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# Sustainable Sanctuaries: Supporting Human and Planetary Health at Home

• By Sandra Yeyati



Photo courtesy of International Living Future Institute

Nothing underscored the importance of a comfortable and versatile sanctuary quite like the pandemic. Stuck at home isolating, many families reconfigured their living arrangements to accommodate expanding uses for work, schooling, cooking, entertainment and more. Today, that spirit of renewal lingers, prompting steady and robust activity in the construction and interior design industries.

A house is literally our shelter from the storm, made more critical as we increasingly encounter extreme and unprecedented weather events due to climate change. When we upgrade, remodel, build or buy new cocoons for our families, the time is ripe to incorporate elements that preserve and promote the health of humans and the planet.

## Inspiring Goals

Lindsay Baker, CEO of the International Living Future Institute (ILFI), is part of a growing community of industry professionals trying to figure out how to design, build and operate structures in more environmentally sustainable, socially impactful and healthy ways. “We ask what would it look like if a building were to give back more to the world than it took,” she explains. “We’re a resource-consuming industry with a large carbon footprint. Forty percent of global carbon emissions are caused by the energy required to construct and operate buildings. We also use lots of materials that pose negative impacts on people’s health—products known to contain carcinogens or cause respiratory problems—and people spend 90 percent of their time indoors, so everything we’re exposed to indoors has a huge impact on our health.”

The ILFI Living Building Challenge sets bold aspirational goals, and buildings around the world have proven that it is possible to hit these benchmarks. “The energy imperative is that the building produces more energy than it consumes, and that happens by generating renewable energy like solar power onsite and using very little energy,” Baker asserts. “For water, we ask that everyone return the water that goes through the building cleaner than it entered, which means people need to treat water onsite and use a lot less of it. You can do that with composting toilets, as well as grey water systems and rainwater recapture strategies.”



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Baker is proud of ILFI’s ambitious goals. “If you decide to do a renovation to save 5 or 10 percent of your water or energy consumption, it will feel good to get there, but what we’ve found is that when you set a really exciting target for yourself, the whole process is more fun and you get further with similar amounts of effort and money, because you’re thinking about systems differently, questioning assumptions about what a home might be capable of doing and employing a different level of creativity. At the end of the day, it can lead to a much more beautiful, more efficient building.”

## Energy Conservation

Energy conservation is job number one for Jennifer Languell, founder and president of Trifecta Construction Solutions, in Babcock Ranch, Florida. “An inexpensive but impactful upgrade is adding insulation. If you’re in an existing house, add insulation on top of what you already have. If you’re new construction, beef it up. You also want to address unwanted points of air infiltration using gaskets, weather stripping and caulking around exterior doors and windows. Over time, these items can shrink or get damaged, and may need to be replaced to seal the house and minimize air drafts,” she says. “You want to improve efficiency first, which costs much less than transitioning to renewable energy. And when you do transition, you only have to buy smaller quantities of photovoltaic panels to offset your power generation.”

According to Languell, windows are climate-specific and can be modified by adding or subtracting panes, coatings and treatments. “In Montana, I want the heat from the sun coming into my house, but in Florida, I don’t,” she says. “Natural light is great, but there’s a balance between your glass-to-wall ratio. In Florida, you would never have a skylight, but up north you’d consider it. And at this point, everyone should be transitioning to LED lighting, which will save money and energy.”

## Water Preservation

As waterways dry up and areas around the world become more drought-prone, water conservation becomes an increasingly important imperative. The simplest modifications are low-flow shower heads, toilets and faucets, which cost the same as traditional-flow fixtures, as well as a visit from the plumber to fix any leaks. Minimizing or eliminating turf grass and planting drought-tolerant, native vegetation outside will also significantly cut water use, Languell suggests.



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“Grey water and rainwater collection systems are gaining momentum, and these systems for home use have come leaps and bounds from where they were 10 years ago,” she says. “They can take water from your laundry or shower, treat it, and use it to flush toilets, for example—a huge benefit for the West Coast and a huge water savings, because you’re using your water twice before you dispose of it.”

## Eco-Responsible Materials

With regard to building materials and products, the annual ILFI Red List calls out chemicals with negative human health impacts that shouldn’t be used in buildings, such as bisphenol A, chlorofluorocarbons, formaldehyde, flame retardants, phthalates, toxic heavy metals and volatile organic compounds (VOC). Its Declare label is like a nutrition sticker that details what is in a building product, whether it is free of Red List chemicals and what its carbon footprint is.

“Consumers should demand transparency; they should know what is in the products put in their homes,” Baker says. “One of the rules of thumb I like to apply is to ask, ‘How far is this material removed from nature?’ Wood is one of the better materials from an ecological and health standpoint. Fake wood flooring that is meant to look like wood but in fact isn’t—not so much. A lot of what we’re supporting is about getting back to the basics, removing chemicals and using brick, wood and clay.”

According to Languell, the more durable and local a material is, the better for the environment. “I’d never say no to a metal or concrete roof that lasts 50 years versus shingles with a 15-year cycle. Although bamboo is rapidly renewable, most of it comes from China, so the greenhouse gases associated with the transportation makes it less environmentally friendly. Local materials are ideal. The closer the better. Get granite from Georgia, instead of Italy.”

When it comes to human health, home décor and cleaning products are equally as important as the construction materials, Languell advises. “Many times we’ll build a healthy and efficient home and then people put all sorts of fabrics and chemicals in there that are off-gassing because they’re not thinking about the health of the indoor environment.”

## Sustainable and Healthy Furnishings

“There’s good, better and best quality furniture,” says Robin Wilson, a New York City eco-designer and founder of Robin Wilson Home. “Good might use inexpensive wood or heavy-duty cardboards that look great, but if you sit on the arm of the sofa, it caves in. Better might have a less expensive wood, but it’s solid frame construction. The best is a very good wood and solid frame construction made for heirloom quality. There are costs associated with each level, and I recommend spending the most budget you have on a quality product, because that sofa, if it’s made well and it’s styled in a classic design, can be recovered over and over again; therefore, you’re being eco-friendly to the world because it’s not going into a landfill.”



courtesy of Pulte Homes at Babcock Ranch

Her favorite materials for furnishings are sustainably forested or reclaimed wood, long-lasting metals like steel and aluminum, fast-growing bamboo and recycled or reclaimed plastics. She's also a proponent of vintage pieces. "With all furniture, if it can be salvaged, salvage it. Healthwise, make sure the materials are hyper-washed to protect you from allergens. Old glazes or paints might have lead in them, so take vintage furniture to a professional that uses the right safety equipment or go to YouTube University and make sure that you protect yourself with gear to rework the piece in a garage or outdoor space. Always choose nontoxic paints and stains with low to no VOCs."

## Biophilic Design

Baker is particularly excited about interior design innovations that reconnect us to nature, known as biophilic design. "Natural light is important, but also, lighting manufacturers are figuring out how to produce lighting that feels like you're sitting outside in a forest while a cloud passes by or under a tree with dappled light. Mohawk and Interface offer low-carbon, healthy carpets that mimic natural forms like a rocky beach," she says. "Fractals are often mentioned in biophilic design because they're fascinating geometric compositions in nature like fly wings and bark that have an inherent intelligence to them, and we've come to understand that these natural elements are not just interesting, they also have measurable positive impact on our psyche and mental health."

## Durability

"I rate durability over everything else. If you build it once and it doesn't get destroyed by a natural disaster, you're going to generate less waste and use fewer resources," Languell says. "Durability might mean fireproofing in California, windproofing in Florida and floodproofing in Louisiana. It also means futureproofing your home, especially if you're building new. Anticipate technologies that are coming. Even if you can't afford photovoltaic panels now, for a couple of bucks, you can run electric conduit from your panel up to your roof so if ever you decide to buy them, it's not a major overhaul of your house. Dual-pipe your house and have the pipes ready to tie in rainwater or grey water, even if it's not financially viable right now. Wire your house for a 220-volt plug in your garage so everyone that has an electric vehicle can charge it overnight."

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## Third-Party Certifiers and Websites

- **Leadership in Energy and Environmental Design (LEED)** is the most widely used green building rating system in the world.
- **Sustainable Furnishings Council** champions wood from sustainable forests and elimination of toxins in furniture; links to eco-responsible vendors.
- **Energy Star** certifies products and offers guidance for efficient home solutions by U.S. regions and climates.
- **The Asthma and Allergy Foundation of America** certifies asthma- and allergy-friendly options for insulation, air filters, flooring and paint.
- **HomeFree** showcases less toxic options for flooring, paint, drywall, countertops, cabinetry, doors, insulation, sealants and more.
- **WaterSense** offers guidance by the U.S. Environmental Protection Agency for water conservation and water-saving products.
- **Underwriters Laboratory** certifies safe and environmentally sound solutions in renewable energy, building materials, consumer electronics and home goods.
- **International Living Future Institute** accredits industry pros and certifies buildings that positively impact human and natural health.