

**THE PRACTICE OF SUSTAINABLE CONCEPTS IN
HIGH DENSITY RESIDENTIAL PROJECTS IN
SRI LANKA**

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Degree of Master of Science in Project Management

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Dissertation submitted in partial fulfilment of the requirements for the degree of
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DEDICATION

To my husband and sister

ACKNOWLEDGEMENT

I would like to thank my husband and family for the support I received throughout my academic career. I owe much of the development of this dissertation to my supervisors, Dr. Ravihansa Chandratilake and Dr. Thilini Jayawickrama. I would also like to thank my lecturers who were always there to help me whenever I had any difficulty. I truly appreciate all your dedication to your students. I would also like to thank my colleagues and all those who took the time to participate in the study because, without their contribution, the dissertation would not have been possible.

ABSTRACT

The Practice of Sustainable Concepts in High Density Residential Projects in Sri Lanka

There is a rapid interest in building sustainable green homes at present, but developers and contractors are reluctant to implement these practices, as the general perception is that the initial costs are high to use in smaller buildings such as residential builds. The study conducted was to determine the decision making process of developers and contractors on sustainable practices in large-scale residential projects.

A residential sustainability survey was conducted to ascertain certain factors that relate to sustainability. The participants were members of the ICTAD (Institute of Construction Training and Development), Grades C1 and C2 developers and contractors and also non ICTAD members selected through Sri Lanka Institute of Architects (SLIA) registered members and firms. The sustainability survey was categorized in to different levels by experience with sustainability, frequency of use, familiarity with sustainable practices, importance of implementing sustainability within the company or individuals, experience and opinions on the subject.

By conducting the survey the purpose was to compare and analyse and thereby identify the hesitations, cost conflicts, confusion with regard to residential sustainability and levels of integrations.

The study revealed that the respondents believed that the cost was most important but also indicated that they believed that it is important to build green to help the environment. They all agreed that sustainable builds were more complicated to design and build and cost more. Based on the survey there was an indication that developers and contractors had experience and was familiar with sustainability.

This study was also built upon existing research on rating systems that are applicable on sustainable practices and other sustainable practices present in the residential sector.

Key words: *Sustainable practices, rating systems applicable on sustainable practices*

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LIST OF ABBREVIATIONS

Abbreviation	Description
ICTAD	Institute of Construction Training and Developments
C1/ C2	Grading Scheme for Contractors, developed by the Institute of Construction Training and Developments (ICTAD)
SLIA	Sri Lanka Institute of Architects
GSHP	Ground Source Heat Pump
USGBC	United States Green Building Council
NZEH	Net-Zero Energy Home
LEED	Leadership in Energy and Environmental Design Green Building Rating System, developed by the U.S Green Building Council (USGBC), providing standards for environmentally sustainable construction
LEED-H	Leadership in Energy and Environmental Design Green Building Rating System that promotes the design and construction of high-performance homes
LEED-AP LEED	Professional Accreditation distinguishes building professionals with the knowledge and skills to successfully steward the LEED certification process.
ISO	the International Organization for Standardization
GBCSL	Green Building Council of Sri Lanka
GREEN-SL	Green Rating Systems, developed by the Green Building Council of Sri Lanka (USGBC)
LCA	Life-cycle Assessment
PV	Photovoltaic
Rating Avg.	Rating Average is a weighted average per column and row based on rated scale
BEES	Building for Environmental and Economic Sustainability
BMS	Building Management Systems
HVAC	Heating, Ventilation, and Air Conditioning Systems
IRC	International Residential Code
IECC	International Energy Conservation Code
GHG	Greenhouse gasses
EMSI	Environmental management information system

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