Dynamic Loading Vulnerability Assessment of Multi-storey Buildings: Case Study of Sri Lanka Telecom Head Office Building

N.Sathiparan[1], H.P.Sooriyaarachchi[1] and K.S.Wanniarachchi[1]
[1]Department of Civil and Environmental Engineering
Faculty of Engineering
University of Ruhuna
SRILANKA
E-mail: sakthi@cee.ruh.ac.lk

Abstract: *The paper presents a numerical study of the assessment of the Sri Lanka Telecom Head Office Building at Lotus Road, Colombo 01, affected by blasting activates. The assessment of the building under dynamic loading has been done using the finite element modeling technique (SAP2000), to find out if any deficiency of the dynamic performance of the building. Dynamic analysis show that this building performance for lateral drift, vibration and stresses developed in columns are within allowable limits, even for the intensity of the ground motion equal to MMI 5, and acceptance criteria for vibration are more critical for this building.*

Keywords: *Structural Assessment, dynamic Analysis, vibration, drift.*

1 INTRODUCTION

This study on "Structural Assessment of Sri Lanka Telecom Head Office Building at Lotus Road Colombo-01" is prepared based on part of the analytical and experimental study carried out by the Department of Civil and Environmental Engineering, Faculty of Engineering, University of Ruhuna on the invitation of the Sri Lanka Telecom.

Figure 1 Building model

Analytical investigations on the building conducted in this study included investigation on both static and dynamic performance of the building. Static analysis of the building is conducted as a means of finding demand on the structure due to the current loading conditions of the building are within the acceptable limits and to arrive at recommendation for the current and future use of the building. Dynamic analysis of the building is performed to find out if any deficiency of the dynamic performance of the building. Unacceptable vibration level felt by some of the employees on the occasions of blasting activities of the Colombo port expansion project and the resulted perception among the employees on the vulnerability of the building against the dynamic activity is the main reason for extending the analytical investigations of