

**CLIMATE RESPONSIVE DESIGN (CRD);**  
CLIMATIC STRATEGIES IN ARCHITECTURE AND THEIR REGIONAL VARIATIONS WITH  
SPECIAL REFERENCE TO MAIN CLIMATIC ZONES IN SRI LANKA



submitted for the Master of Science (Architecture) at the University of Moratuwa  
in March 2005.

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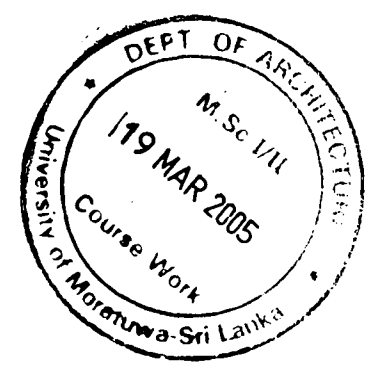
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### DECLARATION

I declare that this dissertation represent my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualification.

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Dr. Indrika Rajapaksha

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**Climate Responsive Design (CRD);  
Climatic Strategies in Architecture and their Regional Variations  
with special reference to main climatic zones in Sri Lanka**

**CONTENTS**

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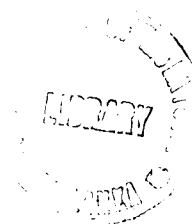
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## ABSTRACT

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As a main consumer of energy and mechanical methods for keeping its internal spaces comfortable and therefore emitting adverse components like Co<sub>2</sub> and CFC to the environment, the contemporary buildings are responsible for current global issues like 'global warming' and ozone layer depletion.

Therefore, as the Professionals involved in designing buildings, Architects has grate responsibility on addressing such issues.

Making the buildings climate responsive can reduce a grater amount of such causes for these current environmental issues.

The world is divided to various climatic regions considering their weather conditions and the strategies in architecture for respond these climatic conditions are unique for their basics. But considerable variations in Architectural Form can be observed even within these main climatic Zones.

Therefore it is important to study on Climate Responsive Design (CRD) and its regional variations as a Postgraduate student of Architecture. This dissertation includes a study on various principles and strategies of CRD for Tropical climate in order to formulate a comprehensive set of principles and strategies for tropics which was further developed in to a CRD Evaluation Index and a research on regional variations of CRD and their applicability in traditional and modern domestic buildings with special reference to main Climatic Zones of Sri Lanka.

Eighteen (18) Houses were evaluated under nine (09) cases selected from the three main climatic zones in order to obtain reasonable coverage for the research and the results were evaluated against a 'base case' selected for each zone using the developed CRD Evaluation Index.

The analysis of research reinforced the hypothesis for the research of ... 'there is a regional variation of CRD and the modern buildings have ignored such CRD strategies, which were specifically followed by the traditional buildings of the same region'.

The research was further discovered that there are various sub zones even within these main climatic regions we identified and concluded the dissertation while opening various areas for possible future studies.

*Key Words:* Climate Responsive Design (CRD), Principles and Strategies of CRD  
CRD Evaluation Index, Main Climatic Zones in Sri Lanka, Dry Zone,  
Wet Zone, Hilly Zone.