

## Master Thesis Brief Description

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<b>Thesis Title</b>	<b>Towards achieving zero energy buildings: the role of passive solar building design</b>
<b>Programme of Studies</b>	MSc in Sustainable Energy Systems
<b>Course</b>	SES 515 Capstone Project I
<b>Area of Study</b>	Computational Building Physics – Whole Building Energy Analysis
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<b>Supervisor</b>	Dr.-Ing. Paris A. Fokaides, V. Lecturer, Frederick University
<b>Supervisory Committee</b>	Dr. George Karagiorgis, Assoc. Professor, Frederick University Dr. Constantinos Hadjiyiannis, Teaching Staff, Frederick University
<b>Semester</b>	Fall Semester 2017
<b>Short Description</b>	The passive solar design has been developed to optimise the amount of energy that can be derived from the sun. If we have a plan of a building, we can collect the sun's heat. This can be translated as reduce of the need for heating. However, that is not the only use of it. Various loads can be covered, such as ventilation, and artificial lighting. The purpose of this study was the evaluation of the solar passive heating performance of a building model. The evaluation was about the energy demands of the building to cover it's needs and the energy that can be gained from passive solar energy. The materials that are used in designing those buildings were a main parameter of the study. All the orientations have been analysed to figure out which one is the most efficient for our system. A particularly useful tool that has been developed in order to help the measure the radiation and analyse the radiation is Revit along with its plug ins, Solar Analysis and Energy Analysis from Insight 360.