

## 4174138425 : MAJOR ARCHITECTURE

KEY WORD : ENERGY EFFICIENT \ ENERGY CONSERVATION \ BUILDING RETROFITTING

PRIMLARP WASUWAT, Ftl.Lt. : ENERGY EFFICIENT STRATEGIES FOR GOVERNMENT OFFICE BUILDING : A CASE STUDY OF TECHNICAL DIVISION , THE DIRECTORATE OF CIVIL ENGINEERING, DONMUANG. THESIS ADVISOR : ASSIST. PROF. THANIT CHINDAVANIG. , 187 pp. ISBN 974-334-475-6.

The objective of this study was to find out an energy efficient strategies for 2,460 square meter government office building with appropriated techniques and economic. The building was surveyed, evaluated, and analyzed in term of thermal environment and energy consumption. Calibrated computer simulation models by computer program DOE 2.1 D. were used as a tool to evaluate each architectural improvement strategy.

The result of energy audit indicated that a major electrical energy consumption was from the air-conditioning system, due to the poor properties of opaque wall, fenestration and the tightness of window frames. Although the shading system of the building benefited solar heat gain reduction, it prevented daylight entering into the office spaces. The illumination level from artificial lighting system was inadequate even though the utilization of electrical energy for the lighting system was higher than building code allowed. Also the heat gain from electrical equipments had affected to the cooling load.

Four energy efficient strategies were proposed. The annual energy consumption of the building could be reduced from 10.18 to 18.56 percent with investment cost from 411,950 to 1,050,910 Baths. Each strategy had an economical return within 10 years.

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