

## Protecting Works of Art and Cultural Heritage with Seismic Isolation Devices

As can be seen in how close Kumamoto Castle came to collapsing during the Kumamoto Earthquakes in April, major earthquakes harbor the risk of destroying precious works of art and cultural heritage. Along with saving lives and safeguarding valuable data, the high expectations for what seismic isolation devices can do include protecting cultural artifacts of both tangible and intangible value.

With the completion in 2016 of the renovation of the Nara Buddhist Sculpture Hall at the Nara National Museum, which houses a multitude of Buddhist sculptures and other cultural artifacts, we spoke with Seiji Ohnishi about the events leading up to the installation of seismic isolation devices and his hopes for the technology.

— I've heard that all four of the national museums in Japan are investing in seismic isolation devices to protect their cultural artifacts. Could you tell me what triggered this and discuss the current progress of these endeavors? Could you also explain the reasons for installing seismic isolation devices in your renovated Buddhist Sculpture Hall?

The Great Hanshin-Awaji, Chuetsu, and Great East Japan earthquakes heightened our awareness of the need to protect cultural artifacts from earthquakes. In recent years, seismic isolation devices have been installed beneath the Kyushu National Museum and in the floor of the major exhibition room in the Kyoto National Museum's Heisei Chishinkan Wing.

We were granted a certain budget to renovate both the interior and exterior of the Nara Buddhist Sculpture Hall. Needing to improve our display and storage environment with this limited budget, we decided to employ seismic isolation devices in our display cases and pedestals. (See picture on the top right.) We chose to do this because the build-



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ing itself is considered an important cultural property, so we cannot make a great deal of changes to it. We feel that it is our duty to pass Japan's valuable cultural artifacts on to the next generation.

— What factors did you consider most important in introducing seismic isolation devices?

Earthquake vibration takes the forms of pitching, rolling, and long-period ground motion. Among the cultural artifacts we house are Buddhist sculptures which, in contrast to dishes, have a high center of gravity. For these, I felt that seismic isolation devices that could withstand rolling and long-period ground motion would be highly effective in preventing these sculptures from falling over. We expect that, even if an earthquake were to occur, our collections will be protected thanks to the seismic isolation devices.

— Please explain your future plans and hopes for the Nara National Museum.

In addition to providing an even better exhibition environment for our guests, we need to create a safe storage environment for our artifacts. Seismic isolation is an important step in making this a reality.



Western facade of the Nara Buddhist Sculpture Hall (Former Imperial Nara Museum Original Museum Building), designed in a Western style