

EARTHQUAKE '89 - Santa Cruz County

# Shoddy building, not quake, felled homes

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SANTA CRUZ — In the aftermath of the Oct. 17 earthquake, observers marveled at the seemingly random pattern of the quake's damage.

Some buildings pancaked to the ground beside others with no damage, and rows of homes stood firm while rows across the street slumped off foundations.

But close inspection has confirmed what some engineers were saying all along —

most of the damage was due to poor construction, not unstable geology.

The most striking examples of unsafe construction were the unreinforced brick buildings that crumbled on the Pacific Garden Mall, killing three people.

But hundreds of private homes also collapsed in Santa Cruz County, and experts are now saying that most of the damage could have been prevented with better building techniques.

And some homeowners are considering suing the county over what they say are

inadequate building inspections.

"Generally speaking, ground conditions on some sites intensify the ground shaking of an earthquake," said consulting geologist Roberta Smith-Evernden, who inspected many damaged neighborhoods.

"Homes on fill or ridgetops or liquefaction zones took more of a jolt, and if a crack opens up under your house there's not much you can do," she said. "But given that, it's my understanding that in most situations if homes had been properly built they would not have come

down."

Civil engineer John Plock agreed.

"Few new lessons were learned as a result of this earthquake," said Plock, who also inspected many damaged buildings. "But we repeated many old lessons. We know that unreinforced masonry and improper construction will fail in an earthquake. The only thing we can't predict is when an earthquake will hit."

The most common building defects Plock observed were simple problems; too

few nails, not enough bolts in foundations, too-thin plywood and poorly braced cripple walls - the support between the floor and foundation of a building.

"The most common damage I saw in the field was failure in the cripple wall," Plock said. "There were instances where there were no foundation bolts holding the house down and instances where the plywood in the shear walls was too thin or insufficiently nailed."

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Many damaged homes, particularly in the San Lorenzo Valley, were constructed before uniform building codes were consistently enforced. Nearly 100 homes in the Lompico/Zayante neighborhood were destroyed by the quake, even though the area is not particularly unstable geologically, according to Smith-Evernden.

But "quite a few newer homes" were badly damaged by the quake, Plock said, providing an unpleasant surprise to homeowners who thought modern construction and expensive county building inspections had assured the safety of their homes.

Plock inspected one recently built house in the Summit area where bolts had been installed in the foundation, but the builder had failed to screw nuts on the bolts. The house bounced off its foundation and was badly damaged.

Soquel resident Dean Ambelang's 8-year-old home was damaged because the builder didn't nail it together properly. The plywood shear walls on Ambelang's home were stapled to the studs, with the staples penetrating only a half-inch into the wood.

"One day and a box of nails would have done the job," Ambelang said. "It's a big, beautiful house. ... We paid \$372,000 for it a year ago. The contractor did a beautiful job on the details, but he didn't pay attention to the basics. I don't know if it was negligence, or oversight, or what the hell it was."

Paul Ellis' nine-year-old Boulder Creek home and a detached garage with an apartment on top crumpled due to a number of construction flaws, he said. He estimates his house was worth at least \$400,000.

"Part of the house had been bolted down (to the foundation), but part hadn't," he said. "The garage didn't have adequate shear strength to support the apartment on top, because a lot of windows weakened the lower structure."

Both structures were shaken from their foundations, and the apartment collapsed into the garage.

"It only costs between 2 and 3 percent over normal construction costs to put in extra earthquake protection," Ellis said. "But my house wasn't even built to minimum standards. The foundations in both cases were undamaged, if the bolts had been in place there would only be cracks and things to fix."

Ambelang has filed a lawsuit against the contractor that built his home, and Ellis plans to file a lawsuit soon. In general, the law allows a homeowner to sue the builder or designer of a home

for poor design or construction if the home was built less than 10 years ago. If gross negligence or fraud is involved, the statutory limit can sometimes be extended, according to several attorneys.

Ambelang, Ellis and several other homeowners are also considering suits against the county building department for not properly inspecting their homes.

Engineers hired to inspect Ambelang's home looked around and then asked whether he had a good attorney, Ambelang said.

"How did this place pass inspection?" he said. "I want to get some answers."

"I lay a lot of the blame on the builder, but where were the county building inspectors?" Ellis said. "Why have 'em if they don't look out for our interests?"

County building official Bob Bork refused to discuss the types of construction flaws his inspectors look for when they inspect a building. He refused to answer any questions asked by a reporter, even those concerning typical practices or fees charged by his department.

"Under the circumstances and because of the story you're writing I'm not going to make any comment," Bork said. "You'll have to call the County Counsel's office."

Private building inspector Michael A.F. Mills said that inspections on new construction normally include things such as foundation bolts, the spacing of nails, and gaps between siding and studs.

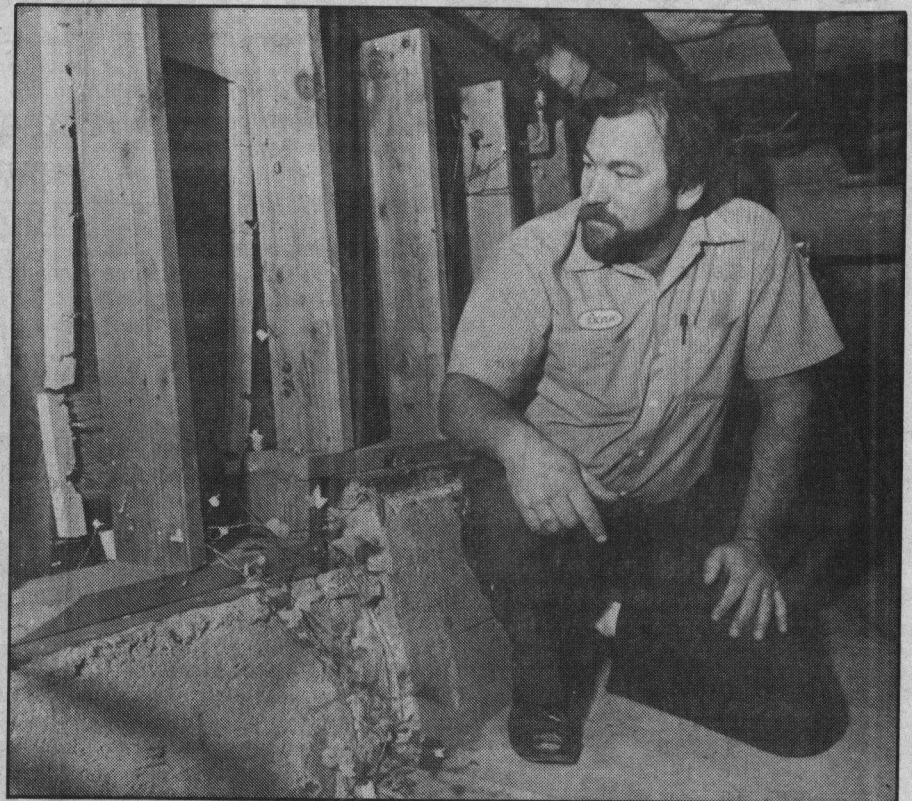
"Foundation bolts have been required by the code since at least 1950," Mills said. "In older buildings you might not see them, but if it's been built in the past 40 years or so it should be bolted down."

Nailing and shear wall attachment to the studs should be checked before the sheetrock is installed. In Ambelang's house, the plywood shear walls were separated from the studs by strips of rigid insulation, which prevented penetration of the staples and reduced the strength of the walls.

"Staples are commonly used, but they should penetrate more than that," Mills said. "And if the siding is held away from the studs, it reduces the amount of shear strength."

But even if shoddy construction was overlooked by a county inspector, homeowners generally have little recourse, according to County Counsel Harry Oberhelman.

"In the Government Tort Claim Act you find liability provisions for public entities, specifically immunity for negligent inspection," Oberhelman said. "The (county) doesn't guarantee the



Dan Coyro/Sentinel

The plywood walls of Dean Ambelang's 8-year-old Soquel home weren't properly attached to the studs.

stability or structural soundness of buildings; that responsibility is really up to the contractor and architect. The county is interested in seeing that the building codes are enforced, but there's no way we can inspect every wall built and foundation poured; we can only do spot inspections."

Ben Lomond attorney Dan Cooper, who is representing Dean Ambelang and other disgruntled homeowners, agrees that counties have some protection from lawsuits.

"It's hard to sue city hall, that's true," he said. "But I'm going to wind up suing. We're looking into it. You just have to wonder how these kinds of things got past the inspectors. What do you get when you pay for your permits?"

In 1987, the county charged fees totaling \$16,806 for permits and fees for a 2,000 square foot house in the unincorporated area. About \$1,500 of that total went to the Planning Department for plan review and inspections.

"These costs have gone beyond reasonable control," said Ellis. "All people want is a nice, secure home, and (the county) makes you pay for all the other problems in the county. But the

county doesn't take the care to properly inspect. You pay them the money, but you don't get anything from it."

One woman's Santa Cruz Mountains home was damaged because bolts were not installed in part of the foundation.

"When we had this place built, the county inspectors were not fun to deal with," said the woman, who asked that her name not be used. "One inspector came out and made our contractor move all the switch plates in the house up two inches. Another inspector came out later and made him move them all down again. All this stuff is going on, and we find out 12 years later that major things were overlooked."

The woman is planning to rebuild without any county permits.

"Why would I want them to inspect it?" she said. "That's ludicrous. The reason we're repairing this now is because they inspected it once."

## LOTTO NUMBERS

16	25	28
39	40	43
BONUS NUMBER →		2