

Design ideas that matter



From living buildings to upcycled trash, these eight innovations are shaping the West's future.

When we asked leaders and experts in green design to fill us in on how the field is changing, a theme quickly emerged: It's not only about sustainability, but also about resiliency—designing and building not just for the next 15 years, but the next 150. The innovators on the following pages—architects, designers, and developers—are

crafting solutions with that long game in mind. Far from being daunted by the task, they're energized. "I see this as an opportunity, a chance to redesign the world," says architect Eric Corey Freed (you'll meet him on the next page). "I'm more excited and have more faith than ever." We think you'll agree.

BY JESS CHAMBERLAIN, MIRANDA CROWELL, JOANNA LINBERG, CAROL SHIH, JOHANNA SILVER / PORTRAIT ILLUSTRATIONS BY JOEL KIMMEL

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THE BIG IDEA

Buildings should produce their own energy.



THE INNOVATOR: ERIC COREY FREED, INTERNATIONAL LIVING FUTURE INSTITUTE

The typical new building is an energy glutton—and often leeches dangerous chemicals. Architect Eric Corey Freed says it's time for a reset. He and the team from Seattle's International Living Future Institute (*living-future.org*) developed the Living Building Challenge, a way-beyond-LEED certification that pushes buildings to give more back to the environment than they take. The requirements are stringent: Does the building produce more energy than it consumes? Reuse its water more than once? Is it free of unhealthy chemicals? To date, 241 buildings have met the challenge, but the impact reaches further. He talked to us about what's next.

How does the Living Building Challenge differ from other building standards? Programs like LEED are wonderful except they promote a “less bad” approach. To develop the Living Building Challenge, we asked, where do buildings need to be? and set that as the bar. The beauty of the Challenge is its simplicity. A building either produces more energy than it consumes or it doesn't. Either you've avoided the “red list” of materials we don't allow or you haven't.

How is the Challenge making a difference beyond the buildings themselves? It's interesting how these buildings incite change. For example, the wiring that was going into [Seattle's] Bullitt Center had a PVC covering, which is a red-list material. They went back to the manufacturer and said, “We want to use your wiring but can't if it has vinyl; can you make it without?” They did, and now they offer that product in their line.

You're launching the Living Product Challenge this month. What is that? It's not just about a product's materials, but how much water is used in production, how much energy is used, what are the ethics of the company. The manufacturers in the pilot program are mainly building oriented since that's who we have relationships with, but I'd love to see electronics and cell phone and clothing people here.

How can the average person benefit from the work you're doing with these manufacturers? Right now, we have a transparency program called Declare (*declareproducts.com*). It asks if the manufacturer has any red-list materials in its product, and either you do or you don't. It's interesting that companies like Mohawk Group flooring are proudly stating this on their products. It makes consumers realize that carpet materials are a health concern.

Why is figuring out our building problem more urgent than, for instance, solving our auto addiction? The good news is we already know how to make living buildings. We don't need to invent a crazy fuel cell. Based on existing technology, you can have a living building today.

We know how to build sustainable buildings, so why aren't we? The defense is “We're not breaking the law.” Recently, we presented an award to a school in Atherton, California, and these 10-year-olds ask, “If we know these chemicals cause cancer, why do we use them?” When you answer, “Because it's cheap,” you feel like a jerk. Why do we need a law to do the right thing?

Left: The Hawaii Preparatory Academy Energy Lab, a living building in Kamuela, HI.

FROM LEFT: MATTHEW MILLMAN, ADAM DRESSLER

2

THE BIG IDEA

Pay people to turn off the lights.

THE INNOVATORS: CURTIS TONGUE & MATT DUESTERBERG, OHMCONNECT

The truth is, it's hard to motivate people to save energy. Curtis Tongue and Matt Duesterberg have a solution—bribe people. Their San Francisco-based app, Ohmconnect, works like this: It sends its users notifications when they're pulling power from a dirty and expensive power plant (usually during peak hours). In response, users turn off a few lights to reduce the load on the plant—an action Ohmconnect is happy to pay for—and pocket the cash. “What it does, at a fundamental level, is turn homes into virtual power plants,” says Tongue.

THE INNOVATOR: NATE DOWNEY, PERMADESIGN

Santa Fe permaculture landscape designer Nate Downey knows the drill: Do a rain dance for weeks, then rejoice as it falls before cursing the flooding and erosion it causes. “My thought has always been, How can we turn that erosion problem into a rainwater-harvesting solution?” he says. He found the answer in an unlikely place: the roof. We asked him to tell us more.

Why should we pay attention to more than permeable paving in the landscape?

What are you doing to spread the roof gospel? I have a Roofwater Calculator on

I'm all about the impermeable surfaces: roofs, patios, and driveways. But especially roofs—they're so clean! And rain comes off of them with such force. It's such a resource waiting to be captured. No matter where you live in the West, there's a rainy season. It might be winter in the dry-summer Mediterranean sections, or monsoons in the Southwest, but everyone's got a roof.

my website (*permaesign.com*) that allows you to type in your address and see how much rain comes down from your roof in an average year. It's a way to make this resource real, and really wake people up.

How do people turn their roofs into water-harvesting machines? There are different ways. It can be an active system with a cistern and pump. Or it can be a passive one—having a downspout that leads into a trench.

I fill the trench with any type of porous rock, essentially creating an underground sponge that stores water. Traditionally, pumice is used. But I prefer a more sustainable material called Growstone (*growstone.com*), a product made from recycled glass, developed in Santa Fe and manufactured in Albuquerque.

Are all roofs created equal? Pitched metal roofs are better than flat tar-and-gravel ones. But really, there are not a lot of bad roofs out there.

3

THE BIG IDEA

Minimalism is good for the soul.



THE INNOVATORS: JOSHUA FIELDS MILLBURN & RYAN NICODEMUS, THE MINIMALISTS

In the pursuit of paring down, it doesn't get more dramatic than Joshua Fields Millburn and Ryan Nicodemus. The former telecom workers, friends since fifth grade, have purged their belongings and lifestyle to the bare minimum, and share their strategies with more than 4 million followers on their website (*theminimalists.com*). One of the more extreme activities they suggest? Pack everything you own into boxes as if you're moving, unpack only what you need over the next 21 days, then donate everything else. But for the duo, being minimalists isn't just about lightening your carbon footprint; it's also about personal well-being, says Millburn. “They go hand in hand,” he says. “Life feels calmer with less stuff around you.” And if visions of empty bookshelves, barren closets, and zero fun are dancing through your mind, let Millburn put them to rest: This is about making room for more, he says. More time, more hobbies, more experiences.

4

THE BIG IDEA

Roofs can solve our water problem.



Developers will save us. Really.

Developers are rarely cast as the good guy. But these four people are shaping Western cities, proving that sustainable housing can be affordable, and dramatically remaking forgotten buildings. If this is what progress looks like, all we can say is: Yes, Please, In My Backyard.

Right: A solar-powered building by Meea Kang in downtown Sacramento.



MEEA KANG

If you want to find Meea Kang, follow the light-rail tracks into downtown Sacramento. There, on former industrial land next to the busy La Valentina station, her firm, Domus Development (domusd.com), built an 81-unit solar-powered building that caters to low-income residents. Kang tackles projects few others would touch: She's built worker housing in Tahoe (a project that earned LEED Silver status) and artist live/work studios in bankrupt Vallejo, California, where she convinced officials that a building near public transportation meant fewer parking spaces were needed. "I change the way the cities think on every project," she says. "I push them outside their comfort zone."



KEVIN CAVENAUGH

The name of Kevin Cavanaugh's Portland company, Guerrilla Development (guerrilladev.co), says it all. He buys overlooked buildings nobody knows what to do with in burgeoning neighborhoods and adapts them into homes or mixed-use spaces people beg to rent. Take an empty warehouse in the city's Sunnyside neighborhood. Until Cavanaugh bought it, it was just molting paint. He morphed it into four lofts with French doors opening onto a courtyard. It's his version of activism against what he calls "greedy buildings"—formulaic structures meant to make money but not to add to a city's fabric. In contrast, "adaptive reuse is the epitome of playing with what you've got," he says.



MIKE BROWN & CASEY LYNCH

Before urbanization was a buzzword, it was the market insight that launched Mike Brown and Casey Lynch's Los Angeles firm, LocalConstruct (localconstruct.com). Their calling card is high design in urban corridors—often in fast-growing Western cities like Boise. Last year, they finished a remodel of the historic Owyhee hotel there, turning it into an environmentally sensitive downtown hub that houses a tech firm and cocktail bar, plus 36 apartments. They're also developing in Colorado and Utah, hoping to prevent the sprawl, inefficiencies, and low housing stock that plague larger cities like L.A. and San Francisco. "We can write a new paradigm," Brown says.

It takes a (tiny) village.



THE INNOVATOR: JAY SHAFER, FOUR LIGHTS HOUSES

Residing in a tiny home has gone from fringe movement to reality-show phenomenon—and is poised to go mainstream. An early champion of extremely-small-space living, designer Jay Shafer will soon break ground on the first Tiny House Village (fourlightshouses.com), in Sebastopol, California, a cluster of 20 or so micro homes. The village will include lots of walkable and public areas to offer residents space beyond their home—and encourage community.



Give trash a future.

THE INNOVATORS: ERIC EDELSON & PAUL BURNS, FIRECLAY TILE

That glossy gray tile below? It's made out of a former computer screen. The ones next to it? Recycled toilets. San Francisco's Fireclay Tile (fireclaytile.com) makes the kind of ceramic and glass tile you'd find in a high-end showroom out of all kinds of upcycled materials—granite dust, solar panels, old Coke bottles. "We're proud to call ourselves scavengers," says CEO Eric Edelson. The company was founded in 1986 by Paul Burns, a second-generation tile maker and born experimenter, who has increased the amount of recycled content in his tiles in recent years, while maintaining a high level of craftsmanship. And that, as Edelson points out, has eco implications too: "Good design is the most sustainable thing you can do—because it has longevity."



LEFT: UNDA LAMB PETERS; ABOVE: BRUCE DAMONTE

Everyone deserves green housing.

THE INNOVATOR: NICOLÓ BINI, BINISHELLS

Building our coffee shops, sports arenas, and homes is the world's largest net source of pollution. The solution could come in *Jetsons*-like domed structures known as a Bini-shells. They were created in the 1960s by Dante Bini, who built hundreds of them without seeing the idea take off. For the last five years, however, a team led by his son, architect Nicolás Bini, has been updating the technology and pitching it across the globe as sustainable, affordable housing. The first modern-day Binishells project, a home in Malibu, goes public this year.



- 1 The domes are raised with what's essentially oversize balloons, rather than wood forms, so they go up within hours and there's less waste (the air forms can be reused more than 50 times).
- 2 Each dome is one solid piece of concrete, so it's hyper energy-efficient and strong enough to support a rooftop garden (or withstand natural disasters).
- 3 Binishells make use of local materials and labor, so they're less expensive to build, with the bonus of boosting the local economy. 🌱