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IMPLEMENTING ENERGY CONSERVATION MEASURES: A CASE STUDY ON RETROFITTING A COMMERCIAL BUILDING IN SOUTH AFRICA

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ABSTRACT

Energy efficiency is driven by global climate change concerns and the need to reduce carbon emissions and increase sustainability of the built environment. Currently, South Africa is facing an electricity crisis and alternate solutions to energy consumption of state-owned buildings should be explored. This study aimed to conduct a quantitative analysis of the energy savings after retrofitting and implementing ECMs in a state-owned commercial building to determine the electrical energy savings, the effectiveness of energy efficient retrofits, and the correlated cost implications. It was found that ECM retrofits saved an average of 398 431 kWh of electrical energy per month amounting to a 67 % improvement in energy efficiency. The total financial savings achieved was R1 902 301.26 per year. Barriers to energy efficiency were identified. Lack of funding, resources and knowledge were the most prevalent barriers.

KEYWORDS: Energy Efficiency, Climate change, Energy conservation measures, Barriers

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