

عنوان مقاله:

VERTICAL BRACING SHAPE EFFECTS ON THE Cd FACTOR OF OUTRIGGER BRACED STRUCTURES

محل انتشار:

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خلاصه مقاله:

According to developments in construction of high-rise buildings in developing countries, more concentration and studies on seismic behavior of these types of structures are required. Due to a large variety of high-rise buildings, current research is carried out on a special type of above mentioned buildings, which is composed of a steel braced welded structure equipped with outrigger bracings both on roof and mid height levels. Outrigger braced high-rise structures are assumed to be a basic solution for overturning problem by out breaking the total outer structure of high-rise buildings. This system is much more effective than the conventional braced frame structures for buildings ranged from 40 to 60 stories high. First the computational method for displacement amplification factor and related effective parameters are briefly described in this research. Then a total of 5 two dimensional frames (ranging from 20 to 60 stories high) equipped with outrigger bracings of various types both on roof and midheight levels are modeled. Then the assumed finite element models are analyzed and designed according to Iranian 2800 seismic code taking into account the site specifications and $S_a=0.25g$, $S_a=0.35g$ spectral acceleration levels. Afterwards, by using accelerograms recorded on soil types 1, 2 & 3 (Rock or very stiff soil, loose rock or stiff soil & soft soil with medium compaction respectively) due to 2800 Iranian seismic code, and after scaling them to $S_a=0.25g$ & $S_a=0.35g$, a total of 1800 linear and nonlinear Time History analyses are carried out on the above mentioned 2D models. By performing a Modal Push-over Analysis on each model and by using achieved results of Time History analyses, the ductility and overstrength reduction factors are computed for each model and related records. Finally, the effects of vertical bracing .shape on the displacement amplification factors are studied

کلمات کلیدی:

Accelerogram, Nonlinear Analysis, Pushover Analysis, Displacement Amplification Factor, Outrigger Bracing

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