

Thesis title:

Effect of Boundary Walls on External Wind Pressure of Low-Rise Buildings

Abstract:

The Wind engineering guidelines are based on experimental data congregated in 30-40 years back which needs to be critically assessed with recent developments of technologies. The majority of structures followed these specifications can be categorized under low-rise buildings which are generally susceptible to wind damages. Out of the most important concerns of wind forces related with low-rise structures includes lack of spatial and temporal behaviour of wind flow patterns. Moreover, the investigations which have been carried out previously had isolated buildings in uniform terrain conditions where surrounding objects have not been taken into consideration. Thereby, this study will be directed on the variation of wind induced pressure coefficients on the envelope components of a low-rise building with the effect of boundary walls, through a wind tunnel experiment. A CFD (Computational Fluid Dynamic) analysis will be performed using the experimental results. Further, a recommendation will be provided over the existing values which need to be updated in the design guidelines (eg. AS/NZS 1170.2 2011) to address the complex nature of wind flow modification In presence of boundary walls