

Optimal Design of RC Pier Accompanied with Multi Sliding Friction Damping Mechanism Using Combination of SNOPT and ANN Method

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Abstract : The structural system concept of RC pier accompanied with multi sliding friction damping mechanism was developed based on numerical analysis approach. However in the implementation, to make design for such kind of this structural system consumes a lot of effort in case high of complexity. During making design, the special behaviors of this structural system should be considered including flexible small deformation, sufficient elastic deformation capacity, sufficient lateral force resistance, and sufficient energy dissipation. The confinement distribution of friction devices has significant influence to its. Optimization and prediction with multi function regression of this structural system expected capable of providing easier and simpler design method. The confinement distribution of friction devices is optimized with SNOPT in Opensees, while some design variables of the structure are predicted using multi function regression of ANN. Based on the optimization and prediction this structural system is able to be designed easily and simply.

Keywords : RC Pier, multi sliding friction device, optimal design, flexible small deformation

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