

## Senior Thesis Brief Description

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<b>Thesis Title</b>	<b>Numerical analysis of energy behaviour of thermal bridges</b>
<b>Programme of Studies</b>	BSc in Civil Engineering, Frederick University, Cyprus
<b>Course</b>	CEP 400 Senior Project
<b>Area of Study</b>	Computational Building Physics– Finite Elements Methods
<b>Student's Name</b>	George Nicolaidis
<b>Students Reg. Number</b>	1965
<b>Supervisor</b>	Dr.-Ing. Paris A. Fokaides, V. Lecturer, Civil Engineering Department
<b>Supervisory Committee</b>	Dr. Petros Christou, Ass. Professor, Civil Engineering Department Dr. Demetris Nicolaides, Lecturer, Civil Engineering Department
<b>Semester</b>	Spring Semester 2014
<b>Short Description</b>	The main objective of this study was the investigation of the energy performance of thermal bridges in buildings. In terms of this study, numerical analysis of the thermal behaviour of typical cases of thermal bridges in buildings as defined in ISO 14683:2007, under steady state conditions were conducted. The energy performance of different building materials as well as the thermal losses for variable boundary conditions were investigated, and the results were discussed. By employing finite element software (Comsol) the behavior of linear thermal transmittance and thermal bridges in building construction was defined. Best practices towards reducing heat losses from thermal bridges were defined based on an extensive literature review and modelled using the finite element analysis software. The main purpose was the definition of the most appropriate solutions for reducing heat losses from thermal bridges.