

East Nippon Expressway Company Limited Kanto Regional Head Branch Saitama City, Saitama

## Seismic Isolation: an Indispensable Technology for Safe Highways



The Traffic Control Center of East Nippon Expressway Company Limited's Kanto Regional Head Branch is located in Iwatsuki, Saitama City, and monitors the traffic on the expressways of the seven prefectures in the Kanto region, spanning the approximately 1,300 km of expressways in the area (with the exception of the Shuto, Tomei, and Chuo Expressways).

Its main functions are to receive information and respond as needed to any traffic accidents or reports of debris on the roadways. If any problems are reported for roads in our jurisdiction, we deploy our yellow patrol cars to the scene, taking appropriate action when accidents occur and clearing the road of debris. In addition, we have positioned sensors every 2 kilometers along the expressways to measure traffic volume, and this real-time traffic information is automatically collected and sent to our center. Based on this data, we display information about traffic conditions on signs above the appropriate roadways.

For instance, imagine how cracks or bulges form on roadways during large earthquakes, making certain routes impassible. In such cases, if accurate information is not provided about which routes to avoid and which to take, drivers will have no basis on which to make their decisions, and most people would be unsure of whether to keep going or to turn around. This would cause a great deal of confusion, and is a risk that absolutely must be avoided.

When constructing our new control center, we aimed to build the most durable building we could because of our company's direct experience with the Great East Japan Earthquake in 2011. The result is a building 1.5 times more resistant to earthquakes than a typical building.

It defeats the purpose, though, if we just protect the building and not what is inside of it. The most important thing during a large earthquake is to first protect those working inside of our center, and then to protect the control systems. Therefore, we installed seismic isolation devices beneath the



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floor of the entire control room, as well as smaller seismic isolation devices beneath the servers that are the foundation of our system. We will do everything we can to protect both the operators who work here and our control system, and in the event of a major natural disaster, we will continue to provide the information needed. We feel this to be our center's duty to society.

We chose THK's seismic isolation devices because of the way their structure differed from that of other companies' devices. THK's seismic isolation devices excel at absorbing seismic waves, and objects placed on top of them will not topple over. In addition, even if an earthquake causes the devices to move, they are designed to return to their original position. When constructing ours, THK added a monitor which records the amount the seismic isolation devices move, and on top of tallying this data, there is also a video recorder which stays on at all times, allowing us to look back half a month to check on them. At this point, however, we don't have any recorded data or videos from these devices

being in operation, because there hasn't been an earthquake in the Kanto region since their installation. THK gave us an in-depth explanation when the devices were installed, but if there were a case where additional work needed to be done, we hope to receive assistance at that time.



Seismic isolation devices safeguarding our servers



Control room with seismic isolation devices in the floor