**ABSTRACT**

**KEYWORDS:** *Stilt, infill walls, open ground storey, diagonal strut, infill modelling, equivalent static analysis, low rise building*

In Open ground storey buildings sudden change of stiffness takes place along the building height which makes the storey more flexible than the adjacent storey .In other words storey of which significant reduction of stiffness is observed is known as soft storey. Hence columns and beams in those storeys got heavily stressed. Therefore it is required that the ground storey columns must have sufficient strength and adequate ductility. Presence of infill walls in the frames alters the behavior of the building under lateral loads. However, it is common industry practice to ignore the stiffness of infill wall for analysis of framed building. Engineers believe that analysis without considering infill stiffness leads to a conservative design. But this may not be always true, especially for vertically irregular buildings with discontinuous infill walls. Hence, the modelling of infill walls in the seismic analysis of framed buildings is imperative. Indian Standard IS 1893: 2002 allows analysis of open ground storey buildings without considering infill stiffness but with a multiplication factor 2.5 in compensation for the stiffness discontinuity. However, as experienced by the engineers at design offices, the multiplication factor of 2.5 is not realistic for low rise buildings. This calls for an assessment and review of the code recommended multiplication factor for low rise open ground storey buildings.

Infill walls can be modelled in software using diagonal strut element with appropriate material properties for linear elastic analysis. A building (G+2) with open ground storey being built in Dehradun location (seismic zone IV) is considered for this study. this building is analyzed for three different cases (a) without modeling of infill walls (b) with infill wall modelled above the ground storey (c) with full infill walls. Analysis of different models shows that time period decreases resulting the increase in earthquake force with the amount of infill walls. So that designers should consider the effect of infill walls during lateral loading .also design of a building is carried out for the particular case using equivalent static method as per I.S. 1893.