LETTERS

Waning Lumber Quality?

To the Editor:

Stud grade lumber has a lot of wane these days. Why? I recently remodeled a 20-year-old house, and not one piece of lumber had wane. When did they change the specs?

Robert Muzzy
Athol, Mass.

Chris Donnelly responds:

The grading criteria for dimension lumber have remained virtually unchanged since 1970, when the National Grade Rule for dimension lumber was adopted. The amount of wane that is acceptable in the grade today was acceptable back in the '70s. What, then, has changed?

The answer, simply put, is the resource. Twenty years ago, the industry was geared more to the use of large trees. Individually, these trees allowed for a range of products — clear boards, shop grades, dimension lumber, and so on. The outer part of the log was cut off first. Slabs were often chopped up for fuel and the outer, or "jacket," boards resawn for the highest-quality finish lumber. With these boards went the wane. Typically, the shop grades would come off next, and then the tight-knotted dimension lumber grades from the inner part of the tree.

Today, the industry depends more on smaller trees, which do not allow for the range of products that larger trees do. Also, there is a greater demand for lumber these days (consumption of softwood lumber is nearly 30% more today than in 1976). Consequently, mills tend to take a closer look at what the grades allow and use cutting practices that maximize yields — resulting in more wane in dimension lumber.

A related comment that I often hear is that lumber is not as strong today as it was in years past. Some people point to the recent changes in the published design values of lumber — the so-called In-Grade changes — as proof that the strength of lumber has declined. But those familiar with the new numbers know otherwise. The changes in design values are mainly due to an overhaul in the way lumber is tested; if In-Grade had come along 20 years earlier, the lumber of the '70s would have had the same design values as the lumber of today.

Structural lumber grades are primarily a means of communicating the structural properties of the wood. If a builder needs something more — for example, wane-free studs — nothing in the grade rules precludes a mill from providing it. These studs are apt to cost more, but if that's what you need, you should ask your retail supplier about getting them.

Formerly the Northeast field representative for the Western Wood Products Association, Chris Donnelly consults on forest and forest products issues in Northford, Conn.

Live + Dead = Total

To the Editor:

The article "Simple Beam Sizing," by Harris Hyman, was a good example of simplifying the process engineers use to look at materials, shapes, and loads.The author correctly noted the floor load from the Uniform Building Code as 40 psf. This is the "live load." In this case, it would be the weight of people, furniture, and other items the floor must support. However, he should have also considered the "dead load," or the weight of the floor structure itself. Typically this can add 5 to 10 additional pounds per square foot to the total load.

This is a small correction to an otherwise excellent article.

William Bloom
Director of Engineering
Champion Home Builders Co.
Auburn Hills, Mich.

CAD Course Useful

To the Editor:

As a design/builder, AutoCAD user, and AutoCAD instructor for several years, I have a suggestion for smoothing the learning curve Gordon Tully describes in his article "Climbing the CAD Learning Curve" (*Building With Style*, 7/94).

The first and most important step is to take that class that "seems too basic for your needs." This is the class that shows you how the program is organized and how the patterns for the commands work. After mastering these basics, each new command won't require a new learning curve, because you now know what the program expects and how it should respond.

I've had many architects, engineers, and designers in my basic class who at first thought they'd be bored, but who went away capable of becoming productive rather than discouraged by trying to learn a complex program on their own. I've also had students who were self-taught but who were still surprised at how much they learned from the basic class. Most of these students are now off on their own and rarely need help. The people I get the most calls from are those who haven't taken a course — these people I gladly charge my $35/hr. consultation fee to get them over humps in their learning curves.

John M. Schaeffer
Central Oregon Community College
Bend, Ore.

Preventing Thermal Bridges in Steel Frames

To the Editor:

I am a general contractor in the Northern Marianas. The environment here is extreme: Winds can reach 200 mph plus and the tropical insects are voracious — altogether eliminating the feasibility of wood structures. When I came here in 1986, no one would believe that anything would work here but concrete. But now it is

pretty much accepted that a steel structure, engineered for the wind and seismic loads, is an attractive alternative.

Your article "Steel Framing: Thermally Challenged?" (*Focus on Energy*, 3/94) addressed thermal bridging problems with steel framing. We encountered this problem with fiberglass batts. We opened walls to find sagging insulation and noticed "hot spots" where the hat channel interior furring came in contact with the vertical structural member.

We finally came up with a solution used in commercial steel structures. We install 3 inches of vinyl coated fiberglass insulation between the outside sidewall skin and the framing, and 6 inches under the outside roof sheathing. This insulation comes in 6-foot widths and 100-foot lengths. Only the fasteners can "bridge"; the effect seems to be minimal. We find no hot spots inside and the interior stays cool. I expect that these practices would be as effective in keeping the cold outside as they are in keeping the heat outside.

Rip Stephanson
North Pacific Enterprises
Saipan, Northern Mariana

Tight House Issues

To the Editor:

The article "Are Your Houses Too Tight" (8/94) gave some sound basic advice. But I must take issue with the oversimplified statement, "Warn your customers about the danger of fireplaces." As for the advice to "steer customers toward a manufactured unit," prefab fireplaces have their own set of problems — with improper, unsafe installations and prematurely deteriorated metal chimneys, for example.

As for backdrafting caused by the operation of a kitchen exhaust fan — maybe some people like fireplaces more than they dislike cooking odors. Why not say "Warn your customers about the dangers of using a downdrafting kitchen exhaust fan"? The truth is, once homeowners understand the principles of negative pressure they can simply refrain from using exhausting appliances when they want to use their fireplace. Or vice versa. To make one the criminal is not responsible.

The complete picture regarding backdrafting of heating appliances should be looked at — not boiled down to a warning about fireplaces.

That said, personally I don't think the open fireplace is particularly appropriate in today's homes. Not so much because of its potential as a health hazard, but because it unnecessarily wastes an ecologically-sound residential fuel. And because such good alternatives exist.

Masonry heaters provide the same ambience of a fireplace, but add the potential to do whole-house heating. They are designed to be fired with the doors closed. During "tailout" (the last phase of the firing), backdrafting is nonexistent. And where fireplaces have been banned because of pollution, masonry heaters have won approval — for example, in Washington state and Colorado.

While technical discussion ensues over fireplace related problems, we need to remember that many home buyers will continue to want a fireplace. The hearth is a psychologically important, comforting presence in the home. It needn't be abandoned. If we in the building industry understand the issues and are aware of alternatives, we can channel this customer preference toward a better end — instead of just putting in a "prefab" and crossing our fingers.

Stephen Bushway
Plainfield, Mass.

Stephen Bushway builds masonry heaters and is author of The New Woodburner's Handbook, A Guide to Safe, Healthy and Efficient Woodburning.

To the Editor:

In the article "Are Your Houses Too Tight" (8/94), the following statement is made: "This was enough to cause a complete and continuous backdrafting of the natural-drafted gas water heater — adding carbon monoxide to the supply air and creating a serious air quality problem."

Gas water heaters do not produce carbon *monoxide* as a by-product of combustion. They produce carbon *dioxide*, which is an inert gas. If the backdraft was associated with an oil-fired water heater, then carbon monoxide gas would be present in the backdrafted air — causing a serious, if not deadly, problem.

Lynn F. Osborne
Montross, Va.

Gary Nelson responds:

Mr. Bushway makes several good points. We did not intend to imply that all premanufactured fireplaces were less prone to backdrafting than site-built masonry fireplaces. In fact, we suspect that many of the cheaper premanufactured units with loose fitting glass doors and other leaks will be more susceptible to backdrafting due to small negative house pressures, especially when installed in cold chaseways on exterior walls. We recommended to steer clients toward a premanufactured unit "that has been tested for operation in a negative pressure environment." We also meant to say that some, not all, manufactured units have very tight-fitting glass doors. Masonry fireplaces and heaters, especially when installed on interior walls and equipped with airtight doors, should be less prone to backdrafting at the end of a fire because the chimney will stay warm longer.

Regarding Mr. Osborne's letter: It is true that, properly installed, new gas water heaters should produce little or no carbon monoxide. The same is true for oil-fired equipment. However, over time burners and combustion air passages can become dirty from dust and lint in the combustion air or from scale falling down from the walls of flue passages. This can cause gas or oil equipment to begin producing carbon monoxide. Or other components can malfunction and cause carbon monoxide to be produced. We think it's a good idea for combustion equipment (including gas cook stoves) to be inspected annually, including checking for proper vent operation and measuring the carbon monoxide content of flue gases.

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.