

## Assessment of performance of buildings with high importance factor through non-linear static and dynamic procedure

### Abstract:

The main objective of this paper is to appraise the performance level of building with very high importance factor like hospitals and emergency centers which have been analyzed and designed based on linear static procedure (LSP) with nonlinear static pushover analysis (NSPA) and nonlinear response history analysis (NRHA). To achieve this goal a steel moment frame building, first based on equivalent static procedure have been analyzed and designed. After applying drift limitations of code2800 and finding sections of members, the NSPA have been conducted based on FEMA356 and modal pushover analysis (MPA) while the NRHA are treated as benchmark results. Regarding the results it can be concluded that the performance level of very high importance buildings is about immediate occupancy. Furthermore the MPA is more accurate in comparison to other nonlinear static pushover analysis procedures. Finally, the NSPA procedures considering its abilities to take into account nonlinear behavior of building are an efficient suggestion of LSP at practical level especially for important buildings.