

Wannaku Ralalage Nilanthi Rupika Premachandra 2008: Study of New Wind Loading Code to be Adopted in Sri Lanka. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Trakool Aramraks, Ph.D. 115 pages.

The aim of this thesis is to study the adoptability of three standard wind loading codes i.e.; BS 6399, AS/NZS and NBCI to replace the existing practice of quasi static pressure method used as wind loading for building design in Sri Lanka. Since available data from Department of Meteorology, Sri Lanka were not reliable enough for basic wind speeds estimation, therefore existing wind zoning and speeds were used as wind data for the analysis. The study specially focused on the effect of along wind action on high rise buildings. The eight square shape building models under wind load specified by each code for three wind zones specified for Sri Lanka were used. Building models were categorized into four groups considering the variation of height and height to width ratio. The building height range from five to forty stories were used for the analysis as the building models and analyzed using wind codes mentioned for three basic wind zones. Shear wall with frame systems were considered for models with twenty five and forty stories. The suitability and applicability of different factors specified by each code were studied and compared. The maximum induced forces and top displacement of all models affected by wind loading from three standard codes were investigated and compared with those by existing code. From the result of this study, it was found that the Australian/New Zealand code AS/NZS 1170 (2002) Structural Design Action Part 2, with few modifications was recommended to be used as the new wind loading code in Sri Lanka.

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