

Energy Conservation Strategies of Buildings in Hot, Arid Region: Al-Khobar, Saudi Arabia

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Abstract : Recently energy savings have become more pronounced as a result of the world financial crises as well the unstable oil prices. Certainly all entities needs to adapt Energy Conservation and Management Strategies due to high monthly consumption of their spread locations and advancements of its telecom systems. These system improvements necessitate the establishment of more exchange centers as well provide energy savings. This paper investigates the impact of HVAC System Characteristics, Operational Strategies, the impact of Envelope Thermal Characteristics, and energy conservation measures. These are classified under three types of measures i.e. Zero-Investment; Low-Investment and High-Investment Energy Conservation Measures. The study shows that the Energy Conservation Measures (ECMs) pertaining to the HVAC system characteristics and operation represent the highest potential for energy reduction, attention should be given to window thermal and solar radiation characteristics when large window areas are used. The type of glazing system needs to be carefully considered in the early design phase of future buildings. Paper will present the thermal optimization of different size centers in the two hot-dry and hot-humid Saudi Arabian city of Al Khobar, East province.

Keywords : energy conservation, optimization, thermal design, intermittent operation, exchange centers, hot-humid climate, Saudi Arabia

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