INVESTIGATION OF GATE BRACES DUE TO EARTHQUAKES NEAR AND FAR FROM FAULT

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Keywords: Nonlinear Dynamic Analysis, Off Center Bracing, EBF Bracing, Near and Far Field Earthquakes

One of the most common ways to deal with earthquakes in steel structures is to use a variety of braces. In seismic design of structures, the main objectives are to provide resistance, hardness and stability. Particular attention has been given to new ideas in the design of plasticity. One of the important factors in choosing the type of bracket apart from the structural issues is the architectural considerations. Acceptance of any bracelet by regulation after various experiments and careful analysis by researchers, and still in our country despite the small number of experiments, without the support of detailed analysis, various types of innovative braces are popular. It has been found that there are no standards for some of them. In this study, first for the software verification, a laboratory model is modeled according to Figure 1.

After the software verification, a two-story frame with a gate bracket conforming to Figure 3 is modeled by ABAQUS finite element software. After modeling the six-record sections, which consisted of three distant recessions and three close records from the Tabas, Bam and Manjil earthquakes, the structure was entered into the structure, and the diagram of the backbone and maximum recoil structure was drawn, shown in Figure 2.

Figure 1. Verification bracing modeling in ABAQUS.
The results of the research show that the earthquake-prone bracelets with the proximity domain perform better than the remote domain. The maximum bearing capacity of a gate belt under near-earthquake earthquake is about 5% higher than a far-field gate belt. Most deformation was observed in the gate belt under the near domain in the lower floors. The highest deformation was observed in the far-field gate bracelet in the upper floors. The gate bracelet has a similar performance compared to other bracelets. The maximum amount of displacement in a narrow-band gate bracelet is about 8% less than a round-band gate belt.

REFERENCES


