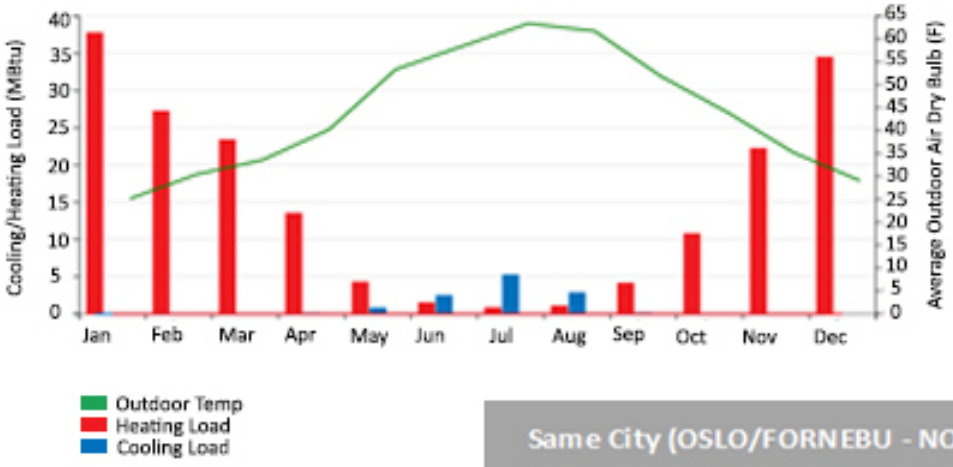
Monthly Load Profiles

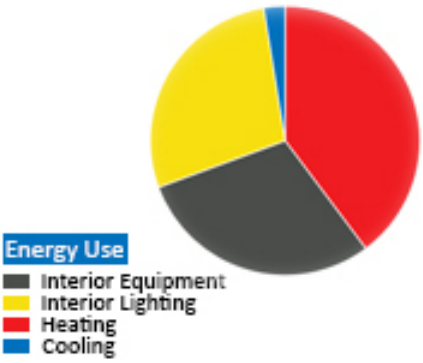


Information	Value	Unit
Net Site Energy	133544.573	kWh
Total Building Area	1091.61	m^2
EUI (Based on Net Site Energy and Total Building Area)	122.337	kWh/m^2
Weather File	OSLO/FORNEBU - NOR IWEC Data WMO#=014880	

HVAC Load Profiles

Monthly Load Profiles





	Same City (OSLO/FORNEBU - NOR IWEC Data WMO#=014880)		
	Weak Insulation	Medium Insulation	Strong Insulation
Net Site Energy (kWh)	133544.573	127780.451	126225.123
Total Building Area (m^2)	1091.61	1091.61	1091.61
EUI (Based on Net Site Energy and Total Building Area) (kWh/m^2)	122.337	117.056	115.632

	Comparing 3 Cities having the Same Insulation		
	Oslo	Piacenza	Esfahan
Net Site Energy (kWh)	133544.573	118291.689	112891.562
Total Building Area (m^2)	1091.61	1091.61	1091.61
EUI (Based on Net Site Energy and Total Building Area) (kWh/m^2)	122.337	108.369	103.417

Conclusion

Comparing the results gained from OpenStudio reveals that the city Esfahan has the least Net Site Energy among three above-mentioned cities, whereas Oslo having the highest amount.

Furthermore, as an instance Oslo has been discussed with having three different insulations and as it is apparant from the results, the strong insulation caused the least Net Site Energy.