

Turkey's Post-Earthquake Conditions Suggest Need for Wood-Frame Construction

By *Sonia Verdu and William P. Bomersheim*

Since the beginning of civilization, earthquakes have played a role in shaping the history of Turkey. Archeologists have suggested that ancient Troy's impenetrable walls may well have been destroyed, not by an invading army, but by a catastrophic earthquake.

In the last century, major earthquakes wreaked havoc in Turkey more than 13 times. In 1999, the latest series of earth-

quakes destroyed infrastructure in the most industrialized regions of the country and caused \$10 billion in damage.

Worse still, the quakes caused more than 15,000 deaths and left 650,000 people homeless. Large piles of rubble were the only remains of many grand buildings built using concrete and brick. Experts say that nearly all of the fatalities and injuries were due to building collapse.

In the wake of the 1999 earthquakes, Turkish officials have expressed their desire to improve building standards and introduce new construction technologies. Officials have sponsored and attended earthquake safety conferences. Interest in new technology is high.

Turkish interest in new construction technology presents an opportunity that resonates with solid wood and building component producers in the United States—which is, after all, among the most earthquake prone countries in the world.

Experiences in California have taught U.S. engineers and builders many lessons. One of the most important lessons is that wood-frame structures like those used in 95 percent of American homes are inherently more resistant to earthquake damage than other types of construction.

Wood-frame houses are more flexible and can absorb and deflect shocks that would cause more severe damage in structures built of more rigid materials. The light



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weight of the wood-frame structures, as well as wood's natural flexibility, tends to dissipate the motion that results in collapse. This natural advantage, when teamed with special construction techniques such as plywood panel bracing in wall framing, helps to prevent tragic collapses that can bury occupants in rubble.

Today, Turkey is buzzing with major reconstruction efforts. Billions of dollars are being spent to rebuild areas destroyed in 1999; more will be spent over the next few years.

While most of the new construction will continue to use such traditional materials as brick and concrete, the post-earth-

quake environment has substantially fanned interest in wood-frame technology.

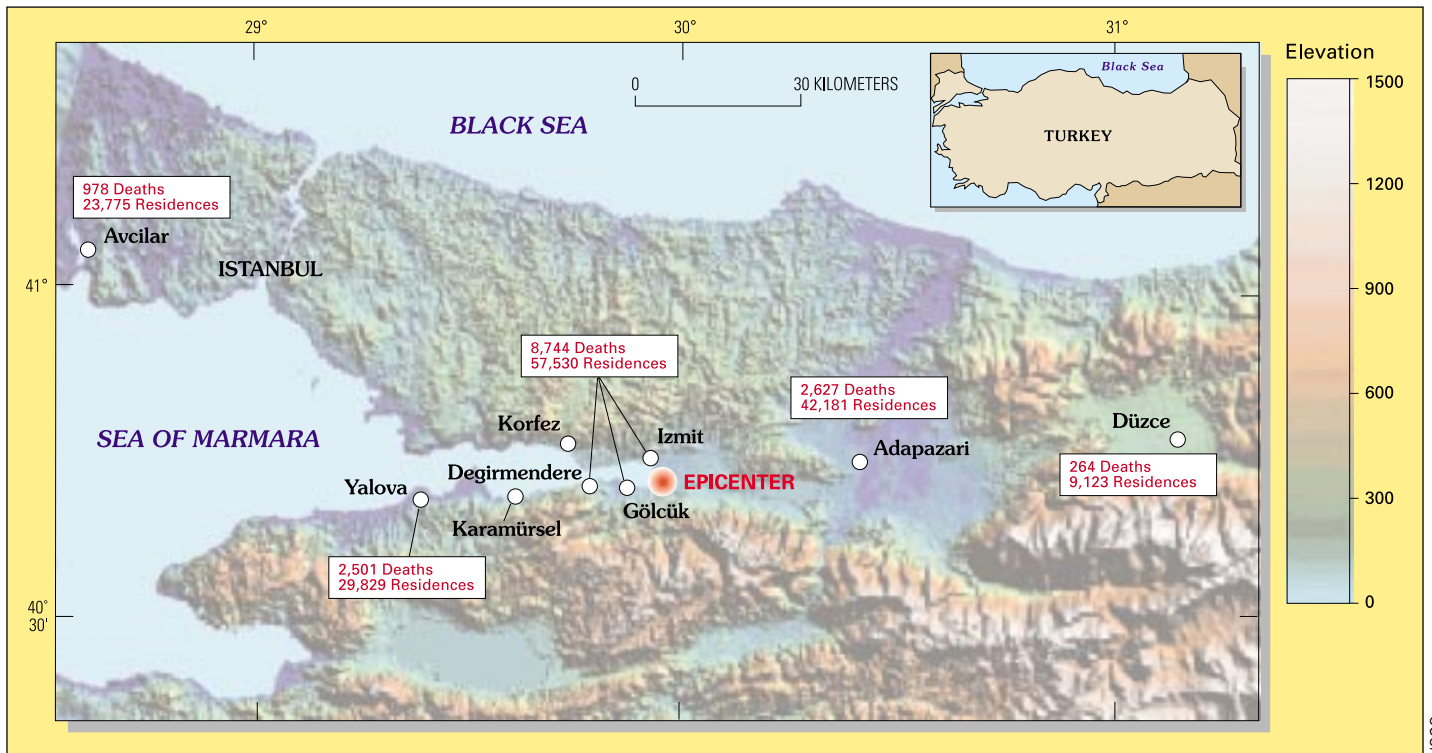
This spells opportunity for U.S. companies experienced in wood-frame construction and interested in helping Turkey adopt wood-frame construction technology. Moreover, wood-frame construction could translate into sales for U.S. suppliers of solid wood products and engineered components.

Determining the Anatomy of an Earthquake

Immediately following the Turkish earthquake, the U.S. Geological Survey (USGS) was invited to assist in post-earthquake investigations. The findings are summarized in "Implications for Earthquake Risk Reduction in the United States from the Kocaeli, Turkey, Earthquake of August 17, 1999," U. S. Geological Survey Circular 1193. Available free on application; write:

U.S. Geological Survey
Information Services
Box 25286
Denver, CO 80225

Mapping the Effects of a Far-Flung Disaster



Major cities and towns in Turkey that experienced significant damage to residential units and loss of life during the Kocaeli earthquake. Upper number represents fatalities; lower number, lightly to heavily damaged residential units. (Statistics from the Prime Ministry of Turkey, Crisis Management Center, September 12, 1999).

Promoting Wood Awareness in Turkey

The Foreign Agricultural Service, in partnership with the team of First Renaissance Ventures, Wickes International and APA-The Engineered Wood Association, has introduced a new program to promote understanding of U.S. wood products and technologies the Turkish residential market. The program is:

- Providing professional and technical services to the Turkish residential construction market;
- Building demonstration homes showcasing wood-frame construction products and technologies;
- Developing an exhibit booth and attending key building shows in Turkey;
- Sending U.S. experts to Turkey to meet key construction parties;
- Bringing Turkish officials to the United States to view the residential construction market; and
- Preparing materials to help Turkish builders understand these products and technologies.

The Foreign Agricultural Service (FAS) is working in partnership with First Renaissance Ventures, Wickes International and APA-The Engineered Wood Association to promote awareness and understanding of U.S. wood products and technologies in the Turkish residential market through FAS' Emerging Markets Program. ■

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U.S. COMPANIES EXPERIENCED IN WOOD-FRAME CONSTRUCTION MAY BE INTERESTED IN HELPING TURKEY RECONSIDER ITS BUILDING TECHNOLOGY.

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