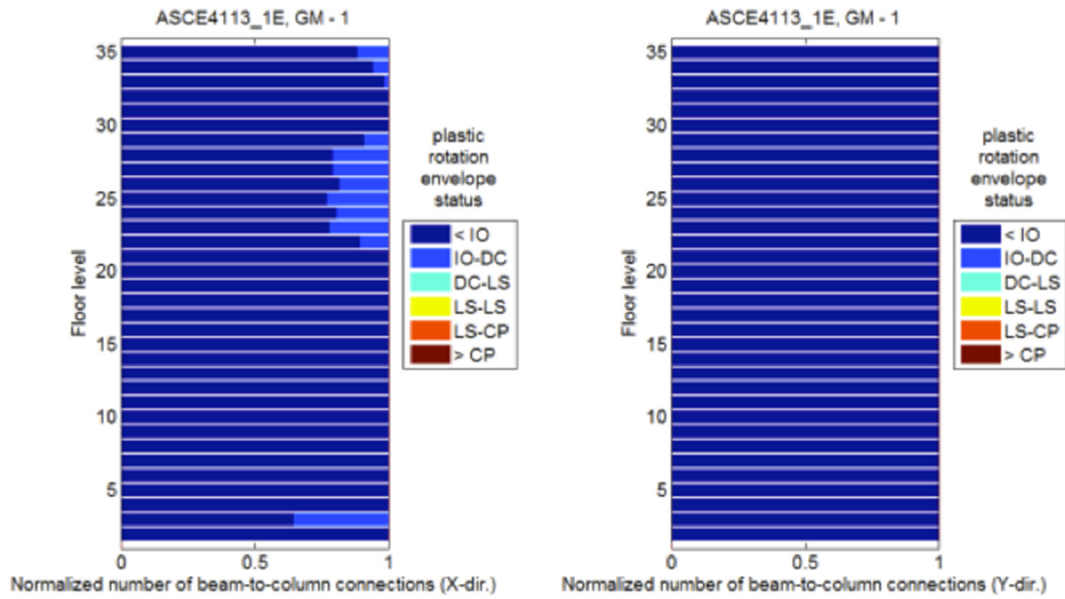


## **Appendix E: Response Plots of Model 1d\***

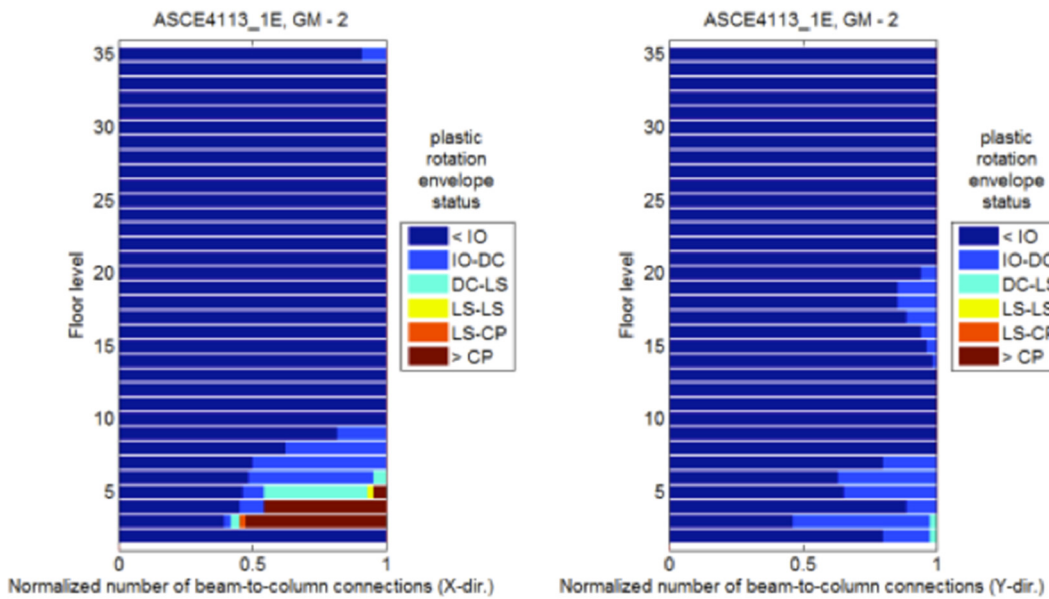
The most refined model—Model 1d\*—was evaluated at two hazard levels. This appendix includes information for the following, with all ground motions included:

- Beam end plastic rotation envelope status under BSE-1E and BSE-2E hazard-level ground motions
- Number of column splice failure in each floor level under BSE-1E and BSE-2E hazard-level ground motions





**Figure E.1** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 1 of BSE-1E hazard-level ground motions.



**Figure E.2** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 2 of BSE-1E hazard-level ground motions.

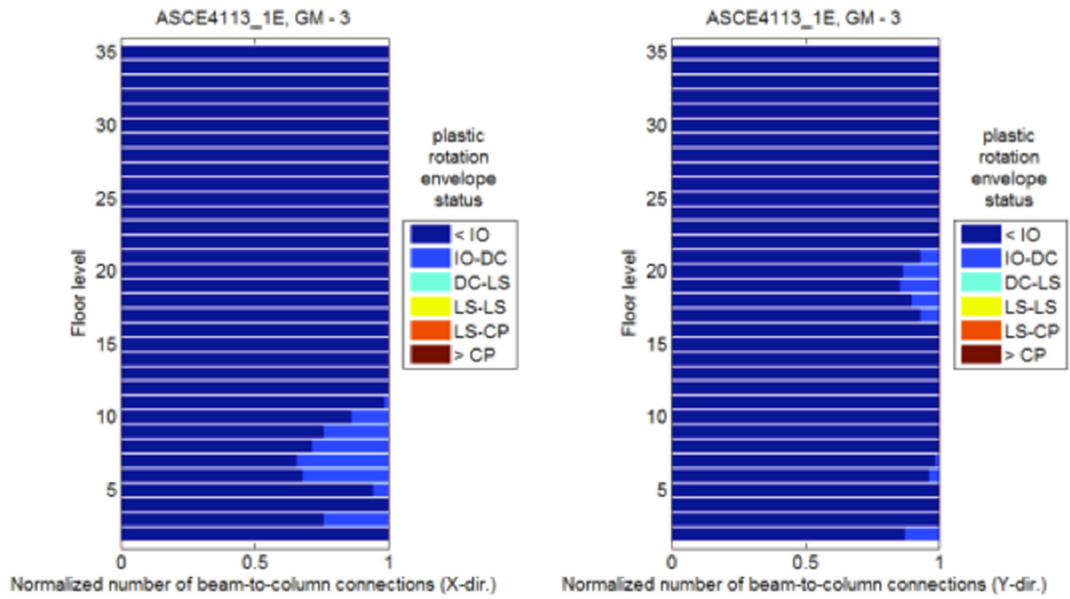


Figure E.3 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 3 of BSE-1E hazard-level ground motions.

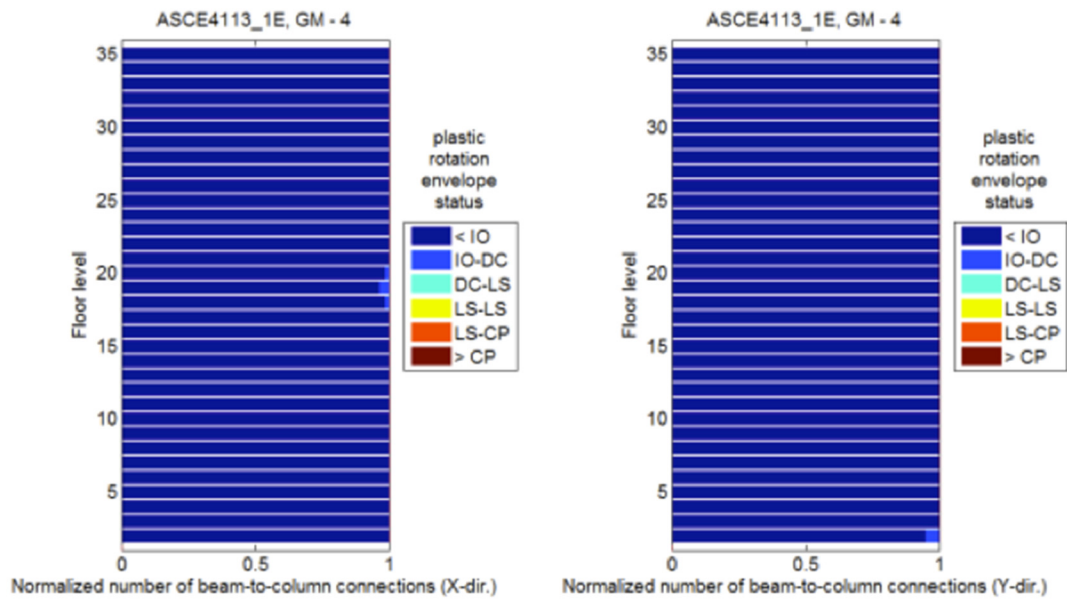


Figure E.4 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 4 of BSE-1E hazard-level ground motions.



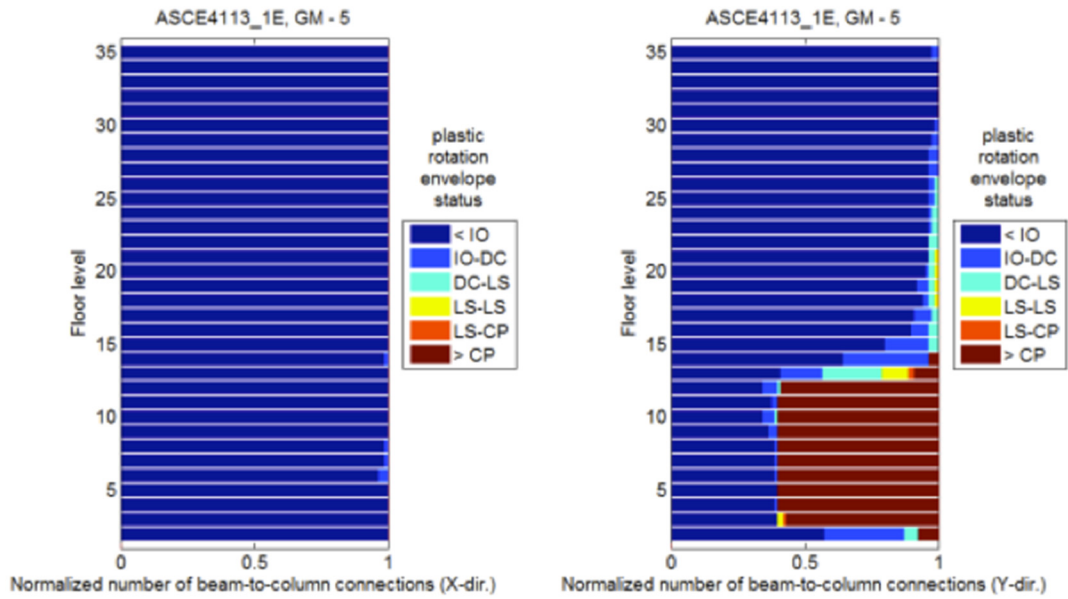


Figure E.5 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 5 of BSE-1E hazard-level ground motions.

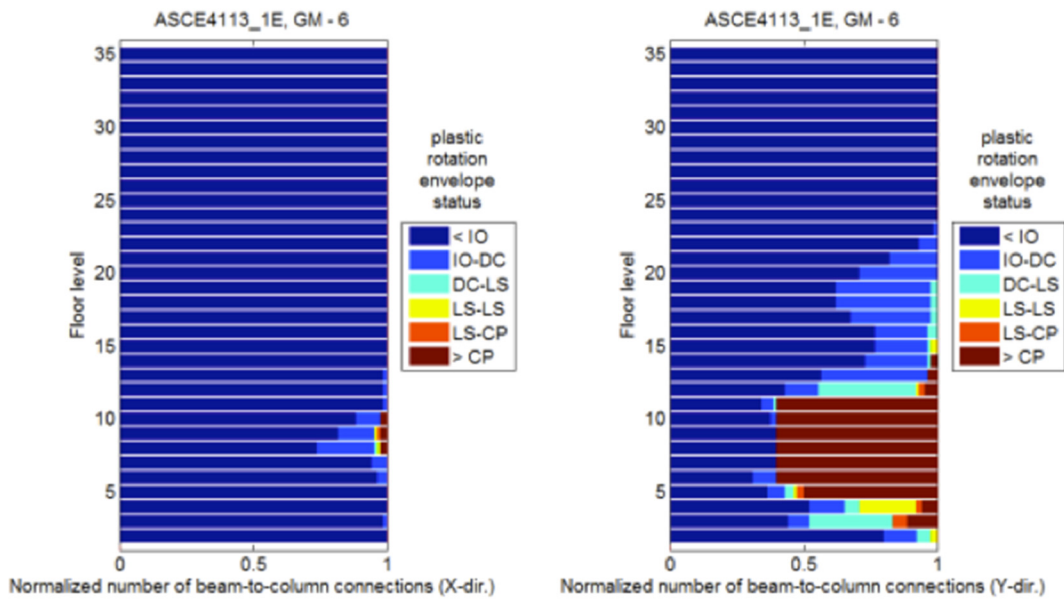


Figure E.6 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 6 of BSE-1E hazard-level ground motions.

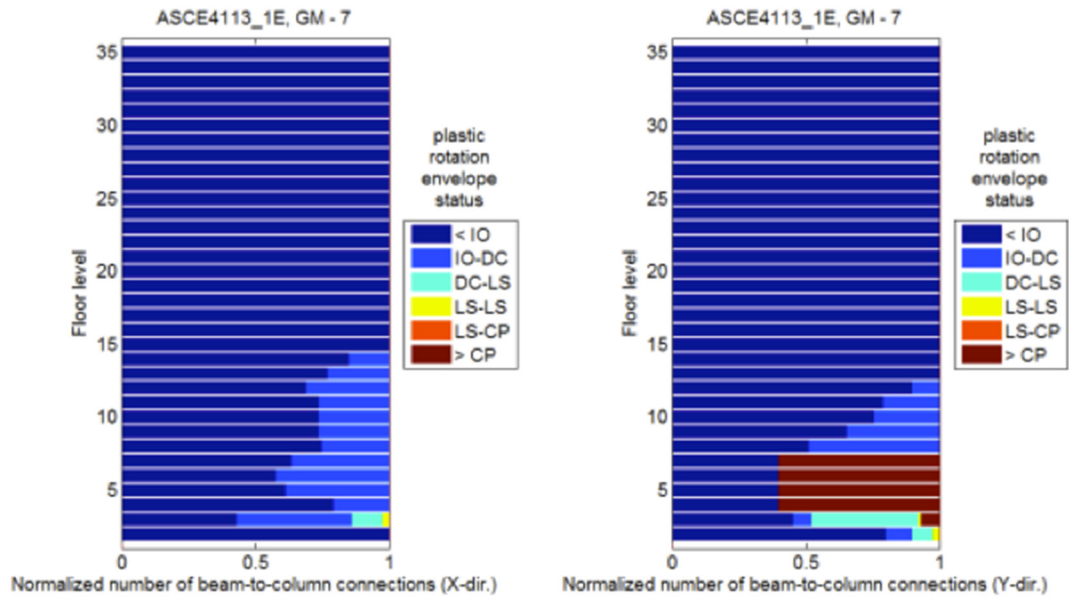


Figure E.7 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 7 of BSE-1E hazard-level ground motions

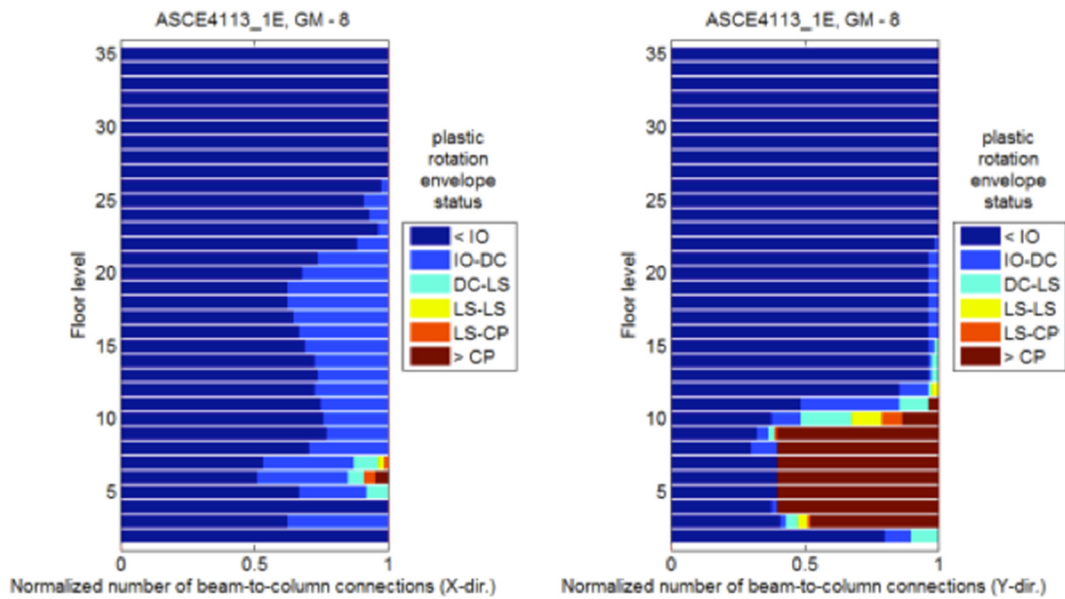


Figure E.8 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 8 of BSE-1E hazard-level ground motions.

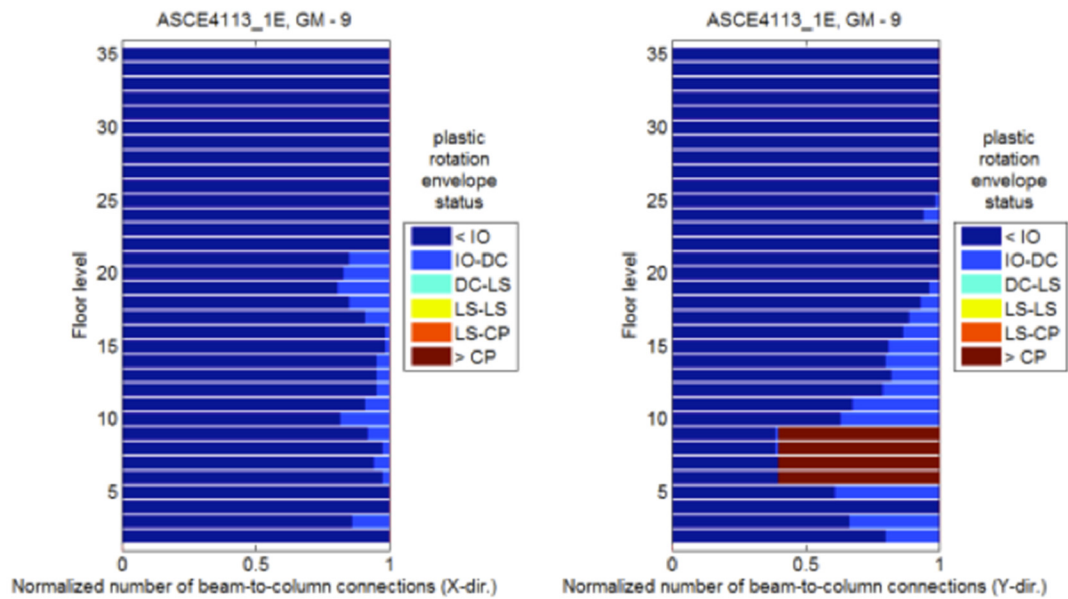


Figure E.9 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 9 of BSE-1E hazard-level ground motions.

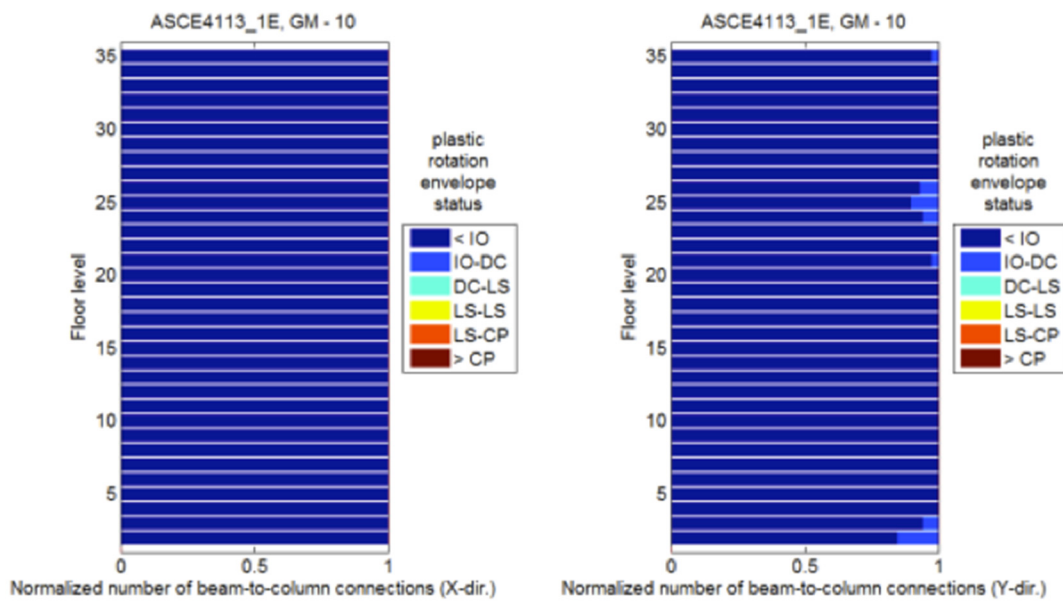


Figure E.10 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 10 of BSE-1E hazard-level ground motions.

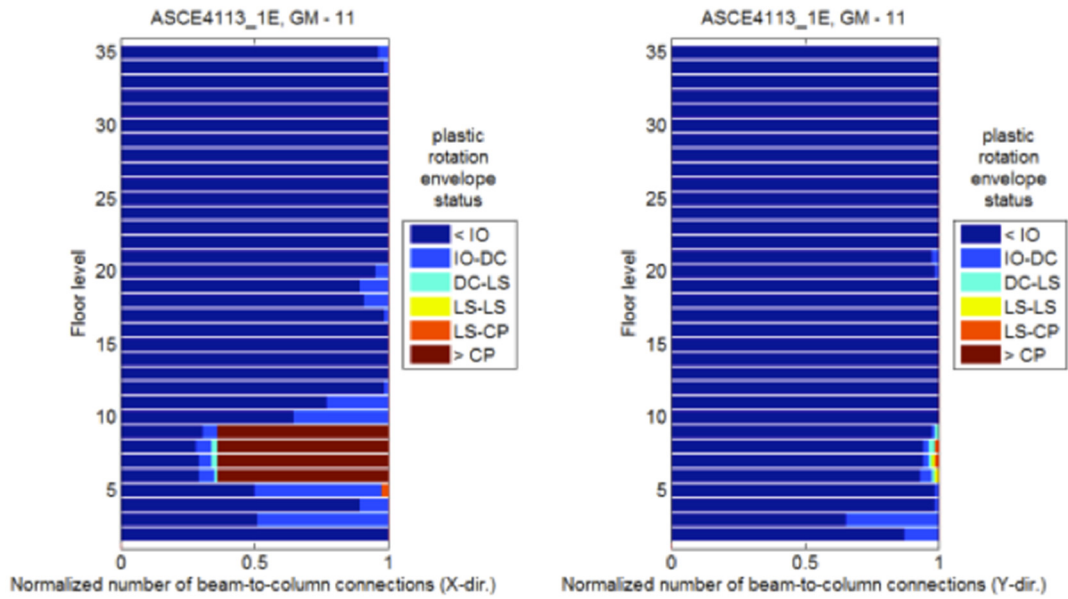


Figure E.11 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 11 of BSE-1E hazard-level ground motions.

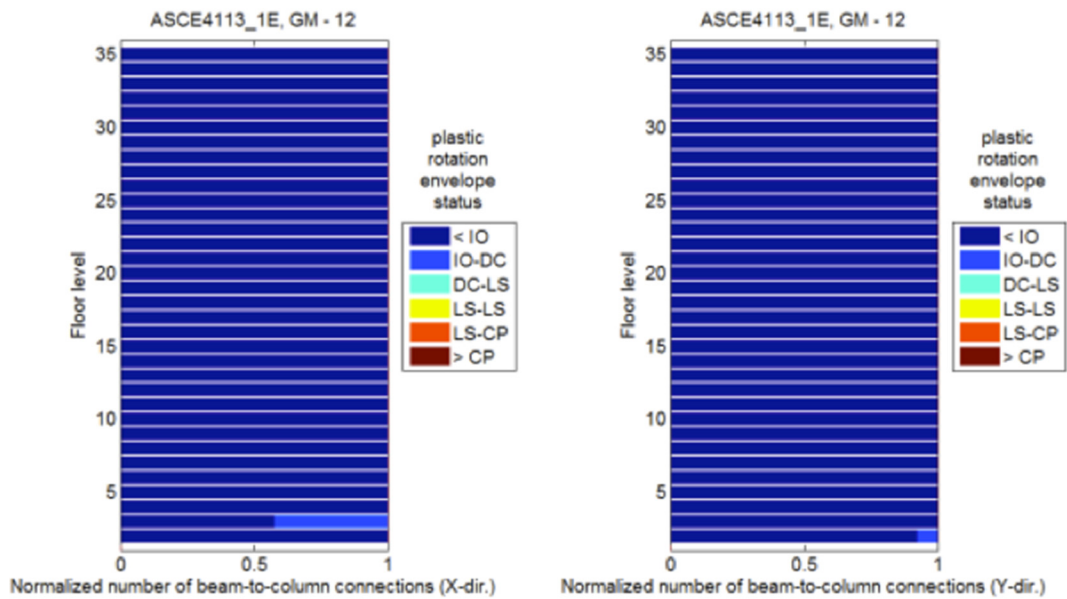


Figure E.12 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 12 of BSE-1E hazard-level ground motions.

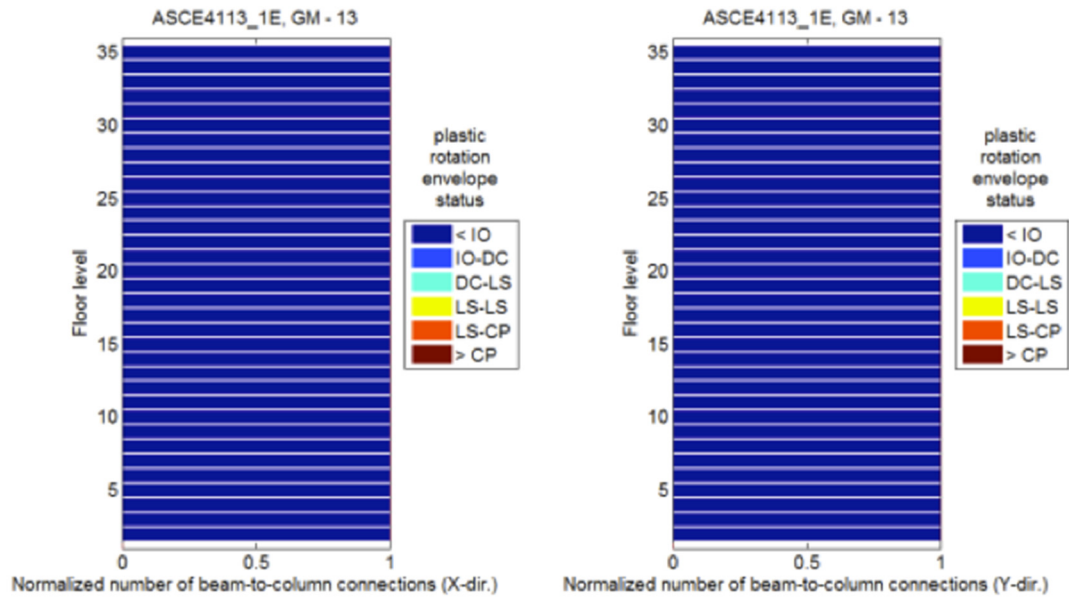


Figure E.13 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 13 of BSE-1E hazard-level ground motions.

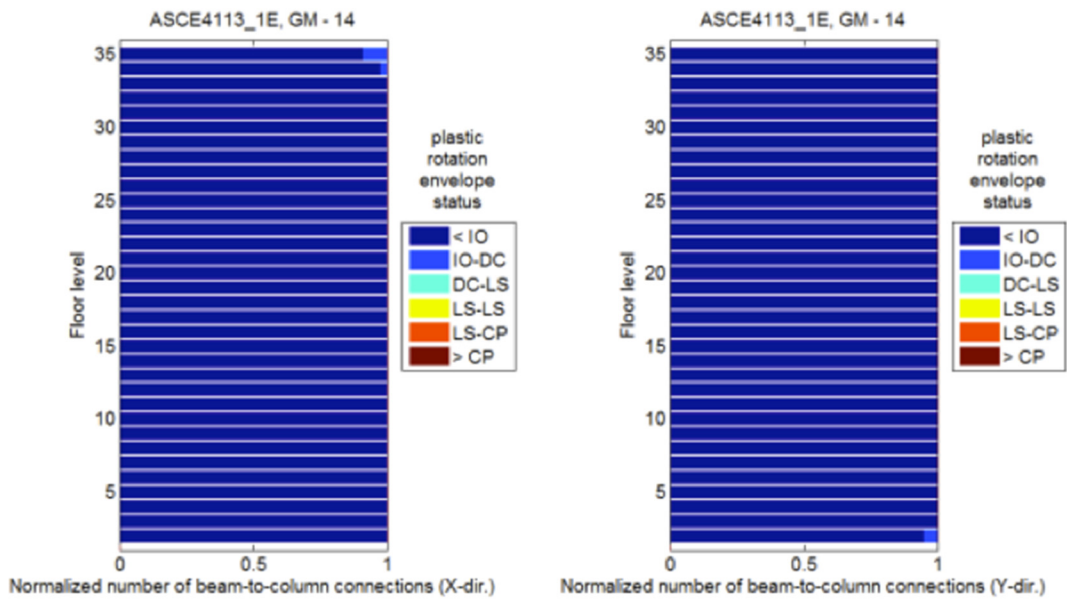


Figure E.14 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 14 of BSE-1E hazard-level ground motions.

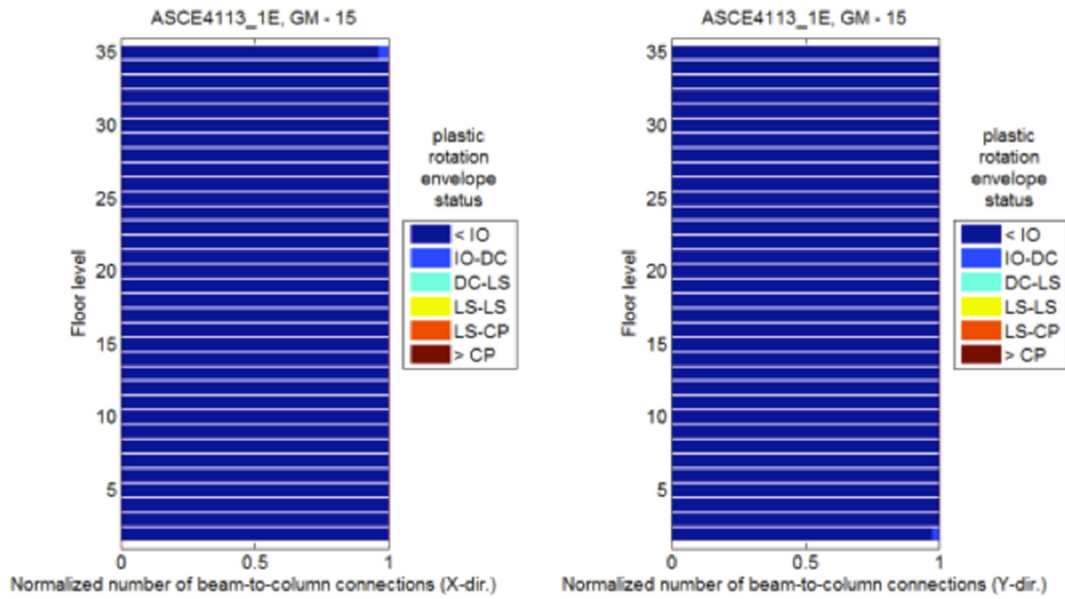


Figure E.15 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 15 of BSE-1E hazard-level ground motions.

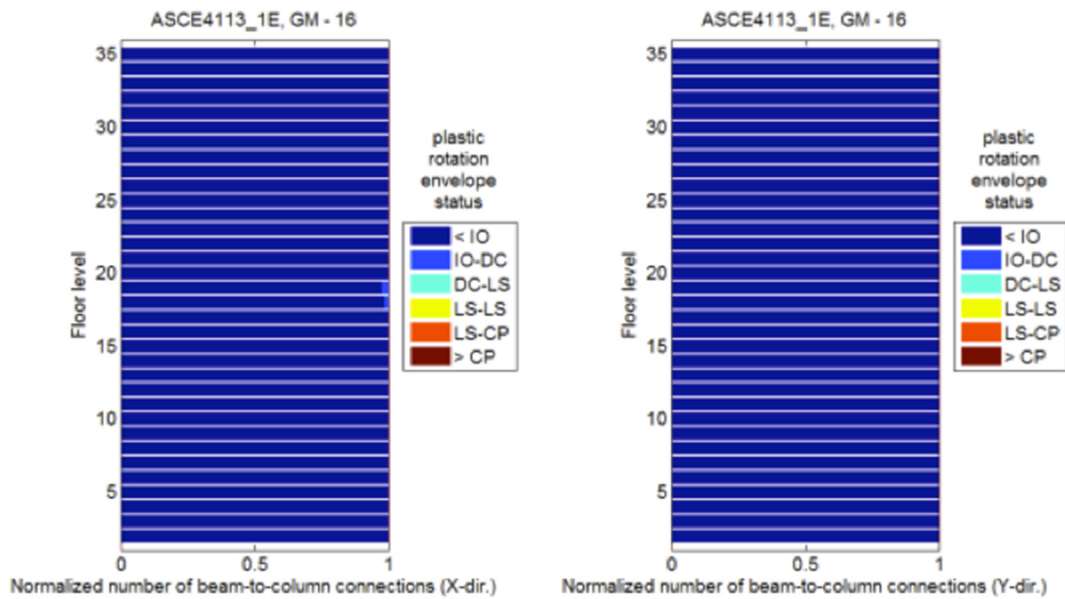


Figure E.16 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 16 of BSE-1E hazard-level ground motions.

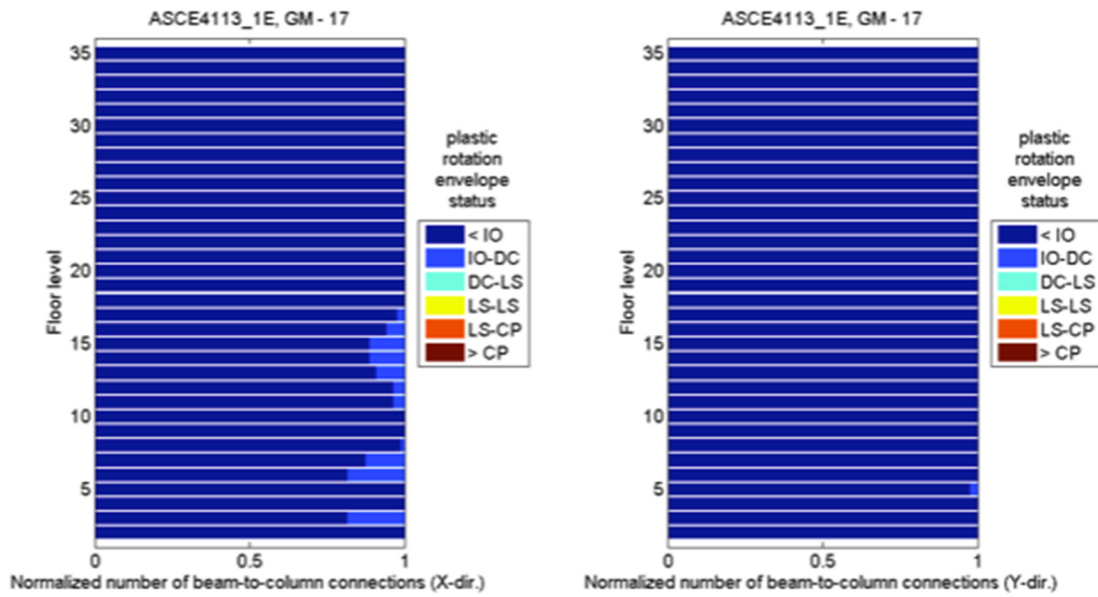


Figure E.17 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 18 of BSE-1E hazard-level ground motions.

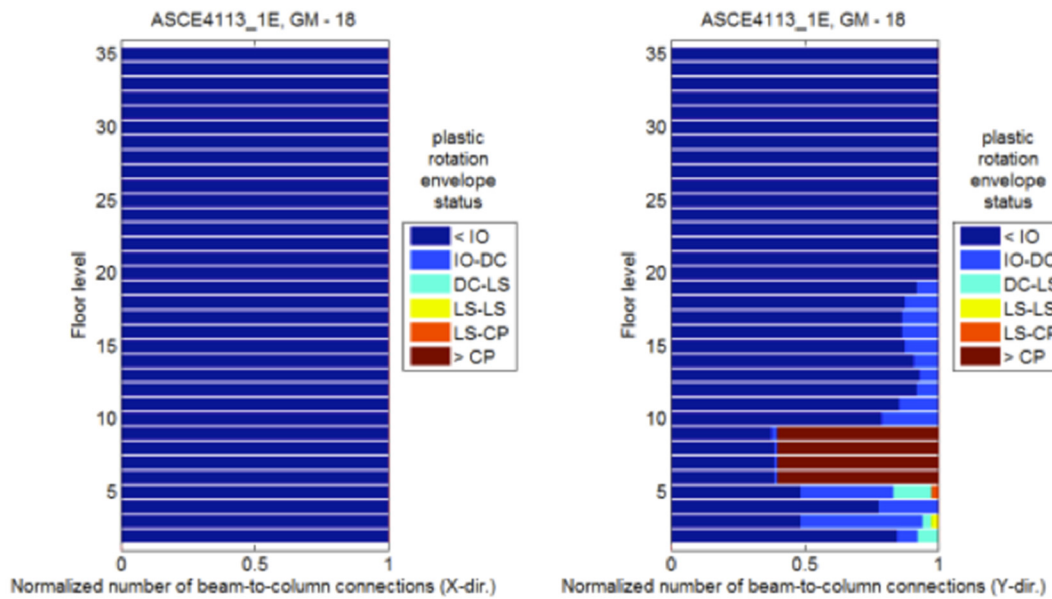


Figure E.18 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 19 of BSE-1E hazard-level ground motions.

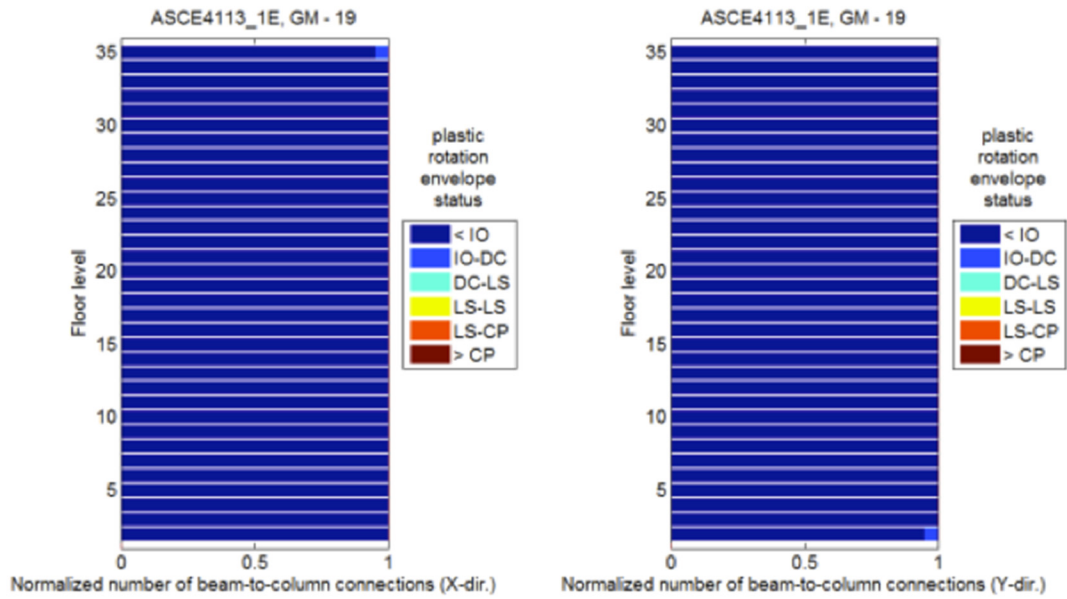


Figure E.19 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 20 of BSE-1E hazard level ground motion.

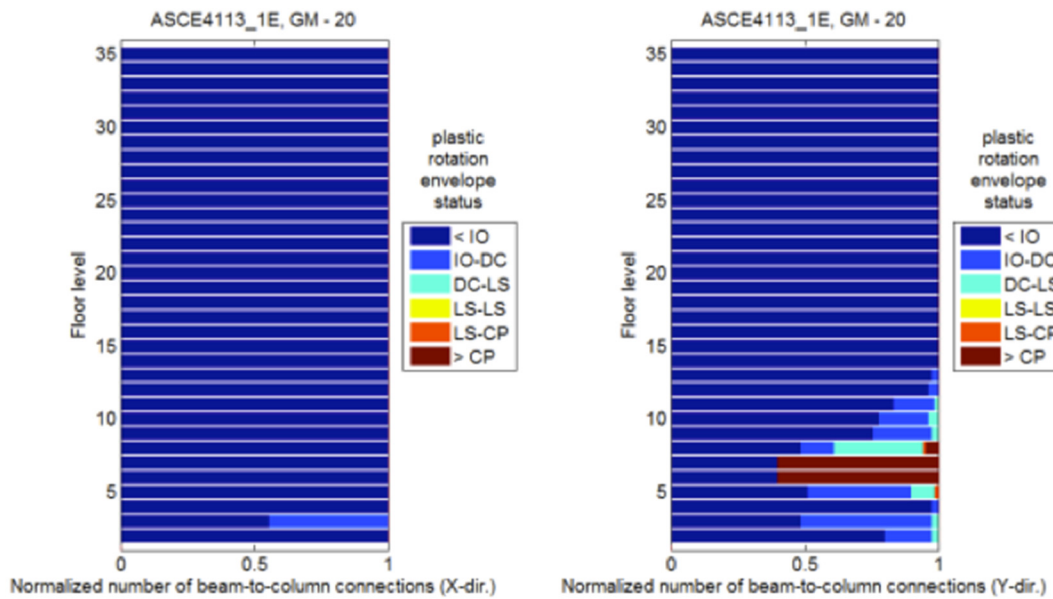


Figure E.20 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 1 of BSE-2E hazard-level ground motions.



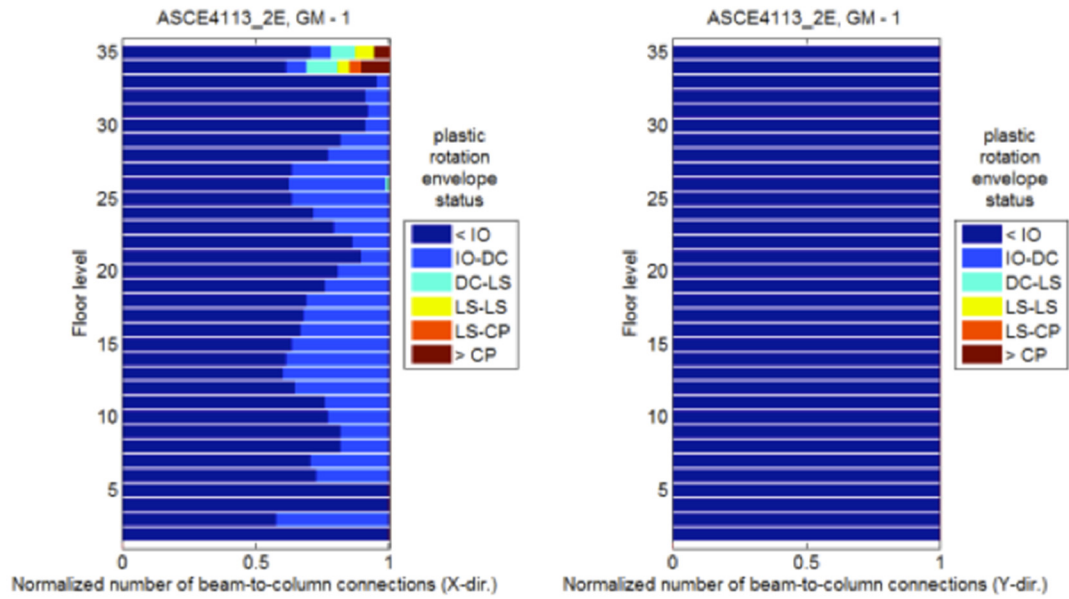


Figure E.21 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 2 of BSE-2E hazard-level ground motions.

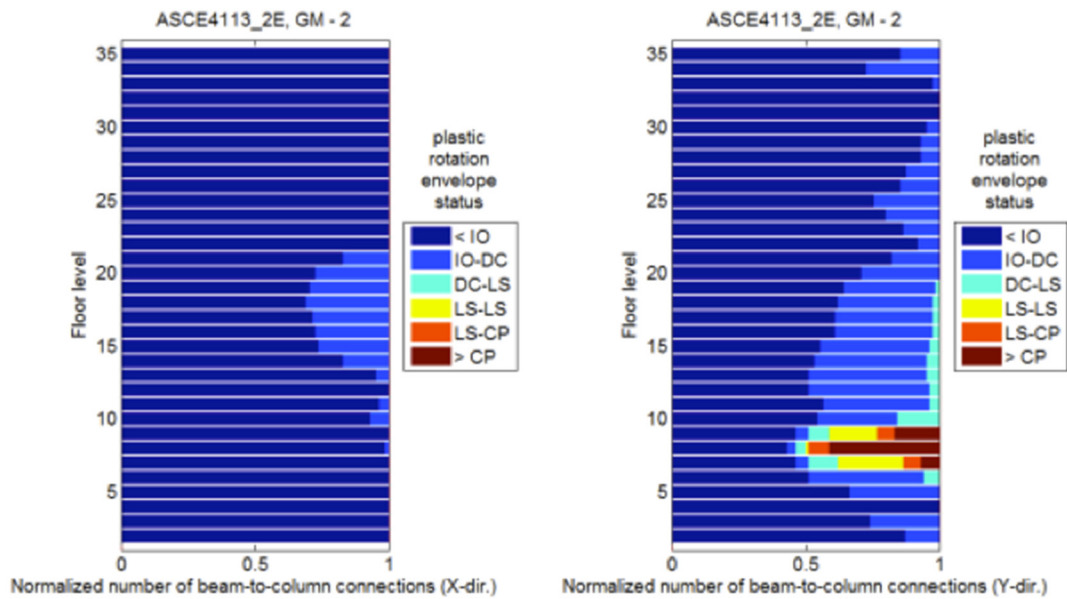


Figure E.22 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 3 of BSE-2E hazard-level ground motions.

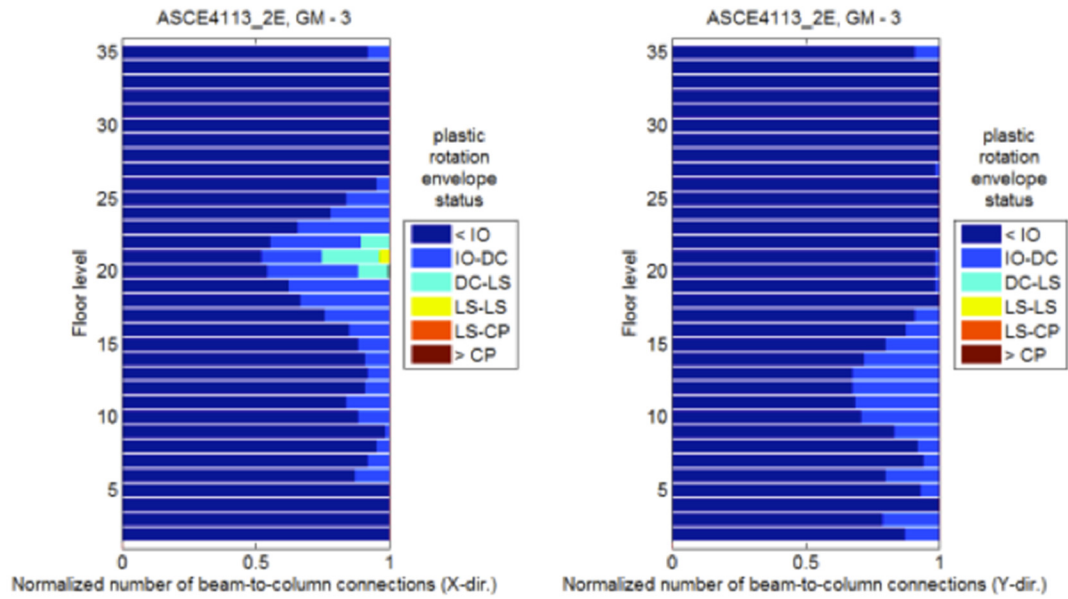


Figure E.23 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 4 of BSE-2E hazard-level ground motions.

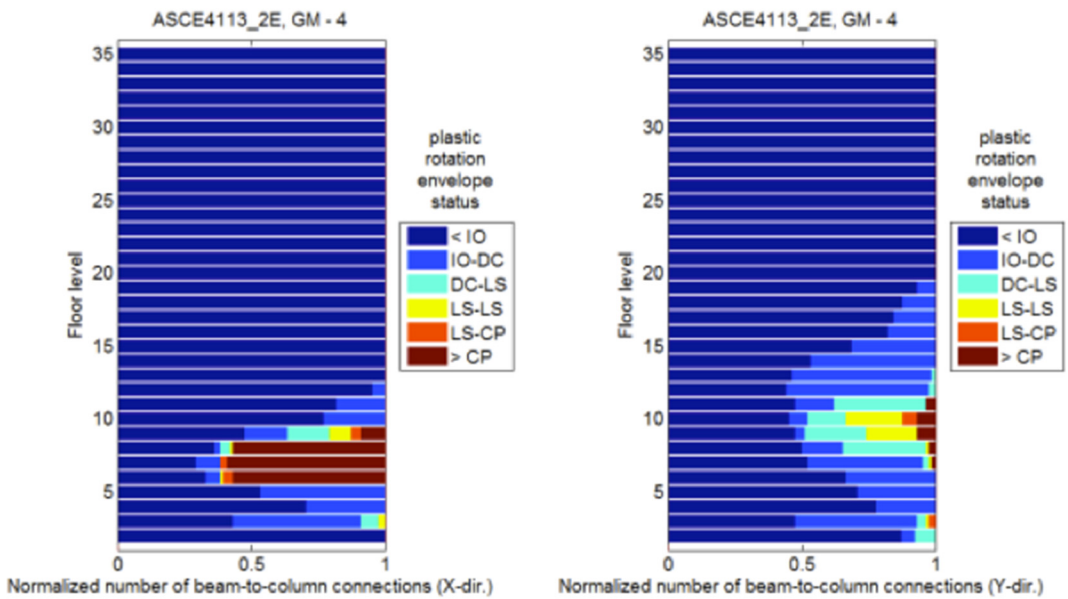


Figure E.24 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 4 of BSE-2E hazard-level ground motions.

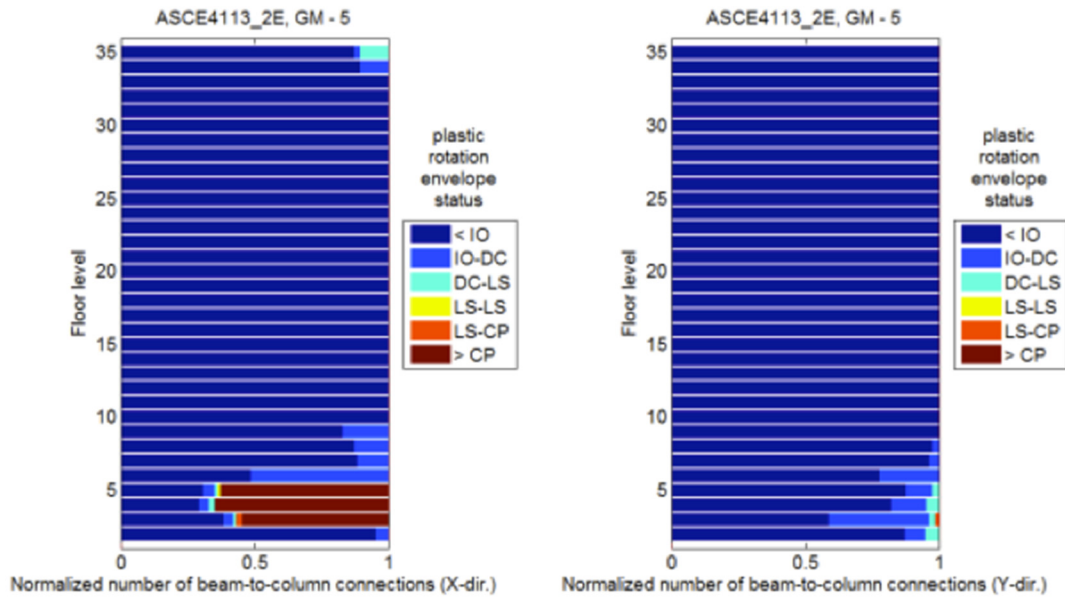


Figure E.25 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 5 of BSE-2E hazard-level ground motions.

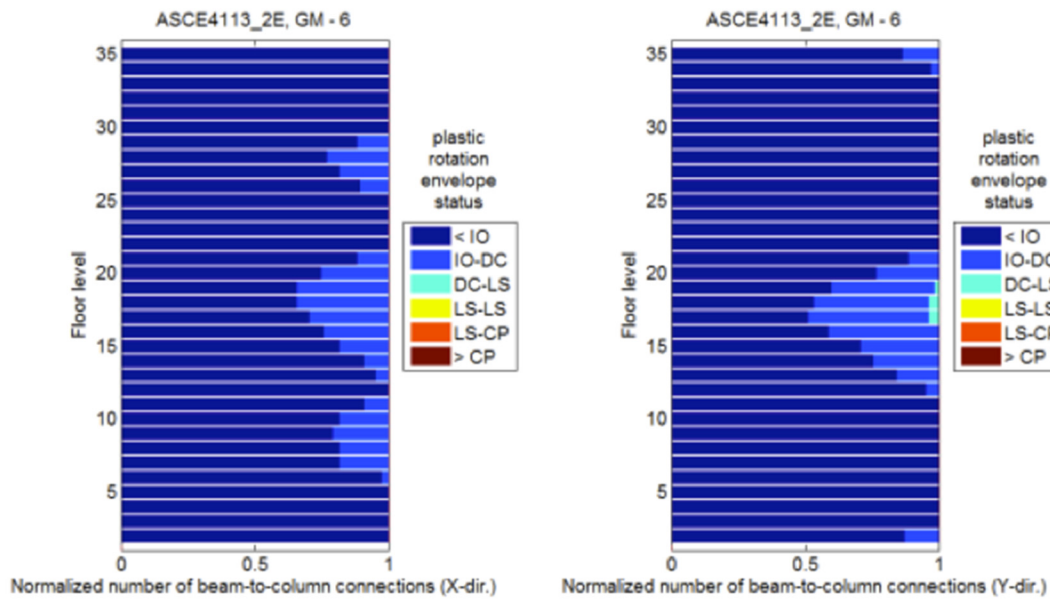


Figure E.26 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 6 of BSE-2E hazard-level ground motions

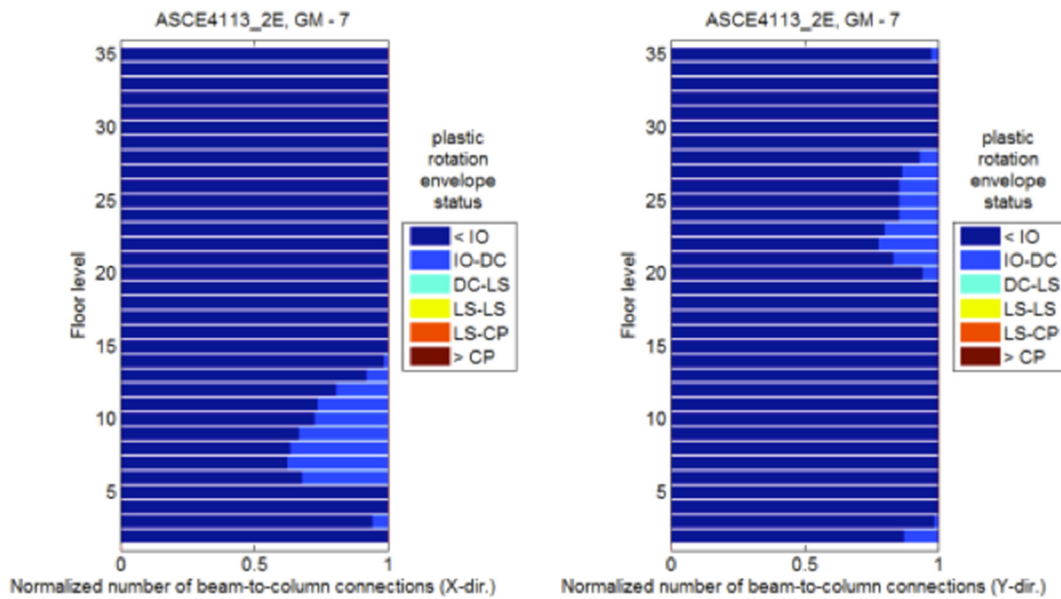


Figure E.27 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 7 of BSE-2E hazard-level ground motions.

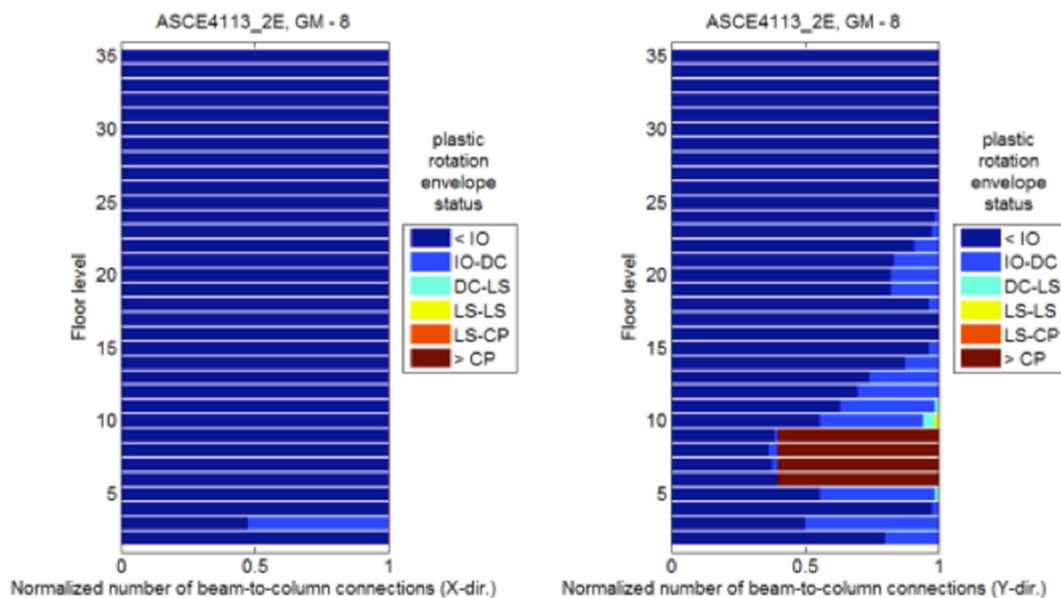


Figure E.28 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 8 of BSE-2E hazard-level ground motions

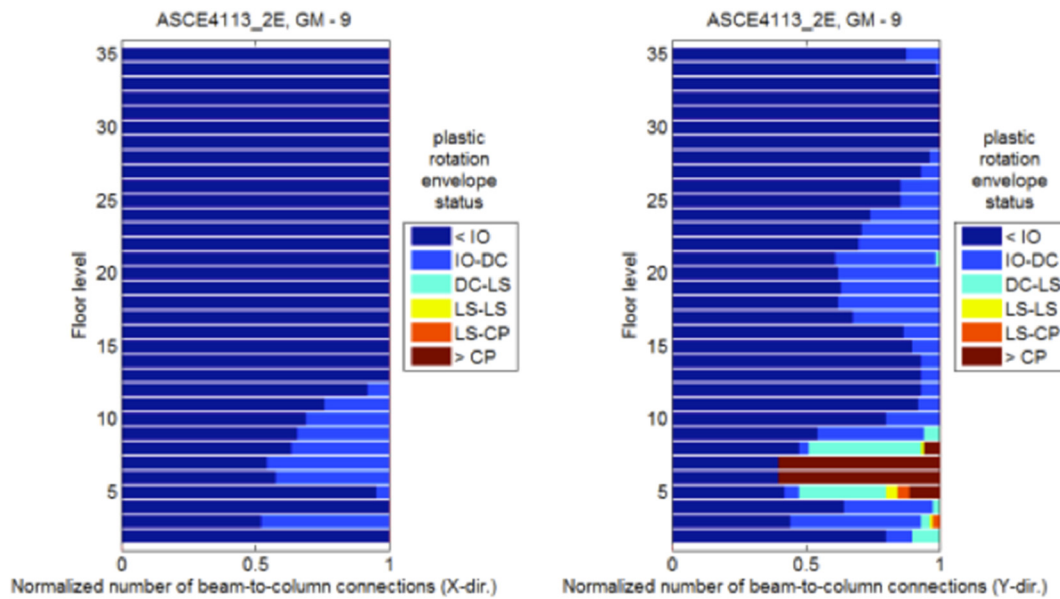


Figure E.29 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 9 of BSE-2E hazard level ground motion.

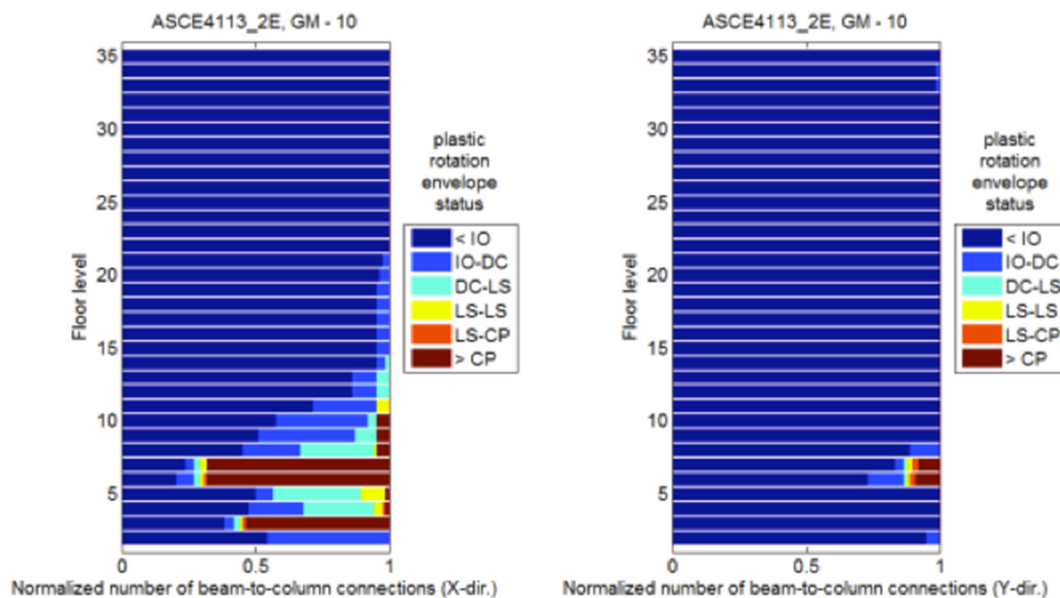


Figure E.30 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 10 of BSE-2E hazard-level ground motions.

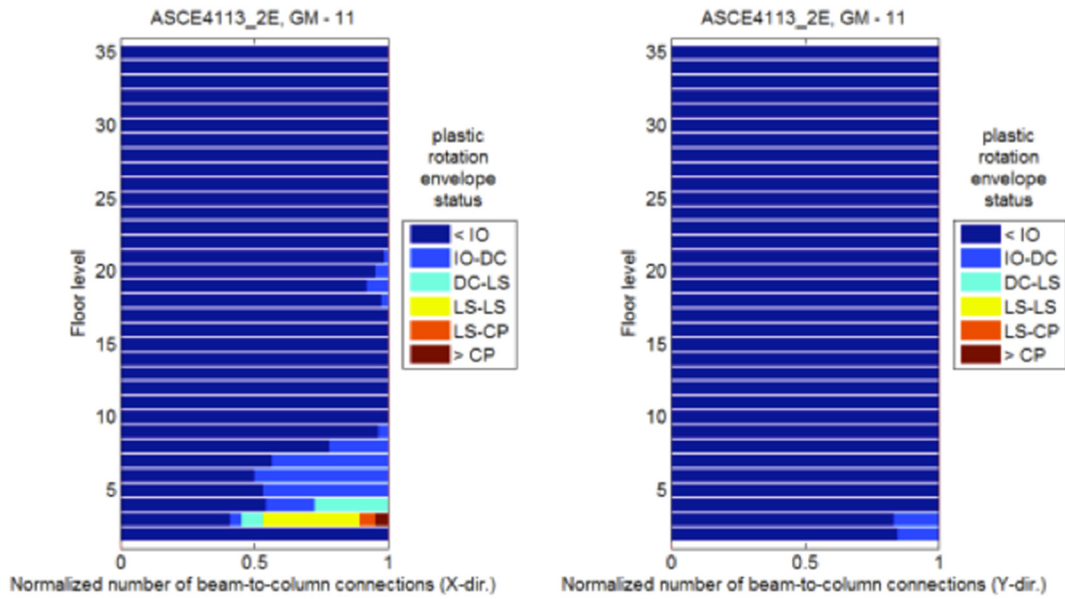


Figure E.31 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 11 of BSE-2E hazard-level ground motions

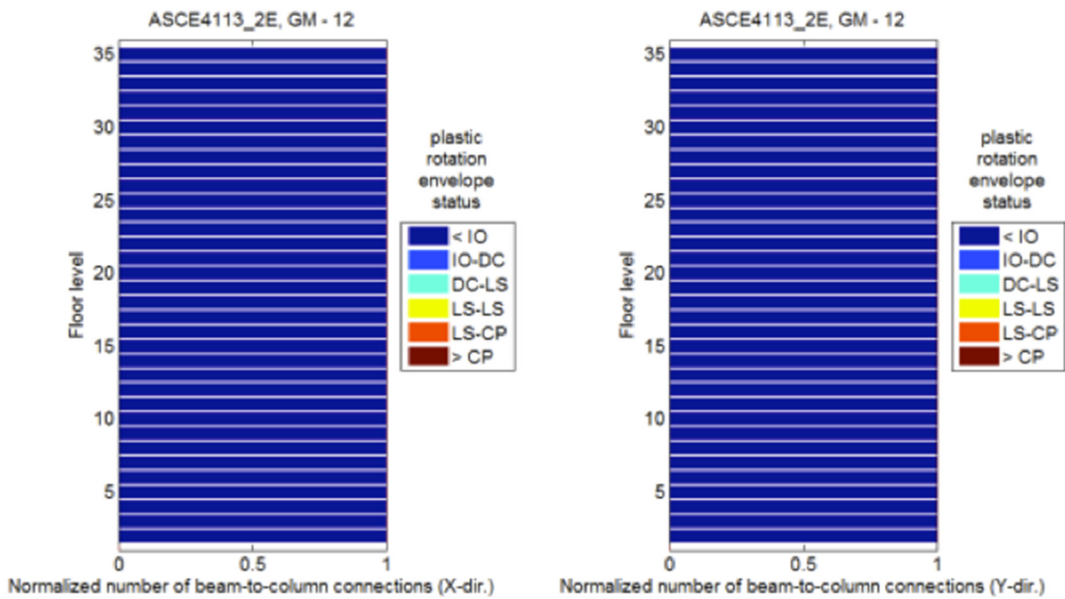
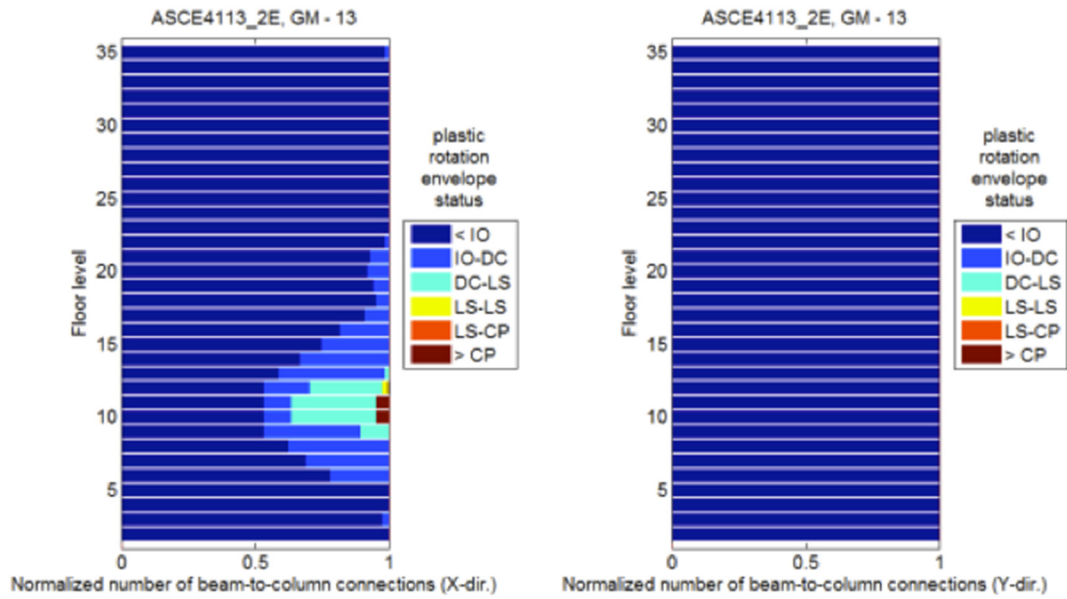
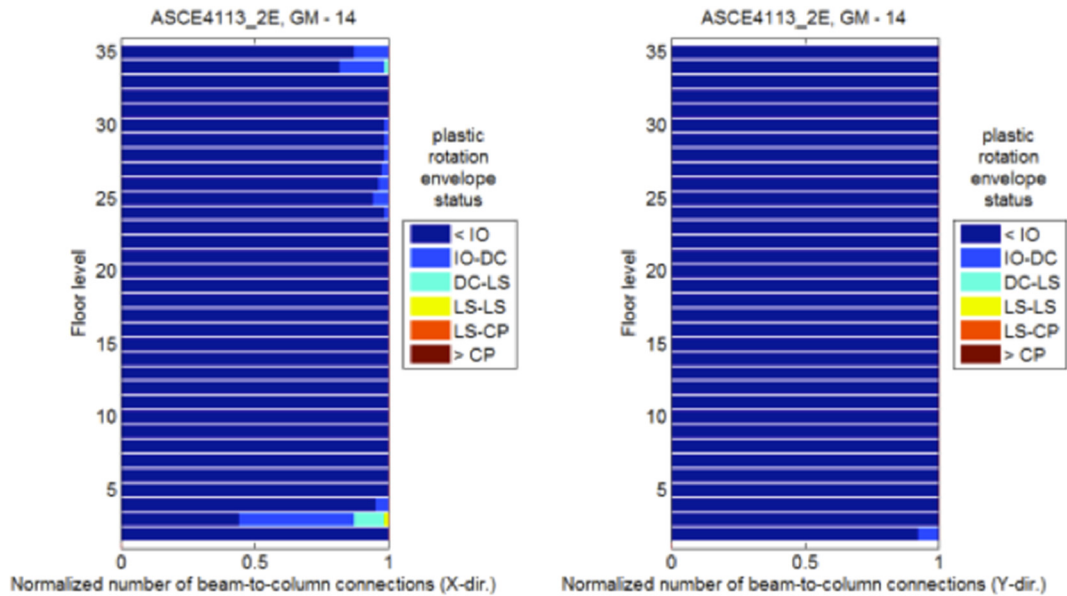


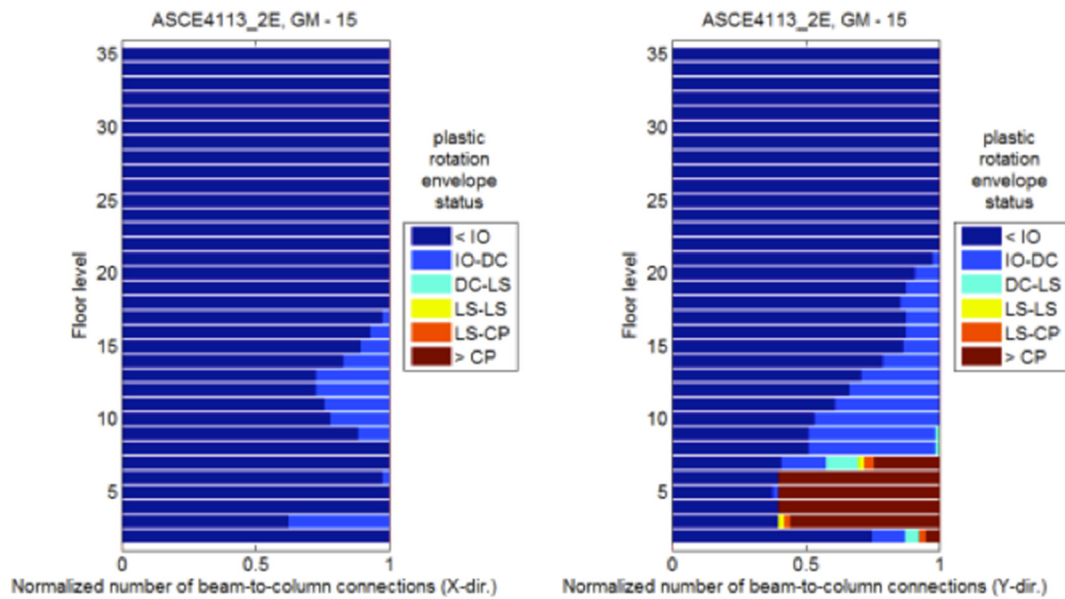
Figure E.32 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 12 of BSE-2E hazard-level ground motions.



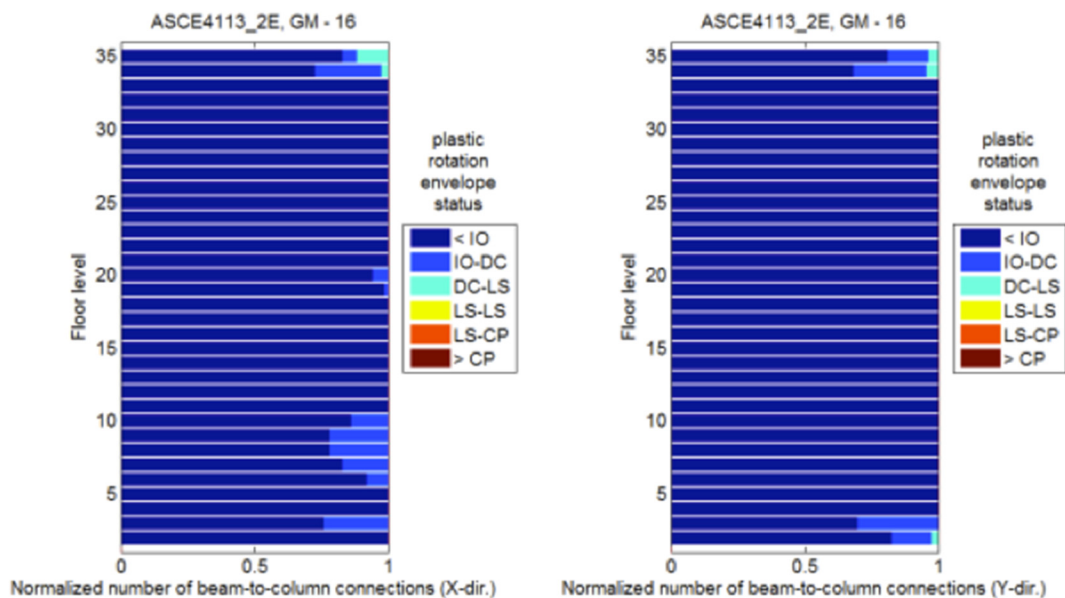
**Figure E.33** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 13 of BSE-2E hazard-level ground motions.



**Figure E.34** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 14 of BSE-2E hazard-level ground motions.



**Figure E.35** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 15 of BSE-2E hazard-level ground motions.



**Figure E.36** Beam end plastic rotation envelope status of Model 1d\* under ground motion number 16 of BSE-2E hazard-level ground motions.



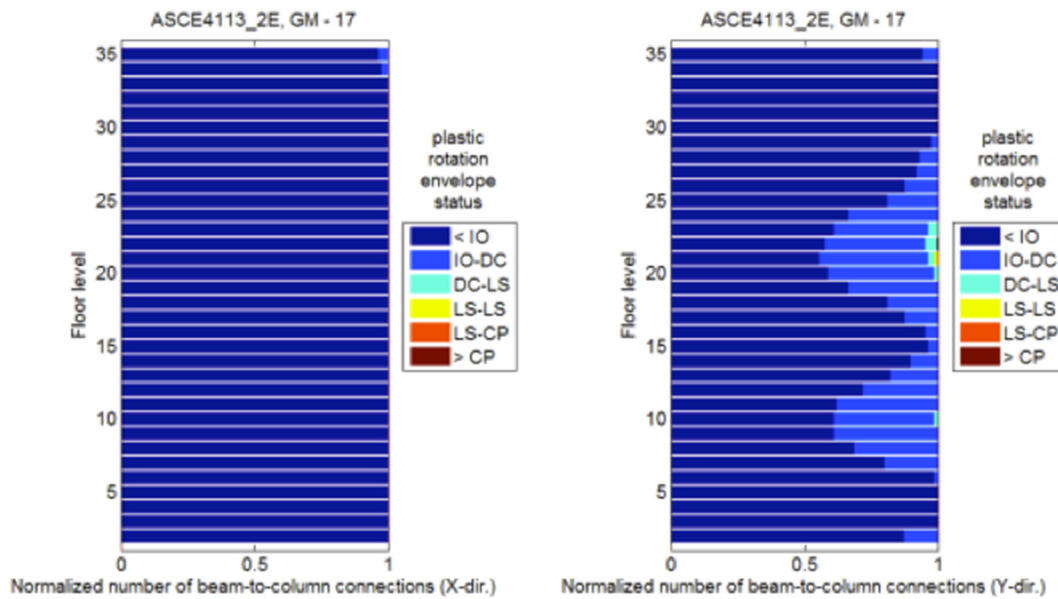


Figure E.37 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 17 of BSE-2E hazard-level ground motions

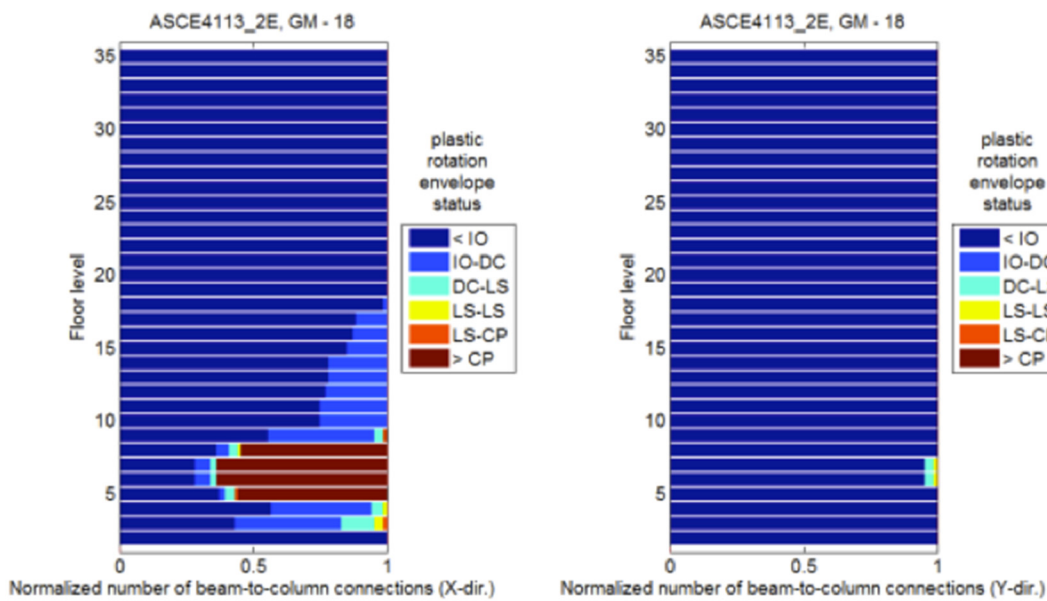


Figure E.38 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 18 of BSE-2E hazard-level ground motions.

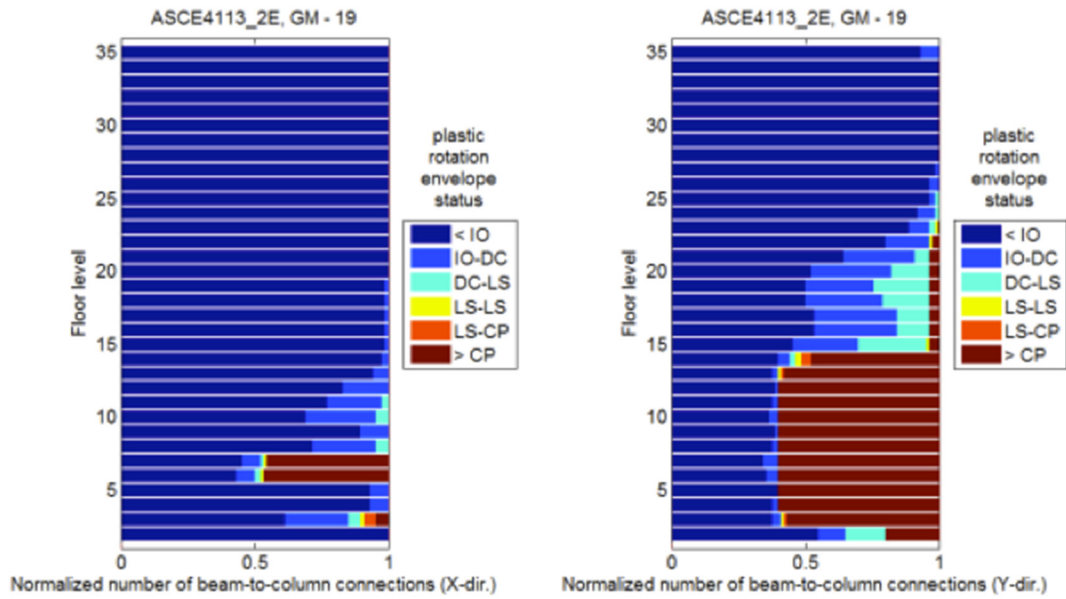


Figure E.39 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 19 of BSE-2E hazard-level ground motions.

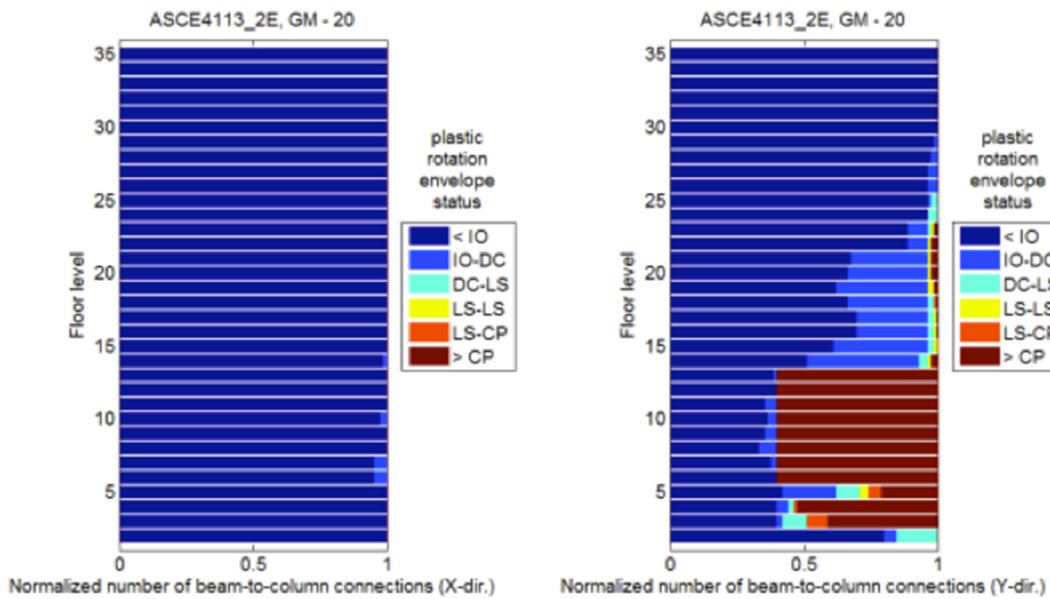


Figure E.40 Beam end plastic rotation envelope status of Model 1d\* under ground motion number 20 of BSE-2E hazard-level ground motions.

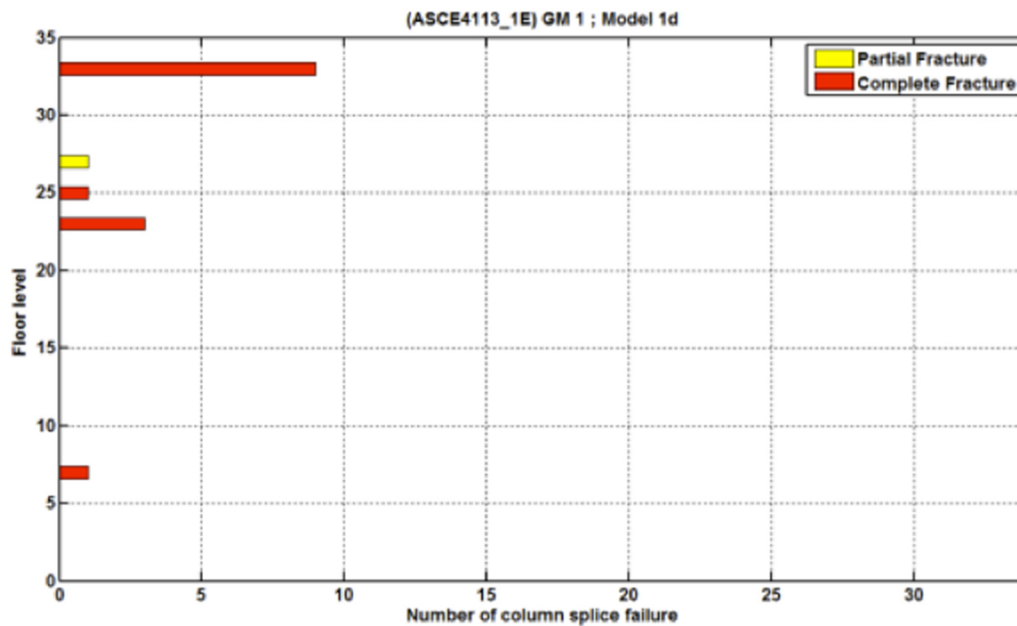


Figure E.41 Number of column splice failure in each floor level of Model 1d\* under ground motion number 1 of BSE-1E hazard-level ground motions.

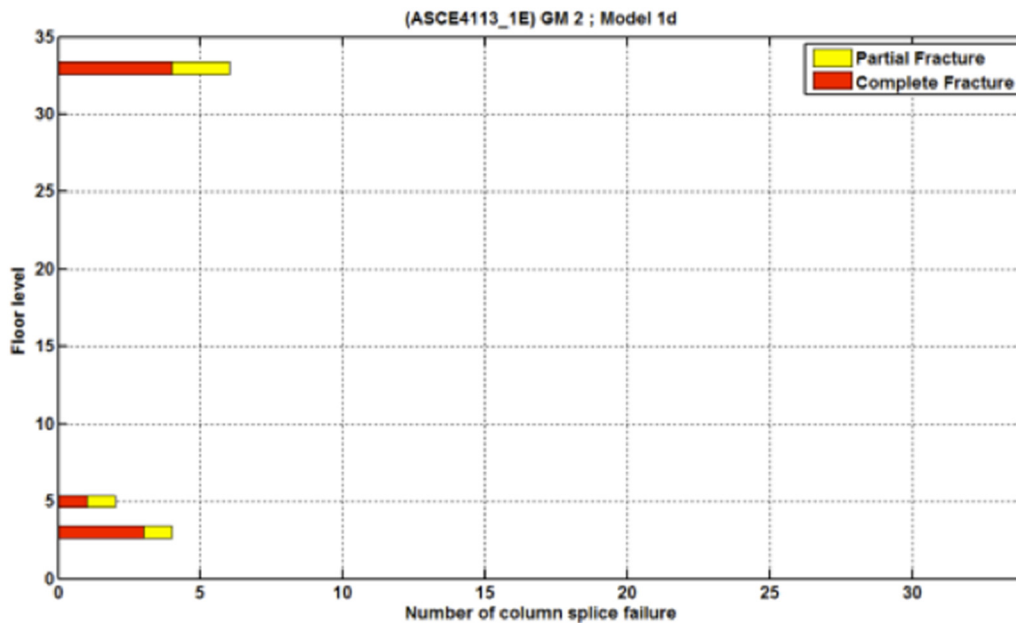


Figure E.42 Number of column splice failure in each floor level of Model 1d\* under ground motion number 2 of BSE-1E hazard-level ground motions.

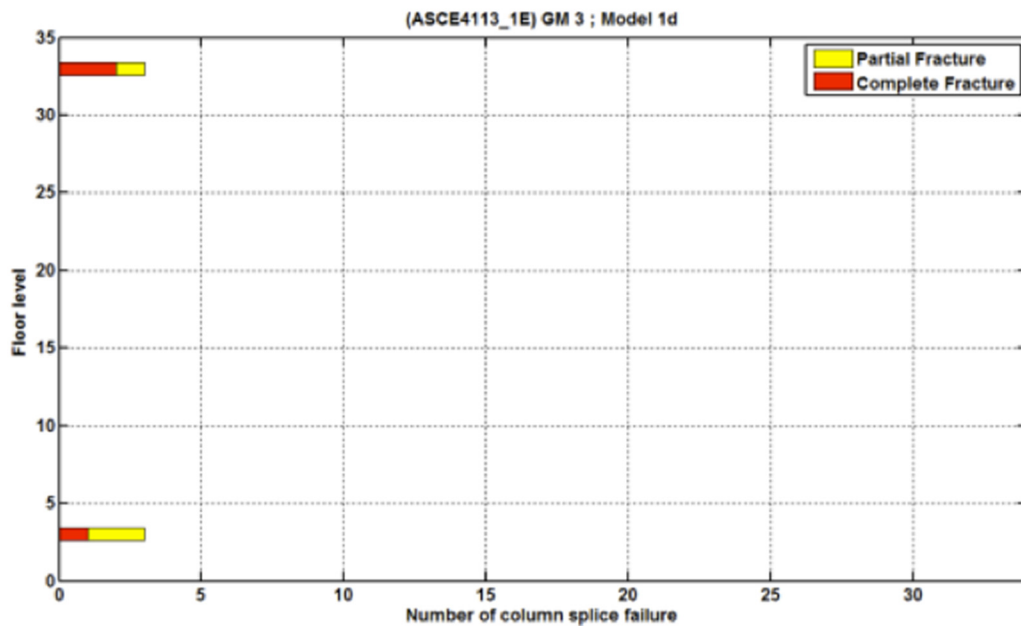


Figure E.43 Number of column splice failure in each floor level of Model 1d\* under ground motion number 3 of BSE-1E hazard-level ground motions.

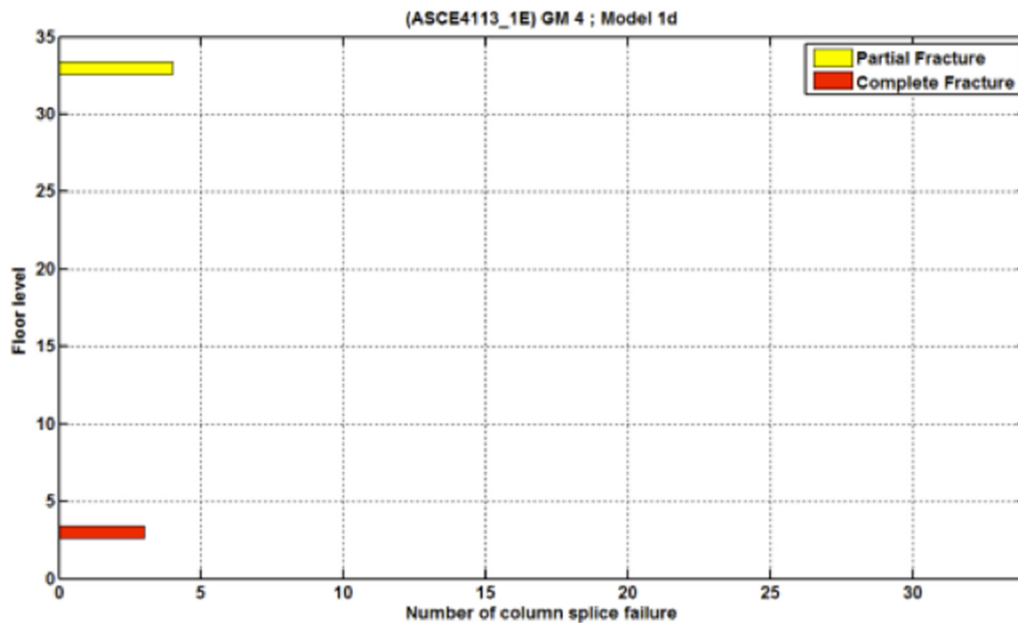


Figure E.44 Number of column splice failure in each floor level of Model 1d\* under ground motion number 4 of BSE-1E hazard-level ground motions.

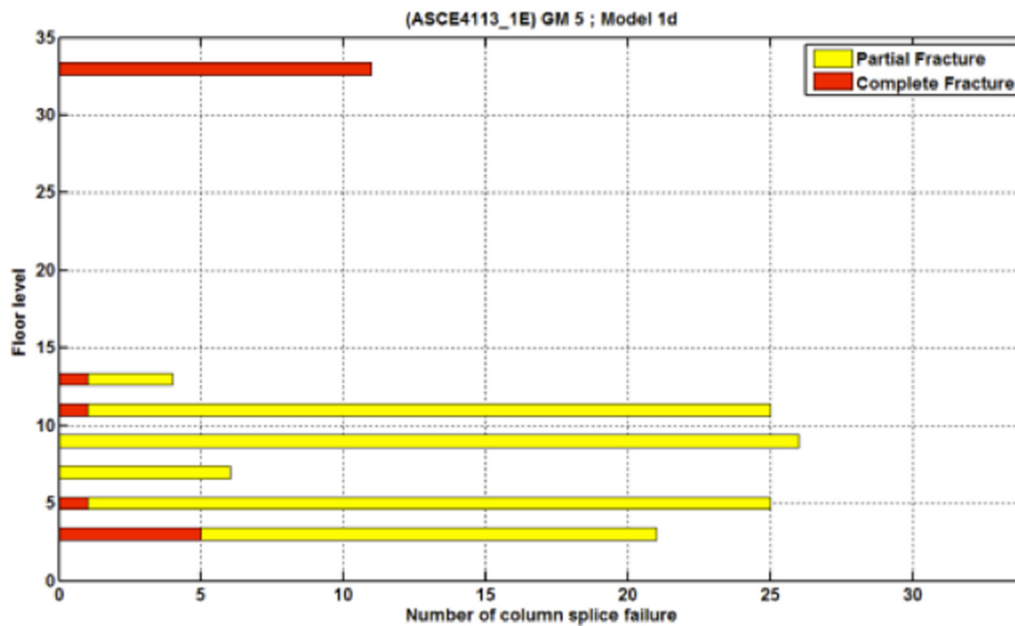


Figure E.45 Number of column splice failure in each floor level of Model 1d\* under ground motion number 5 of BSE-1E hazard-level ground motions.

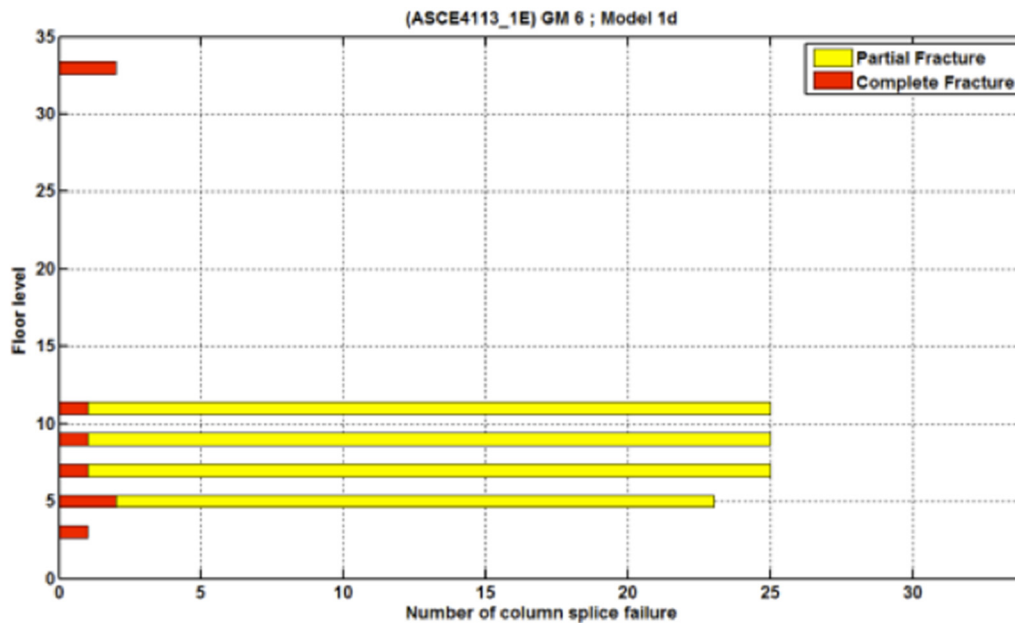


Figure E.46 Number of column splice failure in each floor level of Model 1d\* under ground motion number 6 of BSE-1E hazard-level ground motions.

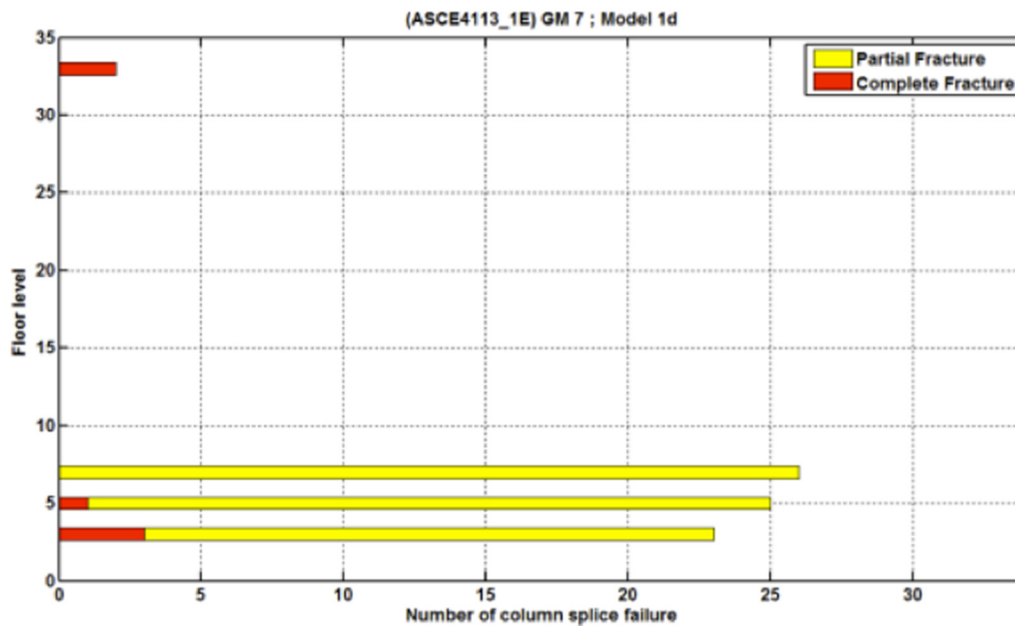


Figure E.47 Number of column splice failure in each floor level of Model 1d\* under ground motion number 7 of BSE-1E hazard-level ground motions.

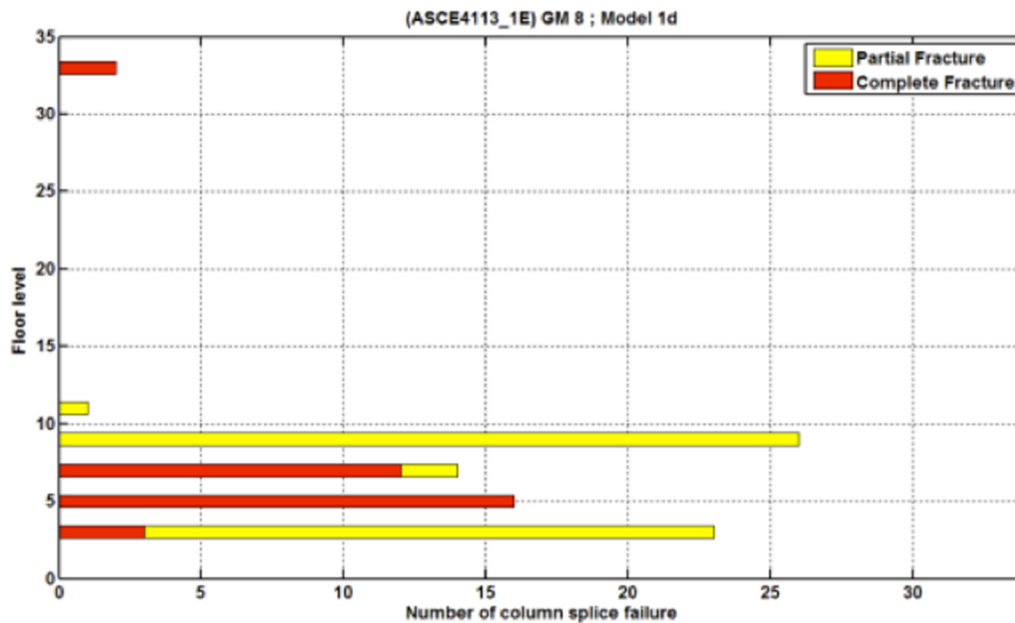


Figure E.48 Number of column splice failure in each floor level of Model 1d\* under ground motion number 8 of BSE-1E hazard-level ground motions.

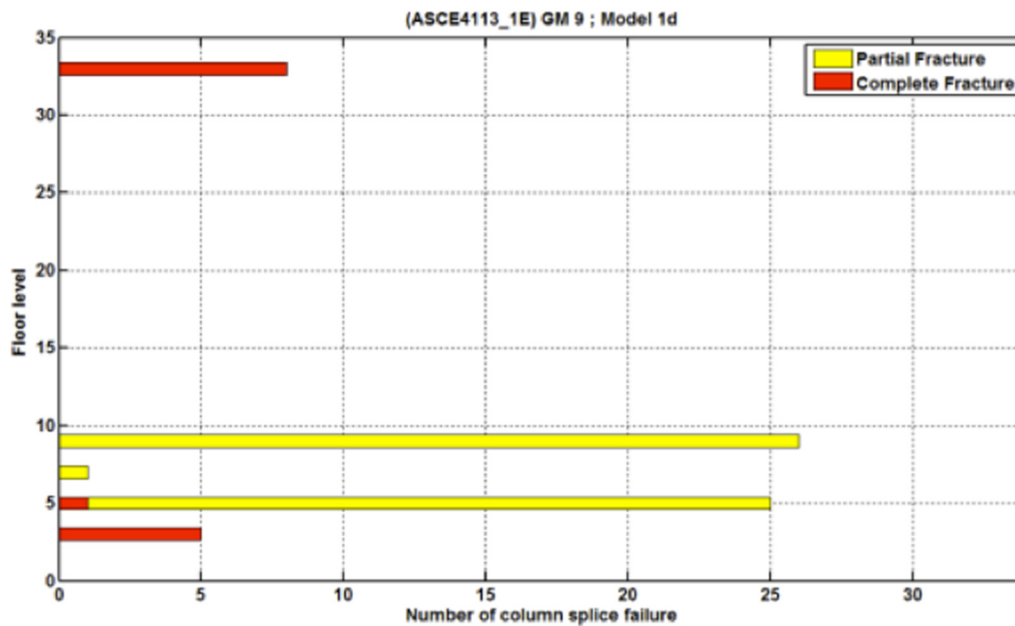


Figure E.49 Number of column splice failure in each floor level of Model 1d\* under ground motion number 9 of BSE-1E hazard-level ground motions.

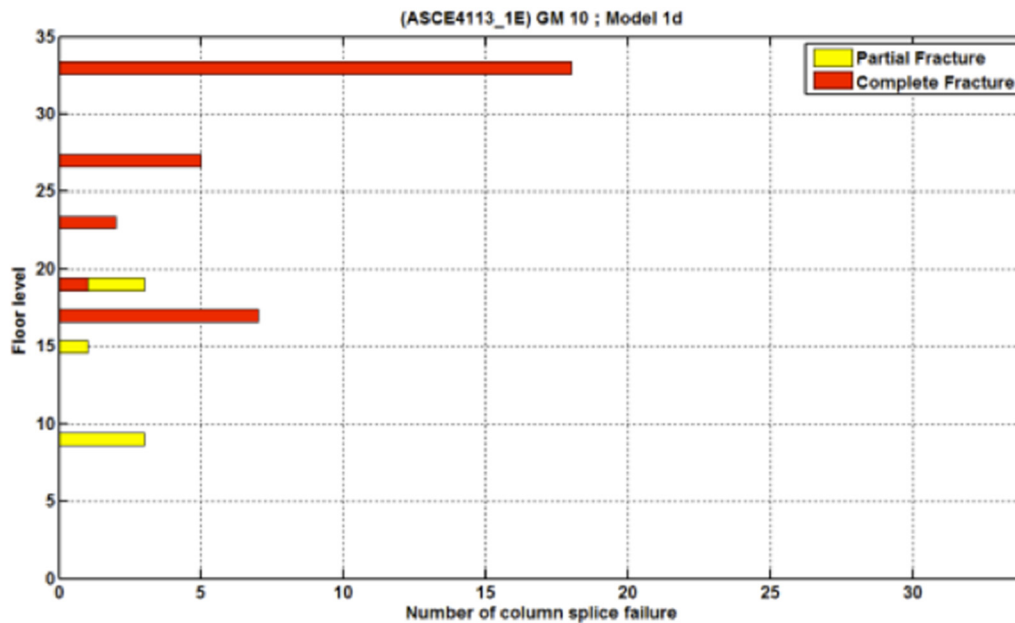


Figure E.50 Number of column splice failure in each floor level of Model 1d\* under ground motion number 10 of BSE-1E hazard-level ground motions.

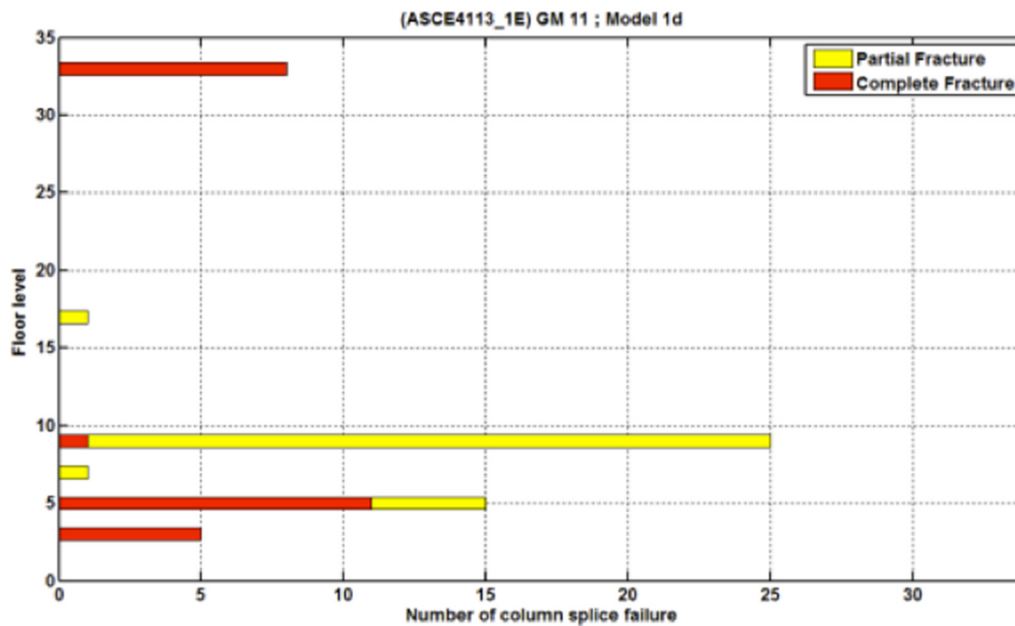


Figure E.51 Number of column splice failure in each floor level of Model 1d\* under ground motion number 11 of BSE-1E hazard-level ground motions.

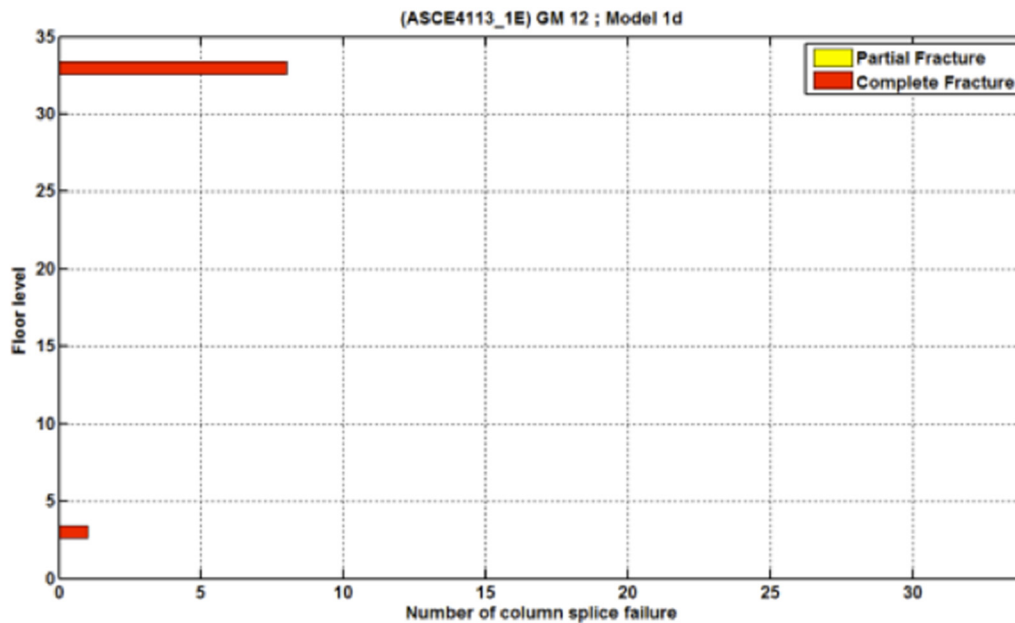


Figure E.52 Number of column splice failure in each floor level of Model 1d\* under ground motion number 12 of BSE-1E hazard-level ground motions.



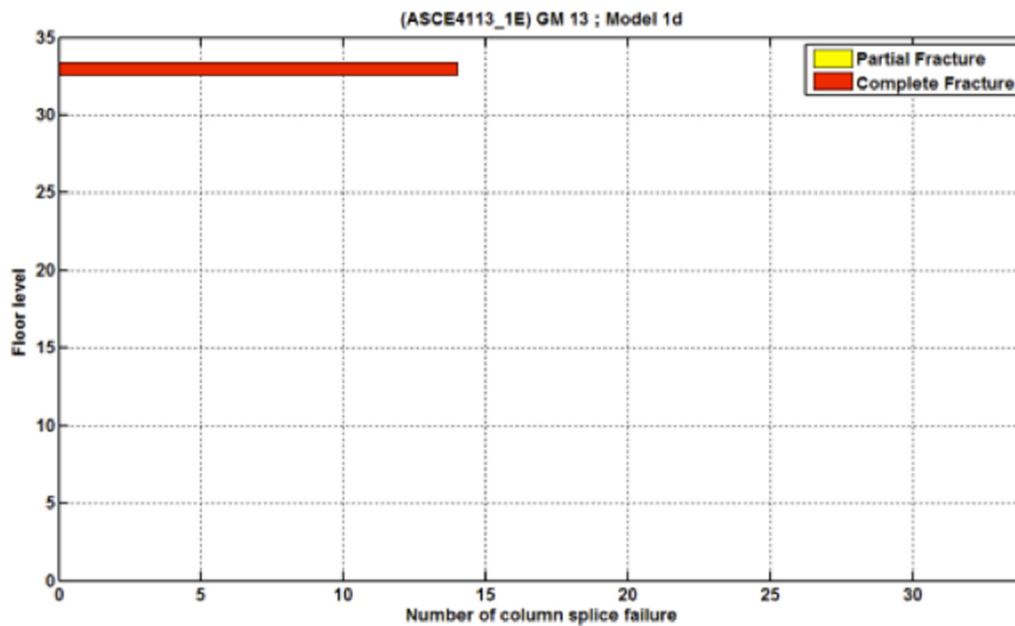


Figure E.53 Number of column splice failure in each floor level of Model 1d\* under ground motion number 13 of BSE-1E hazard-level ground motions.

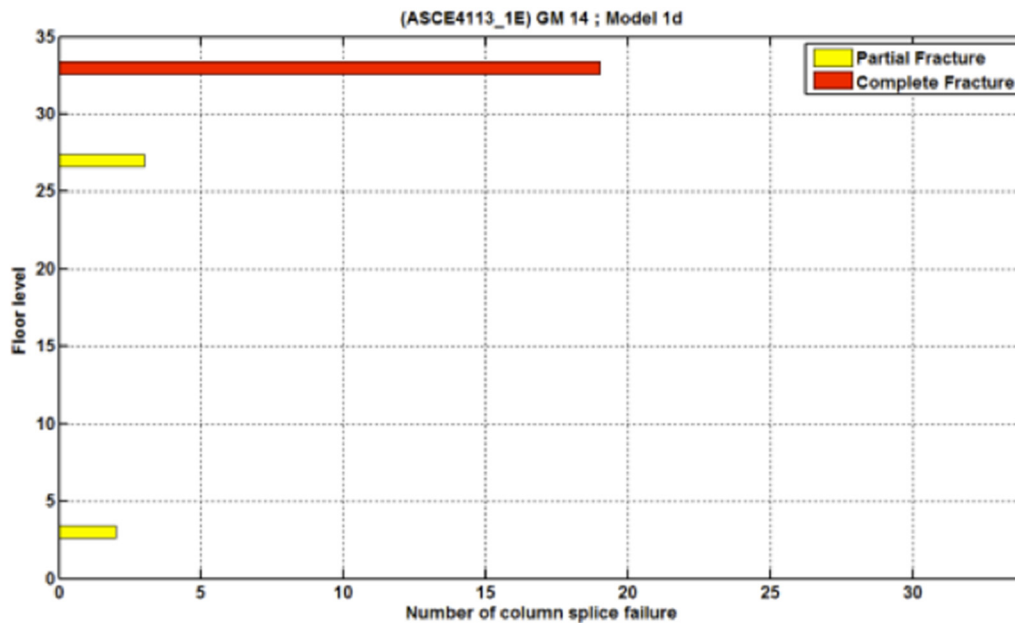


Figure E.54 Number of column splice failure in each floor level of Model 1d\* under ground motion number 14 of BSE-1E hazard-level ground motions.

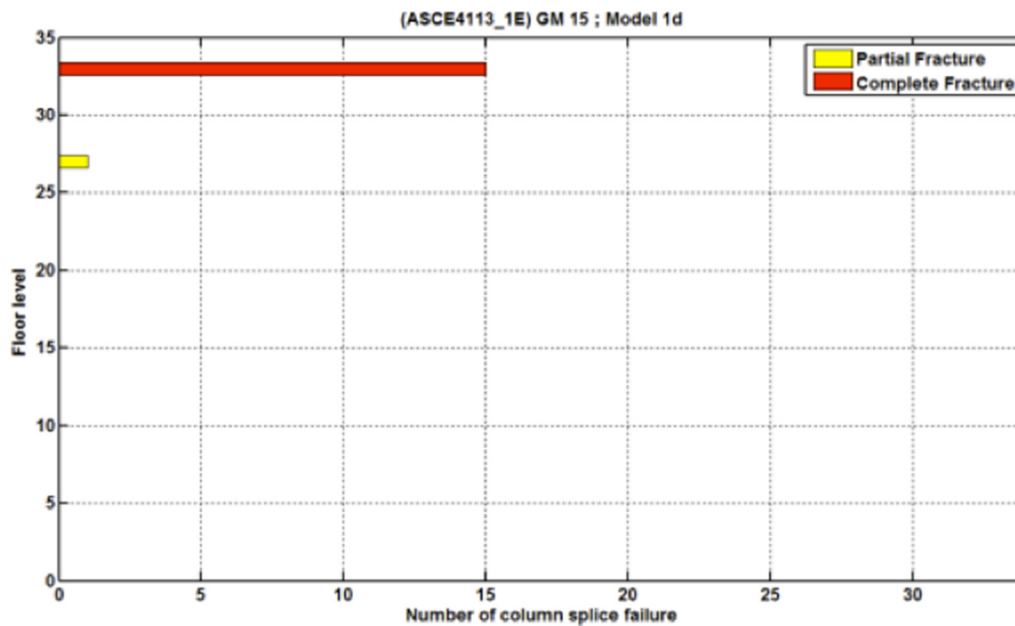


Figure E.55 Number of column splice failure in each floor level of Model 1d\* under ground motion number 15 of BSE-1E hazard-level ground motions.

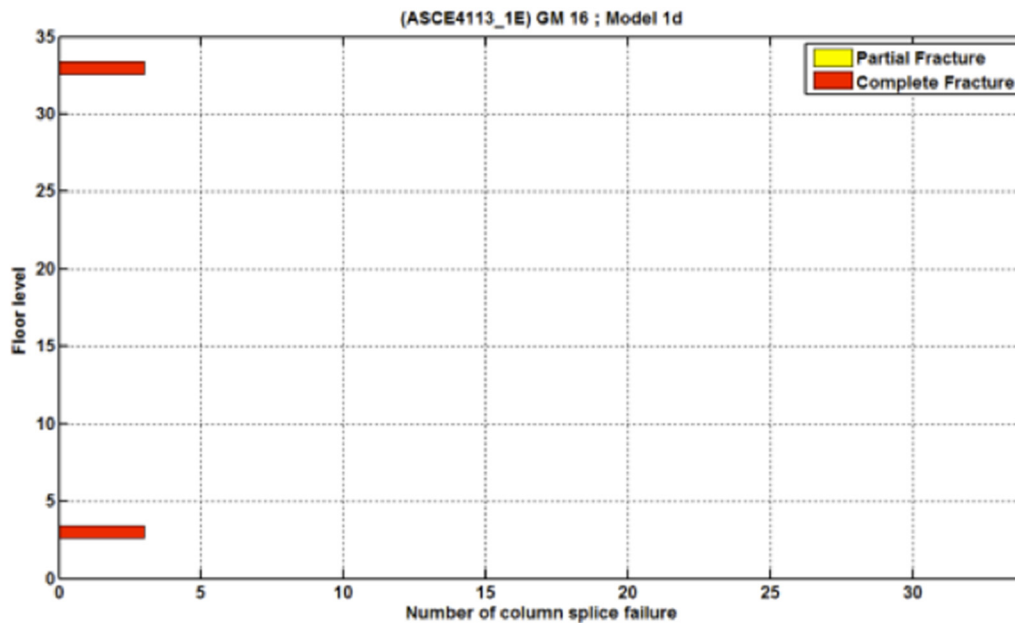


Figure E.56 Number of column splice failure in each floor level of Model 1d\* under ground motion number 16 of BSE-1E hazard-level ground motions.

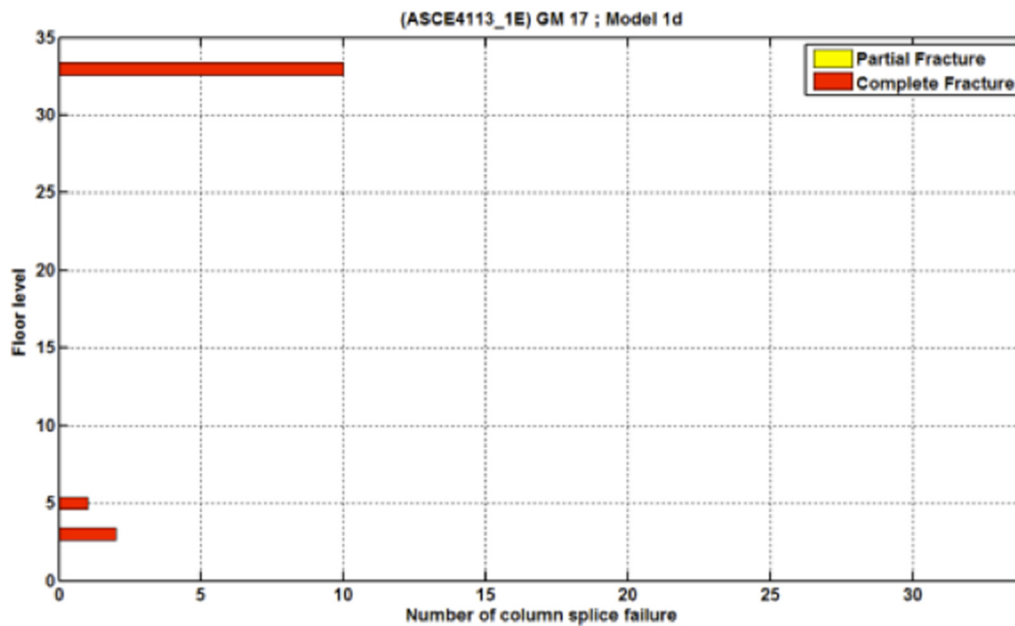


Figure E.57 Number of column splice failure in each floor level of Model 1d\* under ground motion number 17 of BSE-1E hazard-level ground motions.

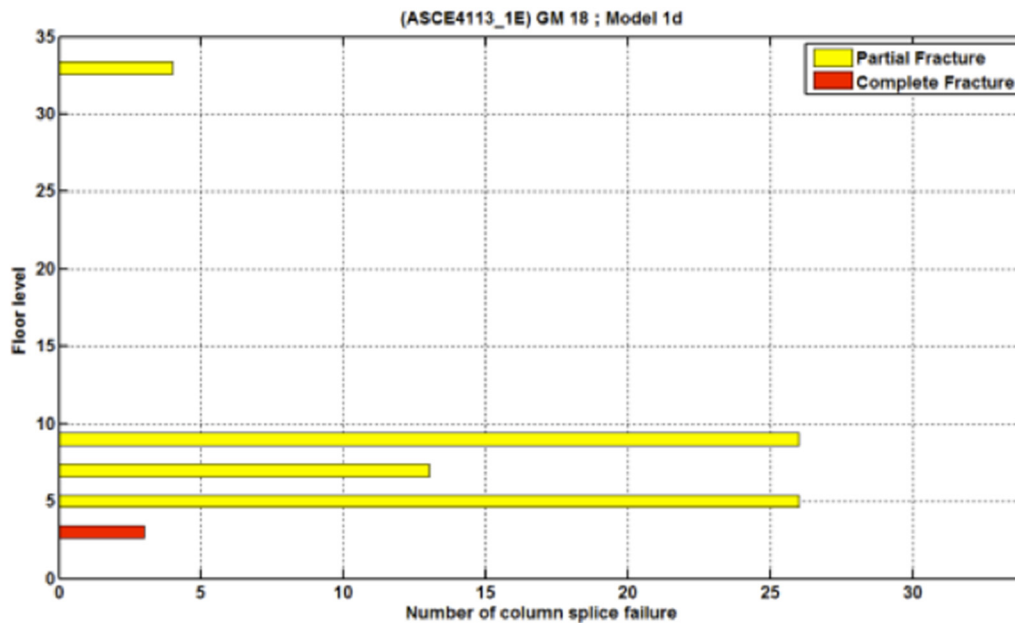


Figure E.58 Number of column splice failure in each floor level of Model 1d\* under ground motion number 18 of BSE-1E hazard-level ground motions.

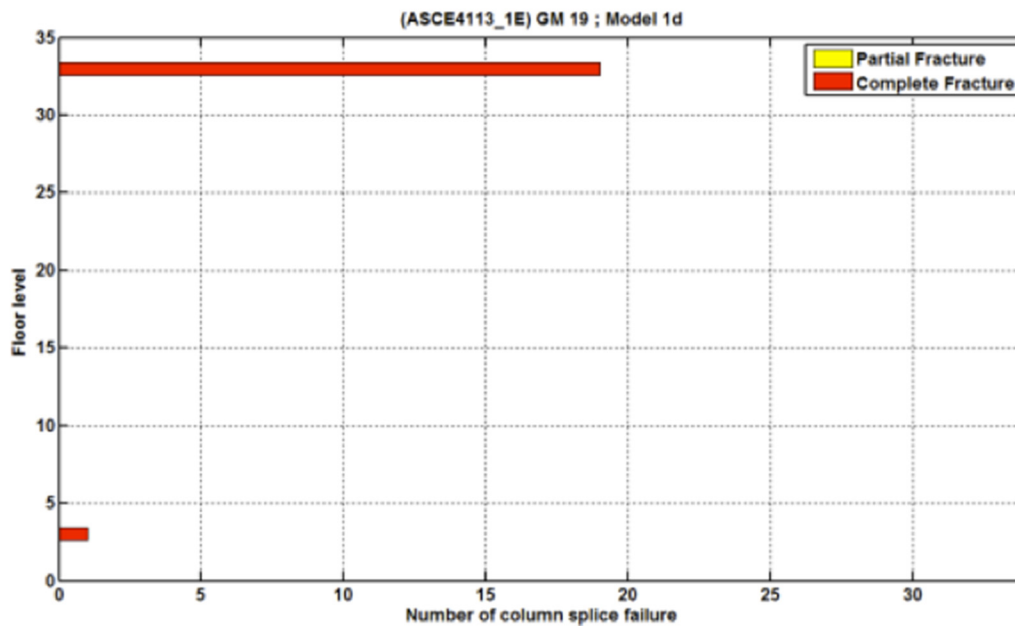


Figure E.59 Number of column splice failure in each floor level of Model 1d\* under ground motion number 19 of BSE-1E hazard-level ground motions.

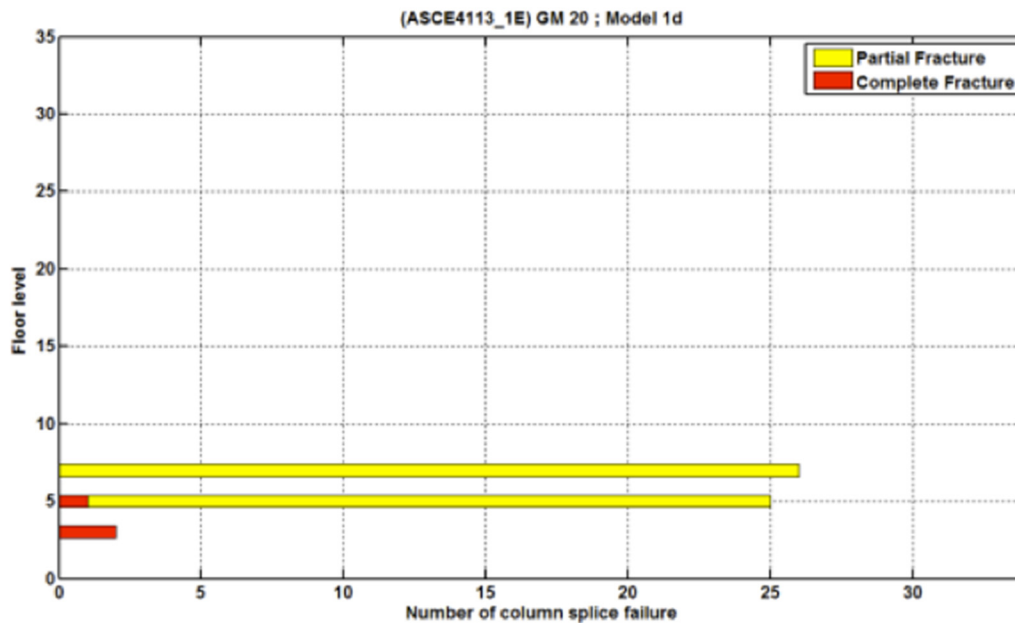


Figure E.60 Number of column splice failure in each floor level of Model 1d\* under ground motion number 20 of BSE-1E hazard-level ground motions.

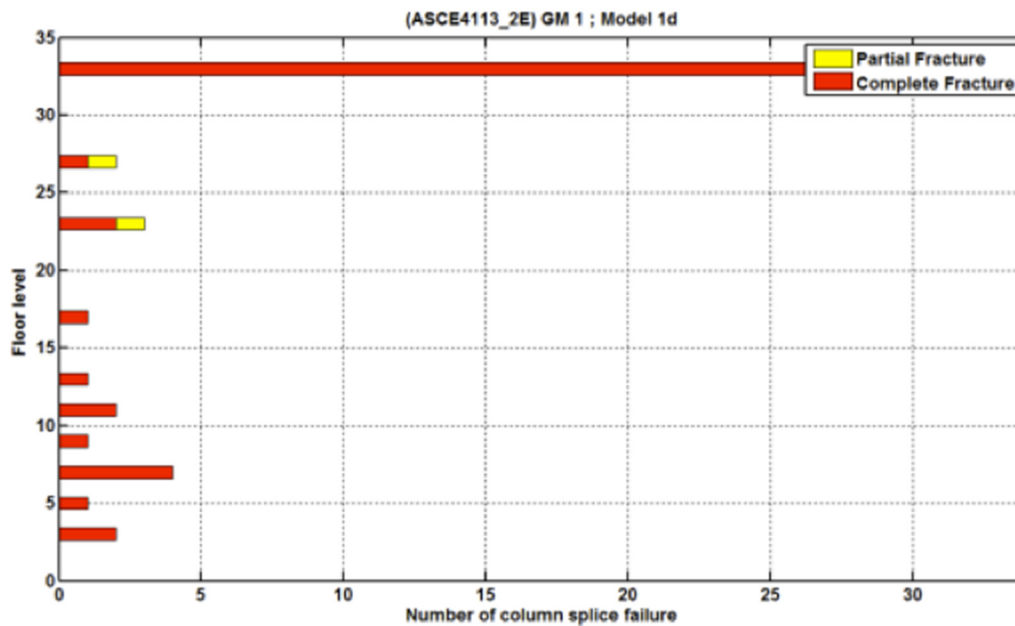


Figure E.61 Number of column splice failure in each floor level of Model 1d\* under ground motion number 1 of BSE-2E hazard-level ground motions.

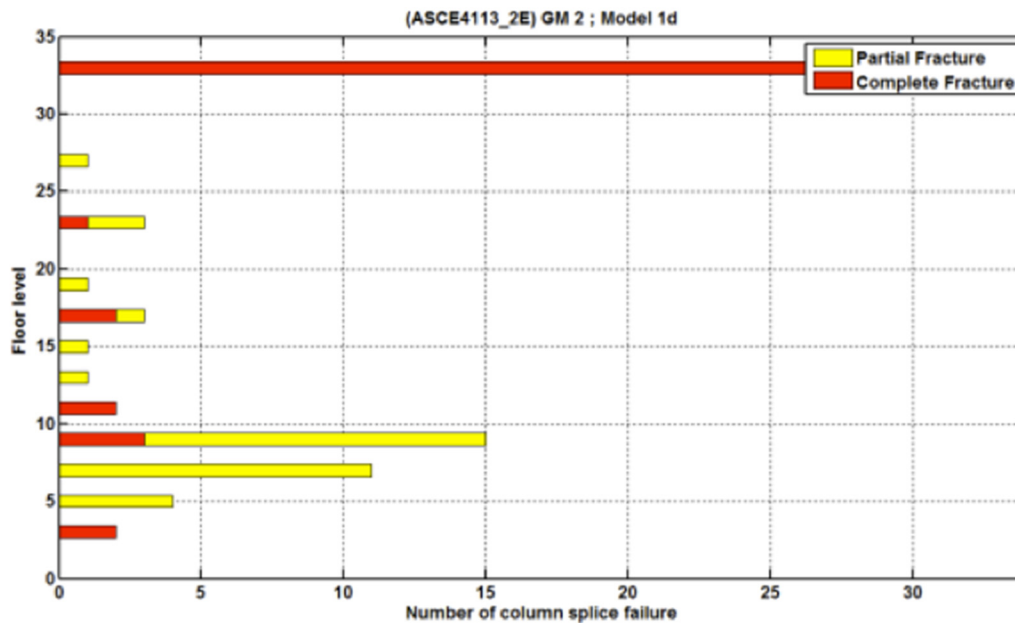


Figure E.62 Number of column splice failure in each floor level of Model 1d\* under ground motion number 2 of BSE-2E hazard-level ground motions.

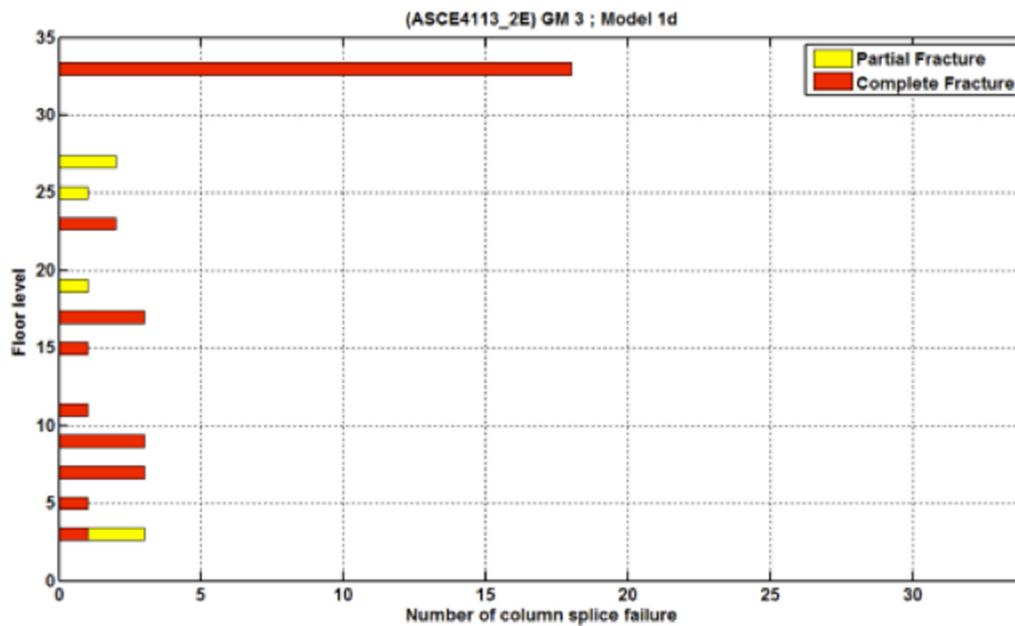


Figure E.63 Number of column splice failure in each floor level of Model 1d\* under ground motion number 3 of BSE-2E hazard-level ground motions.

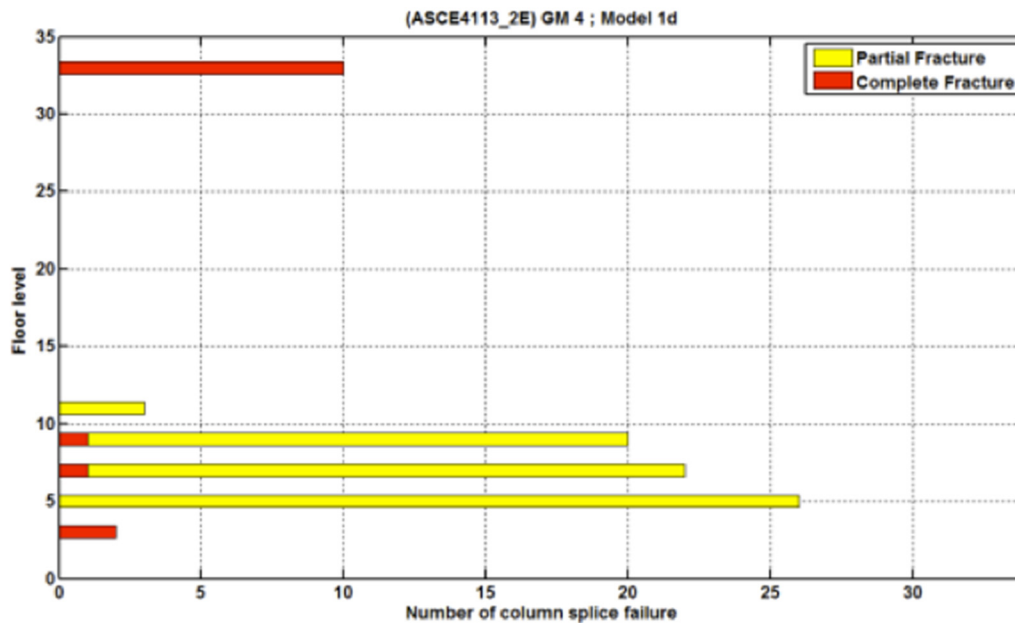


Figure E.64 Number of column splice failure in each floor level of Model 1d\* under ground motion number 4 of BSE-2E hazard-level ground motions.

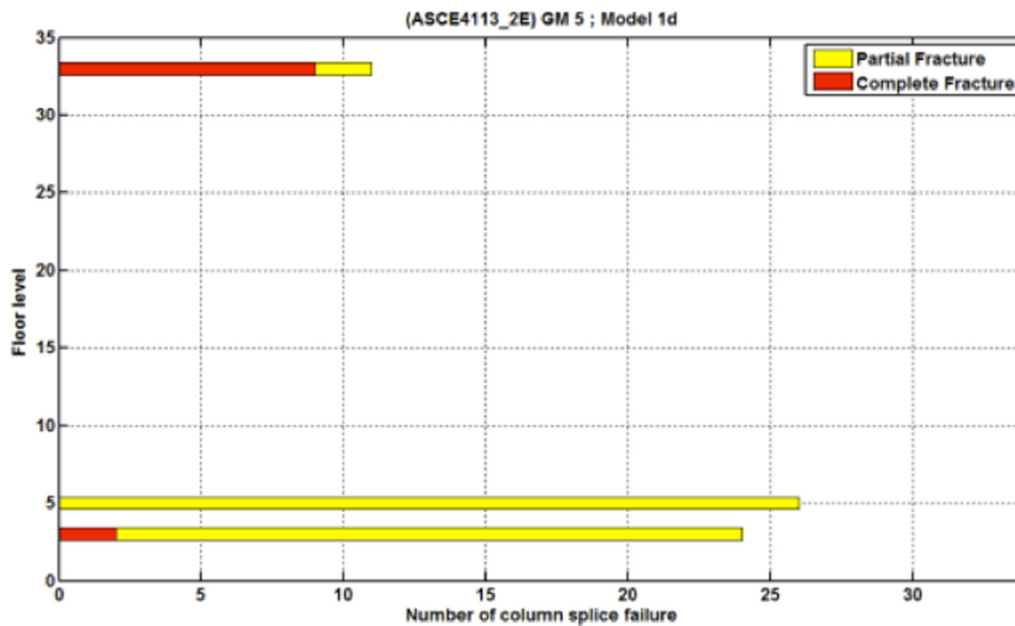


Figure E.65 Number of column splice failure in each floor level of Model 1d\* under ground motion number 5 of BSE-2E hazard-level ground motions.

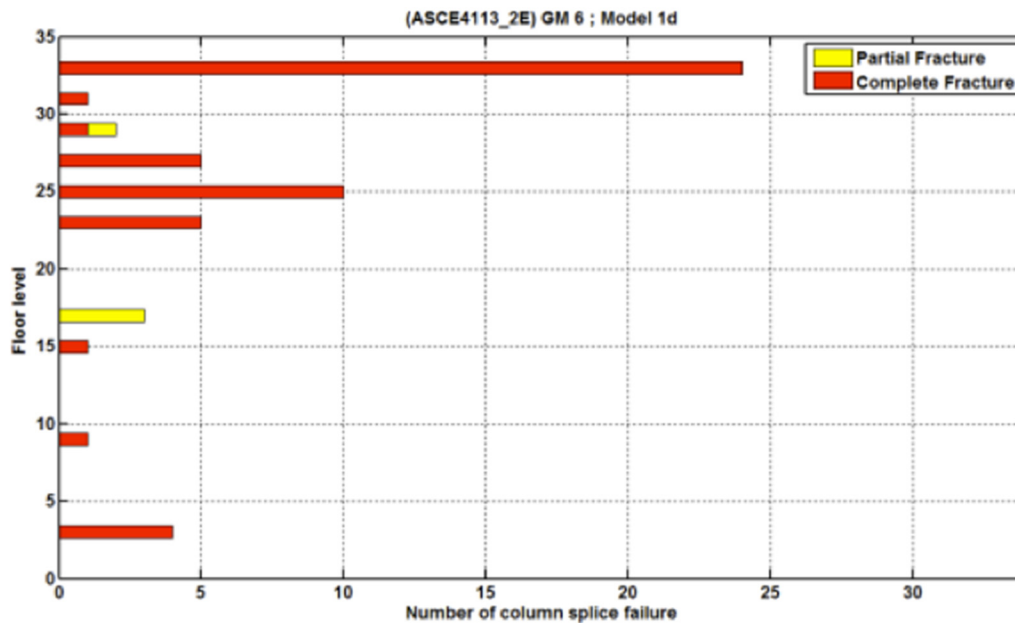


Figure E.66 Number of column splice failure in each floor level of Model 1d\* under ground motion number 6 of BSE-2E hazard-level ground motions.

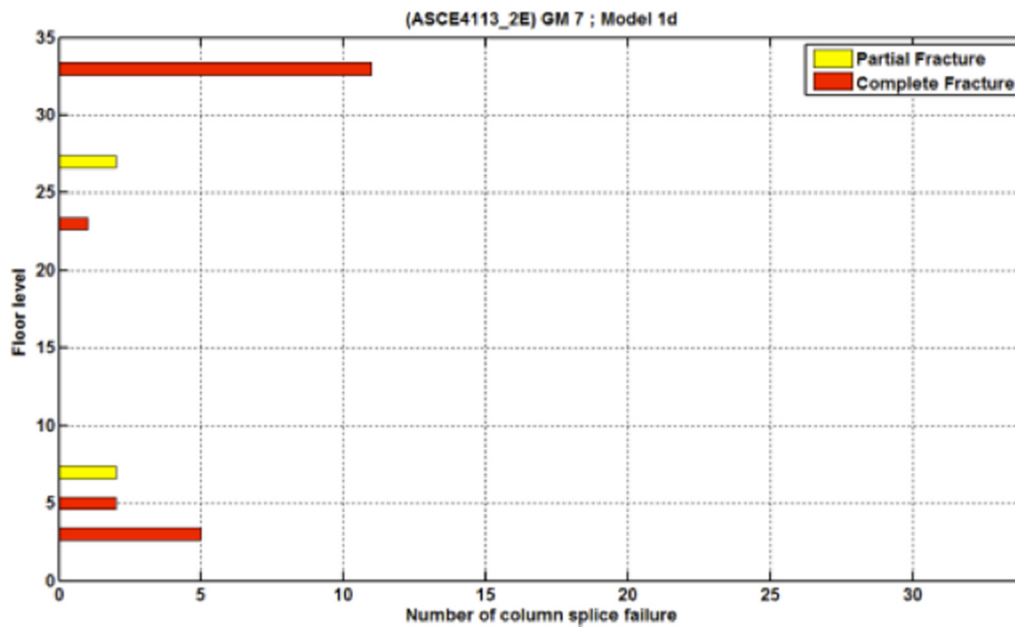


Figure E.67 Number of column splice failure in each floor level of Model 1d\* under ground motion number 7 of BSE-2E hazard-level ground motions.

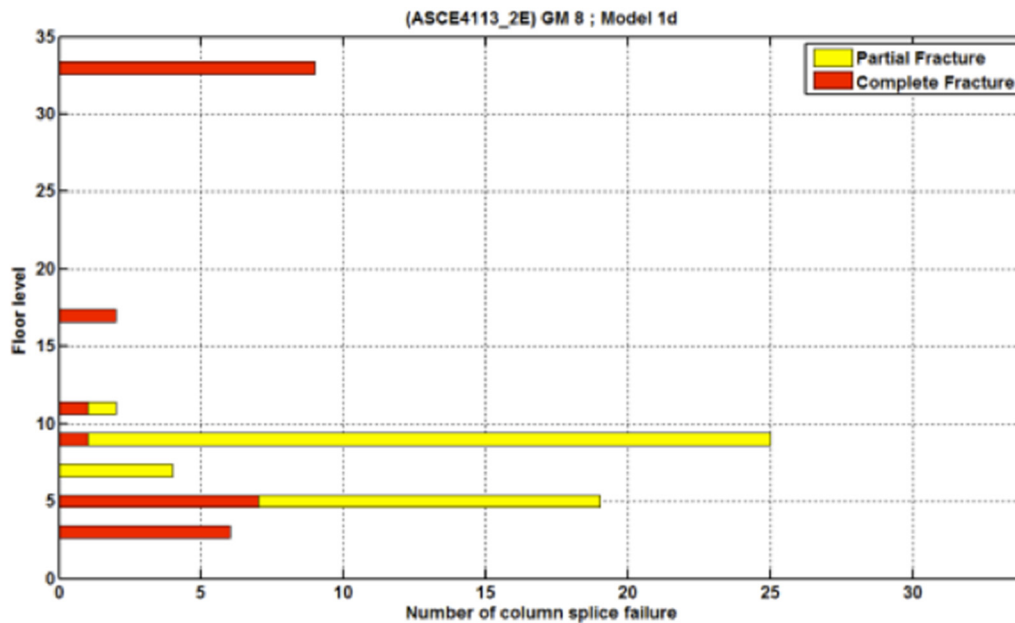


Figure E.68 Number of column splice failure in each floor level of Model 1d\* under ground motion number 8 of BSE-2E hazard-level ground motions.



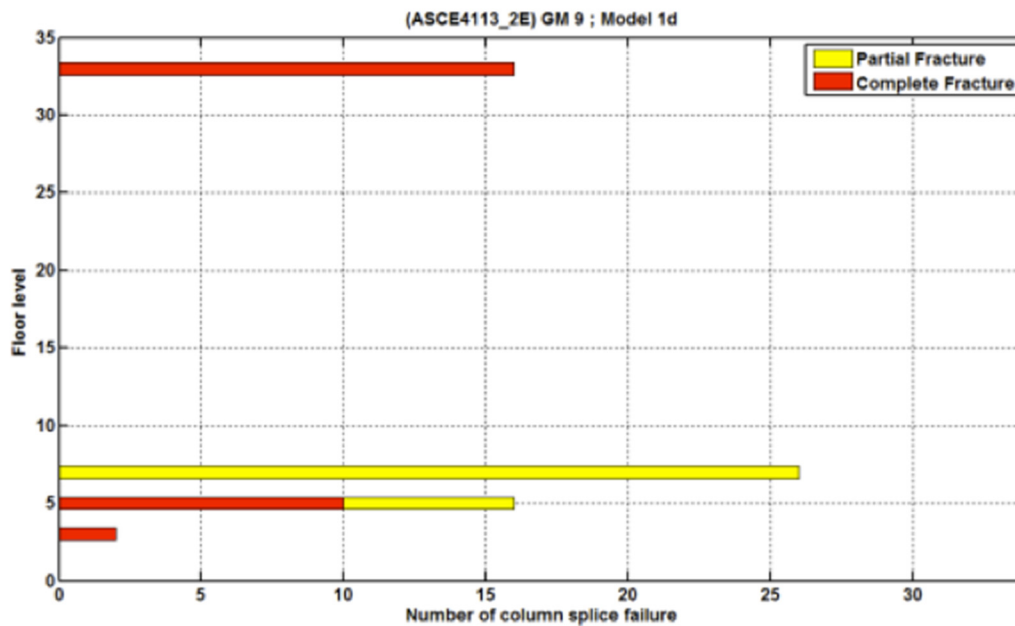


Figure E.69 Number of column splice failure in each floor level of Model 1d\* under ground motion number 9 of BSE-2E hazard-level ground motions.

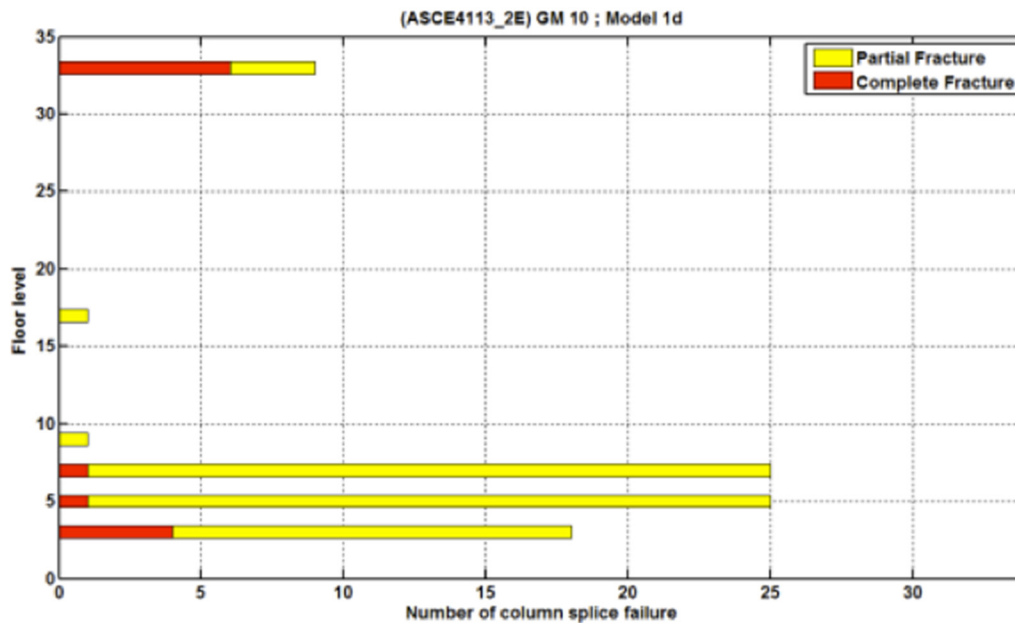


Figure E.70 Number of column splice failure in each floor level of Model 1d\* under ground motion number 10 of BSE-2E hazard-level ground motions.

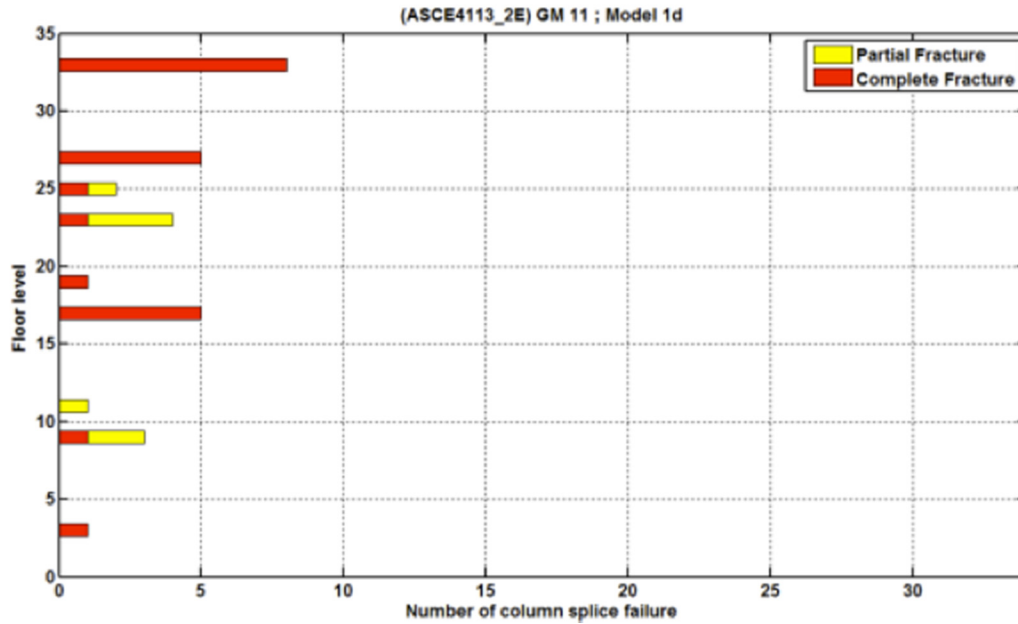


Figure E.71 Number of column splice failure in each floor level of Model 1d\* under ground motion number 11 of BSE-2E hazard-level ground motions.

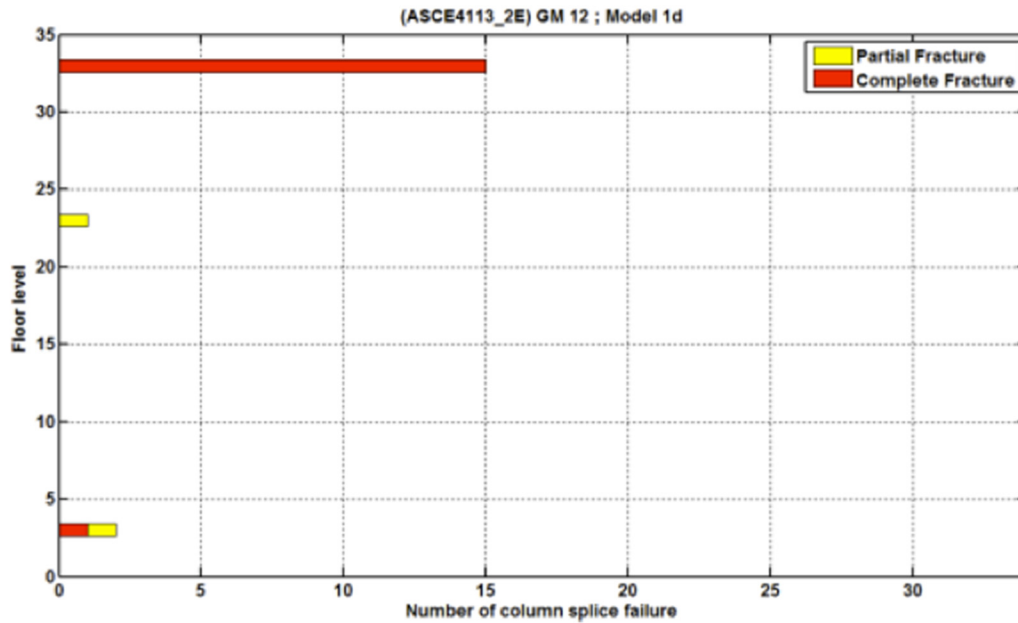


Figure E.72 Number of column splice failure in each floor level of Model 1d\* under ground motion number 12 of BSE-2E hazard-level ground motions.

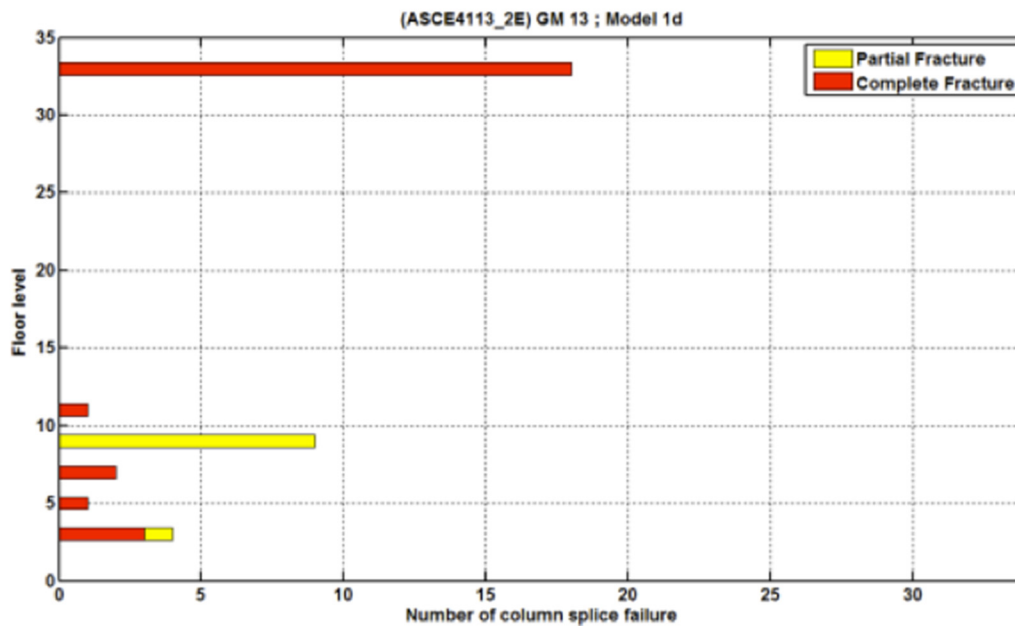


Figure E.73 Number of column splice failure in each floor level of Model 1d\* under ground motion number 13 of BSE-2E hazard-level ground motions.

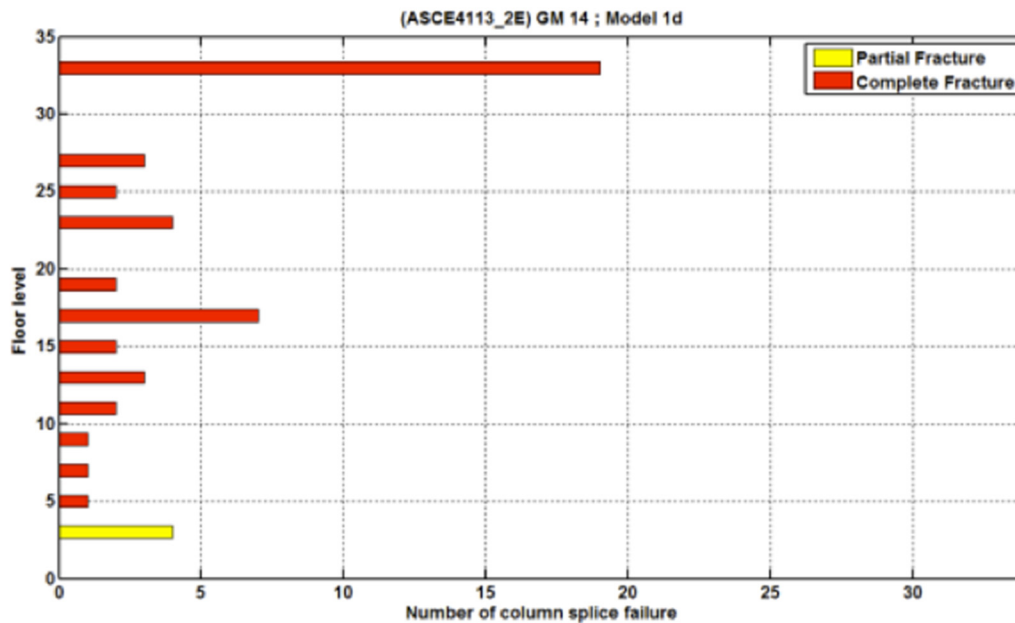


Figure E.74 Number of column splice failure in each floor level of Model 1d\* under ground motion number 14 of BSE-2E hazard-level ground motions.

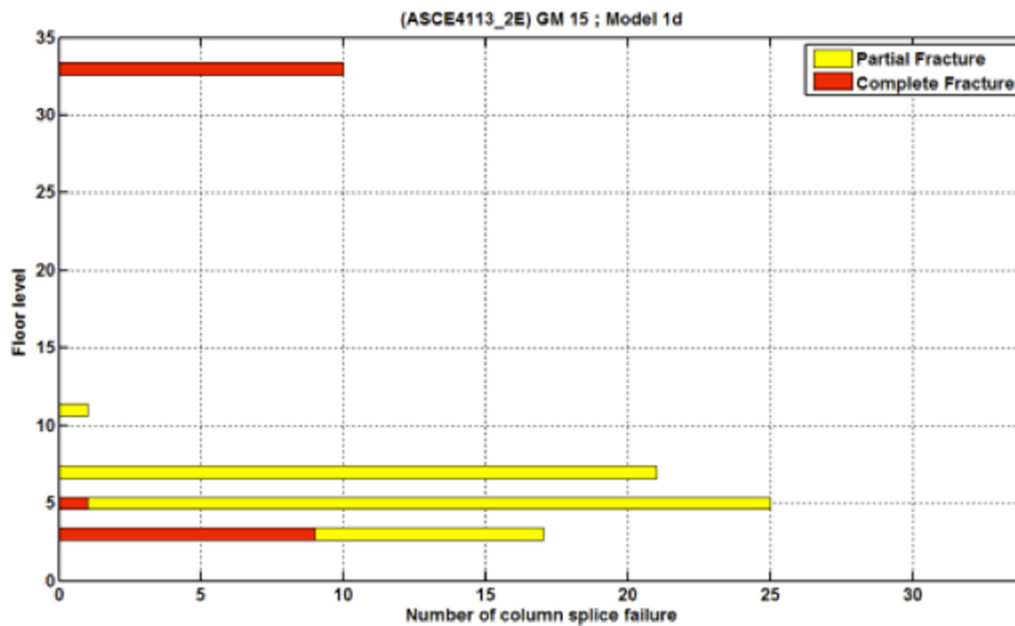


Figure E.75 Number of column splice failure in each floor level of Model 1d\* under ground motion number 15 of BSE-2E hazard-level ground motions.

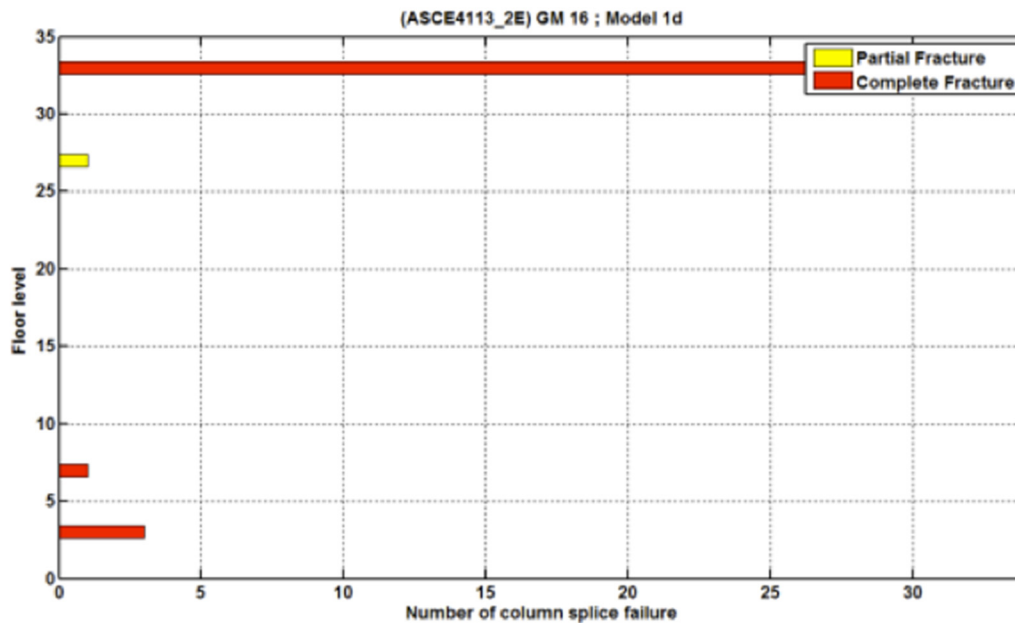


Figure E.76 Number of column splice failure in each floor level of Model 1d\* under ground motion number 16 of BSE-2E hazard-level ground motions.

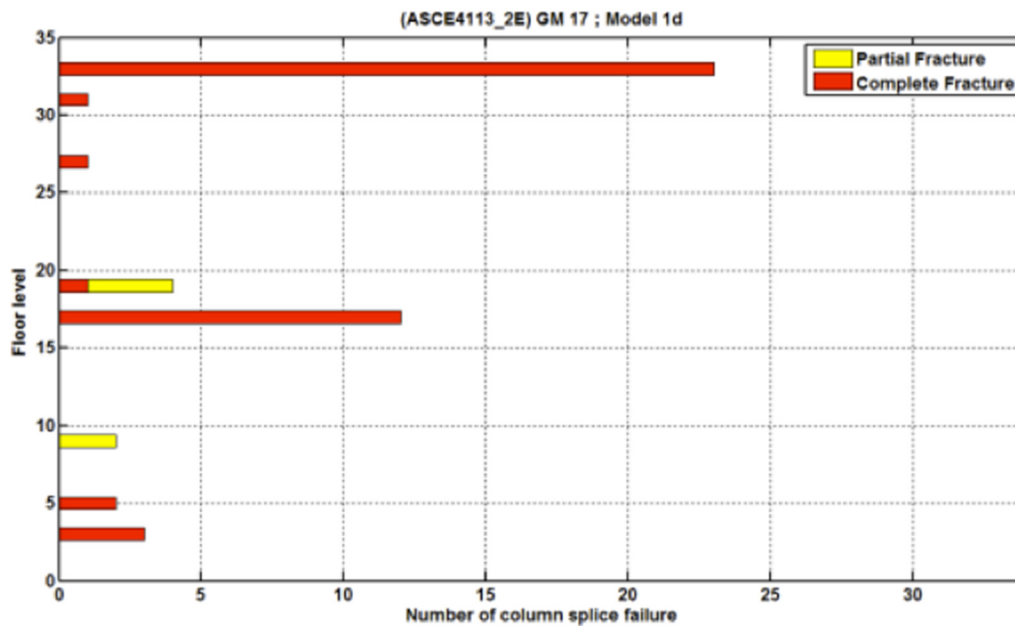


Figure E.77 Number of column splice failure in each floor level of Model 1d\* under ground motion number 17 of BSE-2E hazard-level ground motions.

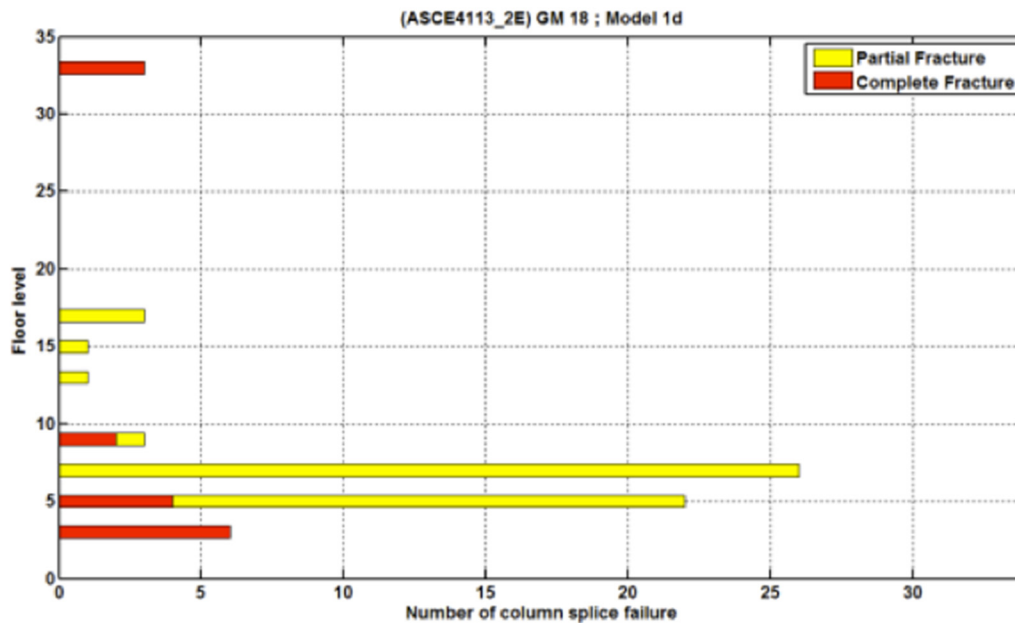


Figure E.78 Number of column splice failure in each floor level of Model 1d\* under ground motion number 18 of BSE-2E hazard-level ground motions.

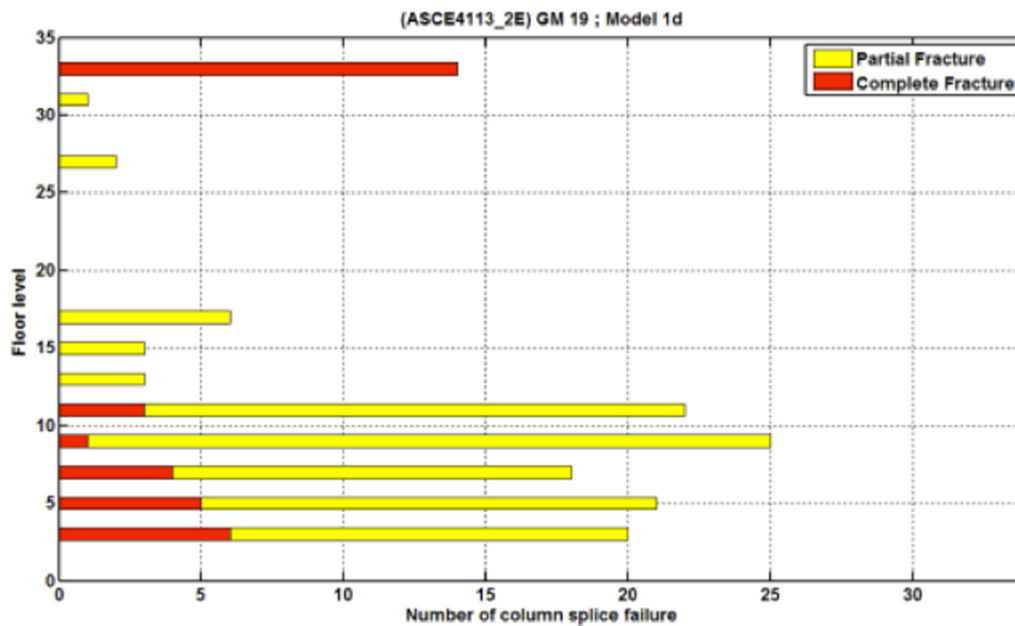


Figure E.79 Number of column splice failure in each floor level of Model 1d\* under ground motion number 19 of BSE-2E hazard-level ground motions.

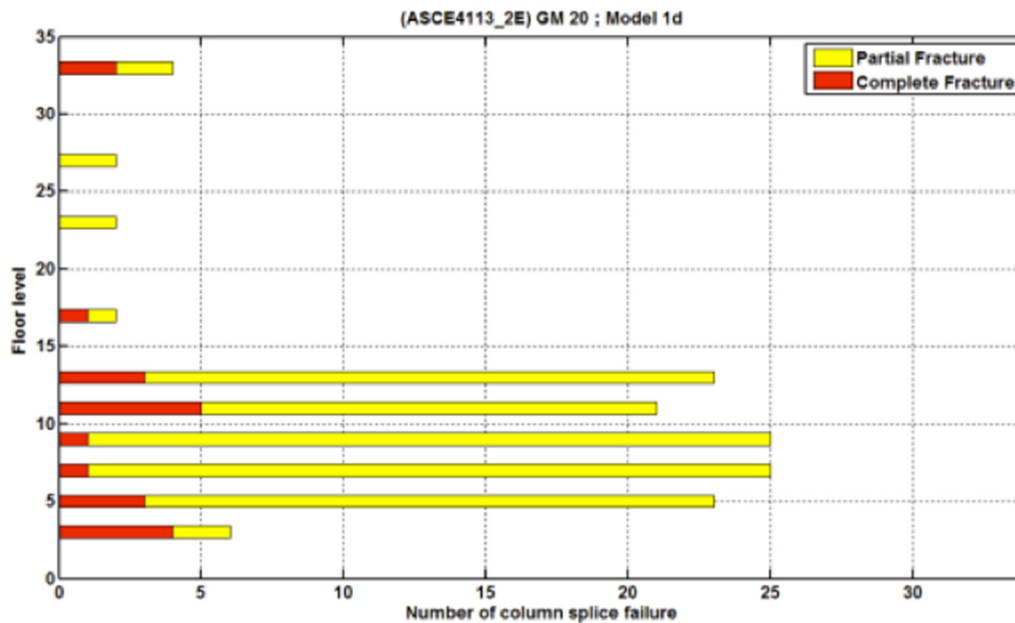


Figure E.80 Number of column splice failure in each floor level of Model 1d\* under ground motion number 20 of BSE-2E hazard-level ground motions.