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INTERNATIONAL

SUNDAY, APRIL 2, 2023

11:30 AM – 1:30 PM

\$50 U.S. PER PERSON

LUNCH

Design and Construction of Building Using Wall-Column and Seismic Response Control System

The design and construction of a 10-story office building using wall columns and a seismic response control system are to be reported. This office building is located in the city of Fukuoka, Japan. It was designed in 2020 by Taisei Corporation, and the construction was completed in August 2022. A new seismic response control system was installed in this building. Wall columns and dampers are arranged in the core of the building intensively, and perimeter reinforced concrete (RC) frames are arranged. The dampers using low-yield steel (steel damper) absorb the seismic energy and minimize the damage to the main frame structure. Furthermore, a monitoring system for damage to the dampers is incorporated for the post-earthquake quick inspection. If necessary, the damaged dampers could be replaced for continuous occupancy.

The seismic behavior of the building was confirmed with nonlinear static analyses and nonlinear dynamic analyses. The lateral load-carrying capacity of the building was set to be 1.25 times larger than the minimum requirement of the Building Standard Law. The effect of the response control system was confirmed by the dynamic analyses using several seismic waves.



Yuji Isshiki

Yuji Isshiki is now working as Chief Manager, Structural Engineering Division, Taisei Corporation (a major general contractor in Japan). He has wide experience in structural design with various building types and leading-edge technologies.

The ACI Concrete Convention will take place at
Hilton San Francisco Union Square in San Francisco, CA, April 2-6, 2023.
Visit www.aciconvention.org to register for the International Lunch!