

Protecting the Key to Fire Fighting and Disaster Prevention with Seismic Isolation

The old Ofunato Fire Department building was constructed in 1963, but significant deterioration of the building led to the city of Ofunato making plans in 2009 to rebuild the facility as the Disaster Prevention Center. The original plan had been to simply update the old building, and designs for this project were completed. However, in 2011, while the office was thankfully able to avoid significant damage from the Great East Japan Earthquake, the tsunami reached within 200 to 300 meters of our facility, so we temporarily suspended our operations and moved our office to its current elevation. The Ofunato City Disaster Prevention Center officially began operations in April 2017 in a newly constructed, four-story government office building. The facility houses the fire department and its headquarters, the volunteer fire department and disaster response office, and an exhibition hall and touring space. In addition, the facility has a smoke simulation room, the first indoor pool for sea rescue exercises in Iwate Prefecture, and a separate building for training exercises. We installed the seismic isolation system in our Disaster Prevention Center on the third floor, where we receive all 119 calls and other emergency transmissions in our jurisdiction and:

1. Use this information to constantly track the locations of our 90 emergency vehicles so we can mobilize the most appropriate dispatch team,
2. Provide information and support to our dispatch teams while contacting federal and prefectural government bodies to keep damage and injuries to a minimum, and
3. Contact medical facilities to get injured parties transported to hospitals.

When necessary, we arrange for air ambulances or helicopters from disaster prevention aviation units to immediately respond to injured parties. We act as a hub for conveying information during emergencies, so it is of the utmost importance that all our systems are operational in emergency situations.

We expressed our desire for seismic isolation to be incorporated into the building's design. Buildings are con-



Front view of the Ofunato City Disaster Prevention Center



Ofunato Fire Department

Fire Captain

Battalion Chief

Fire Lieutenant

Eietsu Niinuma Yoshiharu Murakami Wataru Ogino

structed to a certain strength based on the importance of that building. There is a strength–importance coefficient for government buildings that is the standard used to compare buildings and determine the strength they require. A typical building would get a 1, a police station would get a 1.25, and our center was given a 1.5, the same level as the prime minister's office. We had originally planned on constructing our facility using seismic damping, but we decided to go with seismic isolation because of the importance of ensuring the equipment in the Disaster Prevention Center's server room does not get damaged or cease functioning during a disaster. We were impressed by the effectiveness of THK's seismic isolation system while visiting a disaster prevention exhibition in Tokyo. We got to see a seismic isolation demo machine absorb vibration right before our eyes. We then physically experienced how much a seismic isolation system reduced vibration during historical earthquakes recreated by THK's seismic isolation simulation van. While we did not direct the company designing our new building to use a particular company's seismic isolation system, we were greatly reassured when we saw they had chosen THK's product in the proposal they submitted.

Installing seismic isolation systems has become commonplace in the world of fire fighting and disaster prevention, but we also hope to see them used in municipal government buildings and other places that handle important information about city residents.

In addition, to increase awareness of fire fighting and disaster prevention among the general public, we intend to have an exhibition room and area to tour so children can visit our facility and learn about fires and natural disasters. We plan to display a model of a seismic isolation system in this area so we can tell visitors about our own seismic isolation system and the importance of seismic isolation in general.