

Making The Panels Look Like They Belong

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were very obtrusive, what you might call ugly buildings — all solar collectors and no buildings.”

Two approaches seem to be at work today. In one, solar panels subtly emphasize their own shape and texture to become a strong, elegant and modern element in a building. In the other, new technologies blend solar into traditional architecture to the point of a magical invisibility. The two approaches mix, and ultimately, the result is that solar technology can look like it belongs.

A Barn That Glows

Rountree, of Westport Solar Consultants, has made strides in this direction. A little more than a year ago, he designed a retirement retreat for James Weil, adjacent to Weil's house in Westport. He used the post-and-beam skeleton of a doomed barn in Vermont, lumber from two dairy barns in Pennsylvania also slated to be torn down, and a generous array of high-functioning windows facing to the south and west (an important element in what people call “passive solar,” that is, gaining benefits from the sun even without technology). On top of the peaked roof, they put the solar panels.

The panels are visible, a large rectangle in the middle of the roof. But using a mounting system that keeps their rich, dark blue tightly level with the roof, the solid glassy panels create an interesting pattern in concert with the bleached weathering of the thin vertical slats of old brown barn wood.

“It is the most beautiful structure, absolutely breathtaking when you walk in,” enthuses Weil, who uses it to paint, exercise, do nonprofit work and host small events. “It’s something magical, like going into a cathedral. The wood is butternut, what they call white walnut, coated with tongue oil. We have these beams of light coming through the south and west side, with uplights on the beams, and the whole barn just glows.”

“The biggest issue with aesthetics is how to work with panels that sit off the roof a couple of inches and make them look like part of the house,” Rountree says.

David and Erika Yarmoff, also in Westport, worked with Glenn Cucinell, an assistant designer at Milford's Sunlight Solar — which also did the installing at the Weil house — on a retrofit of their home that used a similar mount to keep the panels close to the roof. Since the roof they chose faced the street, Erika Yarmoff had her concerns.

“I was very opposed at first,” she admits. “I thought it was



MARTIN JOHNSON

ARCHITECT KATE BRIGGS JOHNSON installed thin film laminates on her own roof in Norfolk last year to show her clients how they look and work compared with solar panels. The laminates roll onto a standing seam metal roof in long peel-and-stick sheets.

going to be ugly. But people are all kind of surprised and really like it.”

The aesthetic solution, says Cucinell, was to add an extra row of the black-on-black panels to take them all the way to the top of the roof line. The Yarmoffs did not receive a state rebate on the extra eight panels, so it cost more, but for them the result paid off in attractiveness. The effect is of a subtly glimmering new roofing material on their traditional, symmetrical house.

“We had a really boring roof and now we don’t,” says David Yarmoff, who is in the carbonated-juice business. “If we had a house with dormers it would look piecemeal. But we don’t want anything to detract from it. We’re trying to make a statement on energy, not a spectacle.”

Ganging Them Up

The ability to join the panels into clean sheets lies at the heart of much of the most appealing design at this point. Centerbrook Architects took this tack in two solar photovoltaic systems they installed on their rooftop in Essex. The long roof sheets, oddly, echo the color of the nearby asphalt road, the sky above and the river at the foot of the building in a dynamic way. Several architects

comment on the way the panels change color with the light, and upcoming technology is even bringing out panels in different colors.

“The panels, particularly if ganged up as a massive surface, are really quite handsome,” Floyd says. “They create a texture that transcends the technology.”

That transcendent ability will be even more pronounced on the Yale Forestry and Environmental Studies building, Kroon Hall, which the firm is co-designing with London's Michael Hopkins. Turning the panels horizontally to shape them to the arc of a sort of futuristic, gabled roof that echoes its neo-Gothic neighbors, the firm came up with a long, light building that almost looks like it's heading somewhere. The dark solar roof, modeled and analyzed by computer, rises against the brighter colors of the building and provides the key to its contrasts.

“This is a building where the actual shape developed from a study of the mix of the interaction of the solar panels with the sun,” Floyd says. “The panels at Yale we used look like giant shingles. You have to look at the material as a small unit, and imagine it ganged together to think how you can use it to good effect.”

That will be Pelli Clarke Pelli's approach at Hartford's new Connecticut Science Center, which boasts a significant solar installation on its south core wall. The panels will be ganged together into a grid and installed vertically (on the wall rather than a roof), which is rare.

“It was a way to use the southern exposure's blank wall and do something with it,” says firm principal Mariko Masuoka. “Our concern was that a whole wall of black panels would be kind of deadly, so we're trying to introduce a colorful rack that supports them. We'd selected a tangerine color. I'm not sure where we stand on that now. But the framework will be colorful.”

Another, certainly odder, extension of solar into form is happening in Washington, Conn., where the New Haven firm Gray Organschi is finishing a kind of maintenance storage building on the same property where its warm, modern, concrete and wood Tennis House opened several years ago to positive reviews. They used translucent glass PVC panels from BP that allow the light to pour straight through into a galvanized steel-frame building. The building's shape changes depending on what's

being stored in it.

Panels As The Roof Itself

In residential uses, panels have the capability of actually becoming the roof. Rountree is a big proponent of moving toward what he calls “building integrated” systems. He is experimenting on his own house in Westport with a product from a German company called Schuco that combines both solar photovoltaics and solar thermal. “They designed the panels to the exact same dimensions so they fit together,” he says. “The only distinguishing feature is the color. The PVs are dark blue. The thermals are a lighter blue.”

He's building up his roof 4 inches to create a recess where he can tuck the panels flush with the roof line. An air circulation system will cool the panels so they stay efficient, and even use the heat buildup in the close space beneath them as heated air in the house as needed.

But he says there are other products out there that may make sense now, too, depending on house styles — solar tiles on historic homes, for instance, or sun shingles made to look like regular house shingles. But many say

that those products, while coming toward the mainstream, still suffer in terms of cost (the tiles) and efficiency (the shingles), compared with the classic solar panel.

One further option for the full blended roof are the thin film laminates that architect Kate Briggs Johnson installed on her rooftop last year in Norfolk to show the potentially pleasing designs now available to her clients. The laminates roll onto a standing seam metal roof in long peel-and-stick sheets. Her system from Dawn Solar also has thermal where tubes under the roof bring hot water into the house. While the laminates generate less electricity than the panels, and you have to use more of them to get the same result, the invisible effect is undeniable, which is why Johnson liked them.

“My objective was to try to create a solar house that didn't look like one,” she says. “It should be integrated, just like a solar calculator. Particularly in the northwest part of the state where you have many traditional houses, you need something that fits with the local indigenous architecture.”

North Branford architect Lindsay Suter is using a similar material on a Norwalk oyster house in a historic district for the same reason, in addition to his confidence that the durable laminates will better withstand the clamshells seagulls are sure to drop on them.

While deepening the marriage of the panels to the building is sometimes the answer, at other times, just the opposite is true. Centerbrook recently took the solar panels off a house in North Stonington.

“We're putting them on the ground,” Floyd says. “It's an interesting approach. When houses are smaller and broken down into various shapes, it can be a challenge to integrate them with a house and have the whole thing be appealing.” The firm is mounting on the ground what Floyd calls a “solar panel farm” where they can perfectly adjust the panels' angle to the sun without conforming to the house's shape. In some places, such panels are even mounted to free-standing bases that are sculptural in their own right, although pricey. Floyd worked on such a project at Austin's Palmer Events Center. The solar panels stand on a steel structure over a parking garage for a sculptural effect and as a shade for the cars below.

“They really look pretty jaunty up there,” he muses.