عنوان مقاله:

Numerical modeling of FRP reinforcements in concrete frames under dynamic loading

محل انتشار:

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خلاصه مقاله:

Special concrete frames are designed to withstand the bending loads caused by earthquakes, and how to reinforce them is debatable. In this study, the effect of a type of these frames that are reinforced with FRP composite reinforcements was discussed. The research was conducted by finite element method and after validation with a real sample and checking the convergence of the results, permission to use this method was issued. The result was that the loads caused by earthquakes, which affect the structures in the form of bending and shear, despite the need for proper resistance to repel the effect, need a little flexibility in movement so that such loads do not cause material fatigue. FRP reinforcements, due to their good flexibility, provide limited movement of the frame, so fewer loads is applied to it and proper connection between the members also eliminates danger. Thus, structures with a suitable safety factor and bending and shear loads will not be able to pose a hazard. A comparison was made between the effects of metal reinforcement and composite reinforcement, which proved to be positive. Special concrete type also showed good resistance to severe seismicity and was considered suitable for construction in seismic areas.

کلمات کلیدی:

Composite reinforcement, Concrete frames, Column connection, dynamic loading