

**AN ASSESSMENT OF THE OCCUPATIONAL SAFETY  
AND HEALTH RISKS ASSOCIATED WITH GREEN  
BUILDING MAINTENANCE IN SRI LANKA**

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Degree of Master of Science

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Dissertation submitted in partial fulfillment of the requirements for the  
degree of Master of Science in Occupational Safety and Health  
Management

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## DECLARATION

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Masters or Degree in any other university or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Further, I acknowledge the intellectual contribution of my research supervisor Mrs. Piumi Dissanayake for the successful completion of this research dissertation. I affirm that I will not make any publication from this research without the name of my research supervisor as contributing author unless otherwise I have obtained written consent from my supervisor.

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N.M T. Madushani

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The above candidate has carried out research for the Dissertation under my supervision.

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Dissertation Supervisor

Piumi Dissanayake

.....

Date

## ABSTRACT

There is a rising popularity for buildings with green features to achieve more energy and resource savings. Despite being a developing country, Sri Lankan construction sector is also gradually moving towards the development and delivery of green buildings. However, additional maintenance activities are associated with the introduction of green features to buildings. A previous study could not be identified which specifically explored the health and safety risks associated with the maintenance activities of green building features. Therefore, the present study aimed to investigate the occupational health and safety risks associated with green building maintenance in Sri Lanka.

Accordingly, five green building features in the Sri Lankan context were identified (solar electricity generation systems, green roofs, vertical greening systems, rainwater harvesting systems and daylighting integration systems) and relevant maintenance activities were identified under each green building feature. Also, a list of 22 potential health and safety hazards were identified through literature. Subsequently, the level of probability and severity of each hazard was identified, and thereby the overall risk was calculated by considering all the previously identified maintenance activities. This was done through a comprehensive questionnaire survey involving 30 experts in industry and academia. No high risks or serious risks were identified as associated with the maintenance of identified green features. 22% of the risks were rated as medium or low risks while 78% were negligible risks. Furthermore, suitable recommendations (related to specific green features and common recommendations) were also identified through the same questionnaire, to reduce the exposure of maintenance workers to risks arising through the maintenance activities of green building features.

Accordingly, this study contributes to the fields of maintenance management and occupational safety and health management by specifically exploring the green building-associated maintenance activities which have a notable impact on the safety and health of the maintenance workers, and by identifying possible recommendations to minimize the exposure of maintenance personnel to these risks.

**Keywords:** Green building maintenance; health and safety hazards; risk analysis.

**DEDICATION**

*I dedicate this piece of work  
to my beloved family  
members.....*

## **ACKNOWLEDGEMENT**

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