



FOR IMMEDIATE RELEASE:

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Contact: Pete Croft – (760) 435-9842 or Cell (714) 580-7269

Earth(quake), Wind and Fire: These Roofs Won't Rock

The wildfires in October 2003 proved the protective value of Metro Roof Products' stone-coated steel roofing, but homeowners in Southern California should know about another natural disaster in which steel roofing can help: earthquakes.

Seismic experts recently suggested that signs of a major earthquake are impending. Researchers in Orange County announced that the same conditions existing before the 6.8 Northridge quake in 1994 exist right now in southern Orange County, adjacent to San Diego County.

This is the time for homeowners to take steps to protect their properties. One of the best is to install a lightweight stone-coated steel roofing system manufactured locally by Metro Roof Products in Oceanside.

The Weight Stuff

Why does steel perform well in earthquakes? Stone-coated steel systems are extremely lightweight. Less weight on top of a home or building poses less danger to people inside and causes less damage to the structure in an earthquake.

Homeowners need to consider the permanent weight of the roofing system, says Sydney Chai, a State Board certified civil engineer who specializes in structural seismic retrofit design.

"The walls in most homes have enough surplus capacity to carry the additional roof load (of heavyweight roofs), but the surplus is only for weight bearing and not seismic (earthquake) loads," Chai says. "Think of it this way: Place your elbow on a table and hold a baseball in your hand. If you swing your arm around, it is easy to stop the baseball from moving. Now replace the baseball with a bowling ball. Huge difference! That may be the difference between your house surviving an earthquake or collapsing."

First-hand Observation

Madeline Jural, a retired earthquake consultant reroofed her Mission Viejo home with a Metro stone-coated steel roof. She did her homework first. "I studied many aspects of why some homes were left standing when others crumbled after earthquakes," Jural told *The Orange County Register*. "I found that many of them had lightweight steel roofs.

"I looked at other kinds of roofing, compared prices, warranties, the styles of different materials, and then chose steel."

Historical Precedent

History has shown lightweight roofs to be safer. Professor V.V. Bertero of the University of California Dept. of Civil Engineering and Earthquake Engineering Research Center studied structures affected by many major earthquakes around the world. Bertero noted particular damage caused by heavyweight roofs falling into wood-frame houses during the San Fernando/Sylmar quake of 1971.

Metro Roof Products
3093 'A' Industry Street
Oceanside CA 92054

Toll Free:
(866) METRO-4U
Tel: (760) 435-9842
Fax: (760) 435-1162

Check out our web site
<http://www.metroroofproducts.com>



"All of these old buildings suffered significant damage and were subsequently demolished," Bertero wrote. "The lessons from such damage are clearly to avoid the use of unnecessarily heavy roofs and un-reinforced masonry."

After his study, Bertero published a paper used to teach civil engineering students about seismic safety. The paper's first basic guideline of seismic-resistant design is that a structure "should be light (weight) and avoid unnecessary masses."

Comp and Circumstance

A Metro steel roof is among the lightest available. Their installed weight is about 1.5 pounds per square foot compared with 9-12 pounds per square foot for traditional heavyweight tile, according to the Metal Roofing Alliance. Composition, or asphalt, shingle roofs weigh about twice as much as steel when installed.

In a survey of roof performance conducted immediately after the 1994 Northridge earthquake by engineering consultancy The McMullen Company, surveyors found that lightweight materials "tended to withstand shaking and appeared to not contribute to other structural damage." Yet hundreds of heavy tile roofs were damaged "where no other significant structural damage was obvious."

"The photos accompanying this report indicate that buildings which appear to be identical performed in a significantly different manner based on the type of roof covering," wrote James Bihl, structural engineer and co-author of the McMullen survey. "Lightweight roofs such as stone-coated steel or wood shakes and shingles appeared to perform far better than heavyweight tiles."

Wind and Fire

Homeowners in areas of San Diego ravaged by the fires are turning to Metro's stone-coated steel to protect their homes. Since the fires, Brian Winch of California Pacific Home Improvement has installed dozens of steel roofs on San Diego homes. One was the home of Coronado fire chief Kim Raddatz, who lives in El Cajon.

"I put the steel roof on for its fire-related benefits, bar none," Raddatz said. "I wanted something that not only would withstand the heat, but would withstand the high winds that are generated within a very large wildland fire."

Says Winch of California Pacific Home Improvement: "People like the fact they get a great-looking roof without the problems associated with other materials."

For more information on a Metro steel roof, call Metro at 866-METRO-4U (638-7648).

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