New England UPDATE

Downhill to a Different Place:

New England begins to welcome septic alternatives

THIS MONTH IN NEW ENGLAND UPDATE:

After decades of relying almost exclusively on the standard septic tank and leach field to process the wastewater of nonsewered homes, the New England states have recently begun to approve innovative alternatives to these systems.

"The states have now recognized that you can do treatment other than in the soil," says Roger Thompson, wastewater engineering manager for the Vermont Agency of Natural Resources. "That's a big change, because it not only allows use of different technologies, but it also lets you alter the minimum site conditions."

This small building houses a site-constructed "biofilter" for treating residential wastewater. The effluent from the septic tank is sprayed over a foam plastic medium, which cleans the waste water before it is pumped to a small leach field.

Thompson's observation hits at a key point: While the six New England states stand at different places on the path toward approving alternative septic technologies, all now recognize rather than resist the notion that there are acceptable alternatives to the standard septic tank and leach field. And almost all the states either have created or are creating rules for more rapid approval of these alternative systems.

Using such systems can bring considerable benefits. For starters, they often cost less than a standard new system or upgrade. Perhaps more important, because these systems generally emit a cleaner effluent than septic tanks do and thus ask less of the leach field, they can work on some sites that were previously undevelopable due to environmental, soil, or size limitations.

A growing — or, that is, shrinking — field. Dozens of alternative septic technologies have been refined or invented in the last two decades. They range from the fairly simple, such as the sand filter (essentially a box of sand through which effluent is drained before being pumped to a small leach field), to high-tech septic tank "inserts" that work like secondary wastewater treatment plants, to "drainage" technologies that pack the filtering job done by leach fields into a much smaller area. Some are installed in line between the septic tank and leach field; others, such as created wetlands, completely replace some or all components of the traditional septic system. (For descriptions of a sand filter and a biofilter, see "Alternative Septic Systems," 1/97.)

DOWNHILL

Different paths to approval. With so many alternatives available, the states have their hands full evaluating and creating approval specifications for new systems. Massachusetts has led the way in doing so. That state's Title 5, a 1995 law that required replacement of substandard septic systems in any house being sold, has led to thousands of septic system replacements, repairs, and upgrades (see *New England Update*, 8/96). In an effort to reduce the costs of these upgrades, the state's Department of Environmental Protection (DEP) created an approval process for alternative systems. As of this spring, this process had approved a dozen technologies for general use, plus another nine to be tried in limited numbers for evaluation purposes, and streamlined the process for approving technologies that still require case-by-case review. Under these regulations almost 200 alternative systems have now been installed in Massachusetts.

Sand filters, considered experimental only a decade ago, are now readily approved by most New England states as alternatives or supplements to standard septic systems. Most states in the region are rapidly developing approval criteria for other systems as well.

Though other New England states lag behind this pace, all are moving from a case-by-case approach to one that assesses and gives general approval to different types of systems. Vermont's approach is fairly typical. In August 1996, the legislature passed a bill approving the use of several types of sand filters; other alternative systems still had to get case-specific reviews. The present legislative session, however, is considering a bill (see "Latest on the Law") that will authorize the Agency of Natural Resources to develop rules for putting other technologies on the approved list. Rhode Island, Connecticut, and New Hampshire have recently passed similar legislation and are currently reviewing technologies for inclusion on their approved lists. Only Maine, which has yet to pass such legislation, still reviews alternative systems case-by-case.

Speeding this process for all the states is the New England Interstate Water Pollution Control Commission (NEIWPCC), a committee that brings together wastewater officials, engineers, builders, and health and environmental officers from the different states to share information and evaluate emerging technologies. "With this commission," says Christos Dimisioris, environmental engineer for the Massachusetts DEP and a NEIWPCC member, "a developer of an alternative system doesn't have to go to six states to make its case, and the states can evaluate the system as a group, test its claims, and make recommendations to the states about approval." As states get their approval processes in place, this group effort is expected to greatly speed the evaluation and approval of systems.

It will probably be another two years or so before most New England states have approval systems in place that can keep up with the rapidly advancing state of the art of innovative septic systems. In the meantime, however, the wastewater community generally feels that the climate regarding these systems has changed. Only five or ten years ago, most proposals for alternative systems met with great skepticism — and usually failed. "Now," says Gary Fern, a system designer with Phelps Engineering of Middlebury, Vt., which has installed several alternative systems in that state, "you don't meet so much with skepticism as curiosity. Most people are really excited about it. I'm happy with the progress I've seen."

A Visit from OSHA

One builder's tussle with safety enforcement

Gorham, Maine, contractor Lyle Merrifield was starting the second day of roofing his town's church — a job he'd won "because I do almost all my work in town here and everyone knows me," he says — when the OSHA inspector arrived. The official parked down the street for about twenty minutes, shot some pictures, then pulled into the driveway and got out of his truck shooting more pictures.

"That made me nervous," said Merrifield, "but I figured I was okay. I mean, I'm a big guy, so I believe in solid staging. I'd just bought some new pump jacks and built new Doug fir pump-jack poles and had rails and double planking. Everything was glued and screwed and secure. I figured I was set. But then the guy starts asking me if I'm familiar with this statute and that regulation and so on, and I said, 'Well, I guess not.' That's when he read me the riot act."

The official quickly pointed out the regulatory deficiencies in Merrifield's scaffolding system: He had pump jacks every 12 to 14 feet instead of every 10. He had one rail instead of two. He didn't have ground-fault circuit interrupters. The roof lacked edge protection. (Merrifield says he was putting up the edge protection when the inspector arrived.) His pump-jack scaffolding lacked end guardrails.

"Then he wanted to see the harness we'd used when we anchored the roof jacks the day before. I showed it to him, and he made me prove it was sized for the guy I said had used it. It was. So he couldn't get us for that."

The official, however, left no doubt he'd found plenty of violations to cite. "The guy was really rude," says Merrifield. "As he left he told me that when I got my citation I'd probably want to be sitting on the toilet when I opened the envelope — you know, so I wouldn't ruin my pants, though he used other words. This was a government official, working for

Lyle Merrifield's pump-jack staging before (top) and after (above) inspection by OSHA. Though Merrifield had never had an accident and corrected the deficiencies the same day they were discovered, he still paid a fine. "What really bothered me," the Maine contractor says, "was that the guy was so rude."

A VISIT FROM OSHA

me, talking to me this way in my town's churchyard. Then he told me my fines were going to run at least 15 grand. When he left, I was ready to throw up."

Merrifield was alarmed about the tone of the interview and concerned as well about providing a safe workplace, so he spent the rest of the morning — and about $1,300 — correcting the flaws in his safety system. He bought two GFCI power cords, two more harnesses and roof lanyards, doubled the number of pump jacks, doubled the railings, and put plywood endpieces on each set of staging. He also documented the work carefully (see photos) in the hopes that his quick corrections would reduce his fines. By lunch, he says, "it was perfect."

Three weeks later, Merrifield got his citation. The fine, which Merrifield prefers not to reveal, wasn't as high as threatened. Merrifield hoped his quick corrections would get it reduced further. He figured, "Hey, I corrected the problem. They'll let me off the hook. At the subsequent hearing in Augusta (an hour away), Merrifield presented his side of the story and documented his corrections. Yet despite the fact that he'd never had an injury in over ten years of business and had immediately corrected the cited problems, OSHA still fined him.

"It really made me mad," he says. "I felt I went the extra mile, and they still burned me. I understand they have to do their jobs. And I think if someone's really negligent they should pop him. But with a smaller contractor with a good safety record, they ought to go about things a different way."

Latest on the Law

Legal news from around New England

Vermont ponders new septic regs. The Vermont legislature this spring was considering a bill that would allow a broader range of alternative septic systems. H. 206, a bill hammered out through negotiations among the state's Agency of Natural Resources (ANR), environmentalists, and the building industry, would also eliminate the "10-acre loophole" in the state development law, which presently exempts lots over ten acres from septic review and create a licensing program for septic installers, making both installers and designers subject to enforcement action. While the bill enjoyed wide support, its passage was uncertain because Vermont's legislature was preoccupied with property tax reform and other higher-profile matters. For updates or to put in your two cents' worth, contact the Vermont Home Builders Association.

Cape Elizabeth ponders new zoning. Cape Elizabeth, Maine, is pondering a complex set of proposed zoning changes intended to protect the town's renowned natural beauty and seashore. In March, the town council tabled the proposal so it could consider whether the provisions meant to protect open space were too restrictive on property owners. The zoning changes, which essentially rewrite the town's entire zoning ordinance, are an attempt to enact the town's comprehensive plan, which calls for preserving Cape Elizabeth's rural character by protecting its scenic resources and restricting growth to designated areas. The plan creates three districts in which new development would have to meet certain restrictions, including (in one type of district) a requirement that developers set aside 40% of their land as open space. While the plan was originally set for a vote in March, the council delayed a decision until more public discussion of the plan's complex measures could take place.

Committee puts spotlight on R.I. environmental office. Responding to builder and other constituent concerns, the Rhode Island General Assembly last fall appointed a legislative committee to study a possible overhaul of the R.I. Department of Environmental Management (DEM), according to the *Rhode Island Builder Report*. Representative Brian Patrick Kennedy told the *Report*, "The need for investigation became obvious when complaints about DEM ... became incessant and mushroomed over the last year." The commission will examine whether the DEM's recent reorganization was enough to answer calls to the make the agency more "user-friendly."

One SIP at a Time

A panel maker tries to "make the easy easier"

Don Maxwell wishes he could get more builders to see the benefits of building with structural insulated panels. "I can't quite understand why more don't use them," he says, and then reels off the advantages that structural insulated panels, or SIPs, can offer: They provide great insulation; they go up in a fraction of the time required to frame, sheath, and insulate a similar structure; they use OSB rather than framing lumber, so prices are holding steady or dropping; and they demand fewer tools and a smaller set of skills from the "framing" crew. Plus, Maxwell cites a recent university study showing that SIPs generally cost about the same as an equivalent but less energy-efficient stick-built home.

From the installation of the first two corner panels (top) to the completion of the roof (above), the construction of this structural insulated panel home took about a week, says Dan Maxwell of Foam Laminates of Vermont. Given this speed and other advantages, Maxwell wonders why more builders don't use SIPs.

Maxwell doesn't just like SIPs; he sells them for Foam Laminates of Vermont, a company that makes and installs both structural and nonstructural insulated panels. He's the first to admit he has ulterior motives in trying to persuade builders to use them. As he puts it, "If I convince a potential homebuyer this stuff is great, I build one house. If I convince a builder, I'll build eight or ten."

After spending several years trying to convince builders to use SIPs, Maxwell has identified two main reasons builders hesitate.

"I think the main reason," he says, "is that builders fear using SIPs will take away some leeway they have in costs. The place most contractors either make or lose money is with their labor, and the good ones hold an advantage there because they run jobs efficiently — that's where they make their money, and that's where they might gain an advantage on the competition.

"But with SIPs, labor makes up a much smaller portion of the house's total cost. So contractors fear they'll have less opportunity to reduce costs and either make money or undercut the competition."

The other big factor, of course, is unfamiliarity. "People just don't like to work with something new," says Maxwell. "They're afraid they'll mess up or it'll take extra time."

To assuage these fears, Maxwell's company has lately made an extra effort to smooth the transition to building with SIPs. In addition to producing a "SIP Installation Manual" both in print and on the World Wide Web, the company recently started supplying on-site supervisors at below cost — $20 an hour — to contractors who use the company's products. The supervisors help builders make arrangements for delivery and cranes, plan the erection of the panels, and work their way through the process of fitting the panels together and then building the decks between floors.

"Usually," says Maxwell, "we're not on site more than a day, because guys pick it up so fast. It's a short learning curve." For those reluctant to invest in the few special tools needed — a Prazi chainsaw and a hot knife — the company will supply those at reduced cost.

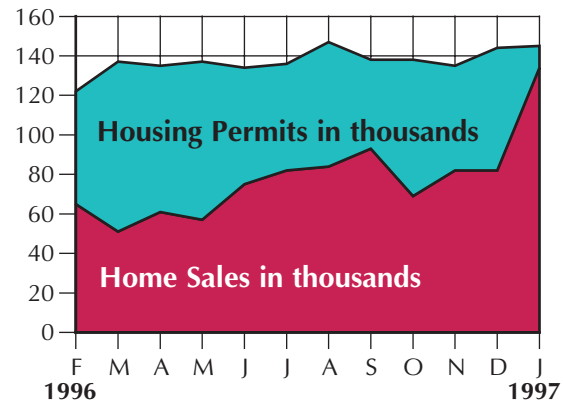
If you're interested in building with SIPs, check out the company's Web site (*http://www.sover.net/~foamlam/*) or contact them at P.O. Box 102, Hinesburg, VT 05461; 802/453-4438.

New England Economic Indicators

Editor's note: All politics is local, and in construction, the same goes for economics. For small builders in particular, localized economic trends — a burgeoning job market, a glut of housing inventory, or a bust or boom in home sales — can mean the difference between scrounging for work or compiling a waiting list.

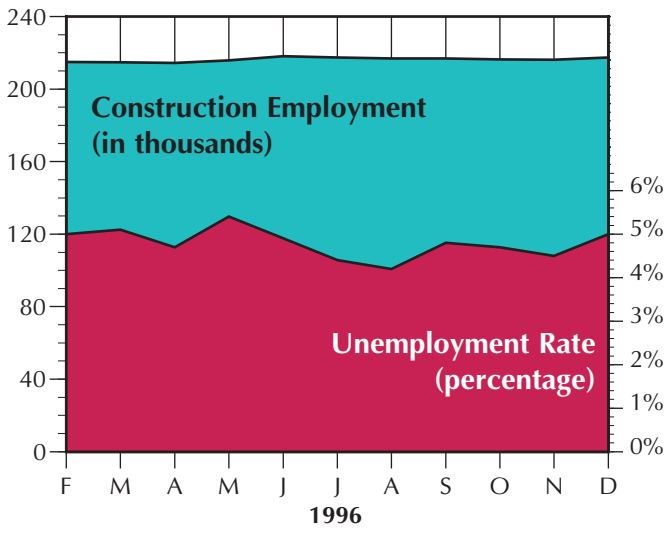
Recognizing this, we've decided to run this new subsection in *New England Update* showing crucial statistical data for the New England states — things like home sales and starts, both general and construction employment, and home prices.

Home Sales & Housing Permits Northeast U.S.



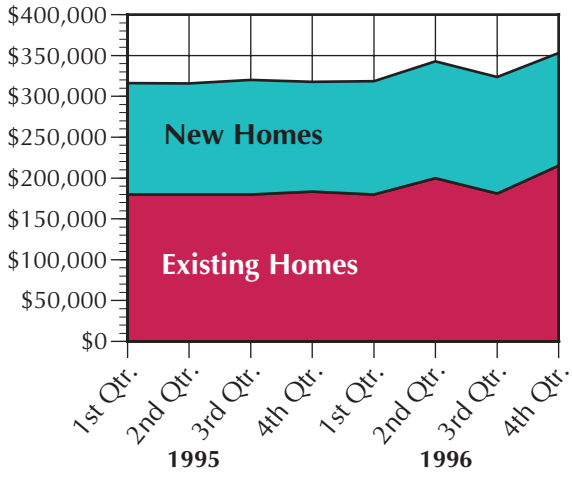
Figures are for New England and the Mid-Atlantic region (coastal states down through the Washington, D.C., area). Home sales include both new and existing homes; housing permits include multifamily dwellings. Trends show themselves not through month-to-month changes, but in periods of three or four months. Together, these two indicators give an idea of both present and near-term future housing demand — which appears to be on a clear, if modest, rise.

Employment in New England



The unemployment rate reflects the general economy; construction employment reflects overall activity in construction, including residential new-home building and remodeling as well as commercial and public works. Low unemployment and high construction employment can create wage inflation.

Home Prices, Northeast Region 1995-1996



A surge in prices suggests supply isn't keeping up with demand (opening an opportunity for builders); flat or declining prices suggest a glutted market.

Tracking Your Local Economy: Two Key Factors

Our new section on "New England Economic Indicators" should help readers trying to track the regional currents. But building economists suggest that contractors keep an eye on at least two other highly local factors — the health of local industries and area housing inventory and sales — through local sources. Here's a brief primer on how such factors work and how to track them.

Industries — the hot and the not

Even small states like those in New England can have hot and cold economic spots. The Boston area, for instance, having recovered from the collapse of its minicomputer and defense industries in the late 1980s and early 1990s, is now being led into renewed prosperity by a surging financial services industry — an upswing that has invigorated the area's housing market. Similar surges have buoyed the western Connecticut economy, and expansions in high-tech, speciality manufacturing and small business have helped Vermont and New Hampshire consolidate their recoveries.

Meanwhile, other areas suffer the downsizing of locally dominant industries. Defense cutbacks cloud economic prospects around both Groton, Conn., site of an Electric Boat shipyard that builds ever fewer naval submarines, and Bath, Maine, where Bath Iron Works is struggling to replace falling orders for naval ships. In both cases, local economies are stagnating while areas an hour or so away are growing vigorously.

Contractors can't erase such downturns, but they can weather them better if they educate themselves about their expected effects. Economists suggest watching local business pages and publications to keep an eye on downturns such as those affecting Bath and Groton — or the growth of new industries such as is occurring in Boston.

Housing activity

Contractors should also keep a close eye on their local housing markets. While the U.S. Commerce Department and the National Association of Home Builders keep good numbers on inventories at the state level, local numbers can be harder to come by. The best source of such information — and its meaning — is usually a well-cultivated relationship with a knowledgeable, plain-speaking real estate broker. They know better than anyone the key indicators of housing demand and supply such as how many houses are for sale, how long they're taking to sell, where prices are going, and how all that compares to "normal" markets for the area. Together, these factors can give early warnings of either surges or downturns in housing demand and general consumer confidence — vital information for builders and remodelers alike.

Short Cuts

Brief items from around the region

Comp Rates Fall in Maine, Mass.

Workers comp rates continue to fall around the region, led most recently by Maine and Massachusetts. Overall comp rates in Massachusetts fell almost 15% last year, and 10% in construction; officials there estimate these reductions will save employers roughly $250 million — which is on top of another $750 million in savings from other reductions over the last three years.

In Maine, the state Bureau of Insurance recommended this January that workers compensation insurers cut their rates for the fourth year in a row, reflecting better safety records and the continued effects of that state's 1994 comp reform bill. The proposed 12.5% cut would reduce premiums by about $20 million. Though the proposed cuts are merely recommended, most insurance companies are expected to comply with the request.

DOE Seeks to Replace Halogen Torchiere Lamps

According to recent findings by the Department of Energy, the huge growth in use of halogen torchiere lamps (those trendy floor lamps that use 300- to 500-watt bulbs to throw light upward toward ceilings) have essentially erased all the energy savings gained by the use of compact fluorescent lamps (CFLs) in place of incandescent bulbs — a huge setback for the cause of energy efficiency.

To remedy the situation, the DOE's Office of Building Technologies has helped develop a CFL torchiere. While the initial price of the CFL torchieres, expected out early next year, will be about $35 more than the $20 halogen fixtures, the DOE estimates the total payback over the life of the fixture from energy savings will be nearly $200 per lamp (for a 300-watt halogen vs. a 55-watt CFL, assuming a fixture life of 10,000 hours and an energy cost of 8¢/kWh).

Should Have Called a Locksmith

Yet another argument for knowing which subcontractor to call when you need help with the house: A Staten Island, N.Y., woman was arrested in March when she locked herself in her bedroom and then, seeking help, called the police — who on their way from the front door to bedroom door passed 195 marijuana plants in her apartment, "all in plain view," according to reports. The police freed her, arrested her — and then took her to a nearby hospital for psychiatric evaluation.

Conn. Permits Up 25%

Connecticut issued 875 building permits in the first two months of 1997, a 25% jump over the same period last year. Fairfield County, buoyed by recent strength in New York's financial markets, led the surge with 225 of the 875 permits issued in the state. Observers attributed the quick start to a milder winter and higher consumer confidence than last year.

Connecticut Ducks Its Own Code

State seeks permanent exemption from compliance and inspection

"Do as I say, not as I do." This, apparently, is the message Connecticut governor John G. Rowland wants to send to the state's builders. According to a recent *Hartford Courant* news story, Rowland has asked the state legislature to permanently exempt state construction projects from the state building code.

If the legislature meets this request, it will formalize a year-to-year arrangement that has exempted the state from its major code-compliance law. That law was passed in 1988 at the recommendation of a panel appointed by then-governor William O'Neill following the collapse of the L'Ambiance apartment complex in Bridgeport (a private building under construction at the time), which killed 28 people. The law called for all state building projects to meet code and pass inspection by the state building inspector's office.

However, partly because the state inspector's office is chronically understaffed, the legislature passed bills almost every year exempting state projects from inspection. As a result, dozens of large state-run construction projects have been done without any code oversight.

The present law calls for the exemption to end in July 1997. Governor Rowland's office says making the exemption permanent would save the state some $7.2 million in the next two years alone. Critics say that the state should comply to ensure that public buildings are safe and to set a good example.

"I don't think it's appropriate for the state to pass laws that don't apply to itself," Harwood Loomis of the American Institute of Architects told the *Hartford Courant*. "Why should the populace be less safe in a state-owned building than in a privately owned building across the street?"

Court Ruling Upholds Vt. Workers Comp Law

Controversial ruling confirms limits of employer liability

In a decision that could spur a change in Vermont's workers compensation liability standards, a Vermont Superior Court judge ruled in early February that the Rock of Ages granite quarry of Barre, Vt., could not be held liable in the controversial death of an employee even though the company's "wanton and reckless conduct" contributed to the worker's death. Judge Stephen Martin ruled that according to Vermont's workers compensation statute, the company could be held legally liable for damages beyond normal workers compensation reimbursements only if it had shown a "specific intent to harm" the employee.

Employers beware: Efforts to change workers comp laws could make you liable if you knowingly place employees in danger.

The case stemmed from a May 1994 accident in which Rock of Ages employee Michael Bassett of Hardwick, while cutting rock in a company quarry with a cutting torch, ignited a hidden, undetonated explosive charge that the company had previously and knowingly left in the quarry following an experimental blast. Previous testimony and investigation by the federal Mine Safety and Health Administration had shown that the company failed to clear the explosive packet from the quarry even though it knew that at least it and three other packets were there. (Forty more bags of explosive were found in the quarries after the accident.)

The court called this failure a "wanton and reckless disregard" for Bassett's safety. Nevertheless, Judge Martin ruled that according to the state's workers compensation law, "Nothing short of specific intent to injure ... can support a claim against the employer," and that no such intent to injure was evident. (Bassett's widow had argued that the negligence was so severe as to constitute intent to injure.) Accordingly, Martin ruled, Bassett's family cannot sue the company (though it can sue individual employees and the explosives manufacturer) and is entitled only to the scheduled compensation provided by the company's workers comp policy.

Some observers said the case would speed efforts in the state to make employers more accountable under the workers comp law if their actions are substantially certain to create an injury. Several other states have switched to such a standard in recent years.