March 11 earthquake in Japan similar to 1923 disaster

by Randy Bright http://www.tulsabeacon.com/?p=5032

We are all watching the news in astonishment at the power and destruction of the 8.9 earthquake that hit Japan on March 11.

This is the second earthquake in less than a century that has brought mass destruction to the Japanese islands.

The first one, the Great Kanto Earthquake, struck during the lunch hour on September 1, 1923, when a 7.9 (or possibly an 8.3) magnitude earthquake struck and shook the area for up to ten minutes. There were 57 recorded aftershocks.

Because so many residents were cooking with open fires at the time, massive fires broke out. At the same time, high winds from a nearby typhoon turned the fires into deadly firestorms. In one instance, 38,000 people died when they crowded into a clothing depot and were all incinerated by a firestorm.

Tsunamis also caused massive destruction and death, when 30-foot high waves came ashore. Nearly two million people were left homeless.
The tremors also caused landslides, one of them taking a train and a train station down into the sea, killing 100 people. Another 800 were killed when mountainsides collapsed, burying or sweeping away homes.

Tokyo was especially hard hit, but one structure survived. That was the Imperial Hotel, designed by none other than American architect Frank Lloyd Wright. After the earthquake hit, Wright received a telegram telling him, “Hotel stands undamaged as monument to your genius. Congratulations.”

I recall one of my architectural history professors at the University of Illinois, who had been an apprentice to Wright, telling us of how Wright’s hotel was the only building in Tokyo left standing.

Wright’s design for the hotel foundation was unusual for its time, especially in Tokyo. Its walls were thicker at the bottom than the top, and rested on piers driven deep into the alluvial mud. On Wright’s construction drawing describing the foundation, he wrote, “Floor slabs balanced over central supports as a tray rests on a waiter’s fingers to prevent failure under earthquake strain.”

Wright also incorporated other features in the design to make the building less susceptible to earthquake damage. He included a large reflecting pool in the courtyard to serve as a source for water for fire protection, installed special joints in the building to help it absorb movement and used copper roofing instead of tiles to prevent falling objects.

Despite publicity to the contrary and despite the fact that the building was indeed still standing, it did in fact sustain a great deal of damage. However, Wright's attention to designing the building to resist Japan's frequent earthquakes meant that no one died in his hotel. That is significant, considering that around 140,000 were killed, mostly by firestorms.

There are a lot of similarities between the 1923 earthquake and the one that recently took place. According to the USGS, the earthquake that just hit Japan was located over 15 miles deep beneath the sea off the east coast of Honshu, one of the four largest islands that make up the island-state of Japan.

The 1923 earthquake was located on the island of Honshu itself, but it still caused a tsunami. Both caused massive fires, and though we are still waiting to hear what the final death toll might be for the recent earthquake, both have caused massive loss of life.

The difference between the earthquakes is that construction in Japan has been done to resist earthquake damage, and it appears, at least for now, that the loss of life will not be nearly as high as in the 1923 event.

Experts are stating that this earthquake was 1,000 times more powerful than the earthquake that hit Haiti last year, and more than 8,000 times more powerful than the recent earthquake that recently hit New Zealand.

Regardless of the extent of the damage, the Japanese are very resilient people who will probably recover very quickly. This is in contrast to the earthquake in Haiti last year that was much smaller, but killed hundreds of thousands. Due to a lack of freedom, and because of their great poverty, they have barely begun to rebuild.

The earthquake for Oklahomans to watch for is the one that is long overdue at the New Madrid fault in southeastern Missouri, where seismic charts literally paint a bulls-eye. Even if it is a large earthquake, we probably won't receive much damage here, but our neighbors in St. Louis and Memphis, where there are still a lot of unreinforced masonry structures and high concentrations of population, will certainly see extensive damage.

We need to be prepared to help them. In the meantime, our prayers need to go out for the people of Japan as they cope with what can only be described as a horrific event.

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