Building A Living Laboratory

An architect’s 20th century San Francisco house puts innovative green building practices to the test.

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PHOTOS BY MATTHEW MILLMAN
It's not always easy to transform a turn-of-the-century home, yet alone aim for net zero. Feldman Architecture always encourages its clients toward sustainable design, so incorporating cutting edge green building practices was nothing new in this case, and the client made the process even easier—it was architect Jonathan Feldman and his wife Lisa Lougee themselves.

Feldman approached the remodel of their 1905 house as a laboratory, constantly asking himself and his team: “How can the home be at the leading edge of sustainability?” He was excited to not only create a contemporary, modern, and functional home for his family within the building constraints of urban San Francisco, but also to innovate and experiment with cutting edge sustainability best practices,” he says. “The house is a New England brick and shingle style residence sitting next to an overgrown lot, which we transformed into an open, airy, flowing home. We wanted a space that both respected the traditional character of an Edwardian building, while integrating modern architectural and sustainability features that I use in my work with my firm and my clients.”

The design pushed the boundaries of San Francisco residential sustainability and design, and the team jumped at the chance to beta test innovative greywater systems and energy monitoring technology not previously attempted in the city. “We installed water and energy monitoring devices and software to tell us how much water and electricity the building was harvesting, recycling, and consuming. Living in this house is a great opportunity to see firsthand how the systems perform in the real world,” Feldman says. “In my design practice, we use the research and data gathered from this project to improve and better implement these strategies in the buildings we design for our clients. But living in this house tells me so much more than looking at clients’ utility bills.”

Of all of the impressive features, Feldman says he loves the rain and greywater collection systems best. “It means that even in our ever-increasingly common droughts, I can feel good looking out at a lush garden, knowing that it has been irrigated with second-use water. And I don’t feel quite as bad when I treat myself to a long shower.”
The home’s original, poorly built out spaces were a challenge, and the exterior was primitive—including rot and rotting siding, old plumbing, and rotting windows. “Without altering the historic facades, we needed to completely rebuild from the inside,” Friedman says.

“We showed up the house and dug in new foundations below. We opened up the walls, floors, and roofs to reveal in new structure and new systems. We added high-performance windows, built-in and foam insulation, insulating-draped waterproofing, and rainscreen facades.”

Friedman utilized “found space” in what used to be a disused, unused attic to make a loft. “We wanted to carve away space off it as a way to bring light and volume to the floor below, as well as provide a flexible space away from the rest of the house where one can find a quiet corner to read a book, play guitar, or do some focused work.”

The stairway connects four stories and acts as a lightwell to funnel daylight into what would have otherwise been the dark core of the narrow house. At the top, the team placed four large skylights and supported them downward to bring light down the core. Clear glass rails and floating stair treads maximize how much light penetrates down to the lower floors.