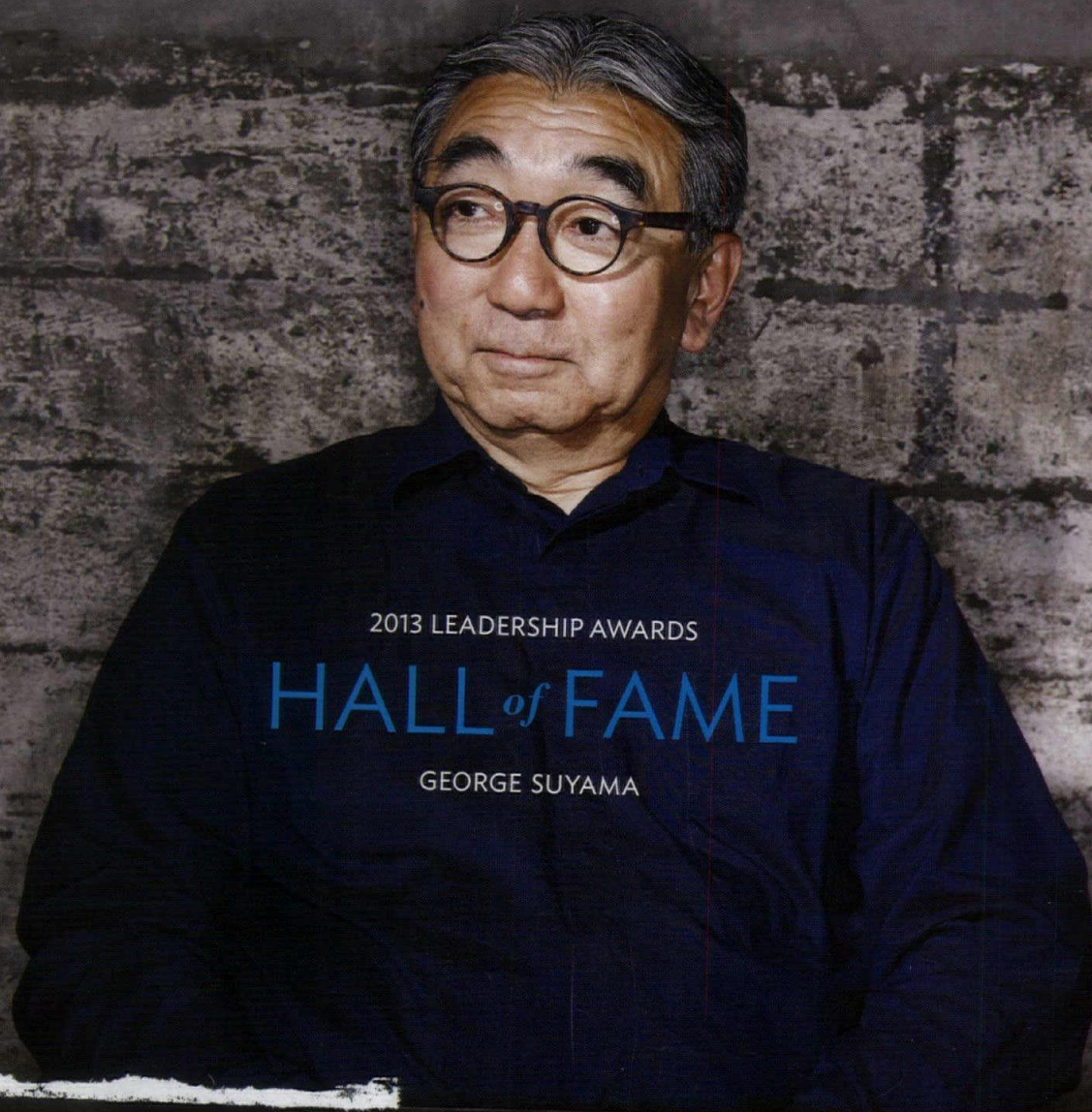


September/October 2013

Residential Architect

A Magazine of The American Institute of Architects



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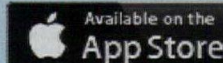
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THE AMERICAN INSTITUTE OF ARCHITECTS

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Photo courtesy of Christopher Simmonds Architect

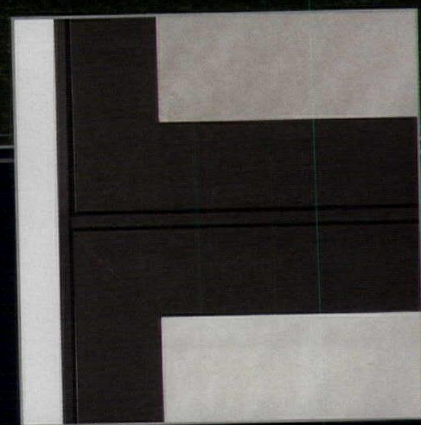


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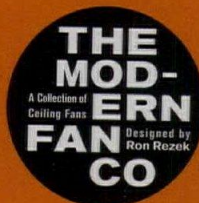
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Technology designed to make the great indoors even greater.

Let's go back a few hundred years.

In the past, air circulated freely through gaps in walls, windows and doors. And while we've become better over the years at sealing interior environments, we've also sealed in everything, from aldehydes, to mold and mildew and even unpleasant odors.

Why these problems are such a problem.

Used in producing plastics, synthetic resins, upholstery, carpet and pressed wood, aldehydes are compounds that gradually "off-gas",

resulting in emissions. Mold and mildew can irritate skin, eyes and respiratory tracts and cause staining, rotting, and bacterial odors. And while odors from pets, cooking,

smoke and other sources may not pose health problems, they can make indoor spaces unpleasant.

The science behind the technology.

It starts with odor eliminating technology that deconstructs carbon molecules, neutralizing and dissipating odors. Then, new formaldehyde reducing technology* helps to transform airborne aldehydes into water molecules and harmless inert gas, reducing these VOCs from potential

The bold innovation for reducing interior odors and improving indoor air quality.

sources like insulation, carpet, furniture and fabrics. And finally, antimicrobial agents inhibit the growth of mold and mildew on the paint film and related bacterial odors, addressing these issues before they can become a problem.



Special compounds deconstruct carbon molecules to dissipate odors.

Technology so advanced, all you need is a roller.

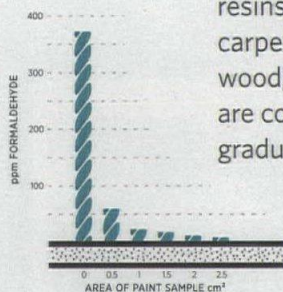
Perhaps what's most amazing about this technology is that it comes by the gallon. For more than 147 years, Sherwin-Williams has consistently engineered innovative coatings

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Innovation that is the result of more than 147 years of R&D.

And oh yeah, it's paint.

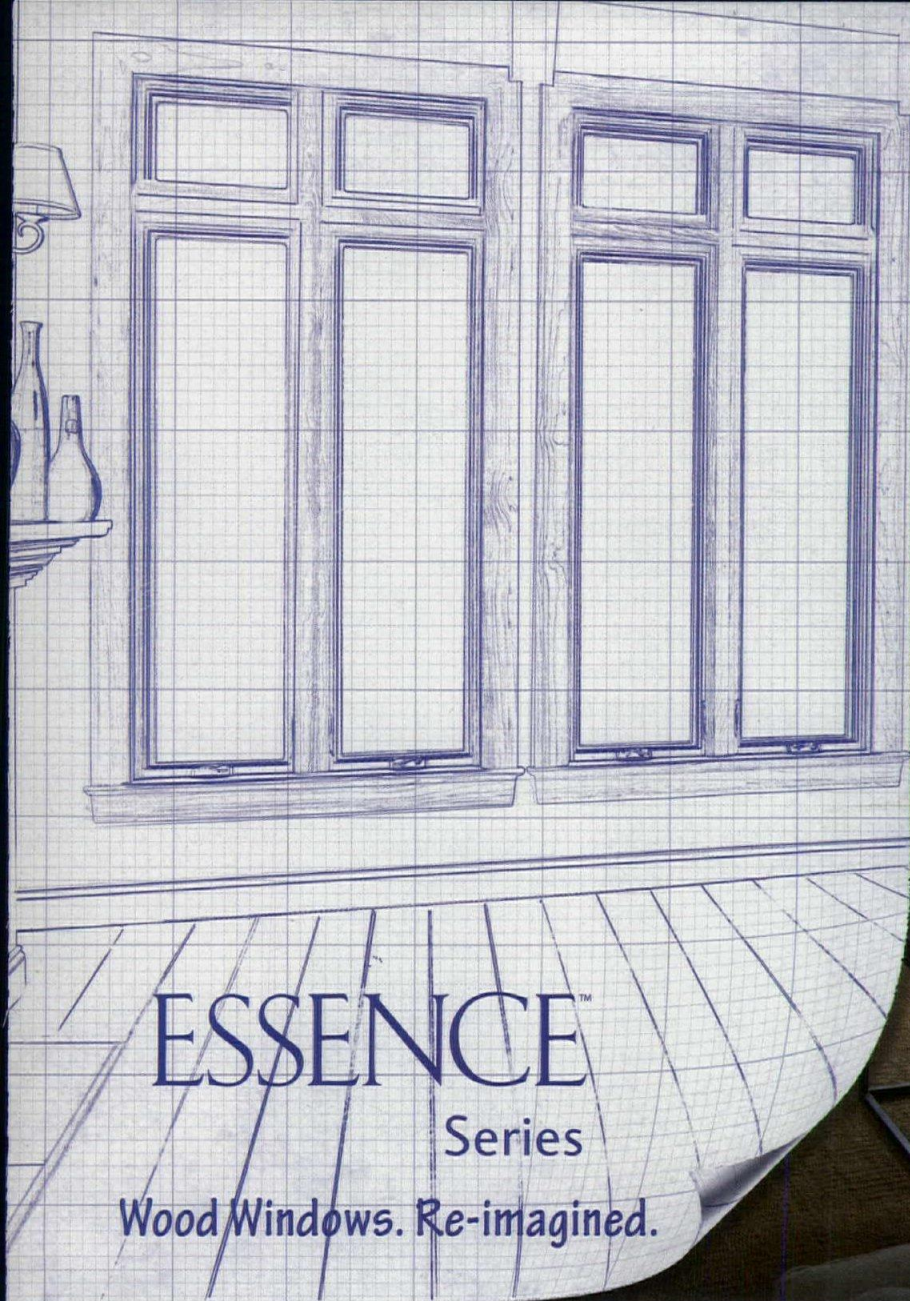


Aldehydes are emitted from carpet and other products over time.[†]

*Formaldehyde Reducing Technology is currently available in flat and egg-shell sheens. The length of time Harmony actively reduces odors and formaldehyde depends on the concentration, the frequency of exposure and the amount of painted surface area.

[†]Based on methods:

ISO 17226 Determination of formaldehyde content in leather by High Performance Liquid Chromatography
ISO 16000-3 Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air



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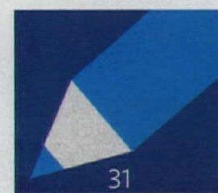
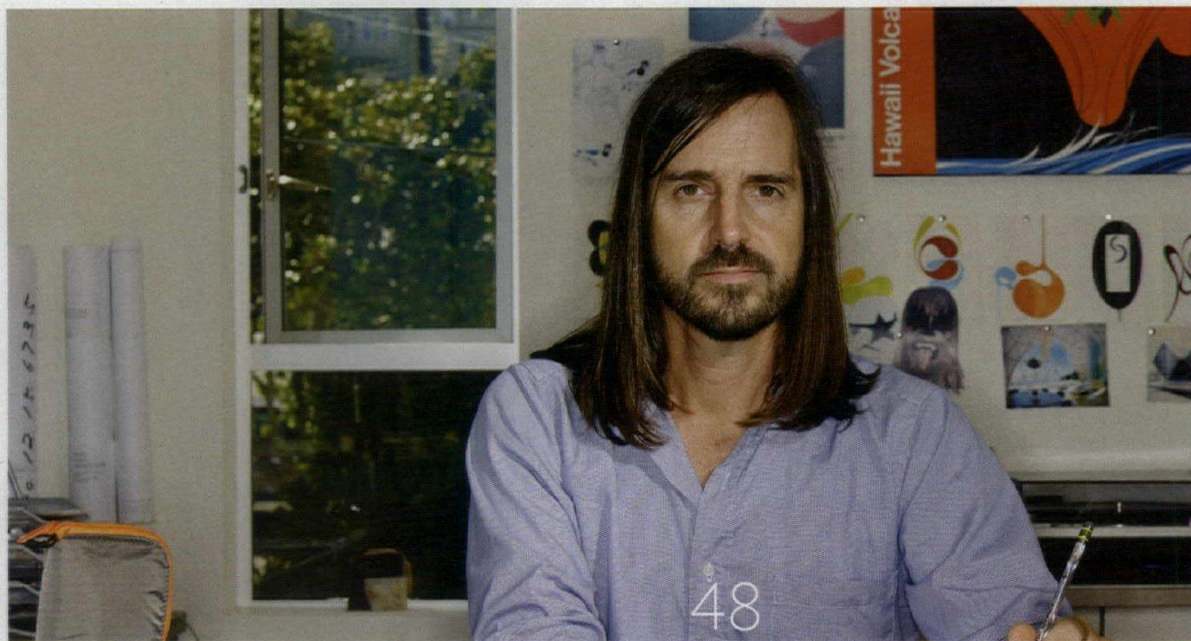
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Hall of Fame honoree
George Suyama.
Photo by Ian Allen

Residential Architect Leadership Awards

Top Residential Firm: Craig Steely Architecture 48

Craig Steely might have grown up inland, surrounded by mountains, but his firm has found success near the ocean in California and Hawaii.

Hall of Fame: George Suyama 56

Ever since he opened his firm in 1971, George Suyama has been known for tranquil houses that blend seamlessly with nature and the land, and for relying on intuition more than theory.

Rising Star: Tonic Design | Tonic Construction 64

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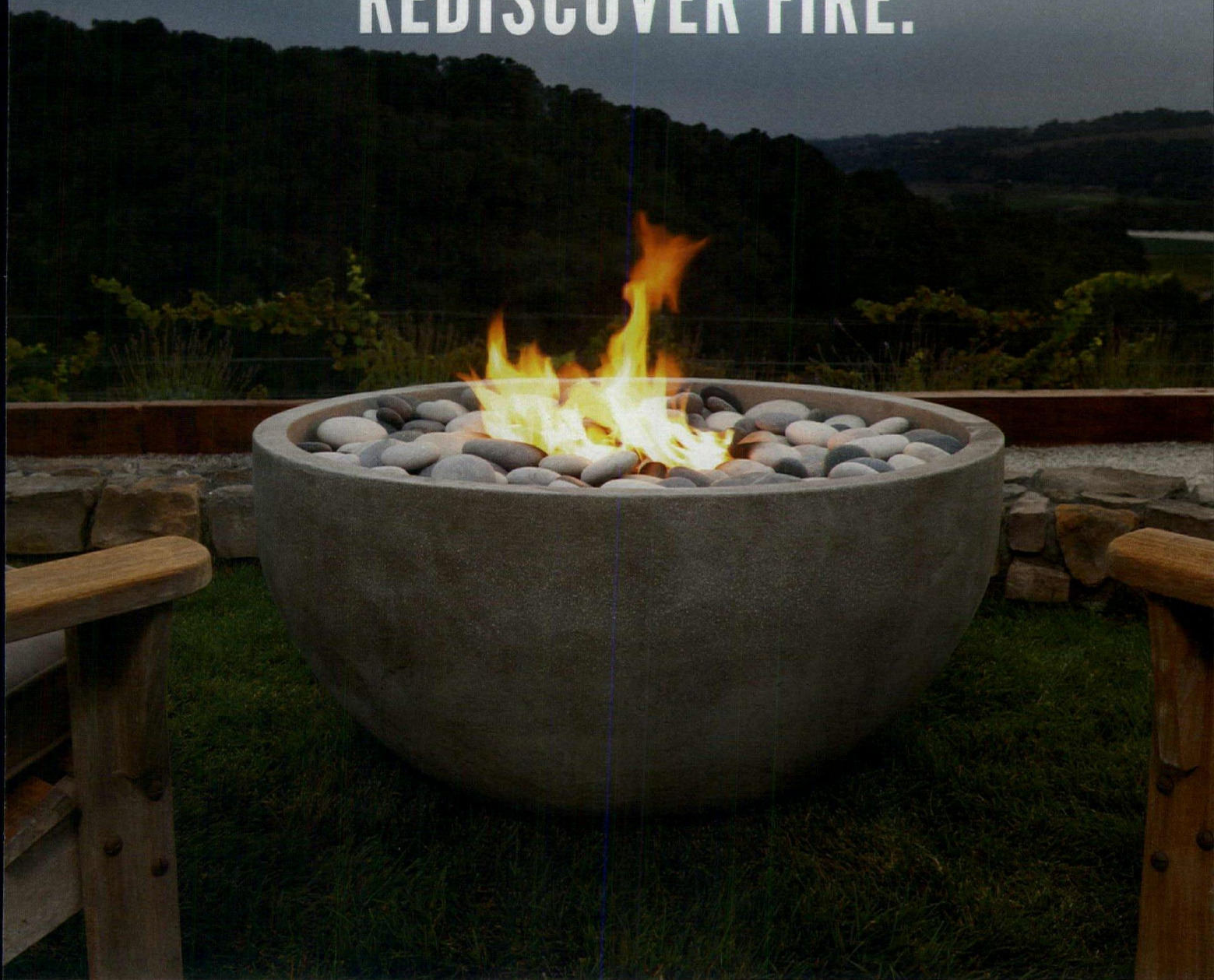
In the right environment, architects can do better work together than by themselves.

Workspace 72

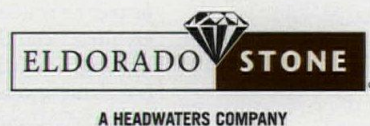
Chicago's Brininstool + Lynch moves into a commercial space that the firm had originally designed for other clients.

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All's Well That Trends Well

GOOD NEWS FROM THE AIA HOME DESIGN SURVEY.



NOT ONLY
ARE CUSTOM
HOMES COMING
BACK, THEY'RE
COMING BACK
BIGGER.

We've all heard the buzz lately. Architects are reporting more work on the boards and more calls from potential clients. Some dare to call themselves "busy," while crossing fingers against a jinx. Finally, there's real data to support those good vibrations. The AIA's latest Home Design Trends Survey shows substantial improvement in nearly every sector of residential construction. These second quarter 2013 results, drawn from AIA's residential-focused firm leaders, indicate special strength in additions and alterations but, most encouragingly, they also track substantial increases in "custom/luxury" homes. The improvement is, mercifully, country-wide, and especially strong in the South and Midwest regions. Backlogs of work are growing as well—as much as four months of business waits in the wings.

I'm gratified to see the custom home market improving, because it remains the bread and butter (or should we say, *paté*?) of most residential architects. Remodeling certainly kept many alive during the Great Recession, and it will continue to provide a long tail of work into the future, but new custom homes are where the best challenges and opportunities lie for our compadres. Not only are custom homes coming back, but they're coming back bigger. Despite the resonance of the "not-so-big" message championed by Sarah Susanka, the average American single-family house crept up to 2,585 square feet in 2012, the largest it's been since the Census began collecting the data. And the latest averages for housing starts show this number growing even larger—to 2,647 in the second quarter of this year. That's good news for architects—although perhaps not for the planet.

Alas, the AIA survey does hit one sour note: Weakness remains in the "vacation/second" home market, which is also traditionally a source of work for architects. A glimmer of hope gleams amid the numbers, though, as only 8 percent of respondents reported a decline in that market versus 48 percent in 2012. I'm personally relieved to hear this, because I bought a second home in 2011. Brilliant move or tragic mistake? Time will tell.

I bought my house under the guidance of both my head and my heart. On the heart side, it's in a beautiful rural location with lots of room for my young son and three dogs to run and make joyful noise. On the head side, I bought at the nadir of the market with an eye to retirement one day. Helpfully, the house was designed with accessibility in mind—all on one floor with a no-threshold shower.

Turns out, I'm not alone in balancing present and future needs in my house. The AIA Survey underscores an emerging awareness of our aging population's needs: There are more requests this year for ramps and elevators and for first-floor master bedrooms. Even if clients don't need them now, they know they may someday. Or, as in my case, their live-in parents or elderly pets may use them first. Call it resilient floor planning.

Also noted on the survey is a growing interest in environmental resiliency: Solar panels, backup power generation, and "hurricane resistant design" racked up higher numbers than they had in 2013. We were resilient enough to survive the economic crash, and we now expect the same from our buildings going forward.

S. Susanka



“Be inventive. When details are unusual, even subtly unusual, that’s exciting.”



“The kitchen is part of the décor of the overall home now. The details, the choices you make, tell the story of what you love. Get excited about materials; blend them in interesting ways. Consider open shelving, for pots and plates as well as artwork and statement pieces.”

Designer Matthew Patrick Smyth
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Think Small

TEXT BY MEGHAN DRUEDING

Vitra's carefully curated campus in Weil am Rhein, Germany, contains works by Herzog & de Meuron, Frank Gehry, FAIA, and Jean Prouvé, among other top-tier designers. Now the venerable Swiss furniture company has added a tiny prefab house by Renzo Piano Building Workshop to the mix. In June 2013, Vitra unveiled Diogene, a 43-square-foot prototype.

In keeping with the no-frills lifestyle of its ancient Greek namesake, the philosopher Diogenes, the house consists of only one room. A slim, ultra-efficient layer of insulation is sandwiched between the cabin's wood frame and aluminum skin. "The house is really minimal," says Vitra

project manager Aja Huber. "It's a life where you have to think, do you want the sofa or the bed?"

The house is more than just a one-off installation: Diogene may be available for purchase within the next year. The factory-built module is sized to fit European height limits for truck transport. "The idea is to have as much as possible produced industrially," Huber says. She estimates that a unit will cost between \$26,500 and \$66,400, depending on the location and version.

Vitra has received inquiries from around the world, including from hotel companies interested in buying groups of Diogenes. "We really want it to be more than a prototype," Huber says.

DOCTOR SPEC

Reach for the Sun



Federal and state incentives have lowered the cost of residential photovoltaic (PV) systems, piquing the interest of homeowners hoping to slash their energy bills. But when choosing among the growing stable of solar technologies available, designers must consider other factors beyond economics.

Before specifying a PV system, an architect or consultant must calculate how many kilowatt-hours of energy a project will require. Austin, Texas-based architect Peter Pfeiffer, FAIA, uses an energy-modeling program that combines information about the space's use and design metrics to estimate energy loads. Considerations include the roof's lifespan, occupants' water consumption and thermal comfort needs, and phantom energy sinks, such as outlets loaded with charged devices.

The local climate and the project's orientation also will affect the estimated energy load. Experts recommend installing solar panel systems on expansive, south-facing roofs (for projects in the Northern Hemisphere) that are free of vents and obstructions from the sun. Panels tend to function more efficiently in cooler climates, like all electronics, although year-round sunlight is key. Permit fees and installation costs are other considerations, and designers should check whether the local utility company will tie in the residential system to the city grid.

For residential construction, PV systems generally fall into two categories: rack-mounted and building-integrated photovoltaics (BIPVs), both of which are usually installed on rooftops. Rack-mounted panels comprise 86 percent of the market, according to a 2013 survey by the Lawrence Berkeley National Laboratory (LBL) and the U.S. Department of Energy. The remaining share is split among rooftop BIPVs (4 percent), ground-mounted panels with a fixed tilt (8 percent), and ground-mounted panels fitted with solar tracking (2 percent). Most solar cells are made of crystalline silicon.

On a per-area basis, rack-mounted systems are about one-third more efficient than most BIPVs, which lack multiple surfaces for conductive cooling. PV systems on the market today can generate up to 1.4 kilowatt-hours per roofing square each year depending on their geography, says Mark Stancroff, director of building-product manufacturer CertainTeed's solar division. Typical PV systems in new construction projects can generate 2 kilowatt-hours to 4 kilowatt-hours in perfect conditions, while the average retrofit system can generate up to 5 kilowatt-hours, according to LBL's study.

Rack-mounted systems on new construction averaged \$5.30 per watt in 2012, down from \$7.40 per watt in 2009, LBL reports. New-construction BIPV systems averaged \$7.60 per watt in 2012, down from \$8.70 per watt in 2009. Developments in microinverter technology—which allow solar panels to function individually, rather than forcing them to be part of an array—could also lower costs and help designers maximize the roof's solar potential, experts say. —HALLIE BUSTA

RA Read an expanded version of this article at residentialarchitect.com

Schooled in Solar

Learn about improving energy efficiency and integrating photovoltaic systems into your projects during these sessions at the Greenbuild Conference and Expo in Philadelphia on Nov. 20–22:

TM08: Making it Modular: Innovations in Building Design & Construction

Nov. 18, 2:00 p.m.

Study cases of three modular projects' energy-efficient designs that include solar systems.

TM13: Getting to Scale in the Suburbs: The Eagleview Master Plan

Nov. 18, 2:00 p.m.

Learn how one mixed-use suburban development gets its edge from sustainable design.

A12: Energy-Producing Landscape: Harvesting the Power of Urban Locales

Nov. 20, 9:00 a.m.

Learn about parks, campuses, and mixed-used projects that have achieved net-zero or net metering through the use of renewable energy.

C10: A LEED School: Renovation, Addition, Community, & Curriculum

Nov. 20, 3:30 p.m.

See how one school, built in 1923, was renovated through energy-efficient upgrades.

E05: Paseo Verde: Case Study of a LEED ND & Homes Mixed-Use TOD

Nov. 21, 9:30 a.m.

Study how a mixed-use complex incorporates solar to achieve two LEED Platinum certifications.

E07: Introducing Passive House Standard—A Valuable LEED Partner

Nov. 21, 9:30 a.m.

Understand approaches to Passive House design, including the use of solar arrays.

F07: Net Zero Energy Buildings—From Design to Occupancy to Certification

Nov. 21, 3:30 p.m.

Compare case studies on three buildings that attained net-zero energy performance.



See a list of solar manufacturers exhibiting at Greenbuild at residentialarchitect.com

Energy savings. Glowing reviews.



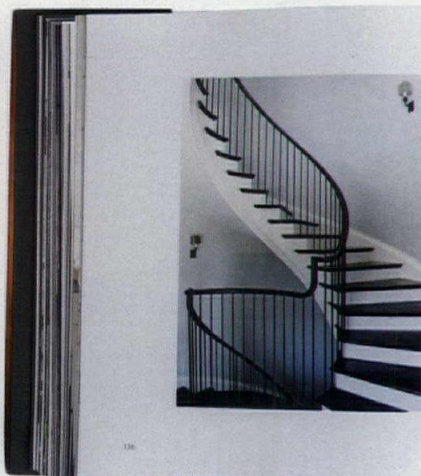
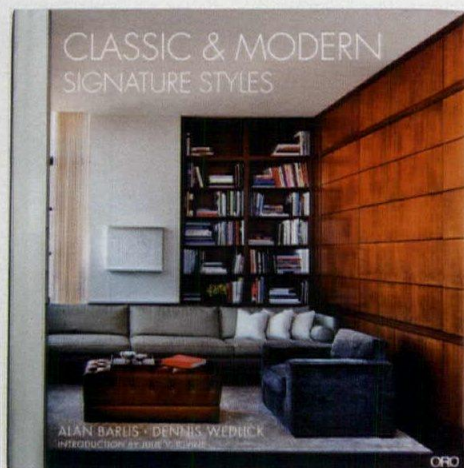
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REINVENTION



BarlisWedlick Meet the Present With Presence

Alan Barlis, AIA, and **Dennis Wedlick, AIA,** have always been more interested in producing architecture than in crafting a trademark style for their firm. Founded in 1992 (as Dennis Wedlick Architect), BarlisWedlick Architects has mined the Western design canon, from classicism through classical modernism, to create a portfolio as notable for its variety as it is for its quality. Barlis and Wedlick's new book, *Classic & Modern: Signature Styles* (ORO Editions; \$50), illustrates the breadth of the partners' range and the depth of their fluency.

Covering the past 10 years of the firm's output, the large-format volume showcases 17 projects, each of which represents a different client's "signature style." In discovering, developing, and elaborating these individualized styles, the partners take on an almost psychoanalytical role.

It's an approach that one hesitates to call postmodern (for that term's arch connotations). Barlis and Wedlick's work engages its source material with historical rigor as well as an unabashed romanticism. River House's impact derives not only from its juxtaposition of modern and Greek

Revival motifs, but from the heartfelt authenticity of each. And owners Cathy and Michele's Saltbox Colonial slides from historical reproduction to abstraction to full-out improvisation.

Barlis and Wedlick are very much architects of their time. Their Hudson Valley Passive House (also included in the book) was one of the first of its type in the country. All of the firm's recent work leverages current building science and communication technology. For all its historical affinities, this may be what truly contemporary residential architecture looks like. —BRUCE D. SNIDER

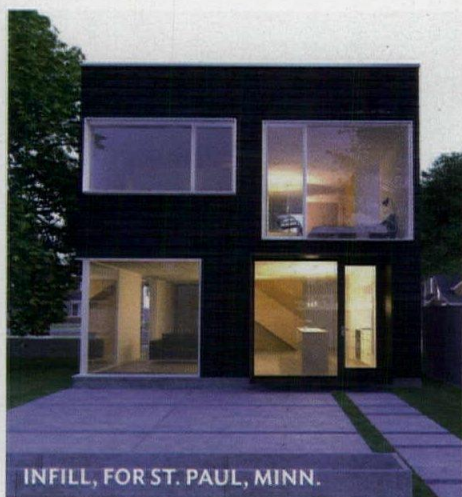
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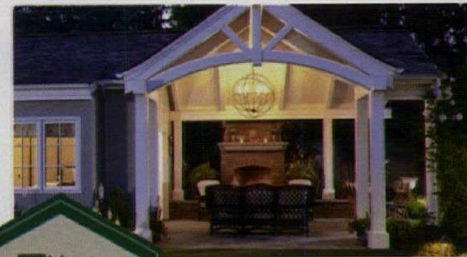
Shifting Perspective

John Dwyer, AIA, has known since he was a kid that he would be an architect. "Between eighth and ninth grade I made my career decision, and that was the end of that," says Dwyer, 40. Such certainty may help explain his willingness to take chances with his career. Newly licensed in 2004, he left Minneapolis-based SALA Architects to start his own firm—"I had no clients ... no portfolio ... nothing," he says—and proceeded to design the first LEED-certified house in Minnesota.

Only three years later, he moved to New Orleans and founded a community design studio to help Lower Ninth Ward residents rebuild homes destroyed in the wake of Hurricane Katrina. "We were building houses for about \$110,000, and the design work had to be done in about a day," Dwyer says.

In 2009, Dwyer returned to Minneapolis, where he splits his time between his residential-focused private practice and a faculty position at Dunwoody College—a fitting combination for a lifelong architect who is still pushing the limits of what architecture can be. —B.D.S.





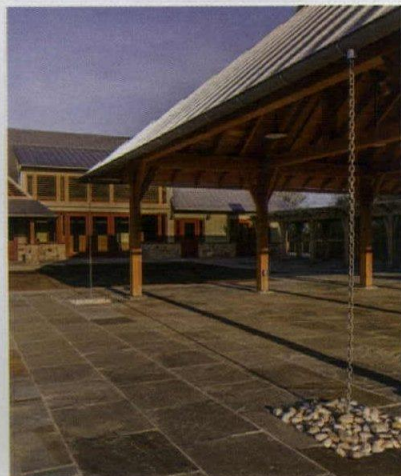
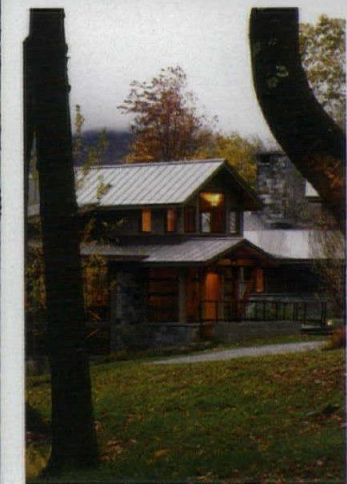
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ARCHITECT'S CHOICE

Lighting the Way

A good design withstands the test of time. Add the capacity to endure the coastal air and it can become an architect's mainstay.

About five years ago, Portland, Me.-based architect Scott Simons, AIA, discovered HK Lighting's ZX20 Series while collaborating with local lighting designer Peter Knuppel.

Simons's firm has since specified the series to illuminate entries, ceilings, paths, and outdoor spaces on residential projects, libraries, and a ferry terminal. With an aluminum alloy body and stainless steel hardware, the fixtures are "simple, modern, and well detailed," Simons says. "They're very small and they put out a lot of light."

The collection offers several sizes, configurations, finishes, and source types, but Simons favors the bronze-finished, 2.75-inch-diameter accent model outfitted with an LED driver (shown above). "They pivot around a simple swivel base," he says. "You can put them anywhere."

Similar to its clean design, the fixture's maintenance needs are minimal, which Simons and his clients relish. "We're right on the ocean," he says. "That's why we like it. It's going to hold up to anything." —WANDA LAU



REAL ESTATE

Salutation for Sale

Anglophiles awake! A masterpiece designed by Britain's last great country house architect, Sir Edwin Lutyens, can be yours for only \$7 million. The eight-bedroom manor, a red-brick homage to Christopher Wren called the Salutation, is located in the medieval port town of Sandwich, about 75 miles east of central London.

On the interior, Lutyens tweaked a Palladian nine-square plan to accommodate a segregated domestic arrangement typical of the *Downton Abbey* era. Served and servant spaces are strictly demarcated and ingeniously interwoven. Interestingly, one of the more spectacular interiors is located in the service wing:

a double-height kitchen, lit by mullioned clerestory windows.

The Salutation was completed in 1912 as a retreat for three bachelor brothers. The current owners maintain the property as a high-end B&B. They have lavished particular attention on the 3.4-acre walled garden, which was originally planted by Lutyens's frequent collaborator Gertrude Jekyll.

The grounds also include a tea room, gardener's cottage, gate house, and other outbuildings, which together add another eight bedrooms to the total accommodation.

British estate agent Knight Frank is handling the sale. —NED CRAMER



Ron Radziner, FAIA, principal at Marmol-Radziner, wanted to get back to basics. He had recently designed a jewelry store whose diamond-encrusted collection was a challenge for him to identify with. So Radziner crafted a bronze cuff in his firm's metal shop—a project that eventually led him and partner Leo Marmol, FAIA, to launch their eponymous line of jewelry in 2010. Their collection now includes rings, cuffs, bracelets, and pendants, all of which are sold wholesale, online, and in domestic and international boutiques. —H.B.

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Design Considerations for Vegetated Permeable Pavement

CREATING OPEN, MULTIFUNCTIONAL SPACES AND PROVIDING GREEN BENEFITS

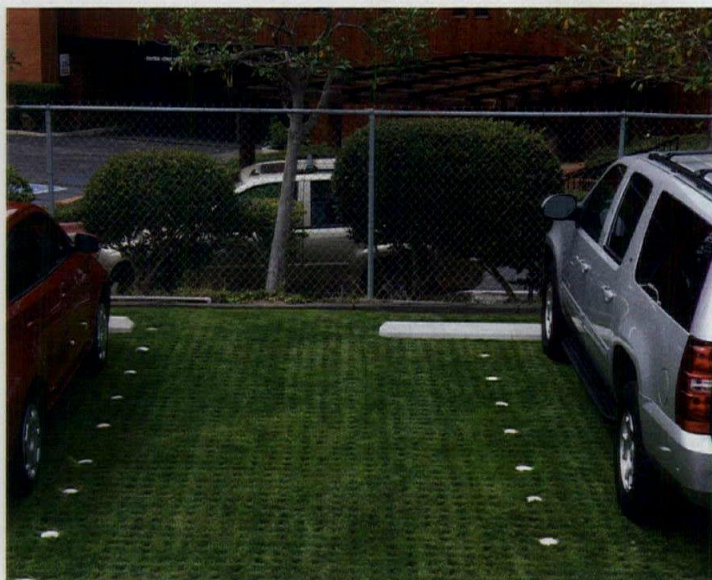


Photo courtesy of Soil Retention Products, Inc.

By Angela D. Dye, FASLA, LEED AP

Permeable paving systems, in general, continue to grow in scope and practicality as we search for ways to reduce our carbon footprint, improve water quality, diminish flooding and erosion, reduce the "urban heat island" from reradiated (building and pavement) heat in our cities and environment, and add attractive open space to building sites and neighborhoods. The current varieties of permeable pavements are permeable asphalt, permeable concrete, permeable interlocking concrete pavers, and vegetated permeable pavements. Most research on any permeable pavement considers all these types to "substantially and significantly" reduce stormwater runoff.¹ Results from a study in 2007 at the North Carolina State University (NCSU) Permeable

Pavement Research Lab showed that "all permeable pavements significantly and substantially reduced surface runoff volumes and peak flow rates when compared to standard asphalt..."

Vegetated permeable pavement will be the focus of this article, exploring some of the current environmental regulations, codes, and guidelines that incorporate their application, design considerations, modular options, and sustainable landscape benefits to help you make an informed decision. The main types of vegetated permeable pavements are flexible concrete mats, concrete grid slab, concrete grid paving units, and plastic geocells, each of which can be planted with turf or groundcover, or filled with aggregate or crusher fines.

LEARNING OBJECTIVES

After reading this article, you will be able to:

1. Define permeable pavement including vegetated permeable pavement types, applicable government regulations, and best management practices for their use.
2. Recognize the environmentally friendly attributes of vegetated permeable pavement systems.
3. Identify basic design considerations of vegetated permeable pavement.
4. Contrast the attributes of the four main types of vegetated permeable pavements.
5. Apply sustainable design considerations for vegetated permeable pavements to project types, including their application to LEED® and SITES® credits.

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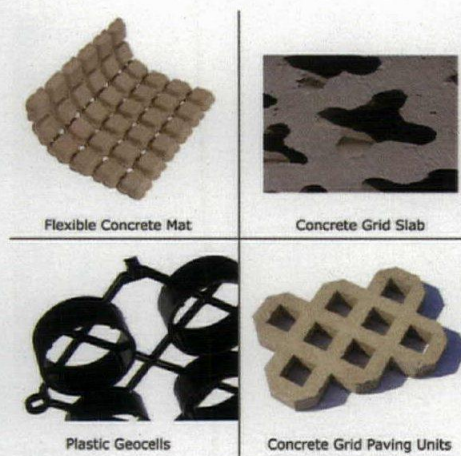
Using permeable pavement, whether vegetated or not, is one of several strategies within a comprehensive site design and green infrastructure approach to creating more functional and sustainable landscapes. The Environmental Protection Agency (EPA) considers "stormwater runoff in urban and developing areas to be one of the leading causes of water pollution in the United States."² Since 2007, using Section 438 of the Energy Independence and Security Act, EPA has required federal agencies to reduce stormwater runoff from federal projects, compelling agencies to "lead by example" to clean up water resources by using "green infrastructure and low-impact development"

techniques. In 2011, the EPA compiled a list of green infrastructure case studies nationwide. As part of a national rule-making process to create an EPA program to reduce stormwater runoff, 47.3 percent of the 479 case studies used some type of permeable pavement system, with just over half of the projects being retrofits of existing properties. Various projects are represented, from commercial, institutional/education, open space/parks, and transportation. The EPA's website Green Infrastructure provides information on each case study, its location by region, and research associated with infrastructure types.

WHAT IS PERMEABLE PAVING?

Permeable paving is a range of sustainable materials and techniques for permeable pavements with a base and subbase that allow the movement of stormwater through the surface. In addition to reducing runoff, this effectively traps suspended solids and filters pollutants from the water.³

"The primary motivation for using permeable pavement," according to Neil Weinstein, executive director of the non-profit Low Impact Development (LID) Center in Washington, D.C., "is that it doesn't eat up the land (like surface retention basins, bioswales, and filtration basins do). This is especially important in urban areas where sites are smaller and must meet stormwater regulations." The LID Center works with many government agencies including the EPA, various universities, and the National Academy of Sciences to set standards of practice for use of permeable pavement of all types. Weinstein goes on to point out, "since stormwater regulation is so prevalent, use of permeable pavement is becoming much more known and used more often as a matter of course (to meet national pollution and stormwater requirements). It's available and has become more attractive." LID finds the largest users are commercial properties such as offices and shopping centers with large parking areas. However, transportation and residential applications are also becoming more commonplace.



Main types of vegetated permeable pavements. Graphic courtesy of Soil Retention Products, Inc.

REDUCING FLOODING AND EROSION WHILE CLEANING OUR WATER

All permeable pavements have shown their ability to clean polluted urban runoff water before it reaches local streams and rivers by filtering out heavy metal contaminants such as lead, zinc, cadmium, and copper as well as acid rain and phosphorus. Individual projects, whether public or private, can potentially use them to meet local and federal flood control and stormwater pollution regulations under the Clean Water Act's National Pollution Discharge Elimination System (NPDES). According to EPA's website, "the NPDES permit program controls water pollution by regulating point sources (pipes and ditches) that discharge pollutants into waters of the United States. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters." Cities with separate stormwater systems, known as MS4s (Municipal Separate Storm Sewer Systems), are now required to control the quality of what flows off parking lots and other sites into their stormdrains. The value of permeable pavement systems to mitigate the flow of this type of pollution has increased its role in green infrastructure design, helping cities and private landowners alike to comply with these regulations. These pavements are strong enough to carry the loads from vehicles yet allow for rainfall infiltration through the pavement surface.

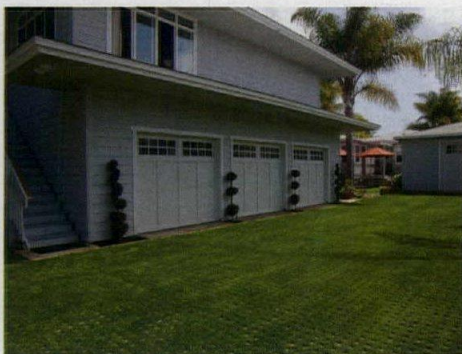
This infiltration quality lessens the potential for flooding and erosion as well as cleaning stormwater.

Following on EPA's leadership in green infrastructure, many of the most recent and developed handbooks for best management practices (BMPs) and stormwater regulations are at the municipal level, in locations near bodies of water—streams, rivers, lakes, and coastal areas. This is where permeable pavement has seen its greatest public benefit—the cleaning of urban runoff into fisheries and water supplies. Areas with BMPs, guidelines, and regulations include the East Coast seaboard around Chesapeake Bay, Virginia; North Carolina; Washington, D.C.; and Maryland; the Great Lakes region especially around Lake Michigan; the City of Chicago; and the West Coast cities of Seattle, Portland, San Francisco, and San Diego, to list a few.

Research on the use of permeable pavement for stormwater and erosion control is extensive and compelling. Non-profit organizations such as LID Center and American Rivers tout permeable pavement and green infrastructure investment as important to the rebuilding of our aging national infrastructure. Several examples exist in the United States where local and state governments have adopted regulations, codes, BMPs, and guidelines specifying the use of permeable pavements.

The North Carolina Department of Environment and Natural Resources (NCDENR) guidelines adopted in 2008 consider permeable pavement as a stormwater design feature, giving credit for pollution prevention for runoff reduction. For NCDENR, permeable pavement is now considered equal to the permeability of turf, requiring 20 percent of parking lots be permeable pavement (or a suitable, environmentally friendly, alternative stormwater management practice).

The City of Santa Monica, California, recently adopted a municipal code to reduce stormwater volume and improve water quality from existing properties and new development into Santa Monica Bay. Developers must now reduce by 20 percent any projected runoff through an Urban Runoff Mitigation



Photos courtesy of Soil Retention Products, Inc.

Plan, achieved by increasing permeable areas such as parking lots and driveways, while also increasing the percentage of green space. This is a perfect application for vegetated permeable pavement. A source for stormwater BMPs is the Stormwater Managers Resource Center (SMRC), a website established by the Center for Watershed Protection through an EPA grant. The SMRC is "designed specifically for stormwater practitioners, local government officials, and others that need technical assistance on stormwater management issues."

BENEFITS OF VEGETATED PERMEABLE PAVEMENT

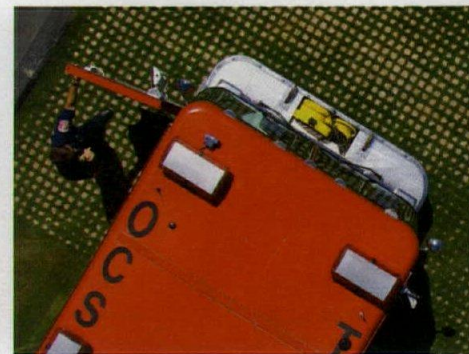
When permeable pavement is vegetated with turfgrass or groundcover, the overall effect can be stunning, and serves to integrate a project into its environment. Vegetation over pavement has the ability to absorb carbon dioxide, emit oxygen, and biodegrade pollutants. As a living plant material, its evapotranspiration naturally makes it cooler than inert surfaces such as concrete, reducing albedo and the Urban Heat Island (UHI) effect. The turfgrass surface reduces glare and absorbs noise, while adding to green open space on a developed site.⁴ In addition to this comfort factor, there is a distinct design advantage to vegetated permeable pavement systems since hardscape can be disguised and better integrated into the project's environment and ecology. Using vegetation or "soft" materials such as sand, gravel, or decomposed granite, for instance, the otherwise overwhelming effect of parking lot concrete or asphalt can be mitigated. Another advantage is that valuable space can now be



considered multifunctional, creating a better aesthetic appeal and often a better neighbor without sacrificing buildable land (see photo 1 above).

Suitable for a variety of scales, vegetated permeable pavement is typically not used for major streets, except perhaps for parallel parking spaces. These pavements' ability to add vegetation into the voids, and even to cover the paved area, creates site area that becomes more a part of the landscape. Many applications are perfect for site areas infrequently used, such as fire lanes, utility easements, and drainage ways. Areas like these which use large amounts of space, but are seldom used, leave an under-utilized vacant area in a project. Vegetated permeable pavement is especially helpful to the designer and developer when site design or city code dictates accommodating these facilities. Critical when site area is limited, vegetated permeable pavement can add green space, giving additional landscape and usable area back to the project (see photo 2).

In one of the most recent examples of the effectiveness of vegetated permeable pavement, a 2008 study responded to the need to clean up beachfront runoff. An Oceanside, California, fire station tested the viability of using vegetated permeable pavement for washing fire trucks. The fire station is near one of the most polluted beach outlets in southern California. The test was prompted by a mandate of the San Diego Regional Water Quality Control Board to clean runoff from the washing of fire trucks several times a day. The trucks were washed on the asphalt driveway in front of the station, which drained directly into the



San Luis Rey River just upstream. The installation of a vegetated flexible concrete mat was used to resolve both polluted runoff and sustain daily truck loads. Placed over a bed of granular infill and base material, the site experiences no runoff, storing up to 0.40 inch of water at the surface and infiltrating at a rate of more than 3.0 inches per hour (see photo 3).

DESIGN CONSIDERATIONS FOR VEGETATED PERMEABLE PAVEMENT

Design of a vegetated permeable pavement system for any site is a multidisciplinary effort. Once a project is envisioned, important site planning factors must be considered for building layout, access, circulation, and parking, not to mention federal, state, and local code requirement compliance. Vegetated permeable pavements can satisfy several objectives for stormwater management, while adding value and aesthetics to the project.

Structural and Stormwater Design

In one of the most concise summaries to date, a 2008 Australian conference paper, by engineering professors at the Universities of New South Wales and South Australia, lays out several distinct objectives to ask early on: "Flood mitigation/stormwater retention or detention? Water quality improvement, whether filtration or retention? Water conservation for collection and reuse? And ability to carry the intended site traffic." In the chart below, a design decision flowchart clearly illustrates the process for designing a vegetated permeable pavement. A key design consideration is the composition of the subgrade (native soils below the paving section)

Vegetated Permeable Paving Intended Use

Proposed Product Type

Structural Design
Traffic load
Existing soil type

Stormwater Design
Applicable regulations
• design storm
• percolation rate of native soils

Vegetation Design
Aesthetics
Region
Frequency of use
Irrigation

Base Thickness/Type

Full Exfiltration
Storage/detention

Partial Exfiltration
Storage/detention
Elevated subdrain

No Exfiltration
Storage/retention
Harvest/collection
Impermeable membrane

The soil area between cells is also an important factor to turfgrass health. Vehicle tires are flexible, so when void spaces are too large and overfilled, soil compaction will occur, which cuts off the air and water needed for plant growth. For example, choosing sod to top the permeable pavement for a fire lane (hopefully never used) may be an appropriate design choice. However, if the use is daily parking, applying turf by seed, and not over-filling the void space, is likely to give greater protection to the emerging root system. Choosing the appropriate method of turf establishment for the intended use can be especially critical when the pavement is saturated. With heavy and/or constant traffic, significant compaction in the void space can occur along with turf damage.

Another aspect of turf establishment and maintenance is to realize that the width of the load-bearing portion of any vegetated permeable pavement system is important to retaining turfgrass as well as carrying the traffic load. The greater area of contact between the pavement and the vehicle tire, the better the pressure is distributed and the root zone is protected. A relevant ingredient for healthy turfgrass is a bedding course, defined as the underlying sandy material between the pavement and its often heavily compacted base, which allows for a continuous symbiotic root zone and moisture for the plants. The depth of pavement can also have an impact on the ability for roots and moisture to spread along with similar-sized materials for infill and bedding course. That is because root zones are complex systems, with physical, chemical, and biological components. Each of these components together determines the quality of the turfgrass. Pavement systems which maximize

and their infiltration rates. Depending on the composition of the subbase (structural base material), in some cases enough rainfall can be collected to offset and store a percentage of the increased runoff from site development. For some projects, this may eliminate an expensive and separate "hard" drainage system. For other projects, with native soils with low infiltration, excess water could be detained and stored. Use of this excess stored water may have to be considered. For example, this excess water could be harvested for reuse, or alternatively, piped away with an elevated underdrain. The paper points out another key design question, in addition to pavement system design life, rainfall absorption, infiltration, and retention: how thick the pavement should be to carry the intended traffic. Permeable pavement thickness may be slightly thicker for managing stormwater than for load bearing, but there is usually an associated economic benefit for its use.

Turfgrass Considerations

Vegetation, specifically turf, is commonly used as a surface for applications with light pedestrian traffic, such as parks or ballfields. For it to be a viable cover under vehicle traffic, the pavement design fundamentally needs to prevent soil compaction so that the living root zone for these plants is both porous and permeable to both air and water. Vegetated permeable pavement has void spaces between a load-bearing pavement material, which distributes the imposed load to the underlying base and/or bedding materials. "A reinforced turf surface bears traffic equally directly, ... (and) assists the turf in resisting wear and compaction."⁵ This support condition allows the plants the ability to stand up to increased traffic weight and volume. Root zone areas for vegetated permeable pavements vary by type of pavement, but the more access to root space, the more likely the turfgrass will survive.

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PHOTO: VINCENT RICARDEL

## AIA VOICES

WOOLEN MAMMOTHS | WHAT TIES SPACES TOGETHER BETTER THAN A GOOD RUG?

Stanislav V'Soske revolutionized the carpet industry in 1924 by inventing the modern hand-tufting technique of rug making. Since then, family-owned V'Soske Inc. has always set a high standard in the design community for textiles that help define interior space, a standard sustained in 1979 with the appointment of Ellen Hertzmark and Roger McDonald as directors of design. In 1989, the AIA recognized the company with an Institute Honor Award for its collaboration with architects and, in 2012, New York's Center for Architecture exhibited V'Soske's work in a retrospective entitled "Architecture in Transition, 1979-1993."

**THE WAY WE PREFER COLLABORATION IS EARLY ON IN THE** project. Our clients know that we feel the floor is an integral part of architecture—that plane is the most important surface in the building's design. It affects the resolution of the walls, the ceiling, and the space as a whole. The materials that we use are so important to us, too—whether they are refractive or absorbent, so that the rug responds to the ambient and direct light, for instance, in the space. We use wool and silk, and the silk acts as a guide to push light onto the piece itself, just as the yarn weight of the wool adds to the rug's refraction.

In order to "landscape" a space, we need to know the "voice" of that space. One thing that people don't realize is that if a rug is too small, it will ruin a room because the eye will pull

inward to focus on it. You want the eye to fall out to the entire space, all the way to the walls, to see the architecture.

Our New York Center for Architecture retrospective last year was called "V'Soske Rugs by Architects: Architecture in Transition, 1979-1993," and that period really was a time of great change. Each of the architects we worked with viewed the floor plane differently. Roger Ferri wanted two figures with the sea surrounding them. Alan Buchsbaum asked for a "pillow rug"—with a hearth and an edge that looked like it was burned away from that hearth. Tod Williams, FAIA, and Billie Tsien, AIA, asked for a sense of walking through a field of green and dropping a silk scarf.

Our process is about going to the design's limit, then restraining it so that it's in tune with the architecture. It's also about a craft tradition. When we discuss what we're going to do with the architect, we have to pass all of that information on to our plant and production managers who, in turn, pass it forward to the dye master, the tufters, and the balance of the team of craftsmen. So, in the end, it's a constant dialogue to ensure that the hand of the architect passes fully through, from the time we talk to the time the rug is completed. What's wonderful about architects is that they love the design process as much as we do. Sure, we love the end result, but we love the process of doing it more. —As told to William Richards **AIA**



# AIANOWLEDGE

HOME INSPECTION



PHOTOS: DARIA HOFF

**Tin box:** "Living 10 feet above sea level, along a hurricane-prone coast, has really sharpened our focus," says Holly Zickler.

## A zero-sum game in Miami.

**WHEN DESIGNERS HOLLY ZICKLER AND HER HUSBAND, DAVID Rifkind,** built their home in South Miami in 2011, the couple envisioned it as "a laboratory for socially and ecologically sustainable construction and planning in South Florida," Rifkind says. With a much smaller resource-consumption footprint than almost any other building in the region, the 2,725-square-foot, single-story contemporary home is built mostly of recycled materials, and features a 5-kilowatt photovoltaic system that meets about 75 percent of the structure's energy demands. But the idea of a net-zero-energy home—one that produces as much energy via renewable sources as it consumes from the grid—was not on their radar.

"This was our first attempt at sustainable design, and net zero wasn't yet a part of our thinking," says Rifkind, a professor of architecture at Florida International University. "We're thinking of expanding our photovoltaic array to generate more power than we consume, however, since we now see net zero as an important goal."

While zero net energy (ZNE) homes aren't yet saturating the marketplace, they are on the way to becoming more common, thanks to progressive industry leaders and policymakers who have seized opportunities to reduce carbon emissions while reaping substantial economic rewards.

"State and local governments can't look to Washington for help," says Architecture 2030 executive director Edward Mazria,

FAIA. "They need jobs, economic activity, and tax revenue *now*. ZNE legislation provides all three, with large returns on a modest investment."

The new Colorado Energy Saving Mortgage Program, for instance, makes home buyers who are purchasing new or renovated ZNE homes eligible for an \$8,000 reduction on financing the total cost of their mortgage. In New York, the Zero Net Energy Tax Credit Bill introduced to the State Assembly would offer considerable income tax incentives to home buyers who purchase a new or renovated net-zero home. And in New Mexico, the Sustainability Building Tax Credit, which provides personal and corporate income tax credits for both new and renovated high-performance commercial and residential buildings, was recently extended to 2016.

The architecture and design community at large also must embrace the shift towards ZNE, according to Passive House architect David Peabody, of Alexandria, Va.-based Peabody Architects. "What got me serious about high-performance design was when I realized that architects cannot sit on the fence on this issue when buildings are responsible for more than 45 percent of this nation's carbon footprint, and residential architecture is responsible for more than 20 percent [of that]," he says. "We in the building profession are, then, either part of the solution or part of the problem, as the saying goes," Peabody adds. "And if you see climate change as an intergenerational





moral and ethical issue, indeed as an existential issue, then you have no choice but to address energy in a substantive way: true energy performance standards and true net zero—not gaming various green-building point systems.”

Rifkind adds, “A number of other factors—embodied energy, transportation, and water use, to name a few—are also crucial.” And Peabody agrees. “A commitment to build net-zero houses from now on will not reverse climate change,” he says. “It must be part of a whole panoply of changes that both reduce energy demand and replace fossil fuels. But getting to net zero is certainly a cornerstone of that effort.”

And that’s why Zickler and Rifkind’s home features a steel frame and prefabricated exterior panels, which consume just one-seventh of the energy needed to fabricate and erect a conventional concrete-block home in the area. The panels and steel frame are also known for their durability and resistance to the termite infestation common to the area. The lower embodied energy of the steel comes in part from its high recycled content and accounts for approximately three-quarters of the structural steel and almost all of the light-gauge framing.

The home also uses only electricity, thereby avoiding emissions associated with gas and oil, and it includes both rainwater filtration as well as graywater systems.

“We feel very strongly that every building and landscape provides an opportunity to stem the effects of climate change,” Zickler says. “Living 10 feet above sea level, along a hurricane-prone coast, has really sharpened our focus.” —Ben Ikenson **AIA**

➤ Learn more about the house at [somigreenhouse.blogspot.com](http://somigreenhouse.blogspot.com).

# AIA PERSPECTIVE

WHO ELSE BUT ARCHITECTS?



PHOTO: WILLIAM STEWART

**IN LESS THAN A DECADE OF SHUTTLING BETWEEN MY FLORIDA** office to the AIA headquarters in Washington, D.C., I’ve watched a radical transformation of the traditional urban cores around Tampa Bay as well as our nation’s capital. Previously empty or marginal land is being built up. Older housing stock that still has good bones is being renovated and restored. People from all walks of life are abandoning the suburbs in which they were raised and moving downtown where retail, services, and amenities are seldom more than a walkable block or two away. The residential downtown is indeed coming back to life. That’s the good news.

But a number of troubling issues are not far from the glittering surface. For young artists and startup businesses, it’s increasingly difficult to find affordable space to put down roots and grow. Consider Manhattan’s SoHo neighborhood. Back in the 1960s, when renting was comparatively cheap, abundant affordable space, together with urban density, powered New York’s emergence as the world’s creative capital. Today, the newest generation of dancers, painters, musicians, writers, and urban entrepreneurs have pulled up stakes, first to Brooklyn and now to Queens and beyond. The implications of this cultural diaspora have yet to be seen.

More pressing is the plight of residents who are being pushed out of gentrifying neighborhoods and into the suburbs. Uprooted from relatively easy access to public transportation, schools, playgrounds, commercial amenities, and jobs, the displaced former urban core dwellers are least equipped to pursue the American dream of a better life for themselves and their children. Some might argue that this is the inevitable outcome of economics and public policy in which architects are simply bystanders. I disagree. As a profession charged with shaping the environment, we have to take a leadership role as advocates for accessibility to quality residential design and responsible urban planning, not just for the privileged, but for everyone.

A monoculture of any type is not sustainable, and we should not allow our communities to become one. Architects must stand united as community leaders and point this out. But we must also be prepared to offer credible and inspiring alternatives that result in livable, vibrant, and affordable communities for all citizens. If we don’t lead this effort, who will? **AIA**

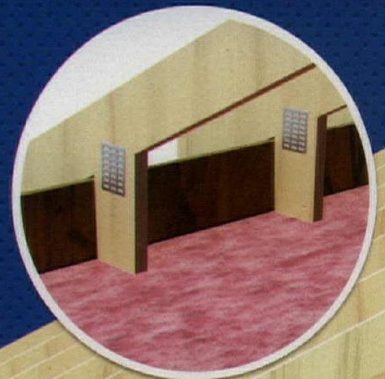
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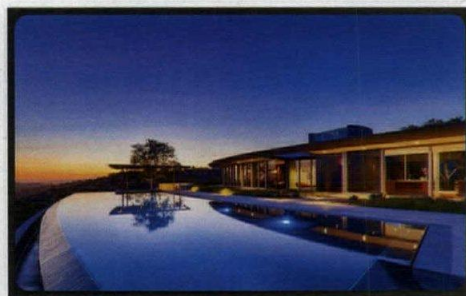
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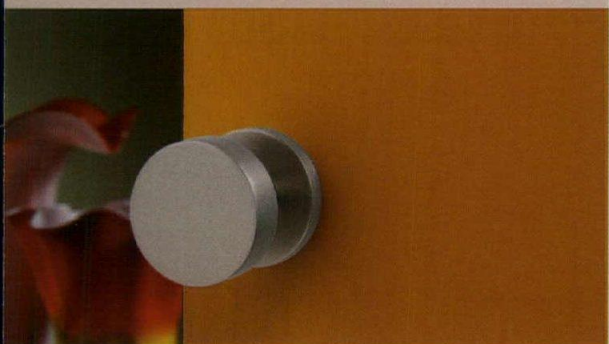
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## The Great Exchange

IN THE RIGHT ENVIRONMENT, ARCHITECTS CAN DO  
BETTER WORK TOGETHER THAN BY THEMSELVES.

TEXT BY CHERYL WEBER, LEED AP  
ILLUSTRATION BY MATTHEW HOLLISTER

In 2006, El Dorado was invited to enter a local design competition for a site that included four single-family homes, each to be done by a different architect. Thinking that such an approach could be “a mess,” the principals of the Kansas City, Mo.-based firm flipped the concept, offering to put together a team of four firms to produce one proposal for the property. The developer agreed, and the design process played out as a charrette between El Dorado and long-time associates Min | Day, based in San Francisco and Omaha, Neb.; Marlon Blackwell Architect, of Fayetteville, Ark.; and Face Design + Fabrication, based in Brooklyn, N.Y.

After a day of hashing out design ideas in Kansas City, the architects decamped to their own offices to work on the pieces they were assigned.

“If you looked at the project, I’m not sure you’d say it looks like any one of us,” says El Dorado principal David Dowell, AIA. Ultimately, someone else won and the homes were never built, but that didn’t diminish the pleasure of working together. “Those were the people we were in cultural alignment with, and we wanted to spend time talking about design,” he adds. “It seemed like a great opportunity to work with people we like to hang out with.”



# Joined at the Hip

Two strong firms in the Carolinas have managed to join forces while preserving the autonomy of each. Neal Prince Architects was a small, 44-year-old practice in Greenville, S.C., specializing in high-end residential and worship facilities. LS3P, in Charleston, S.C., had more than 200 employees spread among four regional offices, and a portfolio ranging from higher education to healthcare. The firms' respective owners, former Clemson University classmates James A. Neal, FAIA, and Frank E. Lucas, FAIA, had long toyed with the idea of combining the two practices.

In 2011, "the bad economy pushed the idea into reality," says Matt Tindall, AIA, LEED GA, an associate at what is now Neal Prince Studio. "They offered us a greater regional and national presence. We offered them two markets they didn't have."

Neal Prince Studio, which employs about 28 people, functions as a private label of LS3P. "We want the brands to be complementary, so there are some similarities in our graphics," but the boutique studio's marketing materials reflect its more personal touch, says Katherine N. Peele, FAIA, LEED AP, LS3P's executive vice president for practice.

The relationship's benefits are mutual. Neal Prince Studio has more work, and Tindall attributes that to exposure it now has in the other North and South Carolina regions where LS3P works, as well as access to more sophisticated technology and marketing. "LS3P does a lot of high-profile work for CEOs and business owners, and its commercial clients are coming to us for residential work," he says.

LS3P makes use of the other's residential sensibilities—not just in design but in construction. "Because Neal Prince Studio is so used to working in wood construction and detailing at a residential scale, sometimes we're able to bring that expertise to mixed-use projects such as clubhouses and condos," Peele says. —C.W.

Collaboration among firms isn't new, but it's getting a second look these days as architects search for ways to work smarter with fewer resources. Of course, there are many forms of collaboration. Some are cultural, among like-minded friends who think it would be fun to work together; other residential practices team up to land projects they wouldn't ordinarily get by themselves because of scale, type, financing structure, or location. Either way, there's a perceptible shift in the way architects are thinking about this issue. "The people we're talking to are not interested in traditional collaborative concepts where you hand over the schematic design and they do the rest," Dowell says. "They're more interested in ideas, in going someplace they haven't been before."

Whatever the motivation, such partnerships are gaining momentum across the profession, says Bob Fisher, principal of the Greenway Group, in Norcross, Ga. "The drive toward collaboration is coming from clients, who want to cut out waste, but also from all parts of the process," he says. "Done right, it can open possibilities for architects to be more successful and to do better things for their clients."

### Global Village

Pasadena, Calif., designers Stephano Polyzoides and Elizabeth Moule, AIA, also believe there is a future in this kind of work. In recent years their firm, Moule & Polyzoides, has shed roughly half the 25 employees it had when the economy was humming along. Though small, the New Urbanist firm has generated work across the U.S. and the globe by joint-venturing with colleagues. In the U.S., they have productive relationships with a handful of architects who design polished civic and commercial buildings but aren't necessarily skilled in urban planning and architecture, including how to work with a city's administrative mechanisms and deal with neighbors. They've also gone after smaller pieces of the pie, such as schematics and design development on projects where someone in another region or state produces working drawings.

In many cases, Polyzoides says, it does mean being satisfied with less involvement and therefore less control. "Our colleagues are more content now with collaboration and taking a smaller piece of action as long as it moves in a certain direction," he says. "We're in a constant process of reinventing the way we practice based on what we know, our values, and what will sustain us in the long run. If we did business the way we did it 20 or even 10 years ago, we'd be out of business. It's not a choice whether you shift or rethink yourself, it's an absolute necessity."

For Audrey Matlock, FAIA, principal of Audrey Matlock Architect, in New York City, collaboration is the ticket to international commissions. As megaprojects draw U.S. architects to far-flung locations, local partnerships are necessary to finesse language barriers, zoning laws, and building codes. Matlock, for example, just completed work on a glass entry pavilion—the gateway for a large mixed-used project in Kazakhstan, where she's also designed a sports center and a private residence.

Long-term relationship-building is at the heart of the firm's work there. A friend at Skidmore, Owings & Merrill, Matlock's former employer, introduced her to the chairman of Capital Partners, a developer in Kazakhstan. He hired her to design his house, as well as the Medeu Sports Center and the gateway pavilion. On each project, she worked with the local architecture firm Artetra, whose owner is a friend of the developer. "We aspire to get projects together," Matlock says. "They understand how we detail and what we're looking for, and we bring them more work with a design focus." Artetra provided surveying and dimensioning services and relayed comments from contractors, she says, acting like an interpreter. But unlike many foreign arrangements, she completes the construction documents, which the local firm stamps.

Matlock also seeks out collaborative opportunities free from the complexities of real clients and programs. Last year she joined Turkish





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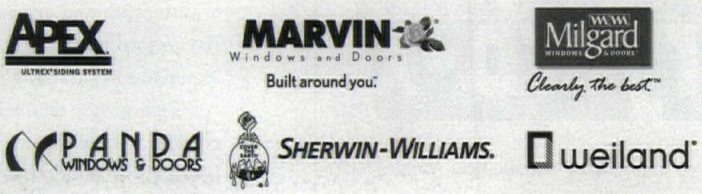
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architects at a planning firm and a fabrication firm to submit a multimedia presentation at the Istanbul Design Biennial. "The idea was to get exposure," she says. "It was a place where we could just investigate some ideas with people we have already built relationships with."

While being a team player is part of her firm's DNA—early on, a series of Armstrong World Headquarters buildings with Gensler helped put her firm on the map—Matlock is spending more time developing those relationships these days. "The most important thing is synergy—finding someone who appreciates how you approach projects, so they're part of your team, as if they're in your office," she says.

#### Matchmaking

Architects can build their businesses, Fisher believes, if they find a collaborative model that is profitable for themselves and affordable for the client. The scale of each organization is a factor in that equation. Two smaller firms of 12 to 15 people might be an easier pairing than, say, a 10-person residential practice and a 100-person architecture and engineering firm. Larger firms have more overhead, which makes them more expensive to partner with.

Emerging technology complicates deal-cutting, too. Revit, for example, skews traditional divisions of labor. "By the end of design development, we're doing more work than usual, but are learning where to draw that line," says Jeffrey Stuhr, AIA, a partner at Holst Architecture, in Portland, Ore.


Over the years, the firm has established a solid foothold in the multifamily market by working as design architects with larger Portland firms such as Ankrom Moisan, which served as the architect of record on the 16-story,





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## Residential Architect

### PRACTICE

937 Condominiums, designed in 2007 when Holst was a firm of just 10. Now with 24 employees, the firm is parlaying that experience into apartments and student housing on the other side of the country in Amherst, Mass.

"One thing we've always said is that we want to have a hand in the project through to the end," Stuhr says. "We look at it as 80-20: We're primarily responsible for 80 percent of the work up front and 20 percent on the backside, still influencing decisions that get made through construction documentation, and particularly value engineering as it affects design issues. But it's a calculated thing. In some cases, taking a smaller role allows us the opportunity to expand our abilities."

El Dorado, too, seeks out marriages of scale and expertise. "As we are looking for more

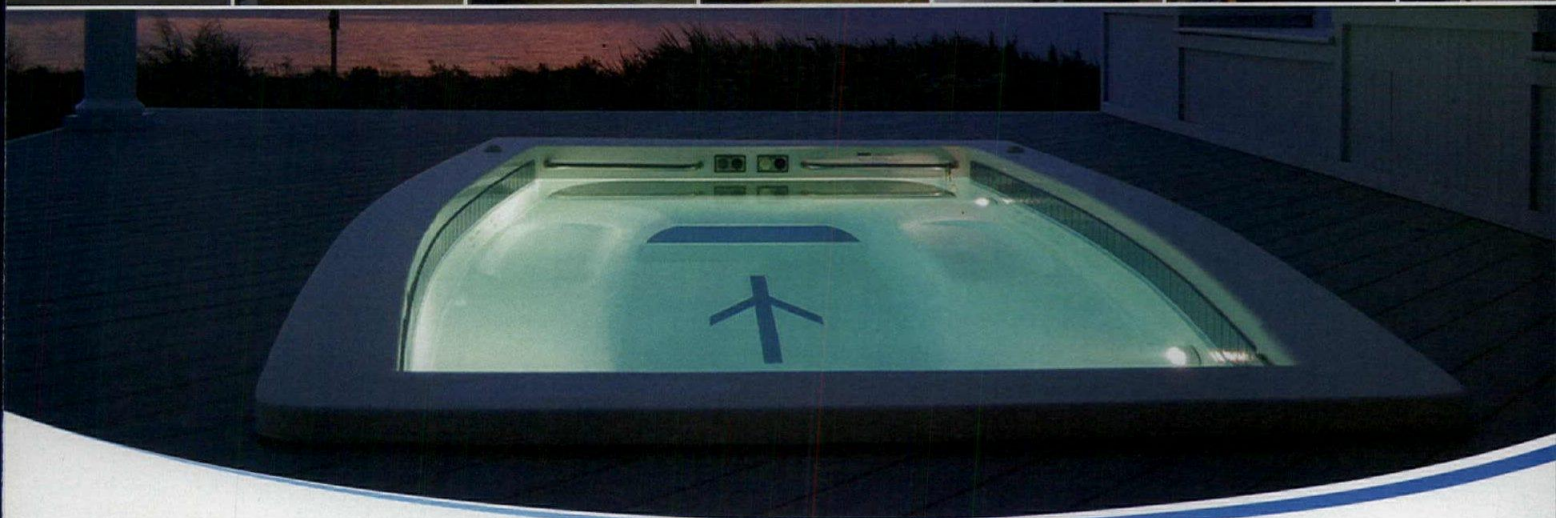
complex and larger projects, the culture of collaboration has to be part of our M.O.," Dowell says. "Nobody would ever let us come to the table to talk about why we might be a good fit to design a conservatory. We're in regular communication with a handful of self-selected mentors about looking for opportunities together."

The firm recently partnered with New York-based FXFowle on a schematic design for Tulane University's Richardson Memorial Hall, which houses the School of Architecture. Both firms were among the finalists, and the school requested that they work together. "It's a challenge as the scale grows—they're a global practice, we're 20 people," Dowell says. "But it worked out great. The burden is on us to figure out how the organizational structure works, but

it's never been the reason not to work that way. We fold those experiences into the core identity of who we are."

Such nonhierarchical collaborations are more relaxed than ones where the roles are contractual and clearly defined. Almost unintentionally, Studio Dwell Architects, in Chicago, has become the go-to firm for out-of-town architects, taking on the liability of construction documentation and administration as the architect of record. "If the opportunity presents itself, I won't avoid it," says principal Mark Peters, AIA, "but we're busy enough that we don't try to push that angle."

Still, he has benefited from association with large, nationally recognized firms who have deeper knowledge, not to mention deeper marketing budgets. Nearly a decade ago, Studio



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Dwell worked with Seattle-based Miller Hull Partnership on 156 West Superior, a nine-story condo building in Chicago. In addition to the jump in scale from primarily single-family infill, the partnership boosted Studio Dwell's press exposure. "The high-rise work we are doing is a result of our design track record and a natural progression into larger projects, and 156 Superior was part of that journey," Peters says.

With frequent commissions outside of its Dallas base, JHP Architecture/Urban Design is usually on the other end of the relationship. An example is the award-winning Columbia Parc at the Bayou District, in New Orleans, a 17-block revitalization of the Katrina-ravaged St. Bernard's housing project, where Broadmoor Design Group acted as the architect of record. In

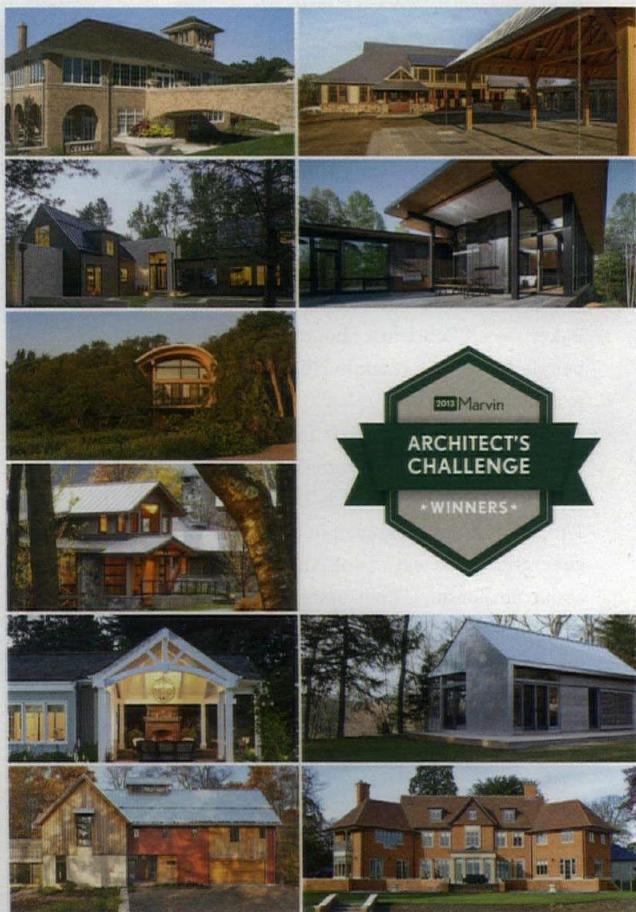
choosing partners, the architects at JHP check the grapevine for a good fit. They conduct interviews and review past work, avoiding firms with clashing egos and agendas.

"Some of it is just making sure the other team member is as interested in meeting the timeline expectations as we are," says JHP partner Ron Harwick, AIA, "and making sure there are enough details on their drawings to implement the design. If you don't have good details, you won't get a good project."

The fee can be tricky for design architects, too, as most firms recoup some of the time spent on design in the working drawings phase. "You have to watch your hours to make sure the cost isn't expanding," says JHP partner John Schrader, AIA, LEED AP. "We try to increase the

*"THE DRIVE TOWARD  
COLLABORATION IS  
COMING FROM CLIENTS,  
WHO WANT TO CUT  
OUT WASTE, BUT ALSO  
FROM ALL PARTS OF  
THE PROCESS."*

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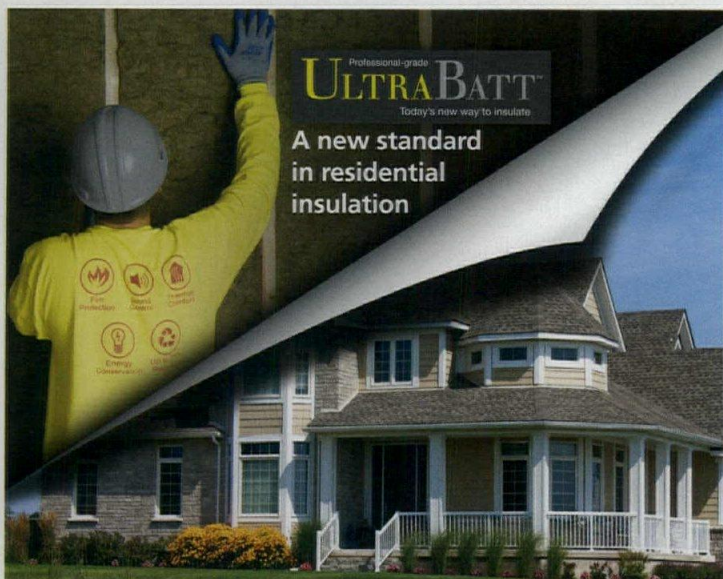
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## Residential Architect

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normal percentage of design fee to cover the extra hours we will probably put in." He says collaborations represent roughly 8 percent of the firm's work—typically commissions of 300 to 400 units and \$40 million or so in construction costs.

"You have to be careful to manage it so you're not inefficient," agrees David Baker, FAIA, principal of David Baker + Partners, Architects, in San Francisco. "You don't want three strong architects battling it out." He worked with Will Bruder, FAIA, and Harry Teague, AIA, on Taxi, a mixed-use project in Denver, and says that while such projects are typically as profitable as any other, they aren't necessarily part of his business plan. Currently he and Paulett Taggart Architects, a local firm, are co-designing several blocks of Hunters View, a San Francisco Housing Authority project located in the Bayview-Hunters Point neighborhood. "We were competitors and thought, 'Why not go after this together so we don't have to compete?'" Baker says.

There are pragmatic reasons for embracing the team approach. When you're small, it's a way to expand your capabilities. And material and technological innovations from the past decade have already made interdisciplinary collaborations the norm. But there are also underlying philosophical reasons for teaming up that have nothing to do with finances or efficiency. "When you go to someone else's garden, you learn stuff," Baker says. "You learn about firm culture, how people function professionally, and what their priorities are."

Baker's noticed a shift in the way that up-and-coming architects expect to practice. The people he's hiring aren't as likely to have read *The Fountainhead* as are people from previous generations, he says, and they have less ego about authorship. That suits him just fine. "I think it's like living in a village," he says. "In the modern world, you have nuclear families living in suburban houses. The less you see the neighbors, the less you learn culturally. Collaboration is more of a village atmosphere." □



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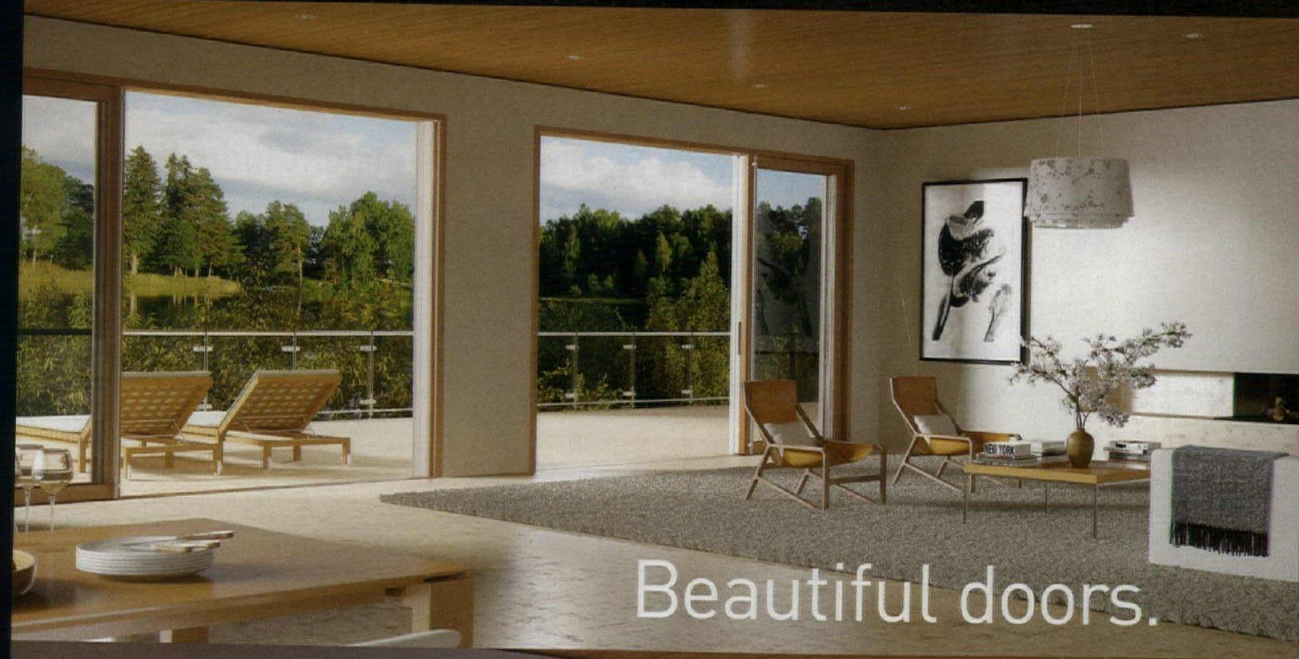


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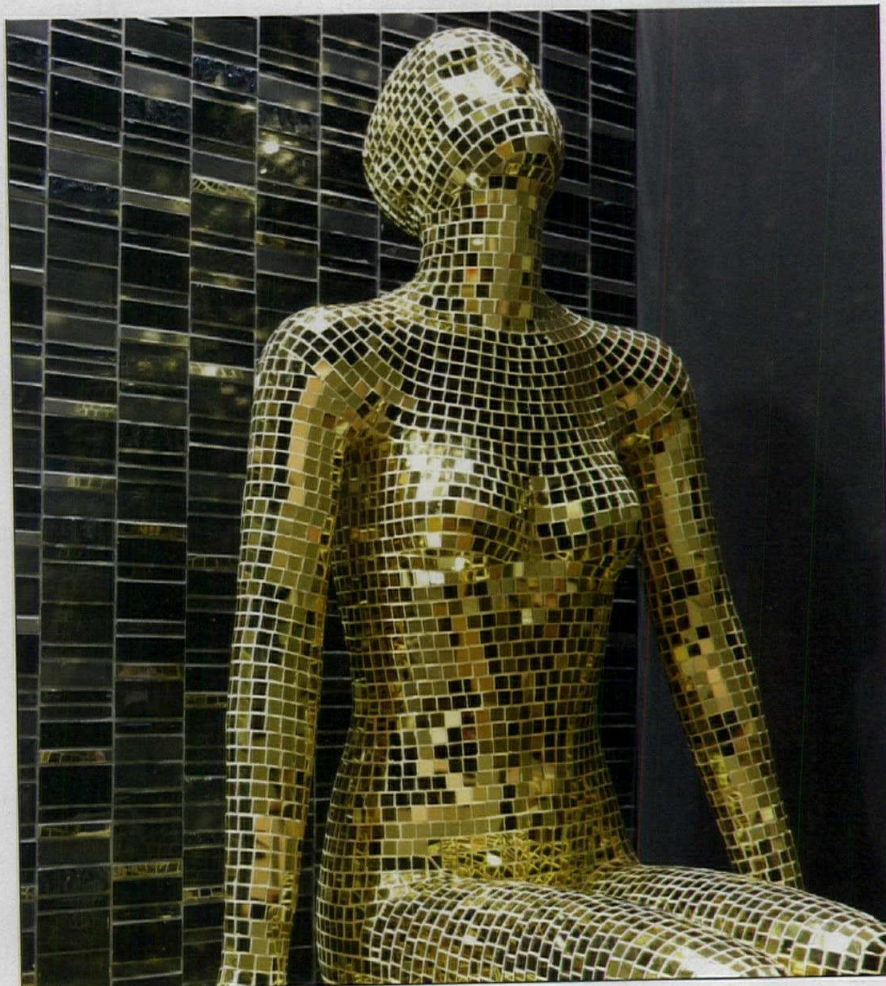


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By: Kathy Price-Robinson



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Here's how one architect sums up modern ceramics: "It's just mind boggling," says Steve Trott, AIA, of Hnedak Bobo Group in Memphis.

"Unlike other materials and crafts steeped in history, modern ceramics are an industry on the cutting edge of innovation," notes ceramic consultant Ryan Fasan.

"Rather than resisting change, these manufacturers fully embrace emerging technologies," he adds. "They are, in fact, redefining the industry."

And while the industry redefines itself, it also impacts specification options in the design world.

"Porcelain products in the interior built environment are key to providing solutions that can be of high aesthetic, high value, high performance and meets sustainable solutions," says Aneetha McLellan, director of interior architecture at HDR Architecture in Omaha.

Ceramics is one of civilization's oldest and most venerable forms of art. Ceramics have been used to protect and beautify our environment since the cradle of western civilization in Mesopotamia and quite possibly before. Much of the world's early history would be lost forever but for the remains of fired clay objects. Ceramic tile production dates back to before the 9th Century.



### CONTINUING EDUCATION

Credit: 1 learning unit, AIA

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### LEARNING OBJECTIVES

By the end of this educational unit, you will be able to:

1. Identify and assess the four types of tile.
2. Discuss specification opportunities presented by new technologies.
3. Explain emerging technologies in tile for walls.
4. Discuss new technologies in tile for floors and counters.
5. List uses for architectural ceramic as a building material.





all its technological innovations, modern ceramics still begin with three basic ingredients: clay (right), sand (bottom left) and feldspar (top left). These ingredients are found in nearly limitless supply on our planet. They are classified as "perpetual resources" and react in a white-hot kiln to create an inert piece of ceramic tile.

Modern inkjet decoration allows Spanish tile manufacturers to take inspiration from diverse sources like this vintage wood from a tiny French fishing village.

In this modern era of breakthrough technological advances in all areas of life, new opportunities arise in the field of ceramics for design professionals to embrace and expand the choices of their specifications. With a strong foundation of knowledge in the basics of ceramics today, specifiers can push the proverbial envelope of functional and durable design into new frontiers with progressive emerging ceramic innovations.

## CERAMICS 101 – FOUR CATEGORIES OF TILE

The vast world of ceramic tile becomes quite simple when broken down to its most fundamental aspects. Tile is a completely natural building material comprised of three ingredients – clay, sand and feldspar. Just as a master pastry chef finesses the chemical reactions between flour, yeast and eggs, a ceramicist controls the reactions of tile's three components.

Those three basic ingredients, found in nearly limitless abundance (classified as "perpetual resources") combine in the white-hot heat of a kiln to create an inert piece of ceramic tile.

Manufacturers have millennia of experience behind them to understand

that we require tiles to perform in four distinct environments. And that is exactly how many different types of tile bodies they must produce to ensure their tile provides the lifelong performance it should in any environment. This is the foundation upon which a successful ceramic specification is built.

The measure for classifying the types of ceramic is straightforward– it's based on the density of the body, and therefore its porosity or ability for water absorption.

In the first category, the most porous modern tile produced is above 7% and is normally found at around 10% to 12% water-absorption. This category is the best specification for interior wall applications. The high porosity makes sense primarily for two reasons:

1. Available porosity makes the tile adhere easily and quickly to vertical surfaces with the most common and inexpensive mortars or adhesives.
2. The lower-density body can be fired at lower temperatures, allowing for the use of the broadest range of minerals and frits (fused particles) in the glaze for the widest range of decorative options.

For the second category, driving the

water-absorption capabilities of the body below 7% to around the 3% range gives tile the ability to withstand foot traffic in a dry environment. This is the most sweeping category of specifications and as such, a range is offered to give the broadest variety of options for specifiers to choose from, based on client needs. The lower the traffic of the environment, the higher porosity material will be acceptable.

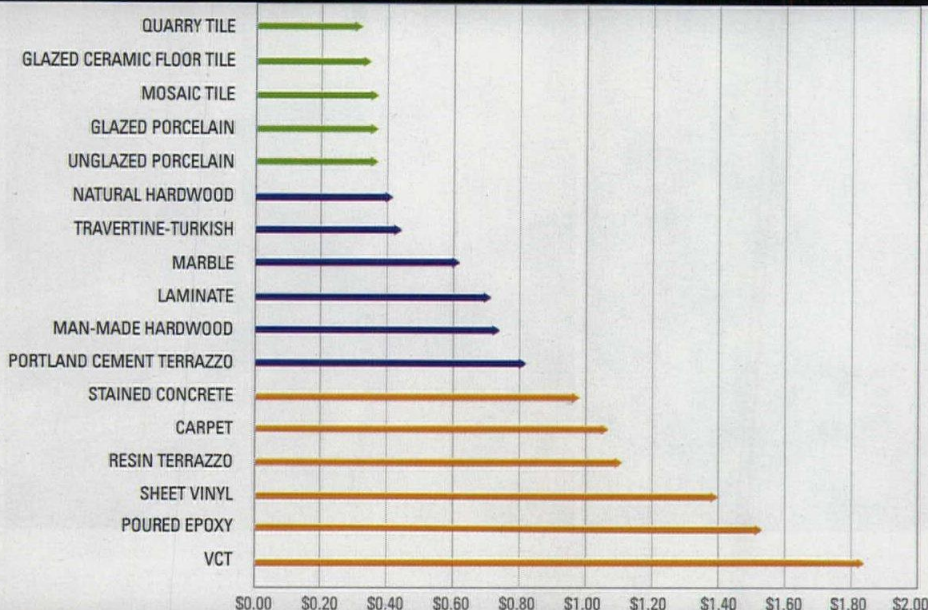
In the third category, increasing the density so that water absorption is

**Properly specifying the appropriate type of tile for the area will minimize economic, environmental and installation burdens while maximizing design options.**

Below 3% to 0.5% opens the possibilities for the tile to survive on floors in occasionally wet environments and in exterior applications where freeze-thaw or thermal shock may be an issue. Sometimes calling this category Gres or Stoneware, quality manufacturers test this category of material for suitability and provide data if they recommend it for exterior installations.



Floor Coverings Comparison: Life Cycle Cost Per Square Foot Per Year



Life Cycle Cost Study by Scharf-Godfrey, division of Phoenix Engineering for TCNA

Initial cost is a poor indicator of value. The high durability and low maintenance of ceramic tile makes them the lowest cost choice.

And in the final category, the densest tile body produced provides water absorption of less than 0.5% for the most demanding environments like submerged, high humidity or areas of wheeled traffic. This material, often described as porcelain, can be, and often is, specified in the previously mentioned areas but always at a cost either in aesthetic options or in the cost of material or installation.

Technical characteristics increase as porosity declines, with each subsequent category, but at a cost. The denser a tile's body becomes, the more resources are used in production, shipping and installation. Properly specifying the appropriate type of tile for the area will minimize economic, environmental and installation burdens while maximizing design options.

Understanding and utilizing the four types of tile appropriately allows a specifier the broadest range of options to satisfy client design goals while ensuring a lifetime performance solution. Explaining selections to clients in easily

understood terms, namely the area of use and demands of environment, creates tacit acceptance of the fact that you are providing them a solution that will offer maximum performance for maximum value.

### LIFECYCLE COSTS

For a client or specifier today considering ceramics as a preferable material for the



Thin yet durable tiles bring benefits on many levels. They require fewer materials to manufacture, are lighter to transport, easier to fabricate on the job, and have many innovative uses, from furniture veneers to tile-over-tile retrofits.

21st century, data suggests a good return on investment. In today's economy, and for the foreseeable future, ROI remains a major concern. A study commissioned by The Tile Council of North America indicates that ceramic tile is the lowest-cost option for cladding when amortized over the average lifespan of a building (40 years).

The study factors in replacement and maintenance costs of a comprehensive range of materials – from quarried tile to vinyl composition tile (VCT) – and demonstrates the reduced value of low upfront-cost materials over the lifespan of a building. While upfront costs nearly always remain a deciding factor, this study argues that tile reduces the cost of an even more valuable commodity for most people today – time. Lower maintenance costs, less replacement hassle and inconvenience, mean less time spent on maintenance of a building and more time spent living or working in it.

Other benefits for specifiers to consider include: tile is non-conductive but provides a high thermal mass; it is inert and unaffected by fire or floods; it is one of the few mediums that can be rendered in color and unaffected by UV exposure, and it is inorganic and so naturally inhibits the growth of bacteria and other health risks.

### NEW TECHNOLOGIES BUILT ON THE FOUNDATION

When modern ceramics are factored into the conceptual stage of design, they often provide more than simple surface solutions as they become an integral part of building performance as well as the design program.

Today, according to tile expert Fasan, "Creativity and innovation are the backbone of the modern ceramics industry." The goal for many manufacturers is providing performance-based solutions for modern design and lifestyle challenges. Highlights of these solutions include thin formats, inkjet decoration, advanced chemistry in glazes, and innovative installation technologies. Let's look deeper into each of these.



## THIN FORMATS

Emerging en masse around 2008, minimal thickness porcelain and ceramics continue to provide creative solutions to North American designers and open up new areas of specifications beyond the traditional backsplash and tub surrounds.

Traditional thickness of porcelains is 10mm and newer production processes have created 4mm to 6mm varieties. Large format ceramic wall tile has also been reduced in thickness by many manufacturers from 13mm down to 7mm or 8mm. Depending on the production process involved, many of the thin porcelain products are offered in sizes up to 36" x 120".

Earlier this year, the revolution of ceramic technologies astonished architects attending Cevisama, the international tradeshow hosted annually in Valencia, Spain.

"I was totally amazed at the advancements our group witnessed being made in the ceramic and porcelain tile industry of Spain," says architect Trott. "Of particular interest to me was seeing first hand thin-ceramic technology and understanding new possibilities for its application in the practice of architecture."

Noting the use of thin ceramics for countertops, sink, and even stovetops, Trott believes this emerging technology "is just beginning to scratch the scratch



The blending of diverse ceramic styles creates an urbane yet grounded environment. This room includes flooring radiating the personality of wood but with the practicality of ceramic, a vanity shining with innovative thin ceramic veneers, and a backsplash exuding a riot of inkjet complexity.

the surface of design possibilities for the modern world."

This reduction in thickness and weight comes with substantial environmental benefits. One of the prime criticisms of ceramics by competitive industries is the high embodied energy associated with production and shipping. Reducing the thickness by half effectively reduces the embodied energy and raw material requirements by the same factor.

This weight reduction offers the benefits

of porcelain to areas of specification once impossible with the traditional, heavier material. In fact, ceramic manufacturers now approach furniture and cabinetry designers to offer slim porcelain as a veneer material, competing with traditional laminate veneers. This gives

This article continues on [http://www.hanleywooduniversity.com/files/upload/Architect\\_Mag/june%202013/tile\\_of\\_spain\\_arch.pdf](http://www.hanleywooduniversity.com/files/upload/Architect_Mag/june%202013/tile_of_spain_arch.pdf). Go online to read the rest of the article and



Tile over existing installations saves time, resources and waste.

#### SUSTAINABLE IDEA: INSTALL THIN PORCELAINS AND CERAMICS OVER EXISTING TILE INSTALLATIONS:

Another solution provided by thin porcelains and ceramics is the ability to install them directly over existing tile installations. This method of renovation offers an environmentally preferable option for specifiers today. Along with reduced embodied energy in the thinner material, tiling over an existing installation saves the substrate and tile from the landfill or recycling stream. Plus, this program requires no new or virgin substrate material for the new installation. Possibly more importantly for the client, a renovation of this type takes less time, creates less disruption for the occupants, and prevents fewer indoor air quality issues that tile demolition activity brings to a space.

As an example, hotels have been able to renovate a guest room in a single day, minimizing loss of revenue. Retail spaces can complete a flooring change without closing their doors for an extended period of time.



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The screenshot shows a web browser window displaying a Porch profile for 'Phil Kean Designs'. The profile includes a profile picture of a woman, the company name, and location 'Architecture & Interior Designs • Winter Park, FL'. Contact information listed is (407) 599-3922, email amy@philkeandesigns.com, and website http://philkeandesigns.com/. The 'Pro Coverage Area' is listed as Virginia Heights. A map shows the 'Top Service Area(s)' with 12 known project locations marked. Below the map, a section titled 'Projects with photos (10)' displays a grid of interior design photos, including a living room, a bedroom, and a bathroom, each with a price tag.

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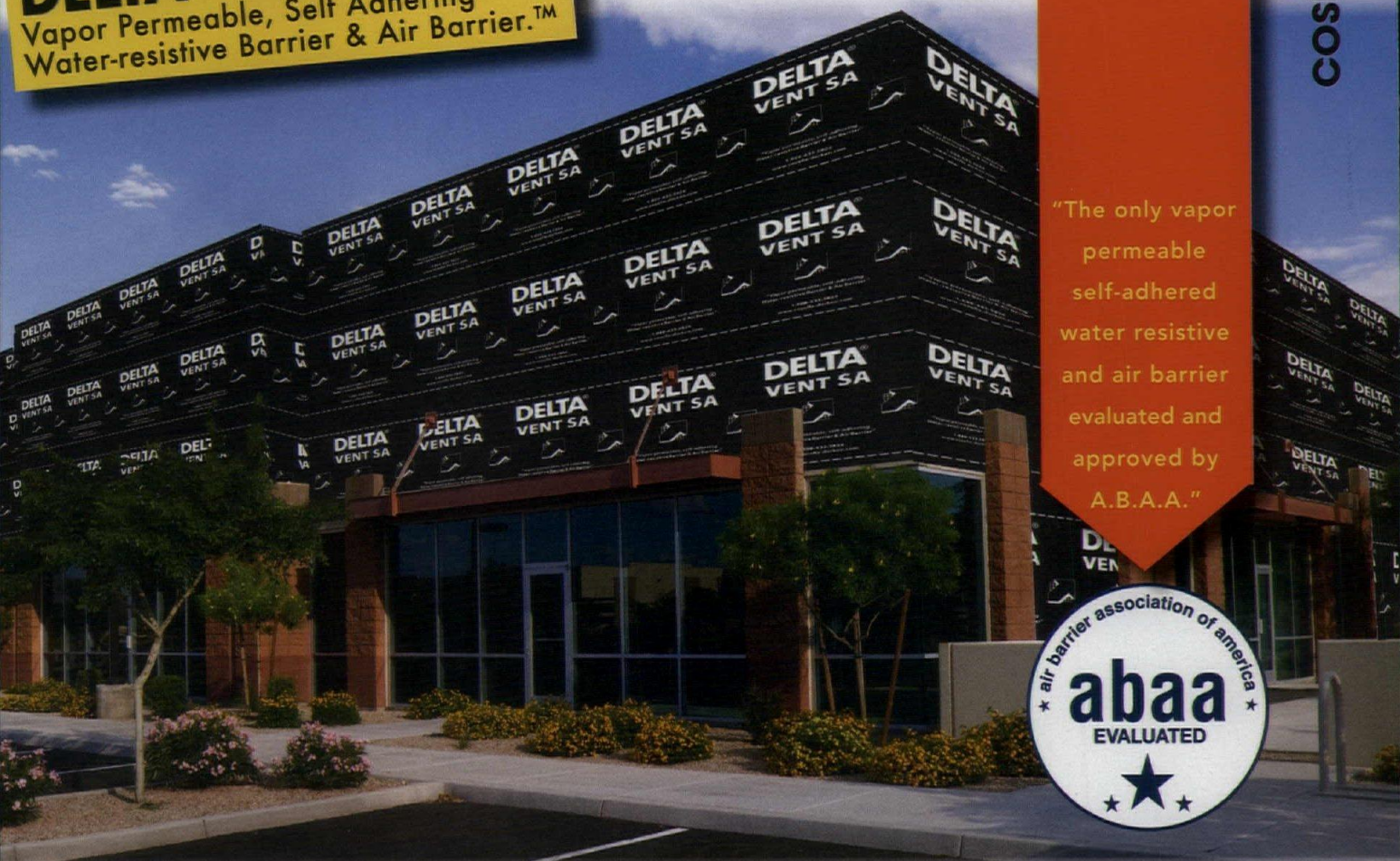
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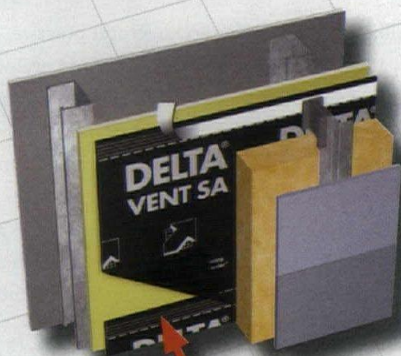
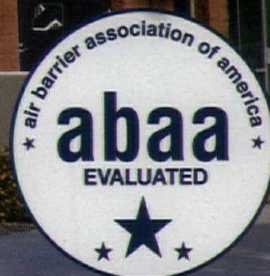
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# Top

## *Residential Firm*

### CRAIG STEELY ARCHITECTURE

TEXT BY BRUCE D. SNIDER  
PORTRAIT BY IAN ALLEN

**Surfing may seem** an unlikely metaphor for architectural practice, but consider Craig Steely: Based in San Francisco, the 48-year-old architect commutes every two months or so to his other studio in Hawaii, maintaining a work routine that allows him to hit the beach nearly every day, in either locale. Both his work and his hobby involve the repetition of actions that sharpen his skills and deepen his insights. He chooses his projects in the same way he chooses waves, waiting for one he can ride from start to finish without getting thrown. And whether on his surfboard or at his drawing board, Steely seeks to align the human will with the forces of nature, striving for an economy of gesture.

Despite his love of the coast, Steely grew up far inland, on a farm in California's Sierra Nevada Mountains, and that's where his interest in architecture began. His mother came from an artistic family and encouraged his love of drawing. His father, who tended a walnut orchard, was a talented mechanic with a farmer's knack for improvising tools and equipment. "We were always making things, hot-rodding things, making them more specific to their use," Steely says. "That was just a daily thing." The







combination of imagination and practicality was formative for Steely, as was the rural setting. "I grew up in the country, and I have this complete love and respect for cabins," he says. "I've spent so much time in cabins and outside."

That affinity for elemental structures lies behind Steely's interest in designing buildings that embody "the minimal amount, the slightest amount of enclosure." His residential work has become more structurally adventurous over the years, but the experience he seeks to create has become, if anything, more grounded in the earth. "My favorite space is some driftwood shelter my friends and I might make on the beach," he says. Most clients expect more enclosure than that, of course, but under Steely's influence, they often find that they need less than they had thought. The goal, he says, is "a more natural, more outdoor, more hippie type of building."

Steely studied architecture at California Polytechnic State University at San Luis Obispo, but it was during his last year in school—which he spent in Florence, Italy, on a scholarship for study abroad—that he first tasted how rich a life in architecture could be. Among the architects he worked with there, "[architecture] wasn't just a 9-to-5 job," Steely says. "It was connected to who they were in all facets of life. It was completely open to art, literature, music, culture. It became beautifully obscure when we were working and when we weren't."

"It basically made me unemployable when I came back here," Steely says, only half in jest—and without a hint of regret. In California, "I could get into good offices, but I kept getting fired." The Florentine model of a practice interwoven with life simply didn't mesh with the buttoned-down culture of a conventional American practice. Steely shifted instead toward construction. "But I kept getting dragged back into architecture," he says, "so I decided that I had to do it my own way, on my own."

"I had a friend who was licensed, and I helped him do some jobs," says Steely, who clocked enough hours to sit for the licensing exam, though "definitely without working in any conventional offices." He had long been plugged into a network of artists and other creative professionals—including his wife, painter Cathy Liu—and when he launched a solo practice, he found in that same group a natural client base. "All of a sudden," he says, "I was an architect in an arts community." He worked within that community, doing both design and construction, from the mid-1990s to about 2000. "That's when I started getting enough work that I could just design and not build."

**Notice of Steely's work rippled outward**, from local media to regional and national publications. But even as word spread beyond his immediate circle, he was—and remains—determined to work only with people who understand his creative process. Today, he credits much of his success to choosing the right clients. They tend to be "huge optimists, but realists too," he says. "They can look around and see the beauty in things that other people can't." And they understand Steely's body of work to be an ongoing project.

In an interview for a 2010 *RESIDENTIAL ARCHITECT* profile, Steely described his ideal client as "someone complex enough to want a simple house,"







**Previous spread:** Craig Steely on the terrace of the living space that he designed for himself and his family in San Francisco. **Opposite:** Known as Beaver Street Reprise, this infill rowhouse designed by Steely contains both the offices for his architectural practice and his living space. **This page:** Though primarily based in San Francisco, Steely has spent the last decade designing a series of houses in Hawaii. The latest, Lavaflow 7, the Mayer/Penland House, is a cast-in-place concrete structure on a 5-acre site near the Ohia forest.



and that was no idle quip. "I'm pretty demanding of my clients," he says, totally lacking in patience for such things as professional kitchens for folks who never cook. "I really want them to be realistic about how they're going to use this house," he says. "Maybe I dissuade a lot of clients, but the ones I get are the right ones."

A meeting at the architect's San Francisco residence usually reveals who is and who isn't down with the program. Dubbed Beaver Street Reprise, the infill row house distills Steely's approach to urban dwellings. Forthrightly contemporary yet respectful of its Victorian neighbors, it combines modernist precision with a certain beach-hut quality. A treehouse-like roof-deck provides the essential outdoor connection. "And we've got a workshop and a half-pipe in the garage," adds Steely, an avid skateboarder. "What more could you want?"

Steely located his 600-square-foot office on the second of the house's three living floors. Family quarters—he and Liu have a young son—occupy the remaining 1,000 square feet of indoor space and 600 square feet of roof-deck. "I like that the house is a certain size," Steely says. "I can't have more than three or four [staff] people in the office," a number that allows him to be intimately involved in every project. "Also, we wanted to have a compound where we live and work. I really like that transparency. [Prospective clients] come over, and they see how we live. And how we live is how I design. Some people get it, and some people don't."

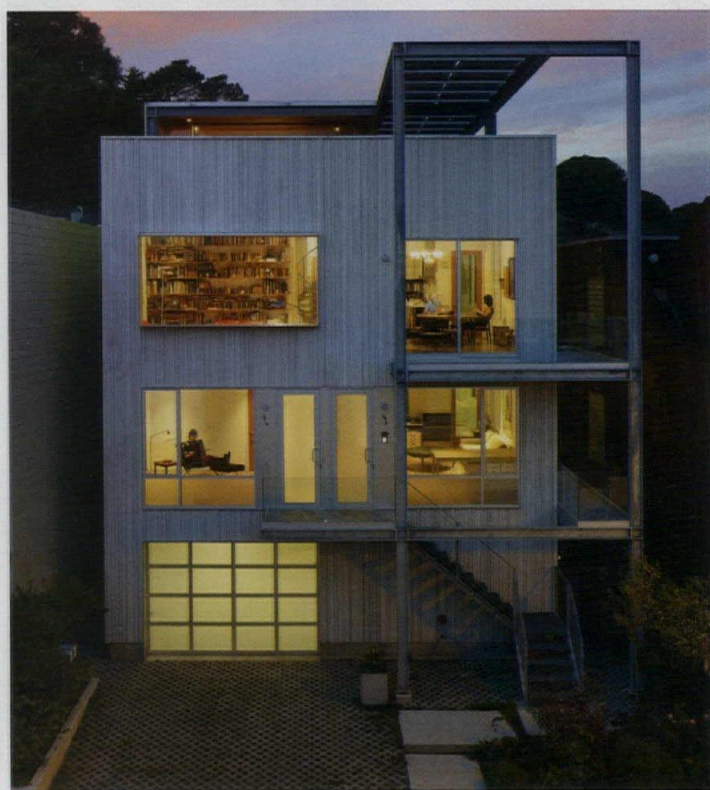
Those who do get it sign on for a journey of intense exploration with no predictable outcome. Filmmaker Xiao-Yen Wang and artist Andy Martin hired Steely to rescue their seismically challenged San Francisco Victorian. Steely stabilized the building with an innovative external steel frame that also supports two outdoor terraces and shelters a rooftop suite with panoramic views of the city. "Craig actually has a technique to glean things from a client," Martin says. "He tries to get as much as he can—and if he gets even more, that's OK. Craig likes client input. He doesn't always follow it, but he considers it each time." And Wang and Martin learned to trust their architect's instincts. "Craig moved a wall, and it looked like a mistake," Martin says. "I said, 'That's going to look like hell,' but Craig said no. And it turns out he was completely right."

"He's fearless," says Bernard Trainor, a Monterey, Calif.-based landscape architect who has collaborated with Steely on two especially challenging in-town sites. On the Mullen Street project, Steely navigated seemingly insoluble access issues to create a house whose entry sequence is one of its strongest points. Instead of locating the entrance on a street elevation, Trainor notes, "he created the opportunity to depart [from the sidewalk] and go through the garden, which is one of the cleverest solutions I've seen on a city property."

**Since 2000, Steely has applied his skills** to a very different environment: land created by a 1955 lava flow on Hawaii's Big Island. "It's an incredibly dynamic environment," he says. "It's brand new land. It's so raw." In contrast to urban San Francisco, "it's contextless in a way. It's this bold proving ground for form-making." Steely's response has been a series of houses (nine to date,







**Opposite:** The narrow infill site of the Mullen Street house in San Francisco presented little room for a traditional entry sequence, but the resulting stair through the landscape to an inboard courtyard became a defining feature of the project. **This page:** For Xiao-Yen Wang and Andy Martin's renovation, also in San Francisco, Steely turned the need for bracing (to bolster the structure's seismic resistance) into the benefit of steel-reinforced terraces and added a photovoltaic-topped roof deck to maximize views.





with three more under construction), that reflect the architect's evolving concept of shelter in this very particular spot. His own island home and studio, Lavaflow 2, with its radically simplified plan, light structure, and large sheltered outdoor space, most closely approaches what Steely calls "that cabin idea—throwing away everything superfluous."

Living and working in two such different places keeps his creative perspective fresh. "You just don't get bogged down," Steely says. "It makes you appreciate the place you live in more." And since it began, "the experiment of Hawaii has really informed the work I've done in San Francisco," leading him to make his city buildings more porous and open to the outdoors. A recent San Francisco project, Peter's House, shows the influence most strongly. A four-story building whose two middle floors are enclosed by a frameless glass curtainwall, the house has a rooftop pavilion that would look right at home on the lava flow. "There's no fussy detailing," Steely says. "There's a lack of detailing. It's a really strong idea that we've stripped away as much as we can from."

There are other exchanges between the poles of Steely's ambit: modular steel structural systems fabricated in California and shipped to Hawaii, wind-fall koa from the Big Island milled for cabinets in a San Francisco apartment, and, most importantly, the ideas that germinate in one place but find fertile soil in the other. What weaves through it all—connecting Steely's life, his work, and his world—is the ocean. "My day in Hawaii isn't so different from my day in San Francisco," he says. "I get up in the morning. I go surf. I come back. I do some work. If I don't get out to surf, I'm less productive."







**Opposite:** Steely designed the 1,400-square-foot Lavaflow 2 house on the Big Island of Hawaii as a space to serve as his home and studio when he makes his regular trips there. **Top left and right:** Lavaflow 4, the Fishman/Kurakawa House, is sited in a forested area that was left undisturbed by the flows. **Above:** Lavaflow 5, the Bennet/Yeo House, is located on the island's Hamakua Coast and was constructed with a prefabricated system of 8-inch-by-8-inch steel flanges that were bolted together on site.



# Hall of Fame

## GEORGE SUYAMA

TEXT BY CHERYL WEBER, LEED AP  
PORTRAIT BY IAN ALLEN

**"Houses are more** about being containers for activity than the objects of activity," says Seattle architect George Suyama, FAIA. "Looking at the building as an object is really antithetical to creating a sense of place." It's a truth he's found to be self-evident, yet it's one of the rare declarative statements he makes during a conversation; pronouncements aren't in his nature.

Suyama is a clear thinker with a disarming modesty, traits that carry through to his buildings. Since opening an eponymous architecture practice in 1971 (it was renamed Suyama Peterson Deguchi in 2003), he's become known for tranquil houses that blend seamlessly with nature and the land, the result of a thought process rooted more in intuition than in theory.

"Just calling him an architect doesn't really do him justice," says Bruce D. Hinckley, a frequent, close collaborator and founder of the Seattle landscape architecture firm Alchemie. "He's always looking, whether walking down an urban sidewalk, or fly fishing, or looking at something in a thrift store."

"George is a deep, quiet, circumspect individual," Hinckley says. "You need to spend time with him to appreciate the subtlety he brings









to the design process.” The two explore what-if scenarios using topographical surveys and weather and climate analyses to develop indoor-outdoor relationships, the compression and expansion of space, and the contrast of light and shadow. “The design process goes on quite a long time without any discussion of architectural materials or style,” Hinckley says.

A certain serenity has been developing in Suyama’s work for years, but that calmness belies its complexity. To quote a *Seattle Times* article by arts writer Michael Upchurch, the “rhythmic momentum” of his buildings is easy to read. “But the way in which the bits and pieces dovetailed together could be dizzyingly intricate. In one vast hybrid of private home and personal art gallery ... floor surfaces, walls, and ceilings form numerous planes that seem to float and harmonize within the house, without fully filling the space they occupy.”

**Suyama, who is 71**, has had a long career as a pioneering architect who integrates the reductive spirit of the Case Study Houses with influences from his ancestral Japan and the climate, light, and geology of the Pacific Northwest. The firm’s houses filter the region’s soft light through layers, and their walls, textures, and sheltered outside spaces reinforce the connection to nature. Many of its designs feature high, overhanging roof planes that rest lightly on clerestories and exposed columns, and glass walls that open strategically to sweeping views. Concrete, wood, and metal are favored building materials.

At the helm of one of the region’s leading architecture firms, Suyama and his portfolio of work have garnered an enviable list of AIA awards. Yet his place in the profession wasn’t always assured, at least not in his mind. “In

college I had no inkling of what I wanted to do, except for the fact that I did not like spaces that were unfinished,” he says. “There was always that sense of how one wanted to live.”

He declared an architecture major in his senior year at the University of Washington (UW); but reading was not his strong suit, and theory left him cold. “I never felt that becoming an architect was the ultimate goal for me,” he says, recalling how he spent the next three years pursuing a master’s degree—an alternative to military conscription to Vietnam. “By default, I tried this and liked it,” he says.

That’s not, however, to say Suyama left college without a muse. Just before graduating in 1967, he spent six months working for Gene Zema, a free-thinking UW alum who built many of his elegant, spatially complex wood houses by hand. It was a pivotal moment. In addition to introducing Suyama to a design sensibility that shared some traits with traditional Japanese craftsmanship, Zema also was an inveterate collector of Japanese artifacts and crafts. That influence tapped into Suyama’s cultural heritage, and his particular fondness for using decorative objects to create atmosphere in an austere space.

“Later there came a shift, where decoration wasn’t as important to me as what the surrounding shell was able to do to create that same sense of ambience,” says Suyama, who worked for modernist architect Ralph Anderson for several years after graduation. But he admired in those objects “the craft of putting things together in the most elemental way, so they have an inherent logic and visual simplicity. Maybe it goes back to the primitive human condition we all have within us,” he says.





**Previous spread:** George Suyama, in the Belltown studio of Suyama Peterson Deguchi. **Opposite:** The 1983 Seattle condo renovation for Jack and Rebecca Benaroya, with its articulated wood ceiling, was the beginning of a shift toward higher-end commissions in Suyama's career. **This page:** Concrete landscape walls conceal the expansive glazed walls, and exposed timbers and wood decking of Suyama's design for the Broadmoor residence, which was completed in 2005.





**Above top and bottom:** Completed in 2001, the 1,300-square-foot American Camp is sited on a hillside on San Juan Island. The retreat home and guest house maximize views and daylight while providing comfortable living spaces, made using indigenous materials and sheltered under vaulted ceilings. **Opposite:** Suyama designed Fauntleroy II on the lot adjacent to his first house, Fauntleroy I, built 15 years earlier. Composed of a series of courtyards that flow into the interiors, the house, finished in 2002, won two AIA awards.





Suyama, who has amassed an eclectic collection of rocks, shells, fine art, and American and Japanese folk art, speculates that he is drawn to objects, in part, because he had so few of them in early childhood. His first three years of life were spent in the Minidoka internment camp with his Japanese-American parents during World War II. “I don’t really remember, but I think there was an overall feeling within the camp that we were bereft of the things we had left behind,” he says.

**The 1970s were not exactly** an auspicious time to go solo. As a recession ran its course, Suyama accepted nearly every small project that came through the door. The prevailing economic conditions—and the sense, as a child of Minidoka, that one should not expect too much—played out as a decade that was “not that much fun.” Suyama was designing low-budget projects that were visually pleasing but had no intellectual conviction. Missing, he says, were the “aha” moments he had anticipated in an artistic endeavor. The work that did get published came from houses he bought for himself, fixed up, and sold.

A condo renovation in 1983, for Jack and Rebecca Benaroya, was the turning point that shifted his career to a new caliber of clientele. At the suggestion of a former client, the Seattle couple included him in a mini design competition for the job, and his proposal won. With a generous budget to unleash his creativity, Suyama experimented with refined details in the raw loft, including sliding wall panels and a highly articulated wood ceiling that read as structure while masking a flexible lighting system. The success of the design led to more ambitious commissions, ranging from small, exquisitely executed camp-style retreats in the San Juan Islands to sprawling homes



overlooking Seattle’s waterways, including the Fauntleroy Residence on Puget Sound that he designed for himself and his wife, Kim. (Fauntleroy II, built 15 years later on the adjacent lot, won two AIA Honor Awards.)

If a singular event can inspire a philosophical shift in practice, for Suyama, this event was the 1997 purchase of an old building to use as a studio in Seattle’s Belltown neighborhood. Having led former lives as a livery and an auto repair shop, “it was a building of its period,” he says, “and the material textures were absolutely overwhelming to me—concrete, old painted wood trusses, gnarly wood floors.” The firm’s design intervention deployed the simplest materials possible—plywood, drywall, and steel—to create contrast while allowing its industrial character to shine.

“I discovered an ability to create the atmosphere I was looking for, but in a different way,” he says. “It did not need wood detailing or decoration—the little objects I’d collected—to make it work.”

Since then, the firm has focused on creating a sense of place by eliminating everything extraneous. “Materials and a sense of hierarchy reinforce an attitude of place,” he says. “We think about nature as the driving element: flora, fauna, wind. So often architects think first about what a building will look like and how will it photograph.”

Suyama shares the open studio with Ric Peterson, FAIA, who became a partner in 1983; Jay Deguchi, AIA, a partner since 2002; and 10 employees. The three partners work on separate projects but use each other as sounding boards. “We don’t present multiple solutions, but have variations,” Suyama says. “You should stand behind something you believe in. But that’s not to say we don’t go back and start over.”



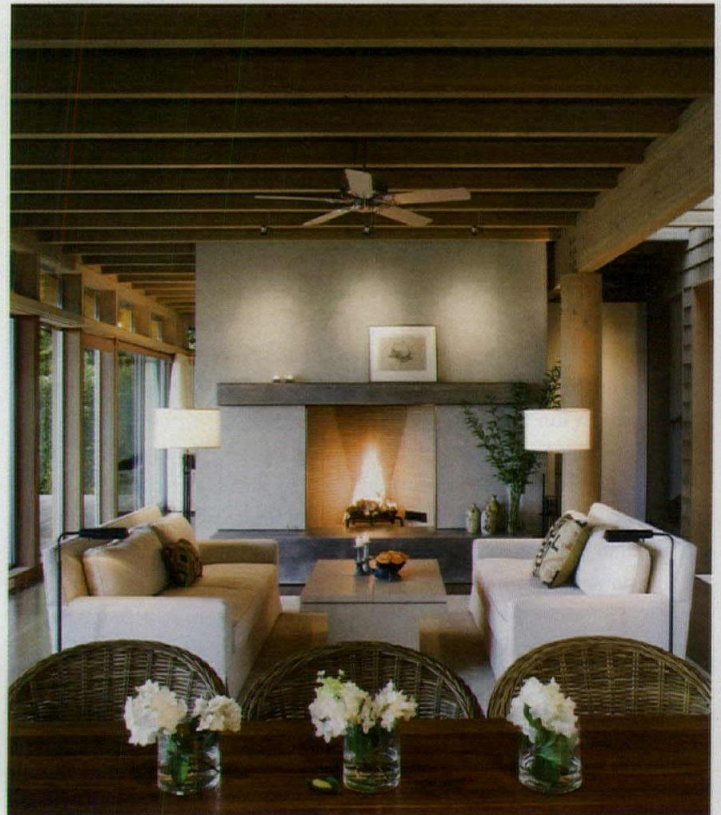


Throughout his career, Suyama has championed the arts, serving on the Seattle Arts Commission and on the Board of Directors for organizations such as Pike Place Market and the UW Henry Art Gallery. Occupying part of the architect's Belltown office is 3x10, Suyama Peterson Deguchi's furniture and accessory showroom; and Suyama Space, an art gallery housing the large-scale installations of local, cutting-edge artists.

The more-with-less aesthetic, so much a part of his DNA, has brought Suyama full circle. Now the firm is trying out these ideas on smaller-scale projects and budgets. He is particularly excited about Fauntleroy III, a 1,500-square-foot house on piers that he's designing next door to the place where he and his wife live. With its 12-foot-tall walls, the 90-foot-long "boathouse" will also function as a mini-warehouse with shelving to hold his collections.

"The most important thing is to create a sense of place for the project," Suyama says. "Everyone uses it as a descriptor for what they're trying to do, but if you can feel it's working, you've succeeded."

His colleagues seem to agree. "There is a perennial debate about whether the built environment can influence human emotions," says Portland, Ore., architect John Cava, who wrote the foreword to *3X3: Architecture of Suyama Peterson Deguchi* (ORO Editions, 2008). "I'm firmly in the camp that believes it can, but for many reasons, usually does not. The houses designed by George and his firm are about humans living in nature and bringing those two things closer together. All of this is done at a decidedly human scale, a term notoriously difficult to pin down, but something that we know when we see it."







**Opposite:** Completed in 2011, Indianola was designed as a retreat house. Suyama collaborated with Susan Marinallo Interiors on the interior design. **Top:** Anchored by an elongated concrete wall to the north, all of the living spaces in the Mountain house are either on or below grade, and are enclosed by glass walls and an exposed-timber shed roof. **Above left and right:** In 1997, Suyama transformed an 1890s livery-stable-turned-garage into the Belltown office, which also houses exhibition space and a furniture showroom.



# *Rising* **Star**

## TONIC DESIGN | TONIC CONSTRUCTION

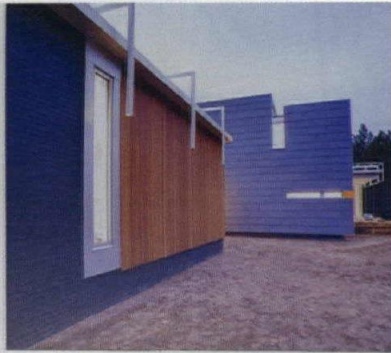
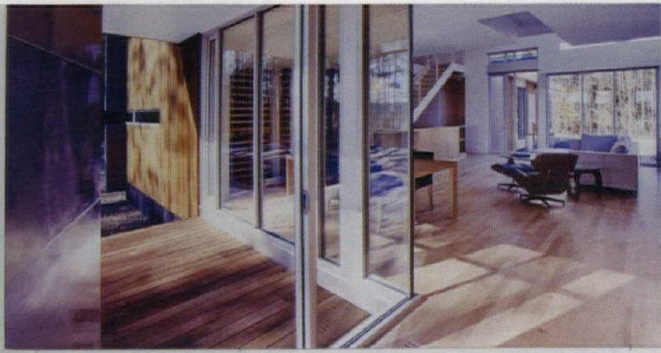
TEXT BY ELIZABETH EVITTS DICKINSON  
PORTRAIT BY IAN ALLEN

**Look through the portfolio** of houses designed and built by the Raleigh, N.C.-based Tonic Design | Tonic Construction. While the architecture is decidedly modern in inspiration, zeroing in on a singular style isn't easy. In the Rank Residence, completed last year, a dramatic, Gothic-inspired four-story home uses slender windows and a dizzying stair design to play off vertical space. The Smart-Stell Residence, by contrast, is a quieter, one-story, horizontal home with vast expanses of glass. Each residence presents an entirely distinctive vision, which, it turns out, is the connective tissue of Tonic.

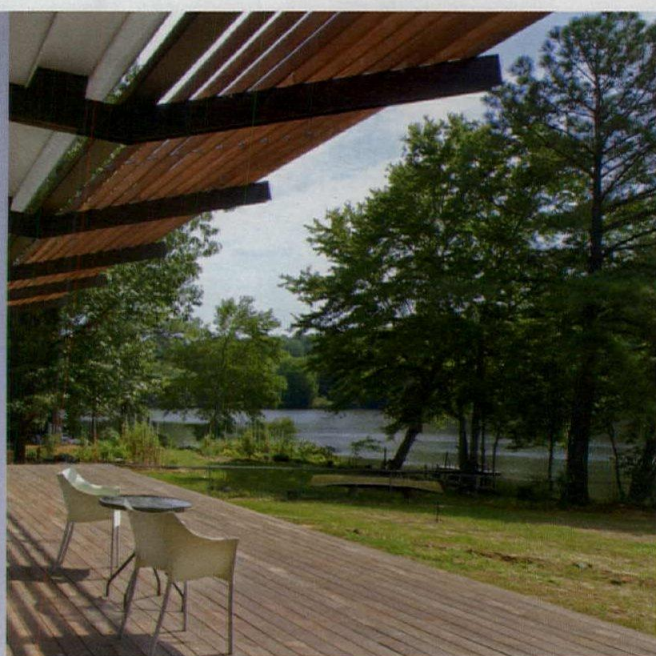
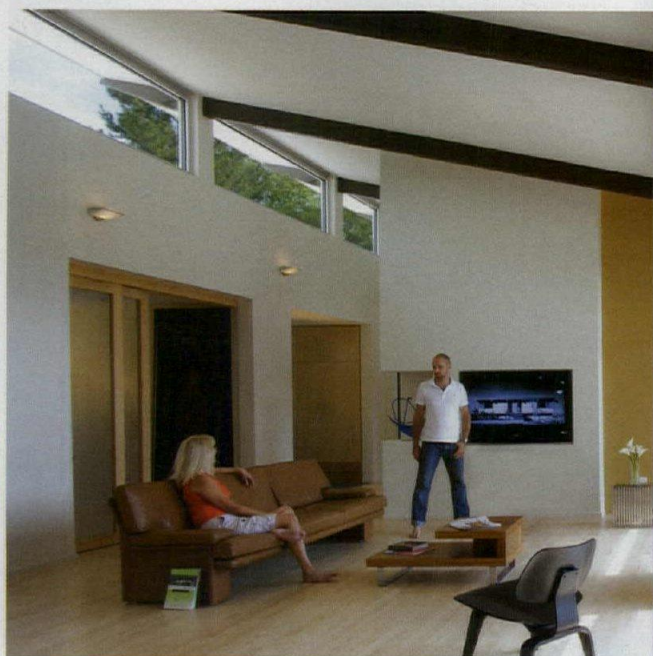
"Look at two of our houses and they couldn't be more different," says Vincent Petrarca, Assoc. AIA, who co-founded Tonic a decade ago and now runs the firm with his wife and partner, Katherine Hogan, Assoc. AIA. "We are good at figuring out what each project is about and not making it about us."

This doesn't mean, of course, that Petrarca, 41, and Hogan, 32, don't bring a signature sensibility to their work. What threads through every Tonic project is a reverence for material, a respect for the site









and the budget, and what Hogan calls a “modern sensitivity.”

“We try to be really good listeners with our clients,” Hogan says, “and we try to involve them while also providing good design and remaining sensitive to the context.”

That context consists, by and large, of the North Carolina region where Tonic is based. In the last decade, the firm has completed more than 50 projects and has racked up a long list of major awards along the way. Several of its residences are embedded in suburban communities and surrounded by spec houses, so that stumbling onto a Tonic home amid so much factory-ready repetition feels like discovering a diamond in the rough. Their Lanning Residence, for example, sits on a tiny lot at the end of a cul-de-sac, a narrow site that developers believed unusable. Petrarca and Hogan thrive on such a challenge, in no small part because their firm is in charge of both design and construction for their projects. Much of what happens in a Tonic project happens on the jobsite.

“In architecture school, you learn architecture,” Petrarca says, “but in practice, it’s the trades that teach you what’s important. Lessons on the jobsite are what get us going. It’s our proving ground.”

Working on site and applying materials and methods in new ways is what keeps the firm inspired—so much so, in fact, that Tonic prefers the designation of “construction-led design” over design/build. “Something will happen when building,” Petrarca says, “and that lesson in that moment informs us when we’re working on the next design. At Tonic, because we make things, we always think about how something gets built when we’re coming up with a creative design.”

**This hands-on approach** to architecture is something that Petrarca learned while working with Frank Harmon, FAIA. Petrarca was still an undergraduate

student at North Carolina State University when he first met Harmon and after graduation he worked at Harmon’s studio for 10 years. “He became like a father figure for me,” Petrarca says. “Sometimes, a project couldn’t afford certain things and we would start making pieces. We would make the doors, we made handrails, pottery. Frank was great because he allowed me to fall into this blur between design and construction.”

Harmon also threw a young Petrarca into leadership roles that allowed him to experience the jobsite. Petrarca flew to the Bahamas to oversee the construction of the Harmon-designed Taylor House, which included an upside-down pyramid roof for collecting rainwater—a feature that contributed to its win as project of the year in the 2002 Residential Architect Design Awards. Petrarca remembers talking a nervous roofing contractor through the process. Harmon remembers it, too. “The house wouldn’t have turned out as well if Vinny hadn’t been there,” Harmon says. “He helped the contractor and the owner figure out the best way to make a rather daring roof relatively simple to construct. If you’re in the field and you’ve got a problem, you couldn’t ask for a better person than Vinny to solve it.”

Petrarca left in 2003 and founded Tonic with two designers from Harmon’s studio. He says they had no real business plan at the start. “When we left Frank’s, with his blessing, we had one client and we said, ‘Let’s do the design and the build and push this one house as far as we can push it, and see how good we could be,’” he says.

Hogan joined Tonic in 2008, coming from a background that also embraced both design/build and a respect for client relationships. After graduating with an architecture degree from Syracuse University, she worked with Will Bruder in Phoenix. “He was incredibly talented, and amazing with materials and space. I learned a lot from him,” Hogan says.





In 2006, she took a year-long fellowship with Bryan Bell of Design Corps, the Raleigh-based nonprofit that provides design services to clients without ready access to architects. "Everyone is in need of design and architecture, but they don't always have the opportunity to participate in that process," Hogan says. "I believe everyone deserves to be a client."

At Design Corps, Hogan came up with a clever housing solution for blueberry farm workers by combining a manufacturer's prefab unit with a site-built lean-to. "She made it very easy to add on to the manufacturer's building at the site and she doubled the size of the house," Bell says.

Both Bell and Bruder say Hogan is astute with a sensibility and warmth that she converts into beautiful, pragmatic designs. "Most of us never sit down with a client in school, and that's a loss for the profession because we don't know how to listen," Bell says. "Too many of us feel like the client interferes, but Katherine has respect for the end user regardless of budget."

When Hogan and Petrarca met in 2007, they found kindred spirits in one another. Today, they work out of a 2,000-square-foot building known as the Bickett Studio—an abandoned structure that they adaptively reused and renovated—that contains both their offices and the 700-square-foot apartment where they live with their two young daughters. At holidays, they move the drawings and the models, stash the computers, and host friends and family around their work desk. "Being able to work and live in the same building, the kids get to see everything and we get to put them to bed—and after, we can do a little work," Petrarca says. "That might sound crazy, but we love it."

**Bruder remembers visiting** their studio a few years ago and touring their houses around Raleigh. "You have to experience their work first hand because there are just so many details and so many nuances," he says. "Their style is not about fashion. It's about their belief in the ability of the elements

of architecture to solve problems in unique ways. They may conceive something in their studio, but, for them, architecture is a living process, not a stagnant one. They are always opportunistic."

This opportunism, combined with their willingness to collaborate with subs in problem solving, means that many Tonic houses come in under \$200 per square foot. "We've saved our clients lots of money by working with the trades," Petrarca says.

For one project, Tonic chose metal roofing as siding, so they invited a roofing expert to offer thoughts on execution. "Instead of doing a lot of drawings, we said, 'Here's a window, this is what we want, why don't you do a mock-up for us?'" Hogan says. "This approach allows us to say: 'How would you do it?'"

And a decade of building relationships with subcontractors has allowed their process to evolve. "We don't make many drawings anymore, because we make mock-ups and work with the trades. After we get the foundation plan and a few key heights, everyone knows what to do," Petrarca says.

This fall, Hogan and Petrarca will add another job to their CV: teaching. Petrarca is an adjunct at N.C. State's College of Design, where he and Hogan will co-teach a studio. "The teaching aspect is big for us, because when you're in academia, you're staying fresh," Petrarca says. But they won't just be giving tests, they are taking them too: Hogan is one exam away from becoming licensed, which is another goal for the firm.

Looking forward, they hope to expand their portfolio to include more commercial projects, like the sculptural outdoor pavilion that they built for the North Carolina Museum of Art. The perforated aluminum building has won several awards, including a 2010 AIA Small Project Award.

"What we do for our profession is our lifestyle," Petrarca says. "We can't really see the difference between work and living. It's our passion, and in the last five years, we've really hit our stride."





**Opening spread:** Katherine Hogan and Vincent Petrarca of Tonic Design | Tonic Construction, in their Raleigh, N.C., studio. **Previous spread:** The contrast between the low-slung, wood-and-glass Smart-Stell Residence in Durham, N.C., (left) and the metal-clad, four-story Rank Residence in Pittsboro, N.C., (right) demonstrates the formal variety of Tonic's work. **This spread, top:** With the Cary, N.C., Lanning Residence, Hogan and Petrarca brought modern infill to a lot in a cul-de-sac that was previously thought to be unbildable. **This spread, right:** For Crabill Modern, a house in Hillsborough, N.C., Tonic took cues from agricultural buildings in the area and reinterpreted them in a structure wrapped in Cor-Ten panels and screens. **This spread, far right:** Despite its focus on new construction, Tonic also takes on adaptive reuse projects, such as the retrofit of an abandoned commercial building in Raleigh into Bickett Studio, which houses the firm's office and Hogan and Petrarca's living space.











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# Brininstool + Lynch

CHICAGO

TEXT BY LYDIA LEE

PHOTO BY CHRISTOPHER BARRETT

**With their recent move,** Chicago-based Brininstool + Lynch didn't quite get to build a bespoke office space, but they got to do the next best thing: move into a space that they had designed for one of their clients. Back in 2001, the firm rehabbed 1144 West Washington Boulevard, a 1920s brick-and-concrete building, for a tech startup in the up-and-coming West Loop neighborhood. The architects kept the industrial shell of the three-story, 7,500-square-foot structure, but fitted it with new interiors and a contemporary façade—complete with steel-framed windows and doors. A decade later, the 33-person architecture firm spent a year-and-a-half “sleeping on someone else’s sofa waiting for the right space to open up,” principal David Brininstool, AIA, says—until this space became available. “The beauty of it is that we didn’t have to do much,” he says; the refresh simply called for removing some dividing walls to create an open working environment and bringing in new furniture. “When people come in to see us, they can really get a sense of what we’re trying to accomplish,” Brininstool says of the new-to-them space. “It’s about light and space and a sense of flow and movement, and creating subspaces with a feeling of privacy. It’s a living example of what we’re trying to do as architects.”

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