AN INVESTIGATION ON RELATIONSHIP BETWEEN ENERGY CONSUMPTION OF HIGH RISE INSTITUTIONAL BUILDINGS AND THE CLIMATE OF DHAKA CITY

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ABSTRACT

Growth in population, mounting demand for building services and comfort levels, along with the rise in time spent inside buildings, assure the upward trend in energy consumption of large scale public buildings in Dhaka city. For this reason, energy efficiency in buildings is a prime objective today for energy policy at regional, national and international levels. This paper devotes to discuss the holistic utility bills analysis method for investigating and analyzing whole building energy consumption of public buildings with special emphasis on private sector institutions in a tropical region like Dhaka city. Correlations between operational records of energy consumption of three institutional buildings and the meteorological data including monthly mean outdoor dry-bulb temperature (To), and relative humidity (RH) of Dhaka city have been derived. The findings of the study reveals that the overall building energy consumption is highly dependent on climate, building design characteristics including internal layout, orientation, fenestration and site configurations, and ownership. The analysis of such kind of model is especially useful for building managers and owners to track energy use during pre-retrofit and post-retrofit periods and to reduce building operational costs in the tropical region.

Keywords: Energy consumption, Institutional buildings, Utility bills, Heat gain, Meteorological data.