

Master Thesis Brief Description

Thesis Title	Use of natural gas for heating in the building sector
Programme of Studies	BSc in Mechanical Engineering, Stream Oil and Gas, Frederick University
Course	ASOG 405 Senior Project
Area of Study	Computational Building Physics – Whole Building Energy Analysis
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Supervisory Committee	Dr Chris Christodoulou, Professor, Mechanical Engineering Department Dr. George Karagiorgis, Assoc. Professor, Mechanical Engineering Department
Semester	Spring Semester 2017
Short Description	In our days due to the high-energy dependence on oil and its harmful effects on the environment, the usage of natural gas is increasingly developing for the production of thermal energy. Natural gas is the cleanest burning fossil fuel. In addition, natural gas is the lowest pollutant fuel because its burning produces less carbon dioxide than other conventional fuels. In this study, natural gas is used as fuel in the boiler for the production of thermal energy. The scope of this study is the calculation of the heating and cooling requirements of a building in order to select the appropriate boiler that satisfies those requirements. In addition, the calculation procedure of heating and cooling loads is performed with the utilization of the elite software Chvac program. Finally, a comparative assessment between the natural gas boiler and oil boiler is performed to specify which of the two is more efficient, which boiler is cheaper, which fuel is cheaper, what are the installation requirements for each one and finally some safety issues for the installation for each one.