

**Finite Element Analysis and Structural Integrity Assessment for Piping  
in a Base Isolated Nuclear Power Plant**

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Base isolation system is an advanced technique which offers cost-effectiveness and safety because it can reduce seismic loading transmitted to structures in a highly seismic area. However, even if the base isolated building decreases acceleration response of structure, it can also cause large displacement response since it vibrates with longer time period. Accordingly, if the base isolation system is applied partially, the piping system between base isolated building and adjacent non-base isolated building hardly maintains the structure integrity due to substantial relative displacement. In this study, the influence of modified response caused by base isolation system (i.e., acceleration and displacement) on the structure integrity for the piping system in a nuclear power plant was assessed through three dimensional finite element analyses.

**Keywords:** Base Isolation, Piping, Response Spectrum Analysis, Relative Displacement