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civil + structural ENGINEER

CELEBRATING THE DESIGNERS OF THE WORLD AROUND US

EXCELLENCE IN WOOD DESIGN

WoodWorks' 2016 Wood Design Award winners

Dev Rastogi: The business builder
Engineering is more than math
Preloading approach to column removal
Drainage of artificial turf fields
Replacing LA's Sixth Street Viaduct





ENGINEERING FOR SCHOOL SAFETY

WORKING AROUND THE WORLD, I have witnessed the destructive power of earthquakes. Seeing the anguish of parents searching through the rubble of a collapsed school, I am reminded of my own kids. I first saw this on a large scale in 2008 in China, where more than 7,000 classrooms were destroyed. When a catastrophic magnitude-7.0 earthquake hit Haiti in 2010, many children died because of unsafe schools. Equipped with the knowledge that many dangerous schools had no funding for critically needed seismic strengthening, we created a nonprofit organization, Miyamoto Global Disaster Relief, to focus on providing safety for dangerous schools.

Schools should be the safest places, but even in the United States, many earthquake-unsafe schools exist.

A school called Lycée Nationale de Cité Soleil in Port-au-Prince was brought to our attention. Almost three years after the earthquake, classes still met in shabby plywood shelters topped with noisy sheet metal that leaked in the rain and were blazing hot in the summer. A 1,500-student, two-story concrete structure damaged by the 2010 earthquake sat there untouched. Everyone gave up on it — no money and no expertise. Miyamoto Relief offered to help, even when no one believed that such a structurally unsound building could be made safe. We provided engineering expertise pro bono, recruited dozens of Haitian businesses and international donors to contribute resources and funds, and engaged local engineers and contractors to do the work, training them to build safely. The October 2014 opening celebration was amazing. Not only was the school seismically upgraded per international standards, it also was equipped with a new computer room, solar panels, and landscaping.

Miyamoto Relief is carrying on similar work in Nepal, where a magnitude-7.8 earthquake leveled 20 percent of the country in 2015. More than 30,000 high-density classrooms collapsed and tens of thousands more have been tagged as unsafe to enter. The earthquake was on Saturday afternoon. Had the quakes hit when school was in session, we probably would have lost more than half a million students.

Thanks to the support Miyamoto Relief received immediately after the Nepal earthquake, we've assessed and begun engineering the repair and retrofit of a number of schools, including a damaged 18-classroom school in the Nuwakot region. Four children from the school died.

Schools should be the safest places, but even in the United States, many earthquake-unsafe schools exist. As engineers, we can make a difference. Let's start with our own towns. You should be able to identify the old buildings that potentially jeopardize our children's safety.

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