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EFFECTIVENESS OF USING CONCRETE WALL SLAB CONSTRUCTION IN APARTMENT BUILDINGS

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This thesis was submitted to the Department of Civil Engineering
in partial fulfillment of the requirement for the Degree of
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Abstract

Many high rise apartment buildings are coming up all over the world mainly due to the limited amount of land available in the urban areas and the population move towards cities due to their jobs and many other comforts. On the commercial perspective business relationships are made easy in a closer surrounding and the residence also needed to be nearby.

With increasing height of the building, the provision of resistance to lateral forces become quite significant and would generally govern the design. In addition to withstand the forces induced in the structure, vertically and laterally, human comfort should be ensured by controlling the lateral drift and acceleration associated with oscillations of the building. It is required to select a proper structural system to meet the requirements of both strength and human com fort.

In Sri Lankan practice it can be seen widely that the 'shear walls in the service core' or 'column-beam frame with shear core is used as the structural systems for multistory apartment buildings. Heavy partitions such as brick work or block work is used to partition the rooms in the apartments which generally increase the dead weight of the building without contributing to the structural resisting system.

This research work concentrates on the effectiveness or using concrete walls instead of heavy penn anent partition walls used in apartment buildings, which arc part of the structural system in resisting the loads induced and reducing the lateral drift and acceleration in ensuring human comfort in upper most floors of the building. It is shown that this system improves the usable area of the apartments and the cost study indicates that the relative increase in cost is less than 10%, over the traditional system which does not satisfy the human comfort criteria. This means the upper most floors may not be usable in the traditional 'column-beam frame with shear core' whereas the 'Wall-Slab' system satisfies the service conditions and even the top most floor is also usable.

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DECLARATION

I, Mohammed-Marhoom Mohammed Rifaadh, hereby declare that the content of this thesis is the output of original research work carried out at the Department of Civil Engineering, University of Moratuwa. Whenever others' work is included in this thesis, it is appropriately acknowledged as a reference.

Signature: _____

Date: 23/09/2009

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