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FIRE SAFETY GAPS IN SUPER HIGH-RISE BUILDINGS IN SRI LANKA

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Degree of Master of Science

Department of Building Economics

University of Moratuwa
Sri Lanka

February 2020

M.Sc

2020

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Dissertation submitted in partial fulfillment of the requirement for the degree
Master of Science in Project Management

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ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my advisor Dr. Nayanthara De Silva for the continuous support of my MSc research, for her patience, motivation, and immense knowledge. Her guidance helped me throughout the research and writing of this thesis and I could not have asked for a better advisor and mentor for my MSc research study. I am also immensely grateful to the course coordinator Ch. QS. Vijitha Disaratna, programme director Ch.QS.Indunil Seneviratne, and Ms. Lakshmi Siriwardena.

Besides my advisor, I would like to thank my employer, Ms. Darnie Rajapaksa for her insightful comments and encouragement, and also my colleagues for the support given throughout my thesis to balance my studies and work load at office.

My sincere thanks also goes to Mr. Roshal Wickramasinghe, Mr. Wasantha Adihetti, Mr. Nilan Mahagedara, Mr. Dushantha Abeyrathne, Mr. Chamila Naligama, Mr. Chathura Dharmasena and Mr. Piyum Ranaweera who provided me an opportunity to inspect the sites and make necessary observations required for the thesis. Without their valuable support it would not have been possible to conduct this research. A special thanks goes to Mr. Nadun Vithanawasam, Mr. Charith Wickramarachchi, and Ms. Natasha Perera for all the support and guidance given in every possible way in completing the report.

Last but not least, I would like to thank my family; my parents and my sister for morally supporting me throughout the writing of this thesis and my life in general.

ABSTRACT

Increasing population and building density in cities, have left numerous risks in vertical developments. As a result of the competing requirements, limitations in fire safety could be observed among many super high-rise buildings. To overcome these situations, existing fire safety regulations have been revised. They are established by the legislation to be opportune so that designers and developers are adequately aware of what to apply and not to apply. However in Sri Lanka, by the time most of the super high-rises initiated, local fire regulations did not have any provision to serve that type of buildings. Hence, the regulations that needs to be implemented to ensure life and property safety of occupants from fire damages are still not in proper practice. This study reviewed the extent of safety in local fire safety regulations and the current fire safety practice in super high-rise buildings. The results indicate limitations in local fire safety regulations with respect to international fire safety code and gaps in current fire safety practices in super high-rise buildings. Local fire safety could fully cover only 7.14% of the international code. Remaining 92.86% needs improvements to address current fire safety requirement. In the existing context, all the case studies fully cover more than 60% of local code. Yet, 11%-16% were not covered by all three of them. Hence the study could identify design and operational level gaps in case studies. Findings of the research provided an insight to potential causes that generate these gaps in fire safety. 50% of the 16 proposed potential causes were recognized in every case study. Direct regulation driven causes comprised 62.5% of them. These findings could impact increasing the level of fire safety offered in local fire regulation, subsequently super-high rise buildings in local context. In-depth study of international fire safety code will help taking the local fire safety code to the next level. Encouraging researchers and increasing research opportunities on the subject locally, could contribute to society and its inhabitants by applying and sharing knowledge with.

TABLE OF CONTENTS

LIST OF FIGURES

Page No.

LIST OF TABLES

Page No:

LIST OF ABBREVIATIONS

AHJ	Authority Having Jurisdiction
NFPA	National Fire Protection Association
BSS	British Standard Specifications
BCE	Before Common Era
CIDA	Construction Industry Development Authority
PBD	Performance Based Design
GFA	Gross Floor Area
N/A	Not Applicable
N/R	Not Relevant
Ed.	Edition
ICC	International Code Council
IRC	International Residential Code
IBC	International Building Code
IEBC	International Existing Building Code
NFPCA	National Commission on Fire Prevention and Control
GIS	Geographic information systems
CFPA E	Confederation of Fire Protection Association in Europe
MEP	Mechanical, Electrical, Plumbing
ELV	Extra-low voltage System

LIST OF APPENDICES