

Living Green

New England architects focus on sustainability • by Nell Porter Brown



Left to right: A bird's-eye view of the Nubanusit complex reveals the benefits of cluster housing for land conservation; architect David O'Neil; the homes offer views of rurvistas from every room.

The forms taken by human shelters are changing as architects strive to lessen communities' carbon footprints. Here are two regional projects reflecting different stylistic approaches and techniques that minimize energy consumption, help residents live more compactly, and focus attention on the essential beauty of the natural world.

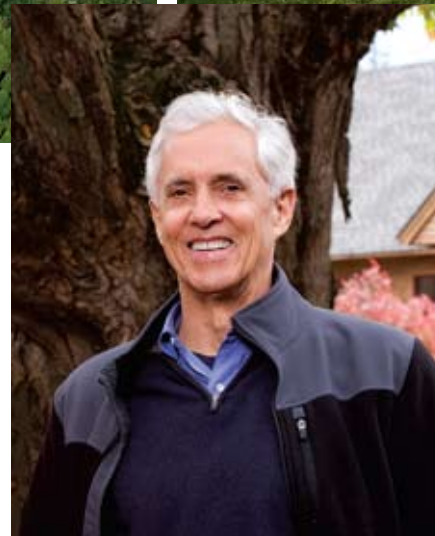
Greener Pastures

A New Hampshire cohousing community models sustainability.

THEY TORE UP the parking lot and put up a communal paradise. Or so Joni Mitchell could sing about what's happened on 113 acres of idyllic farmland just outside Peterborough, New Hampshire.

In 2004, two couples bought the site of the defunct Salzburg Inn complex, right next to the Nubanusit River. They have since redeveloped about 4.5 acres of the former commercial property as the state's first cohousing community, Nubanusit Neighborhood and Farm.

The original nineteenth-century homestead was retained and refurbished, but the rest of the buildings were demolished. And the balance of the rural land is con-



served through easements; it boasts a pond for swimming and skating, forested tracts for long walks, and open pastures. The 16 shingled, pitch-roofed structures—almost iconic New England shelters—are clustered together and connected by pedestrian walkways and common green space. It is a modern, energy-saving twist on an age-old concept: the village.

"It's also part of the Smart Growth wave conceived as an alternative to the wasteful suburban sprawl that has dominated this country's landscape since the end of World War II," says David O'Neil, M.Arch. '72, whose firm, O'Neil Pennoyer Architects, of Groton, Massachusetts, designed it. "It integrates the goals of environmental

consciousness and responsibility, sociability, and local food production. It is a prime model for our future."

Just beyond the homes stand a wooden barn and other farm buildings housing a small herd of dairy cows, three horses owned by residents, and 45 chickens; neighborhood children collect the eggs daily. (The manure, meanwhile, is composted and used as fertilizer.) There's also a large vegetable garden and a greenhouse, where residents are experimenting with extending the New England growing season. On a recent visit, co-developer and resident Shelley Goguen Hulbert showed off the basement of the common house, which was filled with tomato, basil, and other plants resting under grow lights and nearly ready to be transplanted outdoors. Neighbors gather to make yogurt, cheese, sauerkraut, chutney, and beer, and to boil sap into maple syrup. "The goal is to grow about 50 percent of our own food eventually," she says. "People take on projects based on their interests."

The homes are condos, ranging from one- to four-bedroom units; at 1,100 to 1,800 square feet, they are smaller than many Americans dream of. (Prices range

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from \$375,000 to \$595,000.) The deceptively simple-looking structures have long-lasting red cedar façades and traditional porches (made with recycled plastic decking). Each is sited to have a public face in the community—"From the front windows you can watch the children or see neighbors out on the green," O'Neil says—"but the back windows look out on the chickens, farmland, the pond, and the woods, and have a rural, private feeling." Carefully placed large windows, low to the floor, also afford stunning views of the natural world. "We wanted to integrate nature into the houses themselves as much as possible," he explains.

Though compact, the homes feel "just right" for this community thanks to another key aspect of the cohousing concept: the large, shared "common house" that sits facing a central green. Everyone's mailboxes, along with the egg-collecting baskets and a bulletin board, are located in the foyer. There is a library, as well as a living and dining room with a fireplace, and a big kitchen (residents sign up to cook the main meal or be the dessert chef for group dinners once or twice a week). There is a "great room" upstairs with a grand piano, and there are several guest rooms: people sign up to house their overnight visitors there, so they don't need extra rooms in their own homes. On weekends, people interested in socializing wander up to the common house to chat, bake treats, or play games.

The children's playroom—Nubanus—it's residents range in age from three to 83—seems well-used. The kids don't lack for playmates and clearly enjoy exploring the adjacent river, woods, and fields; their "Nubi Museum" in the common house features what they've found in the 'hood: an iron ring from an old stable, dried snake skins, and a robin's nest with a note next to it, "Found in the maple tree at Amy's house." They can easily walk alone to each other's houses, or ride their bikes, because cars are parked in a communal carport located a two-minute walk from the homes, to cut down on noise and air pollution and foster interactions among those out for a stroll.

The prospect of walking even the short distance to the carport can make people think twice about using their vehicles—which is fine by O'Neil and Hulbert. "Cars



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have dictated the way we design most of our communities," which is wrong, he says. "In typical suburban areas, people drive up to their houses, get out of their cars, and go inside. They don't walk very much or talk to their neighbors because they are not outside long enough." Here, people are walking to get their mail, to see the animals, or to go to the pond.

The community earns extra revenue by renting out its great hall for dances, concerts, or lectures, and leasing office space created in the refurbished original farmhouse next door. Perhaps more important for its long-term prospects, though, is the cutting-edge technical environmental sustainability that has been literally built into Nubanusit through O'Neil's designs, in concert with Marc Rosenbaum of Energysmiths in Meriden, New Hampshire. The U.S. Green Building Council has awarded LEED platinum certification to the Neighborhood's model home, and all of the others are built to the same standard.

"The building envelopes are so tight that the heat demand is much lower than in conventional buildings," O'Neil explains. In addition to extra insulation, the windows are triple-paned and strategically placed to take advantage of the sun's shifting rays throughout the year. (There is no air conditioning.) A six-boiler central heating plant using wood pellets (manufactured five miles away in Jaffrey) provides heat and hot water for all 29 units; there is no back-up fossil-fuel boiler. Forced hot water runs into wall radiators, each with individual controls, located on inside walls. Heat recovery from the warm wastewater also lowers hot water costs; Hulbert says the average family of four spends about \$900 on heating and hot water annually. (The homes are also set up for solar hot-water systems.) Although the stoves are electric, powered by the grid, one future community aim is to generate its own electricity.

Plans for cohousing communities elsewhere often face hurdles raised by local zoning laws, but O'Neil says Peterborough has been very supportive of the Nubanusit project. A few years ago, the local ordinance required three-acre lots and 200 feet of road frontage, but the town, which has a thriving arts community and a re-



Nubanusit residents swim and fish in, skate on, and play along the shores of their backyard pond.

tiree population, passed an amendment to encourage denser housing development in the West Peterborough village where Nubanusit is located. (The architects worked closely with the fire department to ensure there were adequate turnarounds in a denser development lacking the usual residential driveways.)

In some ways, the balance of the acreage at Nubanusit now is not that different from what it was as a rich agricultural resource and home to John Steele, the governor of New Hampshire from 1848 to 1849. Some old features of the land were purposely retained. Boulders unearthed during construction are used in stone walls and for landscaping, for instance. And the common house was purposely sited to avoid disturbing original stone walls and a line of gnarly maples that are at least a century old. "We wanted to keep the trees and the stone because it was part of what makes this place so beautiful," says Hulbert. "We were thinking of this as a kind of Shaker community in some ways—of the simplicity, the beauty, health, and permanence." In the United States, she adds, "we have come to think always that 'Bigger is better.' But we are now starting to see the consequences of our desires in these sprawling communities where you depend on your car and don't know your neighbors. We wanted to live a different way."



Visit harvardmag.com/extras to see more images of Nubanusit

Sustainability Made Simple

The newest addition to a Berkshires yoga retreat melds with the landscape.

IN HIS NATIVE CANADA, architect Peter Rose says, the winters were always severe, yet people looked forward to skiing, skating, and sledding. "Driving through a

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blizzard," he adds, "was a form of sport." Now there's just not that much snow. The lake near his childhood home, where he now spends summers, used to freeze down two and a half feet; a few Christmases ago, there was no ice at all. "If you are from a place where winter is so wonderful, but seems to be disappearing, and you are an architect, how can you ignore it?" asks the adjunct professor of architecture at the Graduate School of Design (GSD). "Buildings are a huge part of the dumping of carbon into the atmosphere, which is a big part of global warming. So how can you not try to make buildings as sustainable as possible?"

That was the goal for one of his most recent projects, a new 80-room residential wing at the Kripalu Center for Yoga



Left: The graceful bend of the residential tower at Kripalu assures each guest a view of the Berkshires countryside. Above: Cambridge architect Peter Rose emphasizes the "emotional value of landscape."

& Health in Stockbridge, Massachusetts. Rose teamed with renowned sustainability engineer Matthias Schuler, founder of the Stuttgart- and New York-based climate-engineering firm, Transsolar, who teaches environmental technology at the GSD, to create a six-story wood, glass, and concrete structure. The building is sited at such an elegant angle on the land that each guest has a view of either the lake or the Berkshire hills; no cars or other buildings destroy these vistas, also beheld, luxuriously, from the bed and bathtub.

"The building is very mindful of the psychological and emotional value of landscape," says Rose. What's more, the striking cypress slats (salvaged from trees felled by



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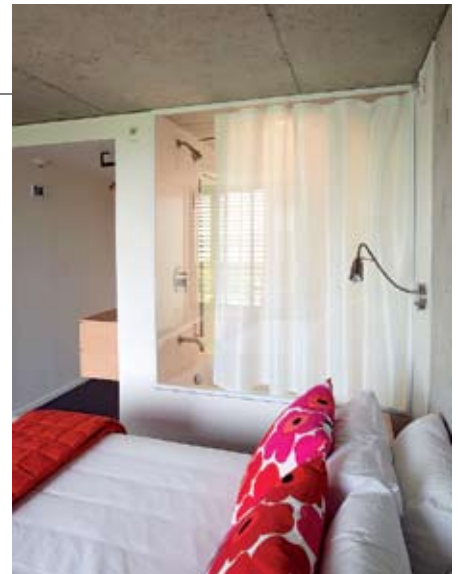
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Hurricane Katrina) on the façade act as sun and wind screens, sliding back and forth across the windows. Unlike other hotels with internal climate controls dependent on conventional HVAC systems that can create poor air quality, the new wing has windows that open to allow fresh air to circulate throughout the seasons. “It’s comfortable. You can open your window in the middle of winter, but still feel cozy and warm as you breathe in the cold, fresh air,” Rose says.

Kripalu is a yoga retreat and teaching center located right down the road from Tanglewood. The main building was originally a Jesuit seminary, built in a utilitarian style with orange-toned bricks that many visitors find somewhat off-putting, given the extraordinary beauty of the surrounding countryside and the site of the complex, with its old trees and rolling lawns that slope down to a large lake on one side and up into woods with hiking trails on the other. People come for quietude and reflection; the natural setting

and outdoor activities are as much a part of the Kripalu experience as the yoga programs. This expectation that nature remain as undisturbed as possible is reflected in the landscaping around the new building, which was designed by Michael Van Valkenburgh, Eliot professor in the practice of landscape architecture at the GSD. Rose also had the larger picture in mind in designing the slim addition and using the cypress, which will fade into silvery gray over time, “and hardly be noticed at all.”

So could the building’s gray concrete mid-section blend in. It might look unfinished and somewhat exposed, but what’s interesting is how Rose and Schuler opted to use concrete, “a miracle of the late nineteenth-century...now making a comeback,” says Rose. “It has some wonderful qualities—it’s moldable into any shape, very strong, and you can put stuff in it. In our case we embedded piping for heating and cooling the building.” In effect,



The new rooms at Kripalu offer a comfortable minimalism that befits the organization’s mission.

the concrete and piping is the mechanical system. In each room, water runs through pipes in the concrete ceiling that radiate heat in the winter and coolness in the summer via the thermal mass of the concrete structure. Because air is not being re-circulated through ducts and filters, as in conventional systems, it is always fresh.



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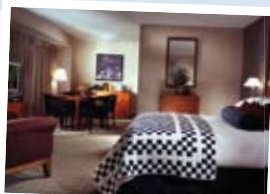
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Sliding cypress screens shelter guests from sun or rain—and cast eye-catching shadows across the walls.

"It's just dumb common sense," Rose adds. "At the same time, it's magic." The system also uses less than half as much energy as a typical HVAC system, which is usually based on forced-air, he explains, because "air is a much poorer substance than water to heat and cool."

There is an overall freshness to the rooms—which one critic unjustifiably calls "weekend monks' cells." They are spare, mostly white, and furnished with a simple desk and chair. But puffy Marimekko pillows add color and the natural light itself can be dazzling. No daytime electricity is required—even in the bathrooms, which are separated from the sleeping chamber by a glass wall (with a curtain for privacy). The uncluttered atmosphere promotes *internal dwelling*, suitable for a yoga and health retreat: the lack of closets and large bureaus helps wean guests from the stuff of daily life by reminding them to bring only the essentials along.

Overall, the new Kripalu wing speaks to traveling more lightly to the retreat—and on this earth. "The more sustainable systems are leaner and quieter," Rose explains. "What we've done is create a building that is very efficient and high-performance, site it well on the land, and make it comfortable to be in. That fits well with the mission of the place. If we could save this kind of energy and make places like this consistently—and we could be even more efficient than we were with this structure—we'd begin to have a real impact on global warming."

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