



DEVELOPMENT OF DISASTER RESISTANT SCHOOL BUILDINGS

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This thesis was submitted to
the Department of Civil Engineering
in partial fulfillment of the
requirements for the degree of
Master of Engineering
in Structural Engineering Design

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2010

94558



Abstract

This study quantifies the seismic vulnerability of typical three storied classroom building located in Sri Lanka. A significant feature of this reinforced concrete frame building is that this has been not designed even for wind forces. Besides, there are some infill masonry brick walls, which are not arranged effectively to resist horizontal loads.

At the inception of this study, a literature review was carried out to get general knowledge on seismicity around Sri Lanka, behavior of reinforced concrete frame structures at seismic loadings, contribution of masonry infill walls to resist seismic effects.

Subsequently Shortcomings of this existing school building were investigated. In order to eliminate some of the shortcomings a existing building was modified to and also designed a new building to have more disaster resistance features.

The performance of all the three models was investigated at probable earthquake according to Australian Standard AS 1170.4. The static analysis and response spectrum analysis was used for investigation of performance. It was observed that substantial damage can be occurred to the existing three storied classroom building due to probable earthquake.

Besides, a cost analysis was carried out to evaluate probable cost increases associated with new building.

ACKNOWLEDGEMENTS

I am grateful to the Department of Civil Engineering, University of Moratuwa for granting me an opportunity to follow the M.Eng. Degree on Structural Engineering Design. I am particularly indebted to Prof. M.T.R.Jayasinghe, who has guided and inspired me to undertake this study.

I wish to thank Secondary Education Modernization Project of the Ministry of Education for their generous sponsorship. Also I would like to acknowledge my debt to School Works Division of the Ministry of Education for granting study leave to follow this course without which this work would not have been possible.



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