

# LETTERS



## FRT Truss Failure Documented

To the Editor:

I read your article "Fire-Retardant Trusses at Risk" (*Eight-Penny News*, 2/94) with great interest — because the "next wave" the article referred to has arrived. My firm was recently contacted by a commercial building owner to investigate the catastrophic collapse of the roof on a 10-year-old, 12,000-square-foot, two-story office building in Laredo, Texas. The collapse occurred during business hours and could have had disastrous consequences but for an alert employee who looked into the attic space to investigate the noises they had been hearing. He noted some split trusses, and got the building evacuated moments prior to the collapse.

Our investigation resulted in an opinion to the owner that the treated trusses had failed structurally and the failure was a result of deterioration caused by the fire-retardant treatment. In this building there can be little question of the cause (although attorneys can and do question everything) as

there was other framing present which had not been treated and had none of the symptoms of the treated wood.

Your article mentioned the controversy regarding moisture. While attic moisture may be a factor in some parts of the country, Laredo is not an area given to such problems. Heat is the main factor in South Texas. With outside temperatures reaching well over 100°F in the summer and up into the 90s in spring and fall, it is not unusual to encounter attic temperatures exceeding 150°F.

Detection through inspection by qualified people is the first step in finding out what the actual scope of this problem is. Engineers and architects who specified these products should be following up with their clients and telling the owners to have the situation investigated.

We've investigated one catastrophic collapse. We don't want to investigate *any* where there are serious injuries or loss of life. Lawsuits and finger pointing by those involved won't bring back the dead.

Dennis Flynn, P.E.  
Criterium-Flynn Engineers  
San Antonio, Texas

## Attracting Lightning

To the Editor:

I read with interest your article on lightning protection ("Foolproof Surge Protection," 2/94). The author makes many valid points and introduces products that I want to try since he has had such good performance from them.

I, too, have been fighting lightning for the last 25 years as a hvac/electrical service contractor. My reason for writing is my strong disagreement with his last paragraph. Mr. Cauldwell states: "Putting pointed objects high into the air *attracts* lightning, since lightning tends to strike the highest object around. Making your house seem even higher with a lightning rod hasn't yet made sense to me."

Protecting a home against destruction and possible electrocution demands a much higher priority over saving equipment from damage. A home should be safe from any lightning strike.

I have installed UL-approved lightning protection systems and feel they are worth the cost. These systems can easily cost \$3,000 installed. But if you only

## Foam Insulation Article Full of Bugs

In our June 1994 issue ("Jury Still Out," *Eight-Penny News*), we mistakenly quoted researcher Roger Akre as stating that carpenter ants "tore up" AFM's rigid foam insulation in tests, and that the only sample of the material that resisted the ants had so much borate that the foam lost its "functional integrity." We have since learned that the insulation sample Akre was referring to was polyurethane foam, not AFM's expanded polystyrene (EPS).

In more recent conversations, Akre clarified to *JLC* that he had tested multiple samples of AFM's borate-

treated, foam-core panels in both 1989 and 1991. These were prototype panels, submitted by AFM to test various levels of borate treatment. In all the tests, the ants were eventually killed with either "low-level" damage to the panels or no damage. These were all stringent "forced-feed" tests, in which the ants were forced to cross the panels to find food.

In additional research conducted this spring, after our June article went to press, samples of AFM's current foam-core panels (sold as R-Control panels) were tested two ways: forced-feed and with a choice between treated and untreated panels. In both tests, the ants died with no damage to the

panels. More tests are planned for the foam only, without the panels' OSB skins, which have a surface treatment of borate. If the foam passes the additional test, Akre says he will be confident of the material's resistance to carpenter ants.

Akre, an entomologist, says he is aware of no other foam insulation on the market that comes close to AFM's level of pest control. He maintains that building a house using foam insulation without sufficient insect resistance is a bad idea because once infested with termites or ants, he says, it is "nearly impossible to get the insects out of the foam."

— The Editors

have \$1,000 or less to spend, I have had excellent results with the following system: I extend two 20-foot-long 1-inch galvanized water pipes 18 feet above the highest ridge and near the ends of the house. This allows 2 feet in the attic for mounting and wiring. Using #6 bare copper wire, I connect these "rods" to each other through the attic, and down to two 10-foot ground rods driven at the nearest corners of the house, for a total of four ground rods minimum for the entire system. I run a wire to all metal chimneys, all electric panels, the metal water pipes, the telephone and TV cable protector boxes, and the footing rebar if it is new construction. I agree with Mr. Cauldwell that you should not use rebar as the only grounding path. I install the best lightning arrestor the budget allows to the main circuit breaker load terminals.

To answer Mr. Cauldwell, it has been my experience that this system attracts lightning to these rods, where it is conducted harmlessly to the earth, instead of arcing through the house causing death and destruction.

Melton E. Dearing  
Dearing Electric  
Helena, Ala.

Rex Cauldwell responds:

My article wasn't meant to address direct lightning hits — only surges coming in along the power and telephone lines. In most areas, the chance of damage from lightning-caused surges is much greater than the chance of a direct hit. Therefore, I think surge protection takes a higher priority. However, I think incorporating both surge suppression and the lightning rods is an intelligent approach on your part.

I, too, have experimented with one-inch galvanized pipes in high lightning areas. As you point out, they will definitely attract lightning. My point is that one normally doesn't want to attract lightning to a house. I still believe that if the house isn't the highest object in the area, it makes no sense to make it so. In my opinion, if you want to attract lightning, attract it away from the object to be protected. (That's exactly how NASA protects its equipment.) Why not install 40 to 60 feet of well-grounded galvanized pipe in the air at a safe distance away from the house and let the lightning be attracted there?

*Here is some information on rebar grounding you might like. Grounding to rebar was started by Herb Ufer. In the early '60s, satisfactory tests were done in California, Nevada, Arizona, and Oregon and as a result, the 1968 NEC recognized concrete-encased electrodes as a grounding medium. Since then, however, two problems have come to light. First, some contractors place plastic under the footing, defeating the ground. Second, research showed that electrical surges in the rebar turn the moisture inside the concrete to steam, which expands to 1,800 times in volume, and cracks the concrete. Based on this research, I typically avoid using rebar for grounding.*

*If the type of lightning arrestor you are referring to is a standard MOV design that mounts on the outside of the box, I wouldn't recommend it: These have been reported to cause fires. I prefer a unit that is totally enclosed within a metal box — so that when lightning attempts to fry everything in the area, the MOV cannot start a fire. I have seen these units explode and send shrapnel flying everywhere. I strongly recommend the Tyte-wadd instead, which mounts inside the panel under a standard 240-volt breaker. If the Tyte-wadd goes bad, it is designed to kick the breaker it is attached to. So although a Tyte-wadd can be installed on the main breaker, I don't recommend it.*

## OSB Bending Strength

To the Editor:

I would like to clarify some points in the article "Rating OSB Performance" (2/94). The manufacture of OSB is described as a two-step process (pressing the plies and gluing them together). This was the original method used by one manufacturer in a pilot-plant operation years ago, but currently all manufacturers form a multilayer mat, with strands in adjacent layers cross-aligned, then press it into a panel in a single step.

Also, the statement is made that in FPL tests, OSB "... proved to have equal or greater bending strength than plywood." In all the tests we have done, the average bending strength of plywood in the 8-foot direction has been greater than that

of OSB. Plywood and OSB are more nearly equal in the 4-foot direction.

J. Dobbin McNatt, Technologist  
Engineered Wood Products  
and Structures  
Madison, Wis.

## Young Growth Redwood

To the Editor:

The article "Exterior Trim That Lasts" (4/94) comments, "... these woods [redwood and cedar] are cut from a dwindling stock of old-growth trees."

In the case of redwood, this statement is not true. Most redwood products today are manufactured from an expanding source of vigorous young growth trees. Redwood is the nation's fastest growing commercial softwood. In fact, the California Timber Supply Model developed at the University of California, Berkeley, indicates that an average annual sustainable harvest of one billion board feet is achievable in the redwood region in the foreseeable future.

It is also inaccurate to pair redwood with cedar. Redwoods are harvested under the most stringent regulations in the world. California's forest-practice law requires that every harvest operation be reviewed in advance and approved by the state Department of Forestry.

Redwood is also the most protected commercial wood species in the U.S. 95% of old growth redwoods are already preserved forever in parks and public lands so that people can enjoy them.

Your readers should not base their lumber buying decisions on an arbitrary "old growth" label but upon whether they are buying a quality renewable resource manufactured by a responsible industry.

Pamela Allsebrook  
California Redwood Assoc.  
Novato, Calif.

Keep 'em coming! We welcome letters, but they must be signed and include the writer's address. The *Journal of Light Construction* reserves the right to edit for grammar, length, and clarity. Mail letters to JLC, RR 2, Box 146, Richmond, VT 05477.