

NOTEBOOK

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EDITED BY JON VARA

Whirlpool Bacteria Complaints Spark Lawsuits

Keeping tubs clean from day one may be key

by Ted Cushman

Lawyers in Waco, Texas, have launched class-action lawsuits against Jacuzzi, Kohler, and Lasco. Waco attorney John Malesovas says his office has uncovered e-mail complaints to tub makers from consumers about "schmutz," "grunge," and "gunk" spewing from the jets when the unit is filled and turned on. Malesovas says his clients have not received the bathing experience they paid for and should get their money back.

When the tubs are emptied, the suit claims, undrained water in the hidden plumbing supports the growth of "biofilms," or organized communities of bacteria that survive cleaning efforts and quickly recontaminate the bath water when the tub is next used.

Company customer service responses to complaints were misleading, asserts Malesovas. He says Jacuzzi sent many homeowners the same canned e-mail,

saying, "Sounds like you have an algae problem," and advising the homeowner to flush the pipes out with a commercial algaecide.

But Malesovas refers to a report by Dr. Rita Moyes, a microbiologist at Texas A&M University who tested water samples from 50 whirlpool baths. Instead of algae, Moyes found millions of *Legionella*, *pseudomonas*, *staphylococcus*, and human intestinal bacteria — all potentially infectious organisms.

Compared to tap water from the same houses, Moyes reported, whirlpool tub water samples had bacteria counts averaging 5,000 times higher, with some samples containing tens of millions of bacteria in a half ounce of water.

Jacuzzi responds. Reached by phone, Jacuzzi president Phil Weeks told *JLC*, "The overall number of complaints about debris in a bathtub relative to the total number that we have sold is minuscule

over the years. And the purging instructions that have been used for years have solved many, many of the problems."

Persistent debris problems are few, says Weeks, and a lot of those are the result of a problem upstream: "Any bathtub is at the end point of the water system. Mineral content, or other things upstream, can affect all the water appliances in a home."

Kohler officials directed *JLC* to the company's website at www.us.kohler.com, where a statement quotes microbiologist Dr. Charles Gerba as saying, "There is no documented evidence of the company's whirlpool bathtubs having posed a health hazard to consumers." Kohler advises consumers to purge their tub units at least twice a month with two teaspoons of low-foaming dishwasher detergent and four ounces of household bleach.

A competitor weighs in. Whirlpool makers face a related attack from Dallas-

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"Critical Habitat" Under Review

One of the most controversial provisions of the federal Endangered Species Act has to do with the designation "critical habitat," which permits the National Marine Fisheries Service and the Fish and Wildlife Service to restrict land-use practices that might harm an endangered or threatened species within the specific habitat area. For years, builders have complained that this unfairly restricts development, and several recent events suggest that the Bush administration may be listening.

The National Marine Fisheries Service recently announced its plans to redraw the critical habitat designation for 19 salmon and steelhead populations in Washington, Oregon, California, and Idaho. The decision came in response to a lawsuit filed by the NAHB and 16 other groups, including developers and local governments,

which contended that the original critical habitat designation was "excessive, unduly vague, not justified as essential" and "not based upon a required analysis of economic impacts."

The agreement on the salmon lawsuit builds on a federal court ruling issued in May of 2001. In the earlier case, which pitted a group of New Mexico cattle ranchers against the Fish and Wildlife Service, a Denver court ruled that economic impact must be considered when an area is designated as critical habitat. The Fish and Wildlife Service has announced that it will also review, and possibly set aside, critical habitat designations for a number of other endangered species, including the Newcomb's snail, found in Hawaii; the Gila trout of New Mexico and Arizona; and the Northern Great Plains piping plover.



Whirlpool Bacteria Complaints

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based Sanijet, Inc., a new competitor whose jetted-tub design doesn't rely on hidden plumbing.

Sanijet models have detachable and washable impellers that mount on the inside walls of the tub units and are driven by individual motors. On the company's website at www.sanijet.com, Sanijet highlights the Texas lawsuits and claims that only "pipeless" Sanijet tubs allow complete disinfection.

But Sanijet has met resistance in trying to move its tubs through traditional K&B showroom channels; showrooms have been reluctant to bring in a new product whose literature paints other units on the floor as virtual slime factories. Sanijet has pulled its models out of showrooms nationwide and is pitching the tubs direct to homeowners through its website instead.

of legionnaires' disease.

But unlike spa-type hot tubs, bathroom whirlpool tubs are drained after each use. Do the germs that can thrive in poorly maintained hot tubs pose a risk in bathroom whirlpools? The question is controversial.

Bad bugs in bunches. Scientists at Montana State University's Center for Biofilm Engineering (CBE) in Bozeman have found that once bacteria like *Legionella* or *pseudomonas* attach to a plumbing surface, they protect themselves with a matrix of secreted polysaccharide slime, forming tiny channels to bring in food and expel wastes and toxins. When tub jets are turned on, individual bacteria and bits of biofilm are shed into the water.

At a public health conference in Ontario, Canada, CBE director William Costerton, Ph.D., said whirlpool bathers might inhale water droplets contaminated

these people have had their work accepted by any scientific body that we know of."

"We've employed a number of experts who have studied the *pseudomonas* and *Legionella* infections that have occurred in spa units," says Weeks, "and their professional opinion is that they don't see how this could be a problem in a whirlpool bathtub unless there's some other contamination upstream."

Cleaning solutions. And it's true that not all whirlpool owners are complaining. On an Internet chat board where Sanijet V.P. Philip Klement joined a homeowner discussion about whirlpools, some consumers did express dissatisfaction; but others reported using their units regularly without noticing any slime problems.

The difference may depend on whether the tubs are kept clean from day one. "The need for elevated levels of the disinfectant is to kill an established biofilm," CBE engineer Darla Goeres told *JLC*. If you start with a clean tub, she says, "you may be able to maintain sanitation with much lower levels."

Goeres says that Malesovas paid for a CBE study to identify biofilms in whirlpool tubs. "But then no one has supported us to do the study in drain-and-fill whirlpool bathtubs to test different disinfection techniques. That's research that needs to get done, and I am optimistic that you could come up with an effective cleaning protocol, especially with a brand-new tub. But the exact amounts that would be required, we don't yet know."

"Jacuzzi has solved most of the problems that have occurred," maintains Phil Weeks. "There have been some debris cases up until recently that we have been unable to solve," he acknowledged, "but in the last 18 months or so, we found a product that was being used to clean milk pipes in the dairy industry, and that has solved all the cases that we've ever used it on. We now provide that at no charge on an as-needed basis when other things don't solve the problem. We want people to be happy with the product."

In test samples from 50 whirlpool baths, tub water had bacteria counts averaging 5,000 times higher than tap water from the same houses

Jacuzzi's Phil Weeks comments, "Sanijet is selling a concept that moves water, but they're not really selling a whirlpool bath. Their system doesn't induce air into the action, and really the hydrotherapy benefits of a whirlpool bath are derived by mixing water and air together. They've tried to sell cleanliness as their main issue. I think the marketplace will determine whether that's valid."

Unhealthful bacteria. So what about the health claims? Under the wrong conditions, there is no doubt that the bacteria Moyes identified can cause illness and even death. Medical journal articles have blamed bacteria in hot tubs for infections ranging from a common rash called "*pseudomonas folliculitis*" to dangerous pneumonias, Pontiac fever, and a bacterial infection dubbed "hot tub lung," as well as several fatal outbreaks

with bits of bacterial biofilm that CBE researchers have observed "actually bouncing in a haze over the whirlpool."

And the organized films are tougher and more dangerous than free-swimming, or "planktonic," forms of the same bacteria, says Costerton. "[Biofilm fragments containing] as few as 100 cells of *pseudomonas* or *Legionella* can establish a pulmonary infection in animals," he testified in one Texas case. "Biofilms can only be killed by concentrations of biocides 1,000 to 1,500 times higher than those necessary to kill planktonic cells.... Two teaspoons of dishwasher detergent and four ounces of household bleach circulated for 10 to 15 minutes would have very little effect."

"If you look at Costerton and Moyes," counters Jacuzzi president Weeks, "they have formed an opinion, but neither one of

OFFCUTS

Destructive Formosan termites continue to be a serious pest in much of the Southeast, as demonstrated by the success of a simple specimen-collection technique used by researchers at the Louisiana State University Forest Products Laboratory. "I fill a plastic milk crate with scraps of wood and leave it in an infested area for several weeks," says Dr. Ramsay Smith. "At the end of that time, it might contain 50,000 termites."

After a 22-year legal battle, a dispute between a builder and a homeowner in New Zealand has been resolved by the nation's highest court. A panel of judges ruled that homeowner Bruce Adkin must pay builder Keith Brown an overdue \$15,000 for the modest two-story house that Brown built for him in 1980. Adkin had alleged that the house contained defects that made it unsafe, although an independent panel of building experts found that the defects could have been remedied inexpensively and that Brown was not given a chance to complete the job. In addition to the original \$15,000, Adkin was ordered to pay about \$34,000 in interest and legal costs.

A new refrigerated oven may be just the thing for fans of high-tech kitchen hardware. The Whirlpool Polara range, which will go on sale in July, features a programmable oven that will keep a prepared meal cold until the timer tells it to shift into cooking mode, allowing the busy homeowner to walk in the door to a hot meal. If you're late, it shifts into a warming mode; and if you're really late, it automatically produces leftovers by switching back to cooling.

Canadian lumber producers hope to increase lumber sales to China, according to the *Toronto Globe and Mail*. A trade organization, the Council of Forest Industries, recently persuaded China's central government to include a chapter on North American wood-platform framing in the newest version of a national building code, which is expected to be approved this summer.

A New Jersey appeals court has struck down a state regulation designed to combat sprawl. The regulation, implemented last year, required builders to undergo extensive environmental reviews before undertaking projects that involved building seven or more houses in areas without public sewer systems. The court ruled that the regulation had been improperly adopted because the state had failed to allow advance public comment.

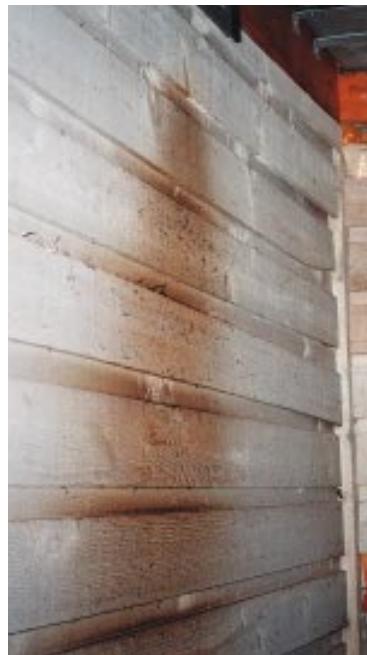
Euro Studs Gaining Ground in Eastern U.S.

Canada shipped more than 18 billion board feet of lumber to the U.S. in 2001, making it by far our biggest supplier of imported framing lumber. (Total U.S. lumber production was just under 35 billion bf during the same year.) But other lumber-producing countries are making their presence felt in the U.S. as well, including Germany, Sweden, Austria, and several other European nations.

According to the forest industry newsletter *Widman's Market Barometer*, European producers will be stepping up their exports to the U.S. by more than 50% this year, to a total of about 810 million board feet. That still represents only about 2% of total U.S. softwood consumption, but along the Eastern seaboard — the zone of entry for most European lumber — imports from across the Atlantic could fill 8% of the total market need.

Shawn Church, of the lumber market report *Random Lengths*, notes that most of the imported European lumber consists of 2x4s and 2x6s, and that the overall quality is very good. "There's usually no wane," he says. "It's mostly Norway spruce stamped number 2, although it's usually more like a number 2 and better."

Everyone knows that smoking is bad for your health, but it can also be hazardous to your siding. This picture was taken beneath the exhaust outlet of a heat-recovery ventilator (HRV) serving a three-year-old home inhabited by heavy smokers. In addition to being a graphic reminder of the dangers of smoking, it demonstrates that HRVs remove significant amounts of pollutants from indoor air and underscores the need for regular inspection and maintenance of the HRVs themselves: Although we can't see the interior of the ventilation unit, the condition of the wall suggests that it's probably due for a good cleaning.



SOLPLAN REVIEW

Concrete Blasts Off

When we colonize space, will our interplanetary habitats have concrete basements? Don't laugh yet. Students at the University of Alabama in Huntsville have launched the first rocket made from concrete. The prototype craft isn't quite ready for interstellar missions — it's about two feet high, and its two-minute maiden voyage reached a height of about 500 feet — but the school appears to be serious about concrete as a space-flight material.

"There's a really good chance these materials will replace the aerospace composites that are out there now," said UAH's Dr. John Gilbert, one of the faculty advisers on the project. "I think we can make structures out of concrete that are lighter and more flexible than structures made of graphite



epoxy composites."

This is no ordinary concrete. Made from a recipe that includes Portland cement, glass microbeads (microscopic hollow spheres), latex, acrylic fortifier, and water, and reinforced with graphite fiber, it's a flexible, high-strength material light enough to float

on water. Students developed the formula as part of the school's participation in the annual ASCE/MBE National Concrete Canoe Competition.

Alabama is a perennial finalist in the canoe events, and its latest model, *Survivor*, is designed to be flexible. In fact, it's one of the first "STARS" (Strategically Tuned Absolutely Resonant Structures). The idea is to capture the energy of wave resonance and use it to make the canoe go faster, although it makes the ride a little strange (like a cross between a bicycle and a camel, say the paddlers).

Details of the concrete canoe project and an mpeg video of the concrete rocket launch can be found online at www.uah.edu/student_life/organizations/ASCE/Competition/2001.htm.

Big Builders Getting Bigger

A recent study of the U.S. housing industry conducted by Andersen Corporate Finance suggests that the big fish will get much bigger in the coming decade by gobbling up large and middle-sized competitors. According to *The Impending Consolidation of the Homebuilding Industry*, that trend is already well underway. In 1997, for example, the top 100 builders in the nation were responsible for about 24% of all new homes. Three years later, that figure had climbed to 37%, and the report's authors expect it to reach 50% by 2004. By 2011, the study predicts, the top 20 builders alone could produce more than 75% of all U.S.

homes, with the single largest of them churning out a full 20% of the total.

Does this mean that small builders are on the road to extinction? Probably not. If the benefits that such high-flying mergers and acquisitions have to offer — including lower capital costs, access to large expanses of land, and national brand-name recognition — were all that mattered, most small builders would have starved years ago. Flexible, quality-conscious builders will continue to thrive by zeroing in on the profitable niche markets that mega builders aren't equipped to deal with.

OFFCUTS

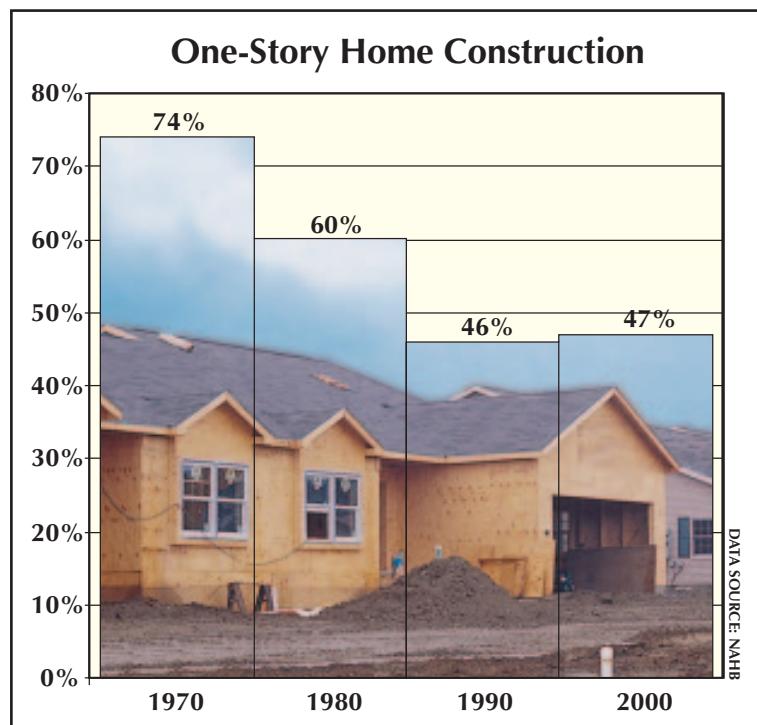
The California legislature is considering a bill that would require property and liability insurance policies to cover losses caused by mold. A spokesperson for the California insurance industry denounced the bill, contending that it would disrupt the insurance market in the state and lead to much higher insurance rates.

Frank Lloyd Wright's Fallingwater is no longer in danger of falling, with the completion of a months-long project to repair its cracked and sagging cantilevered terraces. The cracked slabs have been strengthened with the addition of internal post-tensioned steel cables, and the temporary shoring that supported them for the past five years has been removed. Still, the repaired structure retains a distinct sag. "Those deflections will always be there," said a spokesperson for the Western Pennsylvania Conservancy, which owns the historic dwelling. "You don't notice it as much from the interior of the house as you do from looking at the exterior."

Single-Story Turnaround

American houses have been getting bigger for years. According to the NAHB, the average size of a new home increased from a mere 983 square feet to 2,265 square feet between 1950 and 2000. As houses increased in size, they also got taller: In 1970, single-story houses accounted for nearly three-fourths of all new homes built. That figure had fallen to 60% by 1980, and a decade later it stood at just 46%.

But after decades of decline, the latest NAHB statistics show that single-story models staged a modest comeback in 2000, climbing to 47% of all new single-family homes built that year. The likeliest explanation for the new trend, as for so many trends in the housing industry, probably has to do with the changing needs of baby boomers. Many boomers are now seeing their children leave home and perhaps are thinking it won't be long before they themselves lose interest in climbing stairs.



BUSINESS TUNE-UP

It's Okay to Stay Small

by Melanie Hodgdon

How big should your company be? Only you can answer that question, but I'd like to caution you about blindly accepting the all-too-common attitude that growth is an end in itself.

Some builders, admittedly, stay small for the wrong reasons. Some can't let go of authority. Others fail to grow because they're too disorganized to run multiple jobs, while still others lack the management skills to build an effective workforce. But there are also lots of contractors who choose to remain small because they know that they're already working at their most productive *and profitable* size.

Remember: It's not how many dollars you take in that matters, but how many you get to keep. If you're comfortable staying small, that's great. Maybe you know your own strengths and desires better than the competition across town with a cast of thousands knows theirs. I have a number of clients who have

elected to keep their businesses small, to wear a tool-belt, and to pick their clients carefully. These folks are booked two and three years in advance, their clients don't even *ask* for estimates, and their net is in excess of 20%. They still enjoy making sawdust and producing something beautiful and durable. Why in the world should they change?

Yes, the day will come when climbing around on a roof is no longer the thrill it used to be, but in the interim they're punching up their retirement fund and doing what keeps them interested in going to work every morning.

In short, make sure your size is the result of a conscious choice and not the default result of personal or business shortcomings that could be overcome. Decide what kind of work you understand, like to do, and can do profitably. Then go do it and ignore the rest.