

Outdoor Wood Boilers: Appropriate Technology or Deadly Device?

Local Matters

By Ken Picard [07.22.09]

Karen Paris knew something was wrong when no one answered her home phone. It would be days before she'd learn how terribly wrong, and months before she'd have a clue as to what killed her mother.

Paris was working the late shift at General Electric's Rutland plant on the last night of August 2006. She and her mother, Donna, lived together in Benson with Karen's disabled adult brother, Tom. Mother and daughter shared the care-giving duties for Tom, who's been in a wheelchair since he was a child. Because he has cerebral palsy, someone is always home with him.

When no one picked up the phone, Paris raced home, where she distinctly recalls smelling a foul, burning odor when she got out of the car. Inside the house, she found her mother lying unconscious on the floor. Her brother, slumped over in his wheelchair, looked blue.

Karen was able to rouse them both, but her mother resisted going to the hospital. The next morning, the elder woman was still complaining of nausea, weakness, headaches, and pains in her arm and back. She was taken to [Rutland Regional Medical Center](#) [1], then airlifted to [Dartmouth-Hitchcock](#) [2], where she died less than 24 hours later.

The cause of death, according to Paris' attorney, was listed as a heart attack, though the 61-year-old woman had no known history of heart ailments. Neither an autopsy nor a blood test for carbon monoxide was ever performed.

The culprit, or so Paris claims, was smoke from an outdoor wood-fired boiler being operated by her neighbor, Nick Lussier. Paris has since filed a wrongful-death suit in Rutland Superior Court against Lussier and Guy Charlton of [Grandfather's Heating](#) [3], who installed the device. Paris' lawsuit alleges that fine-particulate smoke from the improperly sited wood boiler caused Donna Paris' lungs to fail, resulting in her death.

Lussier and Charlton both deny that allegation and claim they aren't at liberty to discuss further details of the case. But environmentalists and even some state officials say the lawsuit highlights an as-yet unaddressed problem with outdoor wood boilers: Despite tougher rules in the works, thousands of older and dirtier units are still operating throughout Vermont, creating an unknown number of public-

health problems.

As the name suggests, outdoor wood boilers, or OWBs, are wood-fired water heaters used for providing heat and hot water to homes, small businesses, greenhouses, swimming pools, spas, etc. Larger than an indoor woodstove and located outdoors, typically in a small shed or outbuilding, an OWB heats water to just below boiling, then pipes the hot water indoors.

Because OWBs don't burn at a high temperature, they utilize a very primitive combustion technology. Older units tend to generate a lot of smoke, which contains fine particulates and chemicals that are harmful to human health. The [American Lung Association of Vermont](#) [4] reports that the average old-style OWB emits 10 times the minimum EPA standard for wood-stove emissions, and 100 times that of the most efficient stoves on the market.

In October 1997, Vermont became the first state in the country to regulate OWBs, requiring that units be set back at least 200 feet from neighboring structures. Smokestacks have to be at least as high as the rooftop of the structure they are heating.

Since then, the state has adopted additional OWB regulations. Last month, for example, the [Air Pollution Control Division](#) [5] held a public hearing on its proposed "Phase 2" standards, which take effect on March 31, 2010. After that date, no OWB can be sold in Vermont unless it complies with the latest EPA emissions standards.

That said, critics of the new rules, including some APCD officials who helped draft them, say they don't go far enough to prevent situations like the Paris case from happening again. They point out that nothing in the new regs addresses the thousands of older units still being used around the state.

"It worked beautiful. It was nice and toasty in my house. Never been more comfortable," says Nick Lussier, Paris' neighbor and one of the targets of her lawsuit. "But it was a smelly freaking thing, no doubt about it."

In the winter of 2006-07, following their mother's death, Karen and Tom Paris began having persistent health problems of their own, including headaches, coughs and irritated eyes. The respiratory issues were especially problematic for Tom, who lacks an adequate gag reflex for clearing his throat.

On February 20, 2007, when Karen Paris spotted dense smoke coming from a shed next to the Lussiers' house, she filed a complaint with APCD. In March, environmental analyst Philip Etter inspected the Lussiers' property and cited its owners for having installed the unit too close to the Paris house. Furthermore, the smokestack was not tall enough.

Lussier acknowledges the error, but blames the person who sold him the unit: "Had I'd a known before I bought it about all these rules and regulations, I never would have bought it."

Despite his citations, though, Etter lacked the authority to shut down the OWB; in Vermont, it's illegal to turn off a residential heating source during the winter. So, Paris says, she and her brother continued to suffer from their ailments. Her complaints to the town health officer and the Benson Select Board went nowhere, she alleges, because Charlton also chairs the town's select board. It wasn't until Paris filed for an injunction that the OWB was shut down, and Charlton purchased the unit back from Lussier. That winter, Paris' attorney, Bob Manchester, paid for the Lussiers' propane heat.

Once the Lussiers stopped operating their OWB, Paris claims, their health problems subsided. Two

weeks later, blood tests confirmed she and her brother had recently been exposed to high levels of carbon monoxide. A test of their own home's appliances turned up nothing abnormal.

Although the problems in Benson may have been the result of a poorly sited OWB, Etter at the Air Pollution Control Division points out that even properly installed older units can create public nuisances.

"It's wood smoke, which can be pretty nasty stuff," he says, explaining that, due to their method of operation, they can still generate dangerous pollutants such as benzene, formaldehyde and polycyclic aromatic hydrocarbons, or PAHs, which are human carcinogens.

How many such units are out there? By law, dealers are supposed to inform the state when someone buys one. According to state records, only 939 such units are on file, though Etter estimates that there are "several thousand" in operation. But accurate numbers are hard to come by, because the state hasn't done a wood survey in 15 years.

Etter also cited Grandfather's Heating for its failure to notify the state about the installation, as required by law. In his defense, Charlton says he always informs his customers that they're required to fill out a state-notification form and return it to him. Unfortunately, he says, only 65 percent of his customers ever do so. "There's not a whole lot you can do to force a homeowner to sign that thing," he adds.

"I think it would be useful to have more enforcement tools to deal with problematic units," says Etter at APCD. "There are certainly some cases out there where, because we don't have those tools, our hands are tied."

Etter's boss, Dick Valentinetti, agrees. As director of the Air Pollution Control Division, which drafted the new OWB rules, Valentinetti doesn't believe they go far enough.

"The manufacturers have reduced their emissions significantly, but they could do better," Valentinetti says. "There's no doubt that we could burn wood more efficiently and with less pollutants."

Ideally, Valentinetti would like to see Vermont adopt a rule that requires older OWBs to either be replaced or junked when a property changes hands. He also supports the idea of creating a state buyback program that helps owners of older units replace them with more efficient ones. Finally, he'd like more authority to crack down on nuisance OWBs. As he puts it, "I've seen people sell their houses because they couldn't take it anymore."

So, why can't the director of Vermont's Air Pollution Control Division get tougher rules adopted? Politics. "I couldn't get it through the governor's office," he says.

Last time the state tried to adopt stricter rules on wood boilers, Valentinetti recalls, the manufacturers hired an influential Burlington PR firm to orchestrate demonstrations around the state.

"Obviously, this had a lot of influence on politicians when they got calls from angry citizens who've spent \$10,000 to \$150,000 in good faith" on these units, he says.

Though Valentinetti holds a degree in public health, he won't speculate on whether wood smoke from an OWB caused Donna Paris' death; that's up to a court to decide, he says.

“But I think it could have been a contributing factor,” he suggests. “There’s a lot of information out there that wood smoke affects not only respiratory issues but heart-related issues, too.”

Valentinetti cites an episode from several years ago, when large forest fires in Québec adversely affected air quality in Vermont. At the time, he says, [Fletcher Allen](#) [6] saw a spike not only in respiratory admissions, but cardiac-related ones, too.

That won’t stop OWBs from selling. While the price range for new ones — \$9000 to \$12,000 installed — makes them less than affordable for many Vermonters, the federal government is now offering a 30 percent tax credit for purchasing new heating units. And, with prices rising on all home-heating fuels, dealers like Charlton say they’ll continue to be a desirable option, new rules notwithstanding.

For her part, Paris just wants the state to ensure that no one goes through what she and her brother have. Paris claims she’s already spent \$45,000 on her legal battle, and it’s not over yet. The case is expected to go to trial this fall. As she puts it, “If I didn’t keep fighting for my family, we’d be leaving our house in a pine box, too.”

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Links:

[1] <http://www.rrmc.org/>

[2] <http://www.dhmc.org/>

[3] <http://www.rutlandherald.com/apps/pbcs.dll/article?AID=/20080629/BUSINESS/806290358/1011/BUSINESS>

[4] <http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=38034>

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