

ENERGY EFFICIENT DESIGN :

INVESTIGATION OF URBAN

BUILT FORMS

The dissertation presented to the
Faculty of Architecture of the
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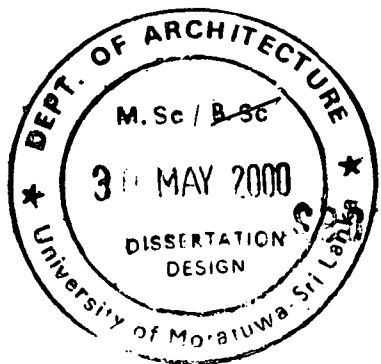
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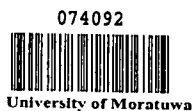
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ABSTRACT

The consideration and necessary attention towards natural forces (climatology) has been overshadowed by market forces in cities like Colombo. In addition to that most of the international cities have built forms with borrowed culture rather than their own indigenous character. These built forms have no bearing on the natural forces. As a result they consume very high amount of both end-use and embodied energy. The manipulation of internal environment with little concentration to dynamic and complex issues of natural forces has led to environmental degradation. Therefore this study analyses the cooling energy and thermal comfort implications of the changing urban climate of Colombo Sri Lanka. More recent climatic average is assumed to be indicative of urban heat island phenomenon. Using parametric building energy simulation software, the dissertation analyses the cooling energy and thermal comfort differences (based on PMV & OT as the major yard stick) arriving from the recent years. Nine options are examined to determine their potential to mitigate the negative impacts of the altered urban climate.



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ABBREVIATIONS:

PMV	PREDICTED MEAN VOTE
OT	OPERATIVE TEMPERATURE
CMR	COLOMBO METROPOLITAN REGION
CMRSP	COLOMBO METROPOLITAN REGIONAL STRUCTURE PLAN



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