Miscellany

Chimney Concerns with "Near-Condensing" Boilers

Reports of chimney damage from heating units with moderate efficiency ratings have caused concern among boiler manufacturers.

As a result, the Better Heating-Cooling Council, an industry trade group, has issued a warning that chimneys must be properly lined when such units are installed.

Until recently, boilers were divided into two categories based on efficiency: "condensing" and "noncondensing."

"Condensing" equipment takes most of the heat out of combustion gas before it is vented. That causes condensation, which contains highly corrosive materials such as hydrochloric and sulfuric acid. Therefore, condensing units must be installed with a special, corrosion-resistant venting system.

Less efficient "noncondensing" heating units cause less of a corrosion problem because the hotter flue gases escape before they reach their dew point and condense.

The problems have occurred with equipment that falls into a middle range of efficiency, now referred to within the industry as "near-condensing." These units have efficiency levels that range from 83 to 88 percent, and condensation can occur — particularly in a long or cold stretch of pipe or chimney.

Robert Ross, spokesperson for the BHCC, said problems have occurred primarily when an old, inefficient unit is replaced and the new unit is vented into an unlined chimney. In some instances, he said, corrosion has occurred after a special heat extractor (an "economizer") has been installed in the pipe or flue.

The corrosion does not occur in the boiler, Ross emphasized, but in chimneys, smoke pipes, and in some instances the sheet-metal heat exchangers in furnaces.

Engineers and several manufacturer representatives said they were aware of problems, and had heard reports of instances when corrosion was so severe that a chimney had collapsed. But none would speak on the record.

"This is industry-wide," one engineer said. "If you quote me by name, people are going to get the impression that there's something wrong with our boilers. The problem is not with the products — everybody wants better energy efficiency. The problem is that they are sometimes not installed in accordance with the manufacturer's recommendations."

While these recommendations vary, the warning issued by BHCC says near-condensing units "should be vented either through the type of pipe specified, or into a chimney that is in good condition and is fully lined with flue tile or the type of metal recommended by the manufacturer of the heating unit."

In general, the manufacturers we talked with suggested chimney liners such as vitrified clay tile, or special patented materials such as that produced by Selkirk Metalbestos (P.O. Box 631, Logan, OH 43138).

For more information, contact either the individual manufacturer, or the Better Heating-Cooling Council, 35 Russo Place, Berkeley Heights, NJ 07922. ■

— Steve Carlson

Transition Program To Renovate Triangular Building

This nine-bedroom, Manchester, N.H., home will be renovated by the N.H. Non-Profit Housing Corporation. When it's complete, it will provide transitional housing for seven women at a time, each with her own kitchen and bath.

The N.H. Non-Profit Housing Corporation recently received a $165,000 grant from the U.S. Department of Housing and Urban Development (HUD) to rehab the "Cheese Block," a triangular building located in Manchester, N.H. The building sits in an area referred to in the late 1800s as "Janesville." According to the city's records, "Jane" was an eccentric who refused to lay out the streets in the grid style being used in much of the rest of Manchester. Consequently, there are many odd lot sizes and shapes in "Janesville." Jane apparently built several homes in the area, but probably did not construct the Cheese Block. It was built later, about 1906, to utilize a triangular parcel. The nine-bedroom building is almost an exact isosceles triangle, and has not undergone any layout changes since its construction.

With the cooperation of businesses in the area, New Hampshire Non-Profit Housing hopes to provide housing in the Cheese Block for women in transition, aged 40 to 60, for periods of 3 to 18 months. Once the program is up and running, the house will be able to serve seven women at a time, as well as house a resident manager and provide some common living space. ■

Radiant Wood Floors Questioned by Flooring Industry

Radiant heating systems installed under wood flooring have raised concerns among flooring manufacturers. The people who make and distribute the systems, however, claim there are no documented cases of floor damage caused by the radiant heat.

Such systems, which originated in Europe, are becoming increasingly popular in the U.S. according to a spokesman for the Wirsbo Company. Wirsbo is based in Sweden with a wholly-owned U.S. subsidiary. The company reports it has sold roughly half a million radiant systems worldwide, of which 10 to 15 percent are installed in wood floors.

Since wood is vulnerable to changes in temperature and humidity, flooring manufacturers are worried about the effects of radiant heat on their products. The National Wood Flooring Association (NWFA) flatly advises against the use of solid wood over any radiant heat source.

Larry Wentzel of Chris Lumber in Maine says he was "extremely concerned" a few months ago when he learned that flooring he had manufactured was being installed over radiant heat in a local project. "Logically, that kind of heat will affect the stability of hardwood," he says.

Wentzel says he made numerous inquiries and "got information from both ends of the spectrum," but was not fully convinced.

The contractor for the project, Leslie Hoffman of Nomad Builders, says her crew initially shared Wentzel's concerns, but the installation went successfully. "There was some panic — it was a new process for everybody involved — but to date nothing has gone wrong," she says. "In my opinion there are other choices that make more sense, but there's been no complaint. A year from now, if there are 1/8-inch gaps, I'll consider that a problem."

Walter Whitley, executive vice president of the National Oak Flooring Manufacturers' Association, (NOFMA) says he has recently received "four or five calls" from members requesting information on the subject. Although the group does not endorse the application, it does supply guidelines for installing oak flooring over concrete radiant slabs in its Hardwood Flooring Installation Manual. Tom Consers, chairman of the Technical and Education Committee at NWFA, however, says his organization strongly recommends against any use of solid wood flooring over radiant heat.

Jim Saufferer, U.S. sales manager for Wirsbo, says there are no documented problems with any of the thousands of systems in place. However, he says proper installation, and temperature controls to prevent overheating, are essential.

The usual installation method is to nail 1x4 strapping over the subfloor, on 6-inch centers. Plastic piping (cross-link polyethylene) is installed between the straps, then covered with grooved aluminum plates. The hardwood flooring is installed directly over the plates.

An alternative, Saufferer says, is to staple the tubing directly to the subfloor, then cover it with a lightweight aggregate such as Gyp-Crete, and install the hardwood on top.

In either case, he says, the water temperature should be limited to 160°, and the temperature of the flooring should not exceed 82°.

A Wirsbo distributor in Maine, Eric Olsen of Earth Star Energy, agrees that proper installation and temperature controls are essential, and says his firm designs every system it sells. In retrofit installations, where the piping is placed beneath the subfloor, water temperatures must sometimes be increased to as much as 180°, he says, but the wood itself is not excessively warmed.

Whitley, of NOFMA, says he knows of no documented complaints, but "Our concerns would be whether this, or any system where the flooring is directly above uninsulated heat ducts, can cause excessive drying of the wood during the more severe months."

Excessive drying, he notes, can cause shrinkage and cracking of the wood. "Wood flooring, as a product of nature, is and will be affected by the changes of the seasons. Constant direct heat in the winter will affect it, but we don't have data (on this particular application)."

Consers, of NWFA, says he has not seen a Wirsbo system in operation, but has observed disastrous results from custom-built systems that operate on similar principles. One very large and expensive floor in San Diego, Calif., installed over radiant heat piping "lasted about 60 days," he says. "And when a floor goes bad, who gets held responsible? Not the heating contractor!"

Constant exposure to heat during the dry winter months inherently dries solid wood excessively, Consers says, so that during humid summer months, "it soaks up water like a sponge." If a client wants wood flooring over radiant heat, he says, it's important to use laminated wood, which is more dimensionally stable than solid wood.

Several sources interviewed agreed that any potential problems could probably be resolved by installing a European style "floating" wood floor, that is clipped rather than nailed in place. A floating floor can move slightly with expansion or contraction of individual members.

However, floating floors are possible only in upper-end houses. As Wentzel puts it, "the price is about $5 per square foot, and that's premarkup and pre installation. It's not a solution for the average homeowner." ■

— Steve Carlson

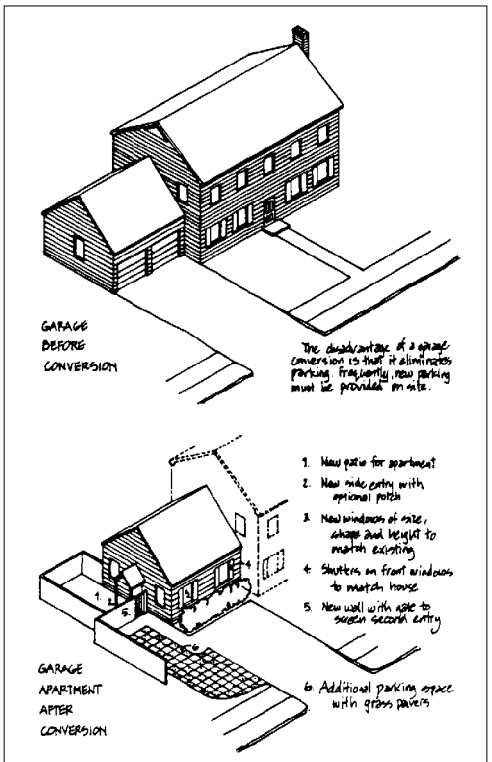
Seminars Sell Accessory Apartments

The concept of housing older relatives in apartments built in surplus space in single-family homes isn't new. But it has waxed and waned in popularity. The idea is beginning to gain appeal again, as more and more baby boomers grow into empty nesters. Since there are about 18 million homes in the U.S. that could accommodate these "accessory" apartments, the potential market for remodelers is enormous.

Accessory apartments can provide a variety of benefits, including income, added security, added companionship, and finally services in return for rent reductions. As a result they can serve several distinct markets, including the frail elderly, single parents, first-time homebuyers, and "snowbirds," (people who desert their northern climate homes for the winter).

But despite a growing desire for this type of "single-home conversion," homeowners and remodelers face zoning restrictions which often prohibit it. Currently, only about 40 percent of the country's zoning permits accessory apartments.

Convinced that interaction and information-sharing among the players would be beneficial, the U.S. Administration on Aging recently funded a seminar series aimed at professionals who might be involved in marketing — or obstructing — the construction of accessory apartments: real estate agents, remodelers, lenders, public agencies, and non-profits. At these seminars ("On Partnerships to Install Accessory Apartments") local zoning officials meet local remodelers, agencies for the aging, and lenders. The result is more understanding, cooperation, and often — zoning changes that allow the building of accessory apartments. According to Patrick Hare, whose firm developed the seminar series, "Getting workable zoning usually requires some kind of community effort like a seminar." He suggests that remodelers either take advantage of the government-funded seminars he produces, or set up similar forums in their area. For more information on the seminars, contact Margaret Haske, Project Director, at Patrick H. Hare Planning & Design, 1246 Monroe St., N.E., Washington, D.C. 20017; 202/269-9334. ■



Accessory apartments present challenges — the most important is to blend the new into the old. In this garage conversion, the change eliminated parking. Grass pavers were used to provide additional parking without a "parking lot" look.

Building Mansions? Here's a Money-Saving Tip

According to *Builder's Blueprint* (published by Trus Joist, Boise, Idaho), there's a contractor in Palm Beach, Florida who builds full-sized facades so that his clients can see how the finished product will turn out. The facades cost between $50,000 to $100,000, not much when compared to the final cost of the homes, which run from $5 to $15 million. Builder Robert Gottfried says it's a sound investment, because "it's hard to tell whether it will look the same on an oceanfront lot as on the blueprint."

The facades include real windows, doors, and moldings, and take about six weeks to build. Clients can notice subtle design flaws — such as an obscured view — and order changes. Gottfried has built as many as three facades for a single home. ■

OSHA Hits Builder with Record-Making Fine

A builder in the Rochester, N.Y. area was hit with a $65,000 fine for safety violations at two building sites, according to a report in the June 15, 1988 *Democrat and Chronicle*. It was the largest fine levied in nine years by the Buffalo/Rochester division of the U.S. Occupational Safety and Health Administration (OSHA).

At one site, the company failed to use guardrails on scaffolding. At a second site, the company was cited for failing to instruct employees in recognizing and avoiding unsafe conditions; failing to provide hard hats in hazardous areas; and installing scaffolding legs on soil without the required bases.

The firm, which builds condominiums and single-family residences, intends to appeal the ruling, not to contest the violations, but to contest the size of the fine. According to Tom Boyd, on staff at the OSHA office, the size of the fine was "predicated on a number of things, including the fact that this company had been cited before on a number of occasions." Apparently, it pays to play it safe in Rochester. ■

Building and Remodeling Index Now Available

A new database geared to builders and remodelers wanting to stay up-to-date on products, practices, and building technology issues such as radon, asbestos, and air-quality, is scheduled to be released this Fall. The Building and Remodeling Index (BRI) abstracts residential building technology reports and conference proceedings listed by the National Technical Information Service database since 1987. It abstracts from most of the popular U.S. and Canadian building publications, including *New England Builder, Energy Design Update*, and *Old House Journal*. You'll also find *Walls and Ceilings*, *Multi-Housing News*, and other less familiar titles. The first annual hard-copy reference listing will be available in February 1989 for $40, but the index is available on floppy diskettes (both IBM and MAC versions) for $99 to start up, and $69 for one-year's worth of quarterly updates. In most cases, BRI can provide photocopies when back issues are not available. For more information, contact BRI, P.O. Box 7466, Portland, Maine 04112; 207/871-7066. ■

Flat Oval Beats Rectangular HVAC Ducts

According to a report recently released by United McGill Corporation, round duct, because of its lower installation and operating costs, should be used whenever possible. However, properly sized round duct does not always fit in the spaces as specified by the architect. In cases when round duct cannot be used, flat oval duct is a better alternative than rectangular duct. *Engineering Report No. 150* compares flat oval to rectangular duct and shows that flat oval duct has many benefits, including more design flexibility, lower pressure losses, less weight per foot length, fewer joints, less sealing, lower heat/energy losses, and less noise. For a free copy of the report, write to United McGill Corporation, P.O. Box 6112, Westerville, OH 43081; 614/882-7401.

Other reports available are: *Engineering Report No. 147*, which compares round duct to rectangular; and *Engineering Report No. 149*, which discusses duct measurement. ■

Tax Talk:

Don't Mess with Payroll Taxes

Other countries marvel at the American method of collecting taxes. Our system is basically voluntary. A prime example is how the government relies on businesses to act as unpaid tax collectors for taxes withheld from employees' paychecks.

Payroll taxes are considered "trust funds" in the hands of the employer, which means the employer has no right to use this money for anything other than payment to the U.S. Treasury. Non-payment is a no-no. The law provides for a 100-percent penalty for failure to remit all or any portion of the trust funds, and not one penny paid by an offender is deductible.

So, who might be an offender? Unfortunately, the law has been interpreted to apply to almost who played a role in the misuse of payroll trust funds.

Consider this situation. A company has an office manager who signs checks, but the sole owner is the guy in charge. The manager prepared a check to remit the payroll taxes but the owner held it up because some major suppliers were screaming for their money. He told the manager to pay the suppliers. This went on for months, until an IRS collection agent arrived. When the agent found there was no money to pay the back taxes, he invoked the penalty — against the office manger. "Just following the boss' orders," he protested, and added that he would have been fired had he refused. The court sided with the manager, noting that the fear of losing his job saved him from willfully failing to pay," the measuring rod for determining liability. If the manager had failed to make the payments on his own, he would have been stuck with the penalty.

In another case, a husband and wife were assessed separately for unpaid payroll taxes. Both were officers and could sign checks, but they were not paid for their services. The court found that the husband was in control of the business and therefore personally liable for the unpaid taxes—and the 100-percent penalty. But the wife was off the hook, since she wasn't involved in the business enough to be responsible for willfully failing to remit the payroll taxes. She only signed three checks and had neither managerial responsibility nor any role as a financial decision-maker — (*Kielisch vs. U.S.*, 86-2 USTC 9631).

Remember, the IRS has a lot of muscle when it comes to collecting payroll taxes. Anyone with a hand in failing to pay may be personally liable for the full amount. *A way out:* Don't risk personal liability and being forced to pay a nondeductible penalty. Instead, consider loaning the company the money needed. If it can't pay you back, at least you'll have a bad debt deduction. ■

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New Association Promotes Hydronic Radiant Heat

Several leaders of the hydronic radiant heat industry have formed a new group, the Hydronic Radiant Heating Association (HRHA), dedicated to promoting radiant floor and surface heating technology in North America. The new association hopes to expand public awareness about the technology, establish quality standards, provide membership listings to architects, builders, and homeowners, and act as a clearinghouse for information about the technology.

HRHA will publish a newsletter covering the industry, and sponsor a series of technical workshops for engineers, contractors, and installers.

Headquarters of the new association will be at 123 C St., Davis, CA 95616; 800/622-4742 (916/753-1115 in Calif.). ■

Solid Fuel Safety Focus of New Hotline

Contractors and consumers with questions about wood and coal stove safety can call 800/22-STOVE. A service of Vermont Castings (Randolph, Vt.), the hotline is staffed by eight of the company's employees, who are collectively known as "Team Fireside." The group also writes *The Fireside Advisor,* a newspaper which reports on new products, EPA emissions news, and most frequently asked questions. For a copy contact Vermont Castings, Inc., Prince St., Randolph, VT 05060. ■

From What We Gather

The remodeling industry fell short of predictions, growing only 3 percent in 1987, reflecting mainly the rate of inflation — according to the latest figures from the Census Bureau. The strongest sector was repair and improvement of rental properties, which grew at about 7 percent. Still, remodeling remains strong at over $94 billion, and NAHB predicts 5-percent growth for 1988 and 1989. Source: NAHB Remodelors Council Exchange.

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Yuppies move over, and make way for Taffies. "Taffies," or Technologically Advanced Families are the first on the block to buy CD players and VCRs, and use electronic banking. These electronics buffs represent only 10-percent of the market, but spend 20 percent, according to a report in *Building Supply Home Centers*. About 2.5 million of these families already own three or more remote-control devices.

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If you like cherry wood, expect to pay up to 30 to 40 percent more than you did for the wood a year ago — due to increased demand here and abroad. If you're looking for a hardwood bargain, check out mahogany, which is down 25 percent from a year ago.

Wood basements reached their peak in 1982 when they accounted for 1.4 percent of all new U.S. basements, based on data from NAHB, the Home Owners Warranty program, and Housing Industry Dynamics. It has since declined to about 1.1 percent. *Concrete Construction*, which reported the study, speculates that lack of consumer acceptance is the main stumbling block.

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A quarter of all skylights go in family rooms, according to a survey conducted by *Roofer Magazine*. Bathrooms and kitchens get 19 percent each, followed by entry halls (12 percent) and bedrooms (6 percent).

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Keeping healthy cash flow is the main business worry cited by 25 percent of small-business owners surveyed by Dun & Bradstreet. Following on the list were securing liability insurance (17 percent), and finding qualified, motivated workers (14 percent).

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Workers comp premiums have shot up in New York by 10 to 25 percent since the first of the year. Rates could go even higher in Maine, where insurance companies are asking the state insurance commission to double existing rates. Rising medical costs are cited as the reason.

Barn Moving Worries Vermont Preservationists

Vermont preservationists are worried that increased interest in dismantling and moving barn frames (see "House Moving — Piece by Piece, in this issue) will result in the loss of Vermont's farming heritage. "Once you've moved a building out of its setting, it has lost its history, its sense of place, its historic orientation," says Gina Campoli, a staff member of the state's division for historic preservation. "It's just not a preservation solution," she adds.

Most barn movers, however, claim they are helping, not hurting, barn preservation. According to Ken Epworth of the Barn People of Woodstock, Vt., most of these barns are now being used to store "broken cribs, 1950s style furniture, and old cans of paint. Epworth claims that the primary reasons for the disappearance of the Vermont barn are fire and natural deterioration. "The structures we're taking down are in sad shape, which on site are very difficult to repair or replace. Most of them would be down in 15 to 20 years anyway from structural failure. Once we disassemble them, it's fairly easy to cut off the rot and replace rafters with old wood. So perhaps it looks like we've moved perfectly good barns — but we haven't. In fact, it's very rare that we're called in to deal with a 'landmark' barn — a barn that is in perfectly good shape. If we are called in such a case, we won't do anything with it.

Most (75 percent) of the frames Epworth's company moves are moved out of state — another complaint of the historians. Epworth feels that this occurs because "It's a rare Vermonter who would even consider converting a barn into a home. But that's changing. As more and more affluent individuals move into Vermont, there is an interest in keeping the frames here — and we're seeing an increase in in-state moves."

The vast majority of frames sold are the typical "Yankee barn," because its 30x40-foot dimensions are easily translatable into homes. They tend to be easily available too, since they were typically the property of subsistence farmers, who used them to shelter two to six cows, a horse, and a wagon. "It's all tied up with the decline of agriculture in the Northeast," says Campoli, "If farming was a more lucrative activity, these buildings would be used, and it wouldn't be a problem."

Campoli notes that the National Trust for Historic Preservation is promoting the adaptive reuse of the buildings on site through its Barn Again program, based in Denver, Colo. "But that takes money,' she says, which is unavailable for Vermont barns. And adaptive reuse is not the ideal solution, anyway, she says, since "when you adapt the building to residential use, you lose its original character." The best solution, she suggests, is to do more to encourage small-scale farming in Vermont and make the barns useful again. ■

— *Kate O'Brien*

Profile of the Remodeling Industry...

Residential remodeling was the most important operation of 67 percent of the 800 builders and contractors surveyed by NAHB in 1987. All did at least some remodeling. The next most important activity was new single-family building at 13 percent, renovation of residential units at 7 percent and commercial remodeling at 6 percent. This is not surprising given the marked increase in remodeling expenditures over the last few years. Between 1980 and 1986 remodeling activity increased 117 percent. The only exception to this trend was during the recession of 1982.

Remodeling Expenditures

(Billions of Dollars)

Year	Total Expenditures	Maintenance & Repairs	Additions & Alterations	Major Replacements
1977	31.3	11.3	14.2	5.7
1978	37.5	12.9	16.5	8.1
1979	42.2	14.9	18.3	9.0
1980	46.3	15.2	21.3	9.8
1981	46.4	16.0	20.4	9.9
1982	45.2	16.8	18.8	9.7
1983	49.3	18.1	20.3	10.9
1984	69.8	28.9	27.8	13.1
1985	80.3	35.4	28.8	16.1
1986	91.3	36.0	38.7	16.7
1987 QI	91.5	37.5	36.3	17.7
1987 Q2	88.9	32.4	42.1	14.4

Detail may not add to total due to rounding.

Q1 & Q2 1987 are seasonally adjusted annual rates

Source: Bureau of the Census, Construction Reports, Series C-50, Residential Alterations and Repairs.

Source: Housing Backgrounder, NAHB