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"EFFECT OF MODELLING PODIUM STRUCTURE ON THE OVERALL BEHAVIOUR OF THE STRUCTURE IN A TALL BUILDING"

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ABSTRACT

Podium surrounding tower walls are often widely preferred for multifaceted functionality of tall buildings. Horizontal offset buildings constitute a class of structures that are particularly prone to in-plane floor deformation and torsion occurring simultaneously. It is found from previous studies that podium can impose significant differential restraint on coupled tower walls. Amongst the different structural systems that are adopted world over, diaphragm with rigid and semi-rigid floor plate are adopted widely in the analysis.

This research focuses on the backstay effect i.e. podium structural interaction with the tower area and consideration of retaining wall on all four sides and retaining wall on only two sides of the structure. In the current study models were prepared with and without the podium structure modelled and parameters such as drifts and displacement is compared for upper bound ,lower bound and direct load path case for retaining wall on all four side and retaining wall on two sides. The shear force reversal occurring at the podium tower interface was studied for both wind and seismic cases additionally, the variation of axial stresses on the basement level slabs of the non-tower area and its variation for different cases was also studied.