



# Sato Daiki Lab.

## Construction of safe and secure buildings against earthquake and wind

Laboratory for Future Interdisciplinary Research of Science and Technology

Urban Disaster Prevention Research Core

<https://sites.google.com/site/daikisatotokyotech/>

- Seismic Resistant Design for Passive-control / base-isolation buildings
- Safety Verification for High-rise buildings under Long-period Ground Motion
- Wind Resistant Design for Passive-control / base-isolation high-rise buildings
- Clarification the Actual behavior of buildings using observation record

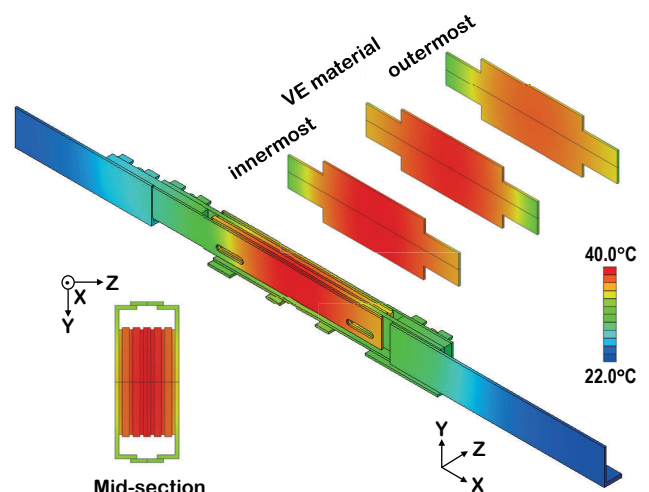
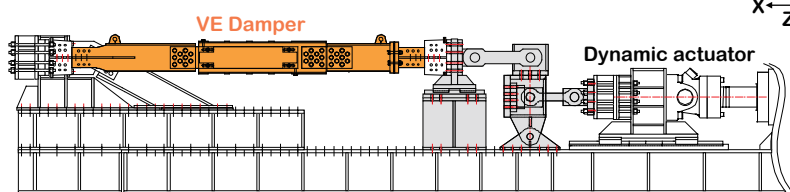
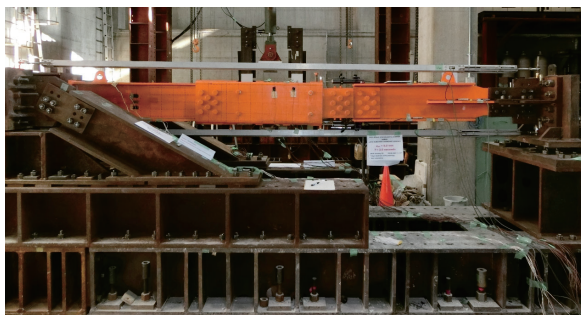
As an earthquake-prone country, Japan also experiences many typhoons every year. These natural disasters cause huge losses in Japan. Although increasing the height of a building reduces the damage from seismic, the wind load becomes very large. Therefore, both the wind and seismic loads should be considered in designing a high-rise building.

Objective of this laboratory is to develop a design method that considers both seismic load and wind load for buildings applied advanced vibration technology such as passive control and base-isolation, using experiments, observation data, and simulations. Moreover, a method for estimating performance of damper, which used in passive control and base-isolation, is also been considered.



### Response analysis for high-rise base-isolation building under wind

- System identification using response observation records under earthquake
- Responses: simulation results vs. response observation records under wind



### Experimental and analytical investigations of full-scale multi-layered viscoelastic damper under long-duration excitations

- Study on the behavior of viscoelastic dampers when subjected to wind loadings and long-period ground motions
- Modeling of the temperature- and frequency-sensitivities of viscoelastic material