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Seismic Response Analysis of Base-isolated Considering Collision with Retaining wall

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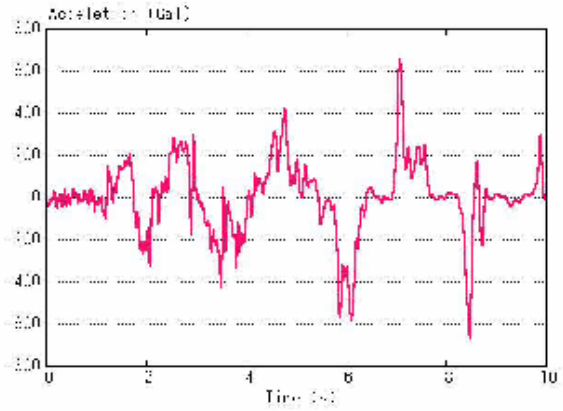
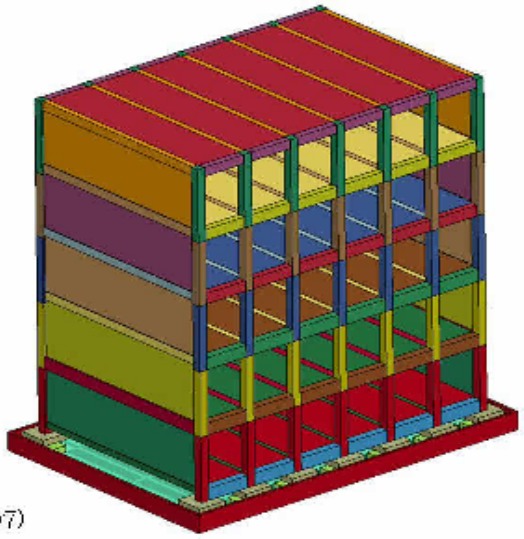
SUMMARY

Base-isolated is a structural system reducing seismic force by extending natural period. Kyoshin Network (K-net) has been observing long period waves called "Long-period Pulse earthquake". There is a possibility of the Base-isolated building to collide with retaining wall due to resonance between building natural period and long-period of the pulse earthquake. For the purpose of making clear the vibrational characteristics of base-isolated building considering collision with retaining wall, the modeling and analysis for three dimensional arrangements of building and isolators subjected to earthquake is expected. Therefore, detailed FEM model is fabricated and computed using the Earth Simulator owned by JAMSTEC. According to the preliminary analysis, the building and its building and its model of the retaining wall gave great influence on the seismic response characteristics of the base-isolated building due to long –period pulse earthquake.



Example of Long-period Pulse Earthquake
(The Niigataken Chuetsu-oki Earthquake in 2007)



Analytical Model by FEM