ABSTRACT

The purpose of this thesis is to examine if an existing residential building can be transformed into a nZEB. The factors that are taken into consideration concern the application of thermal insulation to the external walls, the application of thermal insulation to the roof and the replacement of all windows with other energy efficient windows. It is important to note that the data for this study are real coming from the current state of the Cypriot market. Eventually, taking into account all the alternative combinations of the alterations that can be tested at the building, it will be concluded if it is applicable to become a nZEB and if it is finally viable.

The process followed to carry out this study was based in developing various alternatives of upgrades applicable to the building and later each one of them is compared to one another of the same kind. This procedure will expose any effect related to the energy efficiency of the residential building, the CO_2 emissions and the results of the financial analysis. Finally, every possible combination of the proposed upgrades is examined in order to extract the conclusion if the residential building can be enhanced to a nZEB.