عنوان مقاله:

Investigation of seismic energy absorption of FRP and steel sheets as reinforcement of reinforced concrete columns

محل انتشار:

نویسنده:

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خلاصه مقاله:

In this research, a variety of retrofitting on a reinforced concrete column has been studied using profile and steel plate and FRP. Models include a simple reinforced concrete column, a reinforced concrete reinforced concrete column with a FRP layer, reinforced concrete columns Two layers of FRP, reinforced steel reinforced concrete columns with a 10mm thick steel sheet, reinforced concrete reinforced concrete columns with a thickness of 20mm steel and reinforced concrete columns reinforced with an angle of four sides of the column, connected to each other with a parallel clamp is. Simulation of concrete columns reinforcement models has been performed in finite element method. The results of the simulation of different models of concrete column reinforcement show that the amount of lateral force in a uniform displacement is 166.5N in a simple concrete column model, and in the model with two FRP layers up to 366N, and in the sixth model with a steel protrusion The four sides of the column are parallel with the bolt, reaching 372N, indicating that the reinforcement in this case has increased the 34per cent increase in lateral force through the concrete column. In other words, the best performance is related to reinforced concrete columns using a steel bundle and steel belt, which has the highest energy absorption, followed by models with FRP polymer, which increases energy absorption and increases ductility It has been shown to be more suitable, and the use of thicker steel sheets could be equivalent to the use of double-layered FRP to deplete seismic energy.

کلمات کلیدی:

Seismic Rehabilitation, Reinforced Concrete Columns, Profiles and Steel plates, FRP, Finite element model, ABAQUS

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