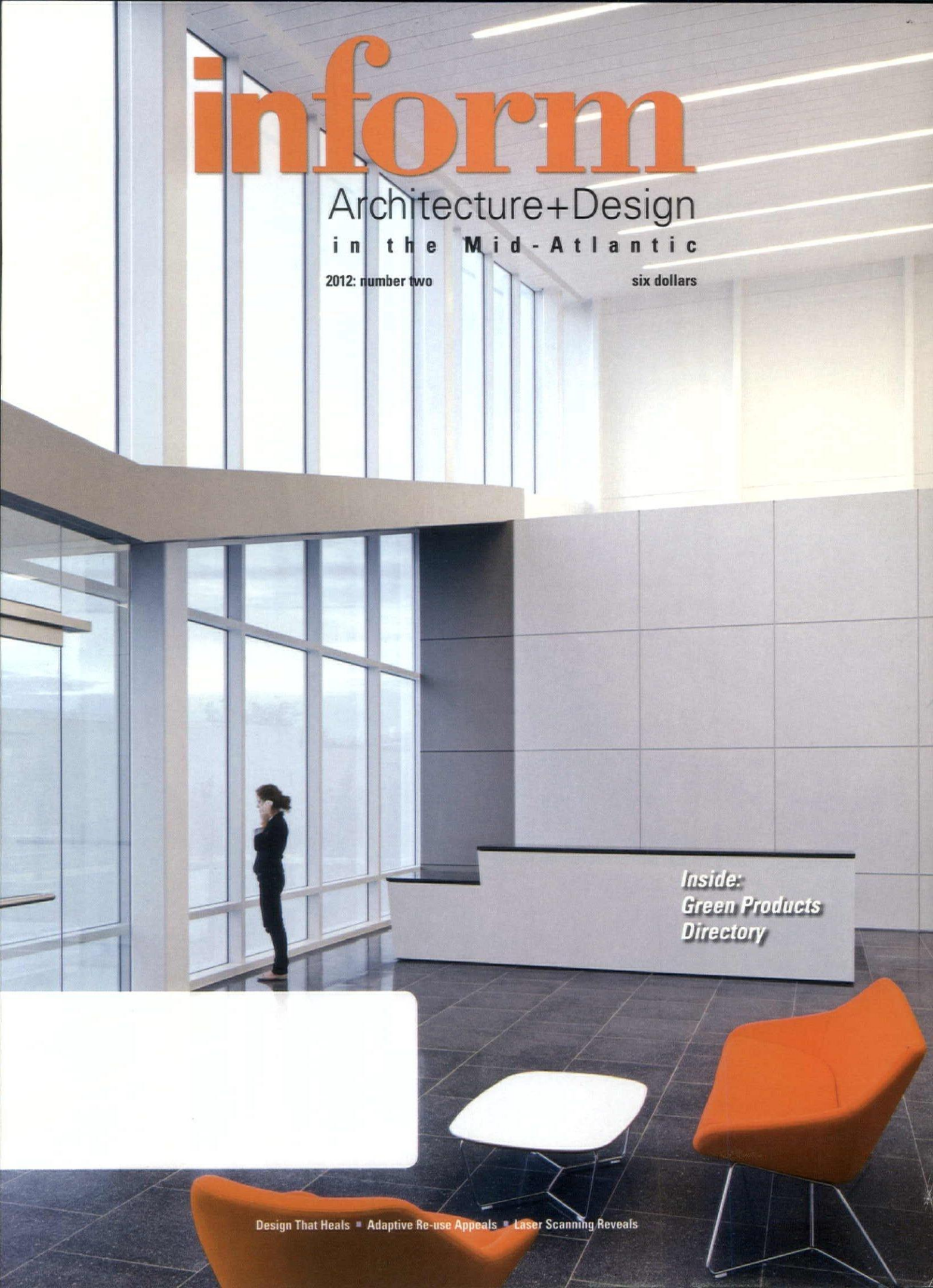

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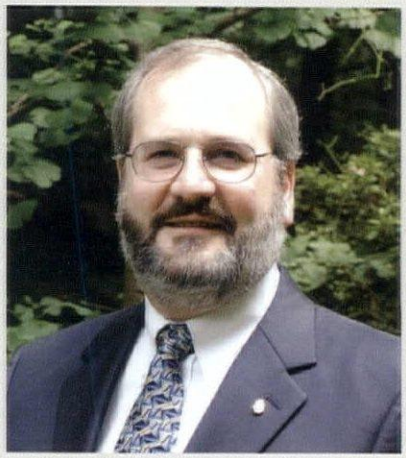
From The Editor

A New Twist on Environmentally Sensitive Design



The great thing about covering architectural developments is that they don't tend to stay in one place very long. The energy-efficiency concepts of the 1970s morphed into the resource-efficient, naturally lighted, freshly ventilated, acoustically comfortable, pollution minimizing, recycling, and water-managing elements that now strive for zero-net-energy and cradle-to-cradle goals, most of which sophisticated clients—and certainly most architects—now take for granted; even demand.

So where to now? Ray Pentecost, FAIA, lays out on pages six and seven a compelling scenario that blends sustainable design with one of his other specialties, healthcare architecture. This isn't just the healthy design of walkable neighborhoods or eliminating mold and microbes from indoor air, although those are certainly important elements. Beyond that salutogenisis (a relatively new word) involves bringing a palpable sense of nature into the daily experience so that the neurological stress of often-overwhelming artificial stimuli is minimized and our brains and bodies relax and make us healthy.

BRAC may be why the joint military hospital was built at Fort Belvoir, but the way that facility has been designed, including its extensive landscaping, is testament to the military's commitment themselves to design and build healing hospitals. The complex, which just opened this past year, is the lead-off feature this month.

Also in Northern Virginia, behind the Marlo's on I-95, is a nondescript warehouse district originally built before land values and tax rates reached astronomical heights in Fairfax County. It is also strategically located for the control center for the soon-to-be instituted Beltway Express Lanes Operation (aka, HOT Lanes). Multi-national Transurban wanted the prime location as well as a world-class facility that would reduce stress levels in a tense work environment. KGD's deft transformation of a printing plant/warehouse is nothing less than phenomenal.

In this issue's NetWorks you will find a timely discussion of one of the biggest problems firms will face once we all move beyond the current recession: getting experienced, motivated people in to drive the firm's work ahead and, eventually, assume its leadership. Also, if you admire Tom Kundig's work, don't miss pages 10 and 11. And, of course, it seems as if you can't discuss sustainable design without finding a first-LEED® certified building somewhere. We found one at the Virginia Theological Seminary. Lastly, as far as professional accreditation goes, Virginia now has a new and active chapter of the American Society of Professional Estimators, and architects are prominent among its leadership (p. 36).

But enough about us, as the old joke goes. Let's talk about you. What do *you* think of us? Do yourself a favor and go visit ReadInform.com right now to leave comments on the articles you see on these pages, and to read articles that were too timely or intensely detailed for these pages. An example is the work of Prof. Steven Semes, of the University of Notre Dame, whose recent book *The Future of the Past*, explores the misdirection that new additions to historic structures has taken despite the fact, he argues, that it was not the intent of the Secretary of Interior's Guidelines for Historic Preservation. His discussion at the Virginia Center for Architecture March 5 was lively, and you can join the debate now. (But first you've got to go online.)

—*DEG*

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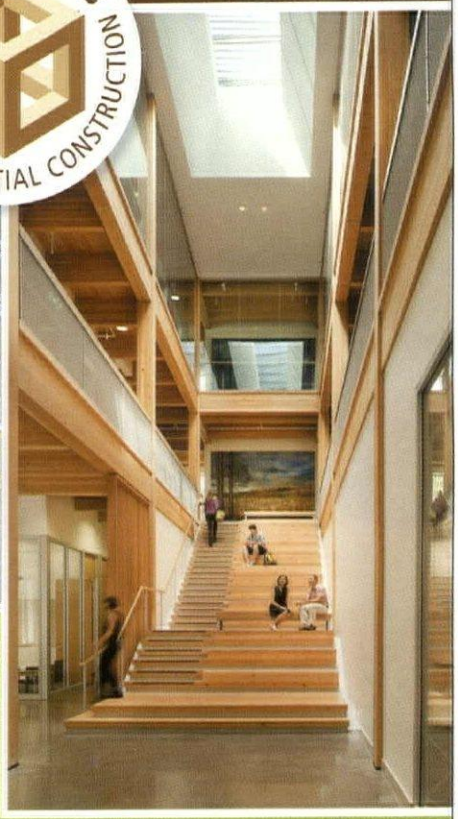

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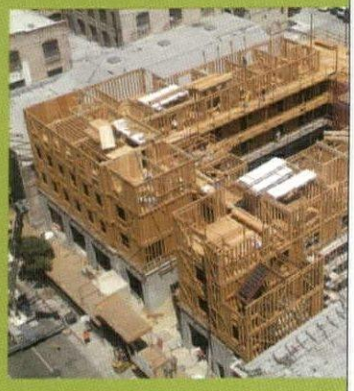

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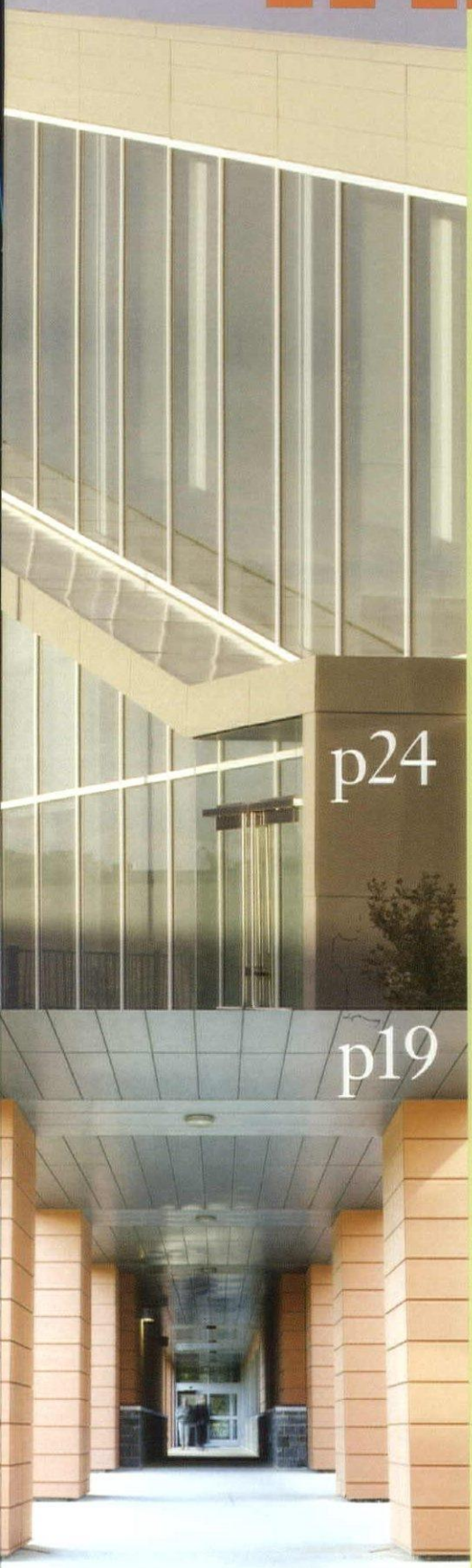
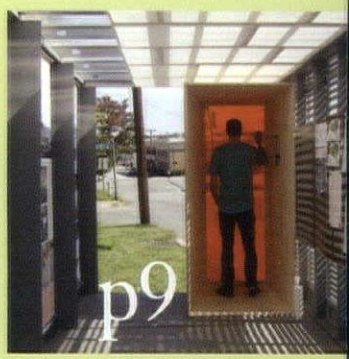




On the cover:
The visitor's lobby of KGD's Transurban headquarters.
Photo by Ron Blunt

Next issue:
Inform
Awards

Design **Dialogue**

How Design Impacts Health

Architecture can go beyond being healthy to actually being healing.

By A. Ray Pentecost III, DrPH, FAIA, FACHA, LEED-AP

Does the environment really influence our health?

Certainly. It can contribute to our getting sick, and it can contribute to our better health. Understanding how design impacts health should be an important dimension of how we shape our communities and facilities. It has been a central element in our public health studies for many years.

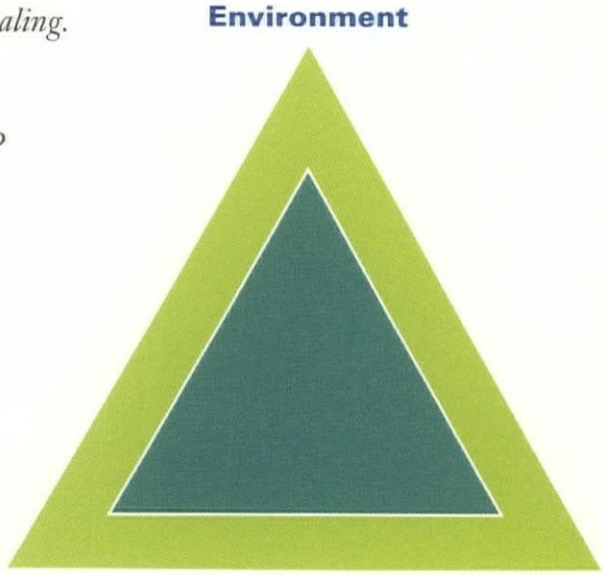
How does public health begin to explain the role of the environment in personal health?

The Agent-Host-Environment triangle is a fundamental public health tool that is used to describe the contagious or infectious disease model. An infectious AGENT transits an ENVIRONMENT to reach a HOST and make that host ill. One goal in public health is to do something to interrupt that interplay between the three variables, such as establishing transmission barriers in the environment that keep agents from reaching hosts. Environments contribute to the risk of disease when they allow agents to reach potential hosts, so it is easy to see the importance of the environment in protecting and developing good health. Using disease as the organizing element in planning, design, or even policy development, is called pathogenesis because it is oriented around origins of disease.

Is the relationship between the environment and health only for infectious disease?

Not at all. The environment can actually function as an AGENT itself. For example, environments that encouraged the use of cars instead of walking negatively impacted personal exercise habits and actually contributed to the epidemic of obesity in the United States. Environments that are unsafe can actually contribute to accidents and injuries. The influence of the design community to impact these situations is significant.

But again, this thinking is pathogenic, beginning with the risk of injury or disease, and then developing designs to mitigate that risk. Design that looks instead to ways that design can contribute to health is called salutogenic design to denote the origins of health.



" Environments contribute to the risk of disease when they allow agents to reach potential hosts, so it is easy to see the importance of the environment in protecting and developing good health. "

So how does salutogenic design work?

Just as the environment can be part of the equation for disease, so, too, can the environment become an enabler for better health. Dr. Aaron Antonovsky (credited with the term *salutogenic*) did research that helped explain that one of the key determinants in whether people get sick or not when exposed to disease is whether personal stress has weakened them and thereby heightened their vulnerability. The human response to stress is hormone production that reduces the effectiveness of the immune system. While stress doesn't make us sick, per se, it can make us more vulnerable to disease.

Antonovsky's work suggested that individuals apparently have what he called a Sense of Coherence (SoC), made up of three components: comprehensibility, manageability, and meaningfulness. Each of us has resources that relate to those three areas that help us cope with the stressors in our lives.

Among the buildings Clark-Nexsen has reviewed for it healing qualities is the Fort Belvoir Joint Hospital Center (see pages 16-21), here seen on its dedication October 28.

So how does the Sense of Coherence relate to design that helps our health?

The three components of the SoC each can, and must be addressed, at least in part, in our built environments. For example, are our designs easily comprehended by building users, visitors, and service contractors? Is it easy for individuals to manage their way through our facilities in terms of access, signage, and vertical and horizontal circulation? Are they sending the message to all that they are important, that their lives and indeed their very presence in the building is a meaningful event?

Shortcomings in any of these three areas potentially contribute to stress, which can weaken our resistance to disease. Successful designs in these three dimensions can improve our resistance to stress, and by extension our resistance against pathogens that can do us harm. They can be salutogenic, contributing to our health. And, of course, there are multiple other researchers making exciting discoveries of other ways that the environment can actually contribute to our health.

So, do these insights ultimately make their way into the building code?

I hope so. My vision would be that the creation of environments that contribute to health would become the norm and central to mainstream design thinking. One day salutogenic design will be widely demanded by clients, city officials, and building users who want the best possible buildings for their communities.

Is there a danger that salutogenic design guidelines would impede creativity and introduce a cookbook architecture?

That is certainly not the case now, nor do I see that developing in the future. These insights about designing for health for the most part address building performance guidelines and are not generally prescriptive. Architects deploying their design creativity for innovative solutions face a limitless horizon. I believe salutogenics can empower the design community to contribute to a national outbreak of good health.

Nurturing Future Leaders

By Nicholas E. Vlattas, AIA, and Deborah Marquardt

> "As important as the project is to the program, our main goal in one short year is simply to expose these young leaders to the lessons it has taken us 30 years to learn."

Those of us who started firms and have invested a lifetime in them would like to know that what we've worked so hard to achieve would continue long past our retirements. But many of us don't do a very good job of making sure that happens. Not that we don't have good intentions. Not that we don't talk about it. But we get busy, and the best laid plans get pushed to the back of the pile. Then, one day, it can be too late.

Add a recession into the mix, when many A/E/C firms lay off their youngest members, and soon firms, and the profession, are in a crisis—a talent shortage, a leadership gap. AIA President Jeffery Potter, FAIA, recently acknowledged the issue when he announced that a key priority he has set for the Institute "is to help address the challenges of emerging professionals so that we can develop, mentor, and retain young and aspiring architects so that our organization and the profession at large can thrive well into the future."

Firm-management consultant Scott Braley, FAIA, FRSA, recommends developing in-house an initiative he terms Rapid and Sustainable Leadership Development (RSLD). He explains that to be genuinely effective, the RSLD must be more than a well-orchestrated training and development program. It must be a fully integrated initiative that ranges in influence from recruiting and retention to sustained performance management.

For A/E/C firms that may not have the resources to accomplish Braley's plan or hire a consultant to help them, there are other tools. Chambers of commerce sometimes sponsor leadership programs. Toastmaster Clubs teach speaking skills. The PSMJ Resources Inc. offers an A/E/C Principals Bootcamp course for approximately $1,300. Closer to home, we are fortunate to have the Virginia Society AIA's Emerging Leaders in Architecture (ELA) program, which just concluded its third year.

The ELA genesis

Brian Frickie, AIA, LEED-AP, with Kerns Group Architects in Arlington, and a former Virginia Society AIA president, remembers being troubled about leadership in the profession. "We struggled with how to prepare young architects for leadership, and there wasn't a program out there, other than IDP. If you had a mentor and worked for 30 years, you might be halfway there. I kept thinking: What can we do to make the profession better? How can we impact that outcome sooner?"

With the help of like-minded professionals such as Will Scribner, FAIA, principal at SMBW in Richmond, and Jim Clark, FAIA, principal at Arlington's MTFA Architecture, the ELA emerged. Dozens of ideas were consolidated into seven intense day-long sessions, covering everything from financial management, negotiation skills, risk management, ethics, and contracts to community activism and presentation and communication skills. "This is an Honors Academy, meant to attract the best and brightest," Frickie explains. The program accommodates 16 individuals each year who benefit from informed speakers and a class project to test new skills and knowledge.

Scribner, chair of the ELA Steering Committee, notes on the Virginia Society AIA Web site: "As important as the project is to the program, our main goal in one short year is simply to expose these young leaders to the lessons it has taken us 30 years to learn."

Bringing an idea to life

The program charges $850 tuition to cover project costs. Firms often pay this on behalf of their nominee, though some nominees have shouldered the expense themselves. A firm also must be willing to give the ELA member time for the program, which sometimes conflicts with work hours.

Abigail Grubb, a young designer with Hanbury Evans Wright Vlattas + Company, was a member of the 2011 class. "I saw it as a unique opportunity to get involved and broaden my view of the Commonwealth, because I'm not from here," she says. "Our class represented a range of age and experience, from students to people starting their own firms. I liked the interdisciplinary aspect of the program, and while I don't personally enjoy the business side of architecture, it is very important to have an understanding of how it works. It was interesting to see how others approach problems in different ways." The best part, says Grubb, was the professional network she developed with her classmates. "We got very close."

Dan Zimmerman, principal of Alloy Workshop in Charlottesville expounds: " I came away with an optimism for the future of our profession. I learned that the profession is not static but an evolving profession, one that we are able to define and mold through our actions in our office and, more importantly, our community."

Thom White, who just opened Work Program Architects in Norfolk, says he received validation about steps he had taken when starting his firm, and he learned a lot about managing time, including marketing versus actual project work.

Frickie says the Virginia Society AIA has never tried to measure the program's ROI, but, he says, the steering committee asked themselves: "If we have a culture that doesn't value architecture and architects, what do we need to do differently?" Their conclusion: "Make young architects more effective earlier on." This program fills in gaps that aren't being taught in architecture schools. He has had more than one individual tell him that "the program changed my life. I didn't get it in school."

We are fortunate to have a resource like the ELA so close to home. We encourage every firm and every regional AIA chapter to nominate a promising young leader. It's in all our best interests to develop the future leaders—and owners—of our firms. It's also critical to the future of our profession.

Please take a moment to go online and share your firm's experiences at www.readinform.com.

"I came away with an optimism for the future of our profession. I learned that the profession is not static but an evolving profession, one that we are able to define and mold through our actions in our office and, more importantly, our community."

Leadership in Action: Class of 2011

Each Emerging Leaders in Architecture class is responsible for a team project. The 2011 group was charged with making recommendations for the improvement of the Commerce Road corridor in the Manchester neighborhood of Richmond. The class began the process by meeting in March with city representatives, including a surprise drop-in by Mayor Dwight Jones. They also toured the area and met with developers and other stakeholders.

But rather than just produce another master plan that might gather dust on a shelf, this team organized itself into a "design-build firm" that conceived of a modular kiosk that could travel to different locations in the area and be used as a gathering place for residents to share ideas, data, and oral histories of how the neighborhood has changed over time. Team member Thom White, Work Program Architects, Norfolk, called it a "content generation machine."

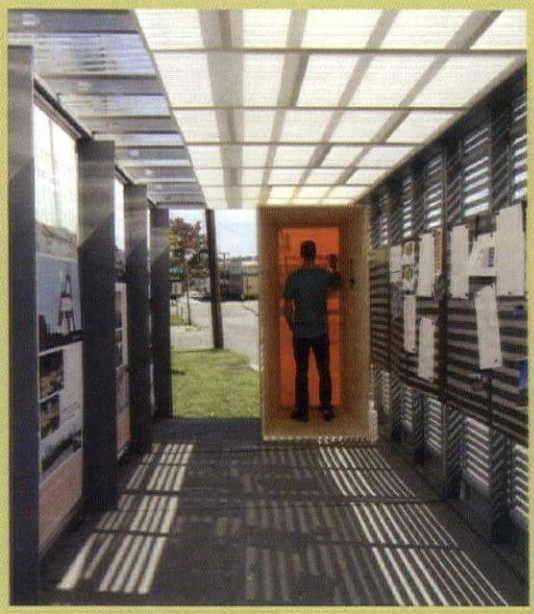
Each member of the "firm" assumed roles, from marketing and public relations to managing funds. They designed, built, and installed a modular kiosk of wood/fiber panels and a corrugated plastic roof. They spent $3,500, including materials, announcement postcards, and t-shirts.

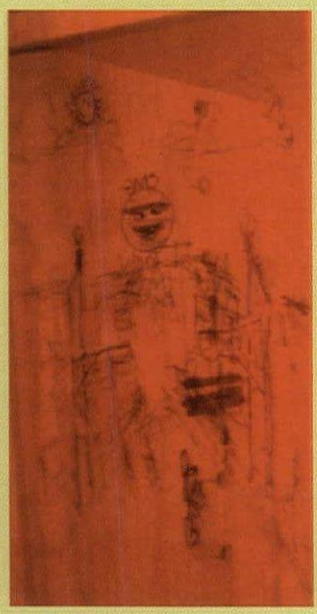
They built it, and residents came armed with ideas for adaptive use of buildings, how better to use open space and ideas on generating activity for the neighborhood. The kiosk made three public appearances at different neighborhood locations.

"In professional practice, sometimes you lose perspective of the opportunities architecture can really provide on a small scale. Designing and building a structure and then inviting the public into the space has been such a fulfilling experience, and it reinvigorated me as an architect," says Anna B. Barbour, AIA, LEED-AP BD+C, of Shalom Baranes Associates architects in Washington, D.C. "Developing camaraderie and friendship in tandem with the project with like-minded professionals has also been the most rewarding part of the project."

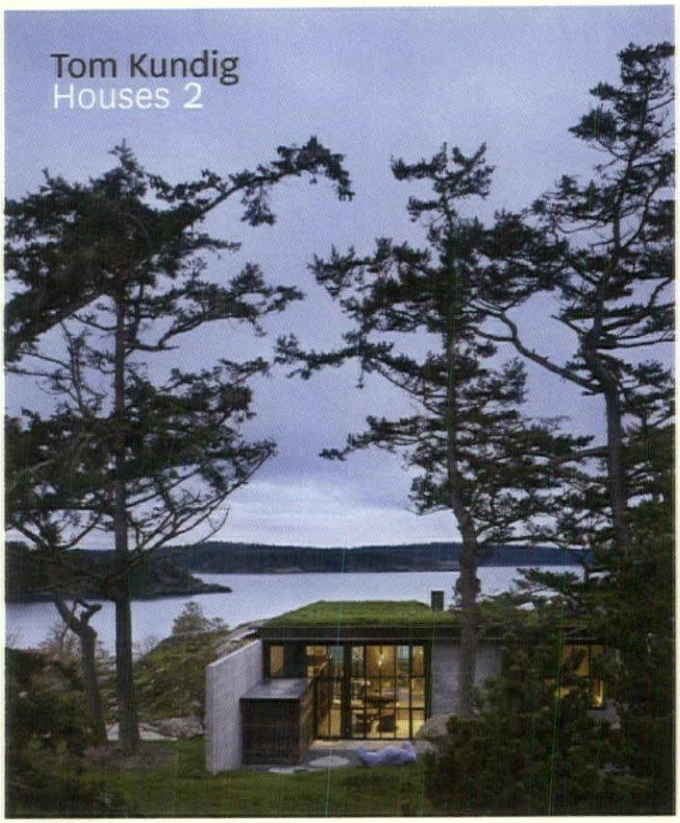
The kiosk was on display at the ArchEX conference in November 2011 and during the AIA Grassroots Leadership Conference in Washington, D.C., March 7-10. It will next go on display in September at the Virginia Center for Architecture in Richmond.

—Deborah Marquardt

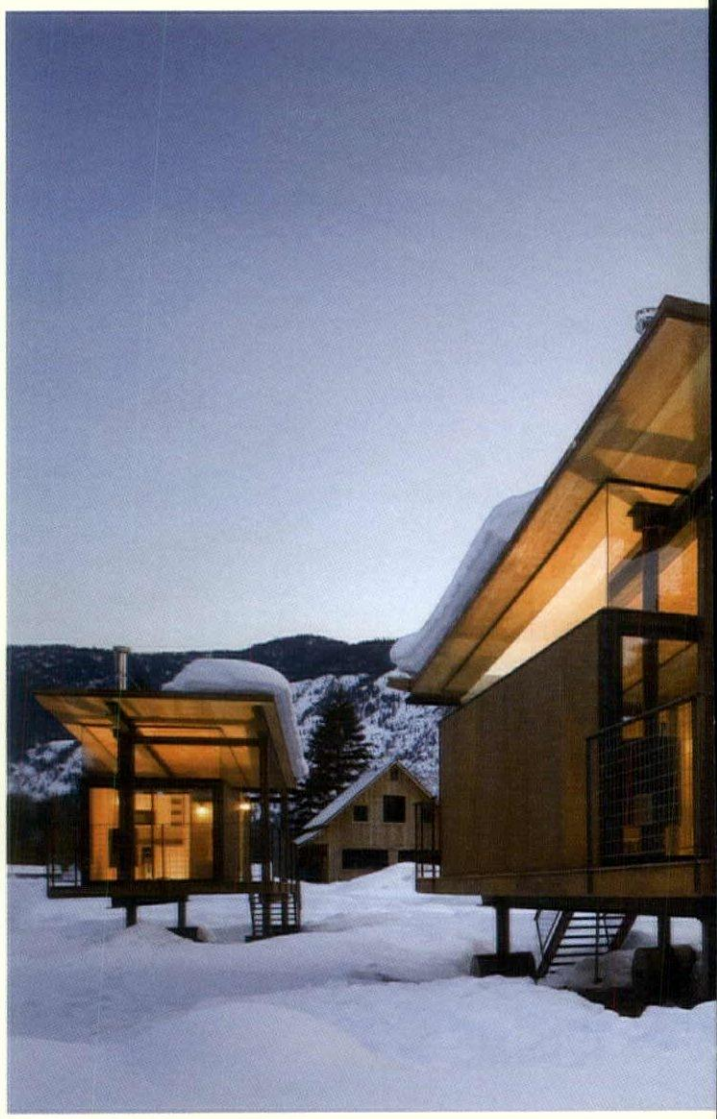




The 2011 ELA Team constructed a kiosk that allowed neighborhood residents to re-see their surrounding context by sketching on a translucent red plastic-film panel. Team members presented their findings on the exposition floor at the 2011 ArchEX conference. Photos courtesy of the 2011 ELA Team.



The Pierre



Courtesy Olson Kundig Architects

Rolling Huts

Tom Kundig Houses 2

by Tom Kundig
New York City, Princeton Architectural Press
2011, 256 pages, 250 color illustrations, $55

Tom Kundig's books, the architect says, are always something of a struggle. Making sense of his work is a task he'd rather leave to others.

So with *Tom Kundig Houses 2*, he's mingled images from a number of gifted architectural photographers and words by Juhani Pallassma and Daniel S. Friedman to interpret a body of work that's at once muscular, sensitive, and moving.

Pallassma's and Friedman's essays serve as bookends for lush coverage of 17 of Kundig's most recent projects, most of which illuminate striking aspects of larger-than-life landscapes. "I think small structures in big landscapes remind us of our place in the natural order of thing—that we're part of a larger system," Kundig says.

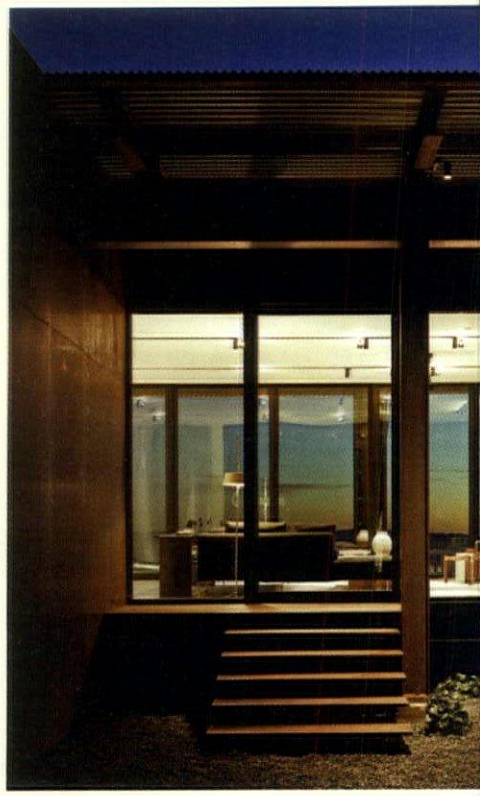
Most of those featured are fairly well-known because they *are* after all, Tom Kundig houses. The Pierre, The Rolling Huts and Highlands House are all here, along with the False Bay Writer's Cabin with its floor-to-ceiling shutters that open and close to reveal or obscure a Puget Sound landscape on four sides. It's an effect achieved with wire ropes and a hydraulic winch.

It's gizmos like this that set Kundig apart. He finds his inspiration from early experiences growing up in the West, surrounded by machinery for mining, logging, and farming. As his architectural voice developed, he incorporated that machinery into his work.

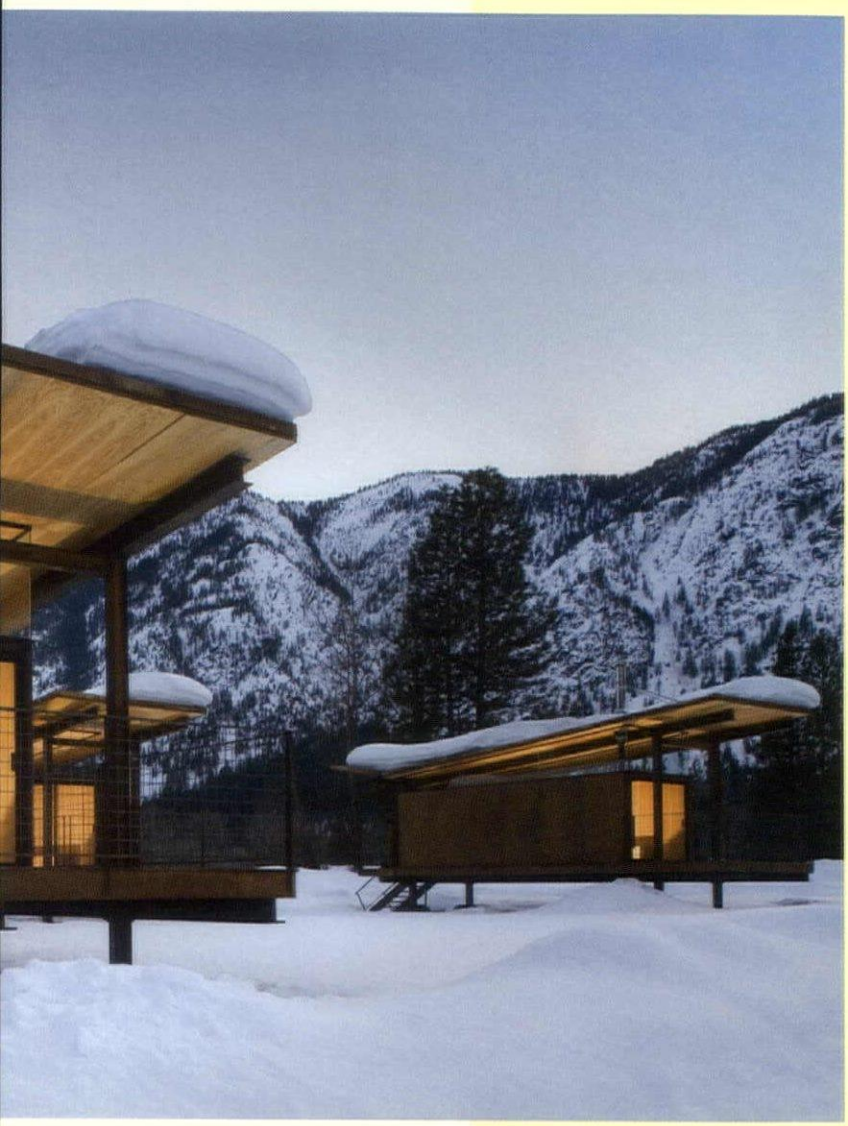
The devices, though, are simply means to an end. "For me, the site is sacred," he says. "The goal for the architecture is to help reveal and unfold the site."

Even the materials he chooses—the steel, the stone, and the concrete—are secondary to the site. "If you start with the belief in the primacy in the site, material choices become a direct response to that particular place," he says.

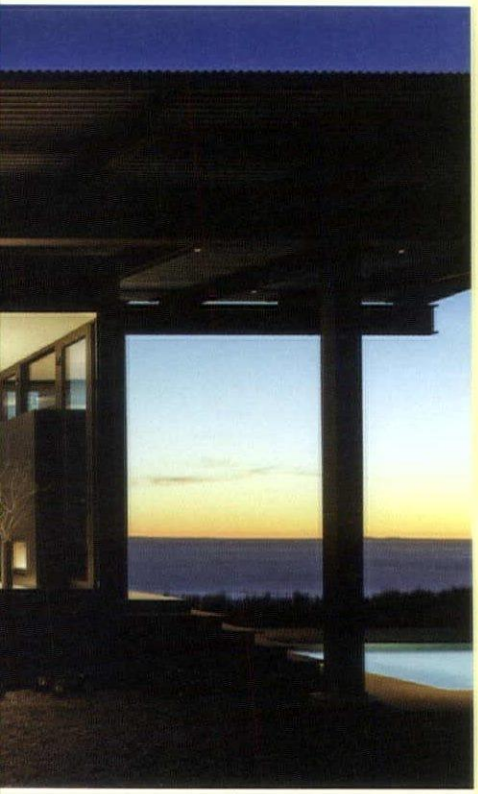
His books may be a struggle, but his work is a delight. *–J. Michael Welton*



Montecito Residence



Tim Bies/Olson Kundig Architects



Nicolas Koenig

The work of Tom Kundig, FAIA, is rooted in the essential nature of the site itself, he says. His focus on orientation to topography, sun, climate, and wind is enhanced with the firm's sensitivity to minimizing construction waste and making appropriate choices for building systems and materials, passive cooling, natural ventilation, managing daylight, energy use, life cycle cost analyses, and green roof technology.

Among his many honors, Tom Kundig has received a National Design Award in Architecture Design from the Smithsonian Cooper-Hewitt National Design Museum; four National AIA Honor Awards; six National AIA Housing Awards; and an Academy Award in Architecture from the American Academy of Arts and Letters. In 2011, he was included in *The Wallpaper* 150 people who have most influenced, inspired, and improved the way we live, work, and travel over the last 15 years. In 2010, his design for the Pierre received the World Architecture News House of the Year Award, and *Residential Architect's* design awards named Art Stable their Project of the Year. *Architectural Record* has chosen two of Kundig's projects for Record Houses—the Rolling Huts and Delta Shelter. To date, Kundig has been awarded a total of 37 AIA awards and more than 70 awards total. Olson Kundig Architects received the 2009 National AIA Architecture Firm Award (as Olson Sundberg Kundig Allen Architects) and has twice been named one of the Top Ten Most Innovative Companies in Architecture by *Fast Company.*

Kundig's work encompasses residential, commercial, and institutional projects and is located around the world. His signature detailing and raw, kinetic construction explore new forms of engagement with site and landscape. His houses combine brute strength and tactile refinement in sublime equilibrium. Recent projects and current projects include the mixed-use Art Stable and 1111 E. Pike, as well as the adaptive reuse of the Georgetown Brewing Company. Kundig has been published in more than 250 publications worldwide, including the *Financial Times, Wall Street Journal, Architectural Record, Dwell, A + U,* and *Architectural Digest.* Eight of his projects have been featured in the *New York Times.* Other books in which his work has been featured include *Tom Kundig: Houses* (2006), one of the Princeton Architectural Press' all-time best sellers; *Olson Sundberg Kundig Allen Architects: Architecture, Art and Craft* (Monacelli Press, 2003); *The Good Office: Green Design on the Cutting Edge* (Collins, 2008); *The Phaidon Atlas of Contemporary World Architecture* (Phaidon, 2008); and *Architecture Now! Houses 2* (Taschen, 2011).

He has been a university studio critic throughout the United States and in Japan, including Harvard University and the University of Oregon, and has served as the John G. Williams Distinguished Professor at the Fay Jones School of Architecture at the University of Arkansas and the D. Kenneth Sargent Visiting Design Critic at Syracuse University's College of Architecture. In the winter of 2010/2011, he was the sole North American architect chosen to represent the continent in an exhibit at TOTO GALLERY MA in Tokyo. Kundig is also a member of the U.S. General Services Administration's 2010 Class of Peer Professionals, which advises the GSA with the goal of achieving design excellence in public buildings.

VIRGINIA CENTER FOR ARCHITECTURE

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For more information on contributing to the VCA Foundation, contact Kathleen Bagenstose, kbagenstose@aiava.org, 804-237-1764.

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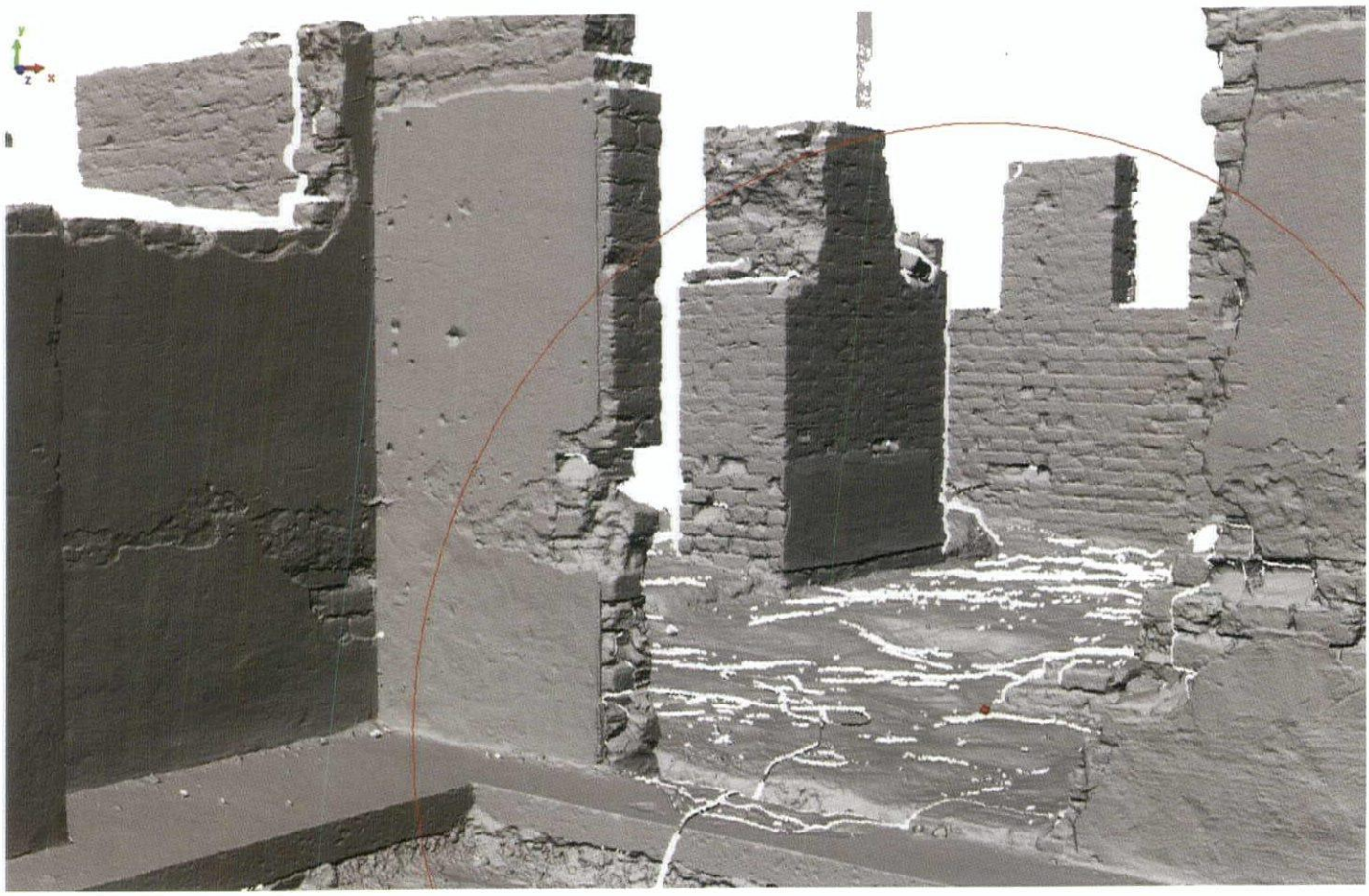
Scan Your Horizons

By Will Rourk



Imagine obtaining a 3D model of a building without modeling it ...

Well, we're not quite all the way there yet, but laser scanning will get you closer to that reality than you think. Especially now that this technology is much more approachable than it has been in the past. Laser scanning is a method of obtaining digital data from the real world by scanning the surface of physical objects. Those objects can be as small as museum artifacts, as big as a building or as vast as a mountain landscape. A laser flashed onto the surface of an object creates a mass of points in space called a point cloud that can be easily converted into an object model for your 3D CAD program. In the not so distant past, the equipment and resources to do this kind of survey work was quite expensive and technologically challenging. But now the technology has matured to a more consumer level, making it a viable option for most design offices. In this article, we'll find out who the laser scanning service providers are in your area and how they might help your office streamline your modeling workflow.

Based in Baltimore, Direct Dimensions Inc. is widely known for having scanned the Liberty Bell and the Tomb of the Unknown Soldier, but they have also engaged in scanning projects that range across many different scales. At any level of detail, the scanner is able to provide 3D data that can be used for any standard CAD model down to sub-millimeter accuracy. Charlie Matlin of Direct Dimensions defines model end-product delivery upon two conditions: "You can capture a site 'as-is' or you can provide a design-intent, perfected model for use to get funding or for a special presentation. The results are compatible with most software, for example Revit for architecture and Solidworks for engineering."

Speed and accuracy are two major factors when considering laser scanning of existing site conditions. Anderson and Associates, out of Blacksburg, Va., are recognized for their large-scale scanning projects, such as the Norfolk Southern Heartland Corridor, which involved scanning numerous railroad tunnels. But their services have applied to varying scales of spatial input from theater interiors to the utilities infrastructure of a water treatment facility in Rural Retreat, Va. As Joe Conrad, scanning

tech specialist for Anderson explains, "when the client doesn't have maps and needs plans, a quick scan network in five minutes can get the job done fast without interruption. Time consideration is an important factor in project set up." Laser scanning is a convenient option when a survey needs to be done of existing conditions during the time of normal operations at a working project site. As Conrad relates: "You can just set the scanner up and it scans away, but you'll want to set it up so it doesn't interfere with the workflow and captures your entire scan project at the same time."

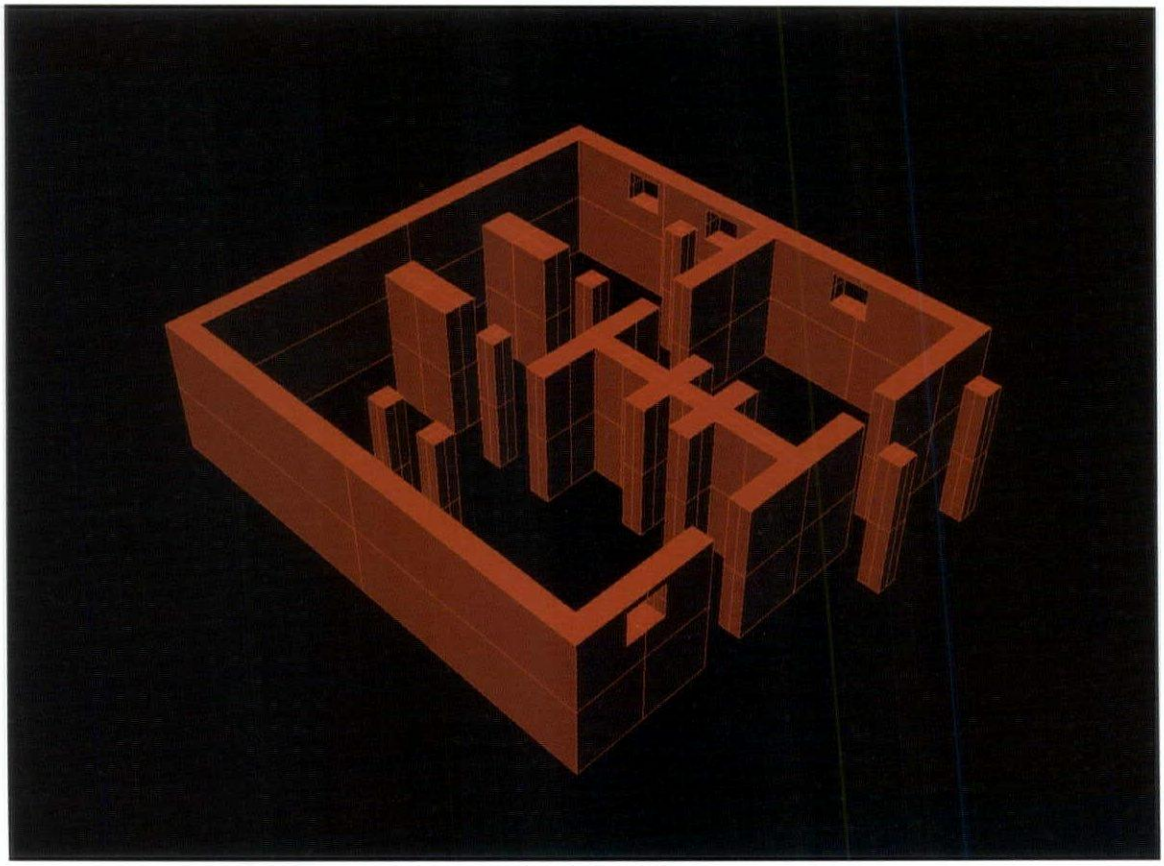
Laser scanning technologies have also proven to be a fast and convenient way of providing 3D data for presentation models that can be used to obtain funding. Precision Measurements, Inc., out of Virginia Beach, scanned the train depot at Norge, Va., to provide a fast model for VDOT to provide a simulation for the James City County local government that the structure could be moved and then placed exactly back in its original location. In another case, PMI worked with York County government officials to scan beaches for sand erosion loss to obtain funding from FEMA after hurricanes have struck. As Kelli Stamm of PMI explains, "when hurricanes strip out the sand, York has to send requests to FEMA for funding, and scanning can help prove the volume of sand needed for replacement if the beach is scanned before and after a hurricane." York is also provided with archival data of existing site conditions that they can keep on hand for the future.

Although laser scanning has become a much more approachable technology than in the past, it is still not a simple one-step process. The laser scanner can provide raw 3D data as a point cloud, but then it needs to be converted into a usable, BIM-ready object model. There are software tools and services available for that as well. Laser scanning service providers can provide data manipulation of scanning results, but there are third-party solutions that deal with handling the data in a way that is optimal for a design office. Michael Tardif, director of IPD systems for Grunley Construction Company in Rockville, Md., relies on Intelisum building enterprise solutions. According to Tardif: "There is a tendency to assume that you can just scan and import a model into Revit, and Boom! you have your BIM. Intelisum has the best algorithms for automating the conversion of point cloud data to a BIM model that will accurately represent existing conditions."

For the more adventurous there is the option to buy scanning equipment directly and develop these services in-house. One of the more popular scanners out there today is the FARO Focus 3D. It is a highly portable, relatively affordable device that can scan from a distance of 120 meters to a level of accuracy of 2mm all for a price around $40k. Greg Richards of FARO Technologies Inc. describes the newer scanners as "designed for extreme accessibility and ease of use. The Focus 3D has a touch screen interface that's easy to use like a smart phone. Just stick it onto a standard photography tripod and scan. There's even a big green button to push so you can just start scanning."

So how do you get started with laser scanning? Most service providers offer an online Web form to describe what you need scanned and the context of your project. Pictures of the site in question are very helpful as well. Or of course you can call directly to any of these offices, and the process for obtaining fast, accurate, and affordable 3D data can commence.

For more information on how to contact the professional service providers mentioned in this article visit Will Rourk's blog at http://rezn8r.wordpress.com



Direct Dimension Inc. gathered a laser-scan point cloud from a ruins unearthed in Williamsburg (left). The resulting CAD extrusion (right) will aid in replicating the historic coffeehouse.

New Military Community Hospital the

Jewel of Fort Belvoir

Photos by Marc Barnes, courtesy of the U.S. Army.

Welcoming outdoor areas for sitting—alone or in groups—encourage patients to go outside. The resulting fresh air, exercise, and interaction with fellow patients and nature aid measurably in the healing process. The landscape here looks sparse now, but will grow and fill in over time.

By Jennifer Pullinger

Blink and you might miss it. Tucked behind a scrim of trees off heavily traveled U.S Route 1 at the Fort Belvoir Army Base in Fairfax County sits a gleaming new world-class hospital—one that's been touted as the first LEED-certified military healthcare facility in the nation. The $1 billion, joint services Fort Belvoir Community Hospital was guided by best practices in evidence-based and sustainable design, coalescing around the notion that design contributes to healing.

The hospital, which opened in summer 2011, replaces the 1950s-era DeWitt Army Community Hospital and makes room for in influx of additional military healthcare beneficiaries who will be affected by the closing of Walter Reed Army Medical Center in Washington, D.C.

The hospital came about as a result of the Department of Defense's Base Realignment and Closures (BRAC), a federally mandated reorganization of U.S. military installations to allow for more efficiency among operations. With the national capital region populated with the largest concentration of military healthcare beneficiaries in the world—there are approximately 450,000 in the area, says Dr. Rick Repeta, the hospital's director of integration and transition—part of BRAC meant moving military care assets closer to where beneficiaries live.

"The size of that population is very significant, and if you essentially draw a line east-west across the Pentagon, you'll find about half of that population lives south of that line, half of that population lives north of that line," says Repeta. "The impetus for this hospital was redistributing that large medical footprint so that it better represented the geographical distribution of our beneficiaries so that folks, quite frankly, don't have to drive from Woodbridge to Walter Reed for some sort of primary care or secondary care. They can do that right here in Fort Belvoir."

The facility was designed and constructed through an integrated design-bid-build process, which allowed the hospital to be completed on an accelerated timeline. "It was a race all the way up until the end to finish the project. When you have a project like that, it tends to take—probably with no exaggeration—10 years from the moment design gets started until you move into

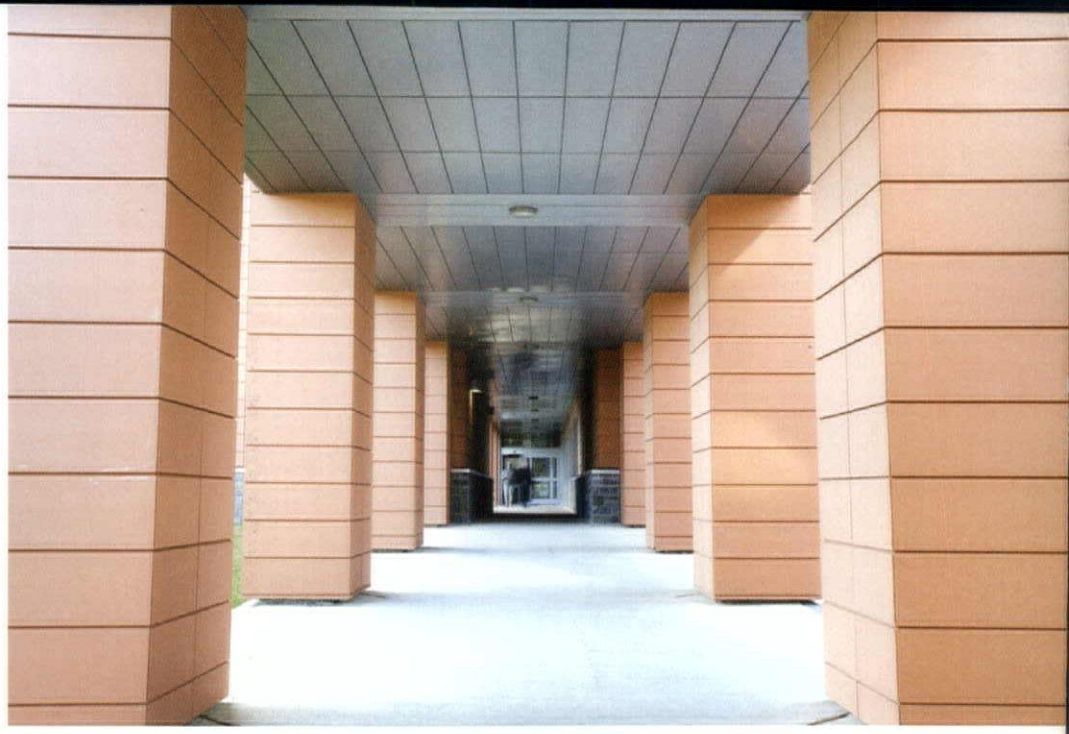
the hospital," says Terence Williams, AIA, LEED-AP, vice president of HDR Architecture, which, along with Dewberry of Fairfax, formed the architectural team. "This project was done in five years, and that's just an incredible pace, which put a tremendous amount of pressure on both the design team and the construction team in order to accomplish that—and the hospital themselves."

Nature's healing power and resource efficiency

With the evidence-based approach, the core theme of the new hospital became the healing power of nature. "There's going to be a lot of hospital construction going on in the military over the course of the next 5 to 10 years, and we are really at the leading edge of that," says Repeta. "So we saw this as an opportunity really to espouse not only a sustainable pattern but look at some of the other beneficial aspects of a hospital in terms of things like evidence-based design and how it can better create a building to achieve positive health outcomes. And the idea of sustainability fits with that very well."

Integrated throughout the building are many elements of design that enhance healing and are also environmentally sustainable—green roofs, views to the outside, natural lighting, storm-water management, water-efficient landscaping, and other energy-efficient measures.

The swooped roofs, designed to reduce storm-water runoff, are one of the hospital's most noticeable exterior architectural features. Rainwater harvested from the roofs is captured in two 80-thousand-gallon cisterns that also collect condensate from air conditioning systems. The water is used for landscape irrigation. This rainwater and conden-



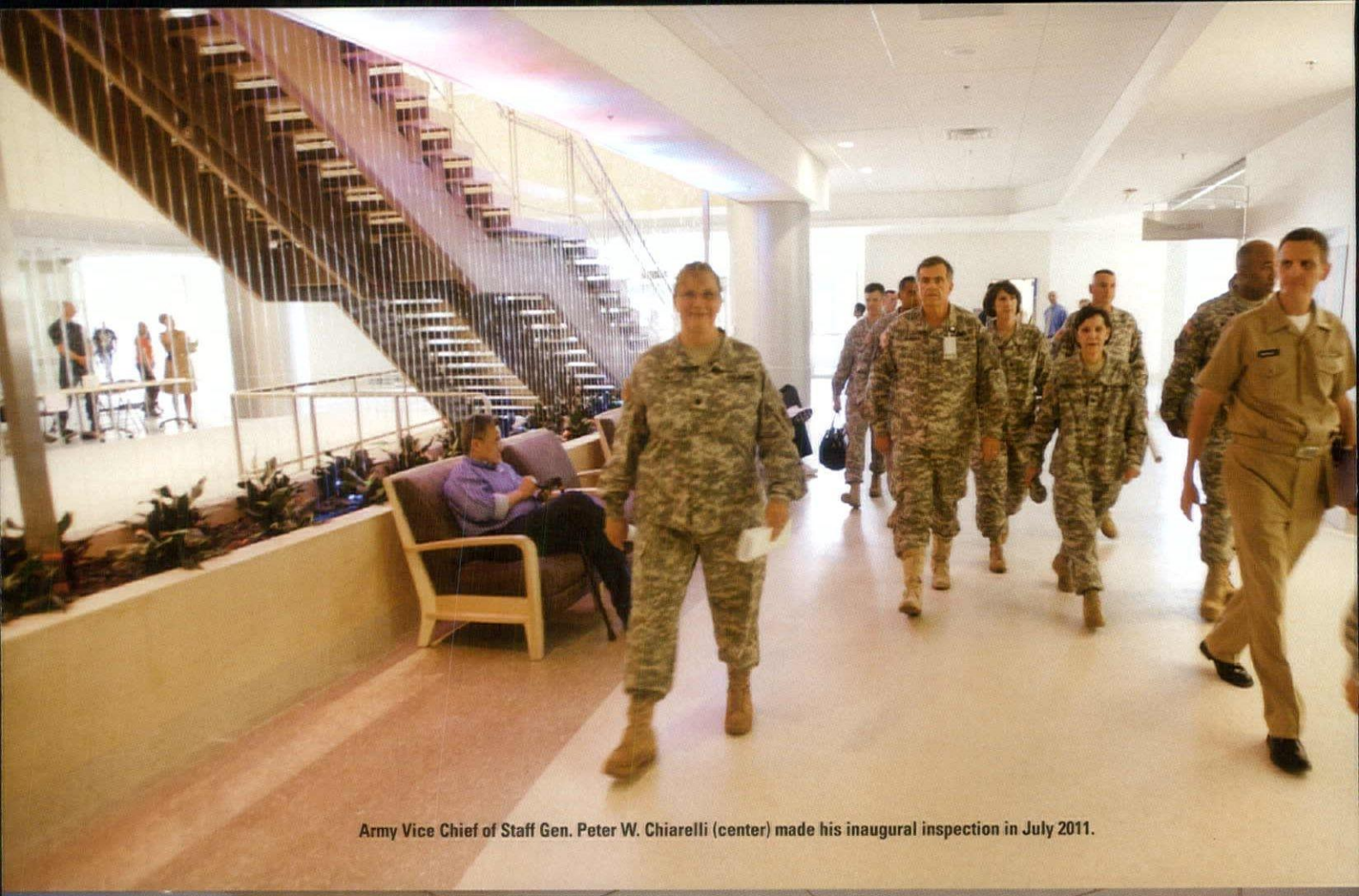
Even the parking garage features ample daylight and colorful column covers.

The hospital's River and Eagle pavilion lobby, and the Oaks Pavilion tower (background), taken a week after the ribbon cutting.

sate collection system allows the hospital to save 1.6 million gallons of potable water per year and will support about 90 percent of the hospital's irrigation needs. "It's a nice combination, because in the months when rain is maybe not so plentiful, we can usually gather a good quantity of condensate water to offset that," says David Ellis, energy services manager at HDR.

Green roofs planted with native and adaptive plants also help reduce rainwater runoff, alleviate heat-island effect, and provide pleasant scenery for patients to view from their rooms. "They look out over the roofs and they are not seeing the typical roofs filled with mechanical equipment, they are seeing more green," Williams says. "Many of the features that were put into this hospital have dual or triple roles in terms of how they support sustainability, evidence-based design, or simply good engineering practices." Use of pervious pavement, curbless parking spaces, and biosoil areas that collect surface runoff were also part of the site's overall storm water management strategy.

Views to nature and natural daylight can be found in the public spaces and patient rooms throughout the hospital. "There are lots of glass walls and atria—lots of ways to bring the outside influence into the hospital," says Repeta. "People who have access to nice views and natural daylight actually tend to heal faster. They perceive their care as being better and overall have a much better experience within the hospital." Park-like exterior courtyards—healing gardens—filled with native and adaptive plants also beckon people to go outside, which allows them to take respite from the setting and avail themselves of fresh air, sunshine, and exercise.



Army Vice Chief of Staff Gen. Peter W. Chiarelli (center) made his inaugural inspection in July 2011.

The functionally wide and smoothly surfaced corridor between the Eagle and Oaks pavilions also shows the views to surrounding parkland and seating with adjustable overhead lighting.

The roofline of the Meadows and Sunrise pavilions soar over a sunlight-welcoming building axis.

On the exterior, the building employs a high-performance terra cotta rainscreen system, which is more energy-efficient than brick and has fewer water-penetration-related maintenance requirements. Other energy-efficient strategies include high-efficiency variable-speed-drive chillers and a multi-stack heat recovery system that reduces the need to move that heat mechanically into or out of the facility.

An interior that aids navigation

Due to the sheer size of the hospital, Repeta says they knew way-finding was going to be a challenge, so they wanted to make navigation around the facility as intuitive as possible. End to end, the 1.2 million square foot, seven-story, 120-bed hospital spans approximately an eighth of a mile. To make orientation easier, the design team broke the building up into five color-coded sections, each with its own nature-themed icon.

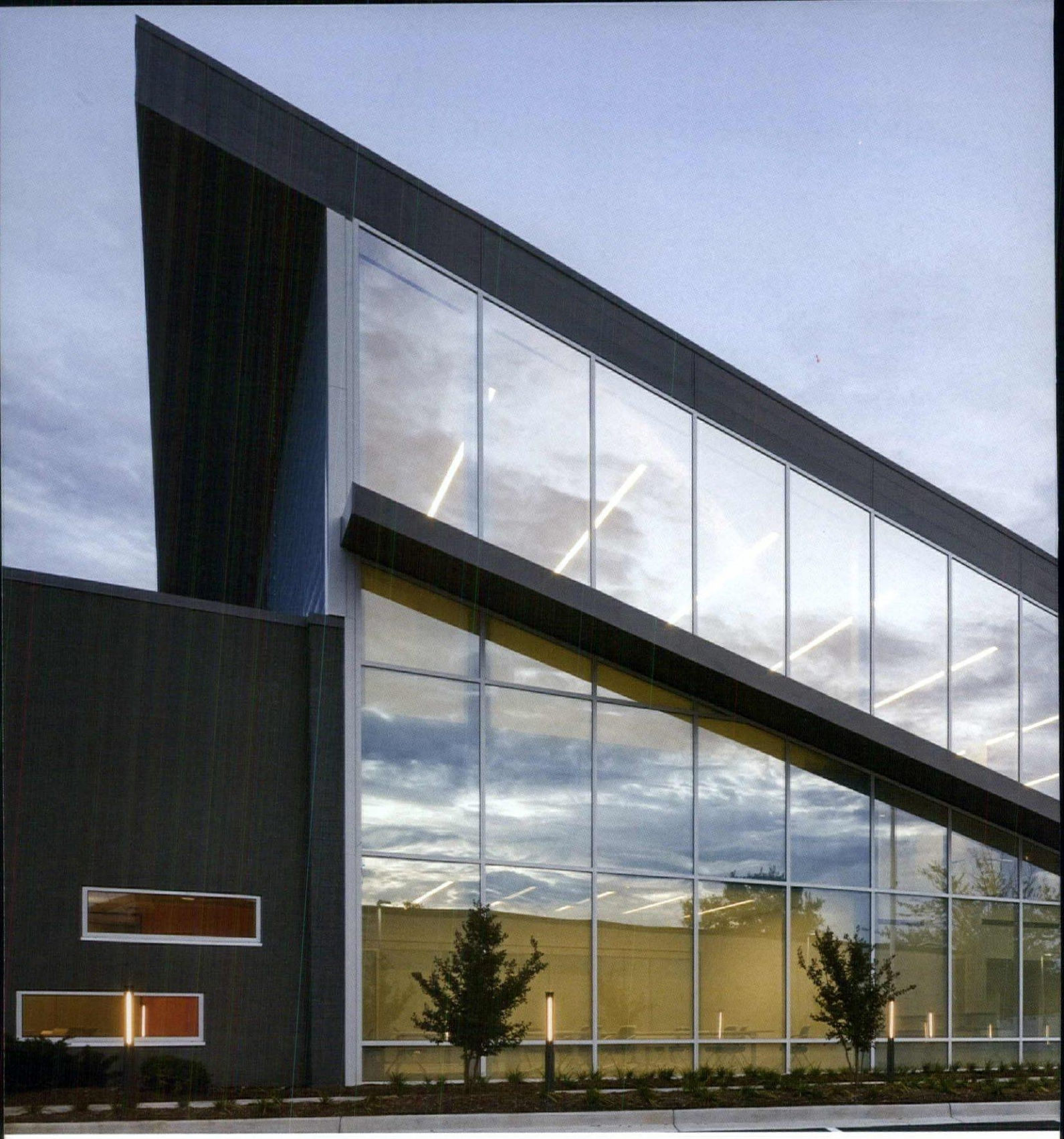
"You'll see those color patterns throughout the building itself," says Repeta. "You'll see them on the wall, on the floor, and in the furniture, so that somebody who's walking through various clinic areas should be able to identify what building they are in just based on the color palette around them."

A main concourse that runs along the front of the hospital accesses all of those clinics, which Repeta likens to the layout of an airport. "You have your main concourse and then you have your terminals coming off of it. So we took some lessons from the airline industry—they know how to move a lot of people through a fairly large structure with a certain amount of signage," he says.

A close visual connection to the natural setting outside also helps people find their way around. "The building is very close to the landscape. So you can kind of visually connect with the outdoors and the natural environment as you walk around the building," Ellis says.

With the various green design strategies in place, the hospital is on track to use 27.3 percent less energy than previous medical facilities and achieve LEED® Silver, although the design team believes LEED Gold is possible. In the meantime, Repeta says he has received a "very positive" response from patients and staff on the hospital's design, with many considering it the "jewel of Fort Belvoir."

"The overall layout of the building—the fact that there is so much open space, that it really does tie beautifully in with the exterior environment—that is what a lot of patients have really commented on," says Repeta. "It is a walkable campus and it just seems fairly seamless to go from outside to inside. I think the design team has done a marvelous job tying together the landscaping with the functional arrangement of the hospital, and that quite frankly is going to make our patients happier, its going to make our staff happier, and its going to make us a better healthcare organization."



When You're Handed a Box,

Photo by Ron Blunt.

Think Outside of It

By Douglas Gordon, Hon. AIA

The site for the Transurban Express Lanes Operations Center in Fairfax County, Va., is in the midst of a warehouse district. The existing building was a nondescript, albeit high-ceilinged printing and warehouse facility surrounded by paved, grade-level parking. The client's vision, though, was transcendent. And that's what inspired the design team at Kishimoto, Gordon, Dalaya PC (KGD) for this public-private partnership.

"Every project we undertake will get a thorough analysis in terms of resource-efficient design," says firm Principal Manoj Dalaya, AIA.

"From the outset, though, we saw this project as special," adds Associate Principal Henry Mahns. "The client was establishing its presence in the area, they were committed to a facility that supported its users physically and in a way that minimized the severe stress that comes from monitoring and controlling traffic flow on some of the country's most congested traffic arteries. This was the kind of challenge that we, as designers, really wanted to take on."

Punched windows, to the left, provide meeting areas with daylight and concurrently connote cars moving on the highway. The original building and parking lot were indistinguishable from dozens of others surrounding it (below).

To accommodate road monitoring and incident-interjection staff, the design pulled the roof line dramatically upward.

Open, skylighted ceilings, a robust air-handling system, and low-VOC materials provide an abundance of daylight and fresh air. The visitors' area (below) is bright and welcoming.

The challenge

The client didn't specifically ask for LEED® certification in the program for the facility, said Transurban Project Manager Brett Griffith. But, in fact, they were committed to LEED certification from the project's inception, and the headquarters building is now pending a review for LEED Silver. In addition to housing the administrative functions of globally active Transurban-Fluor in Northern Virginia, the facility houses monitoring equipment and personnel, including state police, for Virginia's high-occupancy toll lanes on the Capital Beltway, I-66, and the Dulles Toll Road.

What the client's program did call for were a two-story control room with a 20x9-foot video wall monitor, which is to operate continuously; an incident room for handling road emergencies in real time; corporate offices; an operations center; and, supporting those activities, a maintenance workshop, visitors' lobby, break room, and private garden. Ample daylight and fresh air were also elements of the program meant to reduce the stress that is inherent in operating such a traffic-control center. The design problem, then, was to create a high-tech telecommunications center in what was once a road-map printing facility and warehouse.

The solution

To accommodate the traffic-control and incident-room areas and the enormous wall monitor on which

Ron Blunt

they would both depend, the design team decided to lift up the roof, beginning at the existing building's middle bay. The exterior expression as a long, upwardly angled projection gives the building a decidedly retro-Modern aesthetic by which it stands apart from its neighborhood of low-rise, unadorned boxes. One imagines this as a design-sensitive seed among the tilth of well-situated but uninspired real estate whose base use as a warehouse district has long outlasted its prime location.

Among the exterior elements added to enhance daylighting are skylights, glass curtain walls, clerestory windows, and punched window openings at the back of the building that further break up an otherwise box-like exterior presence of that end of the facility. The north-facing clerestory windows also provide glare-free light into the control room.

To further set the site apart from the monotonous rhythm of the surrounding warehouse-lot-warehouse-lot-(and repeat), the design solution pulled the parking area out from the building, Dalaya explains. This also creates a triangle of exterior space that the designers landscaped to create the recuperative garden the client wanted. The garden and lawns also hold rain-water that the new roof configuration channels to them to minimize runoff from the site.

The open-office arrangement and meeting cubicle await full staffing of the facility (left). The original printing facility depended on fluorescent lighting, giving the space an unwholesome cavernous feel (below).

In addition to the natural light, interior visual interest is supplemented with bright colors that unite and invigorate the open office spaces.

On a more pragmatic level, the fire-suppression system for the critical traffic monitoring areas had to be able to knock down any fire quickly yet not threaten sensitive computer equipment with moisture inundation. The answer was a hybrid sprinkler system that mixes nitrogen with water, which creates a fine mist that immediately robs any flame of its heat and then just as quickly evaporates. The cost of the system is equivalent to a standard sprinkler system, Griffith says.

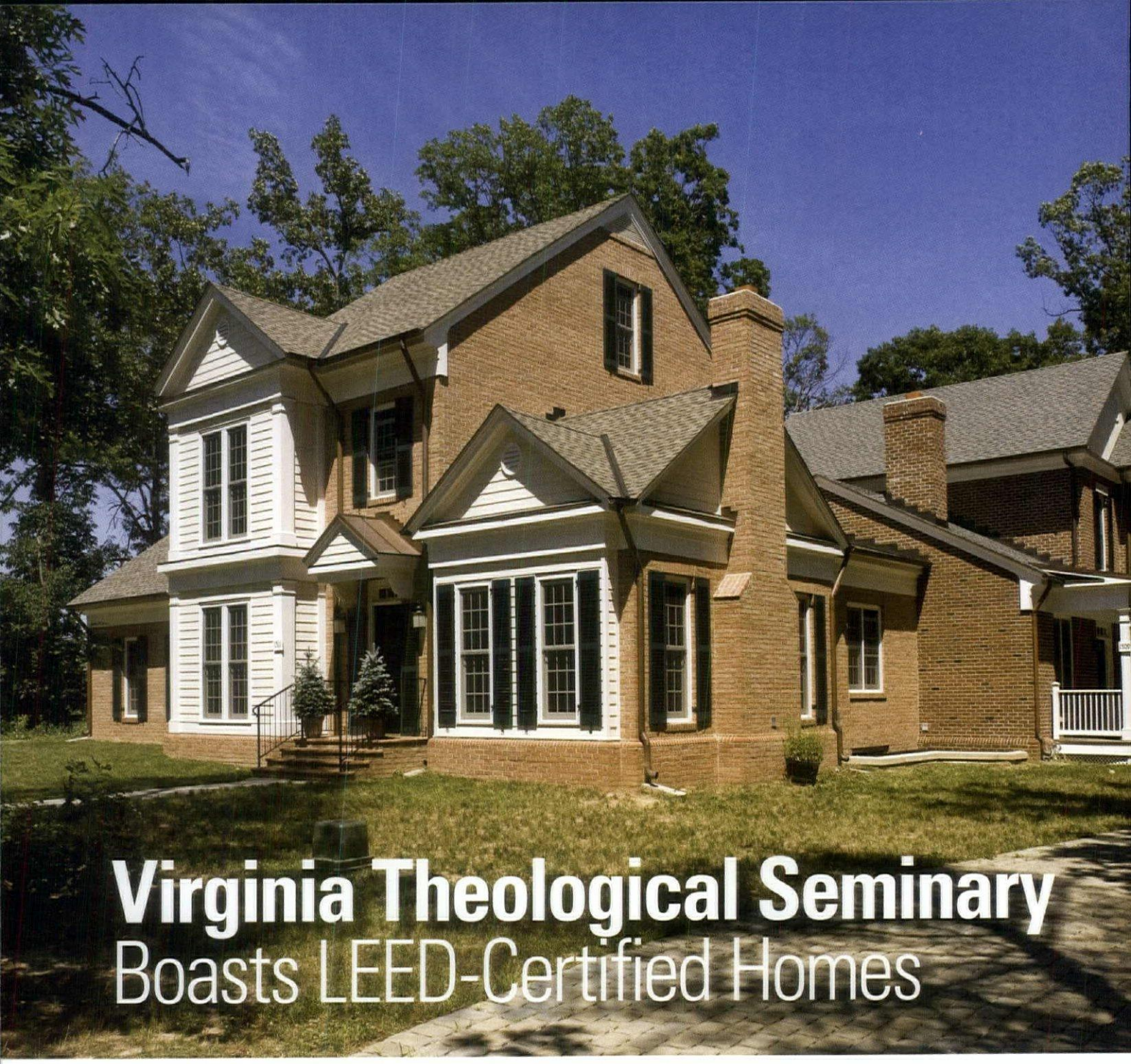
For KGD, this project has meant several things, Mahns says:

- It has been a rewarding design exercise to face a challenging site and program and create a work of functional and aesthetic elegance
- By providing satisfaction to a client whose work in the area is certainly bound to grow over the years, KGD has established a promising new base of potential repeat business.

RESOURCES

ARCHITECT: KGD Architecture (see ad., p.31); **GENERAL CONTRACTOR:** Coakley & Williams Construction (see ad., p.13); **HADRIAN TOILET PARTITIONS:** Architectural Resources (see ad., p.31); **PAINT:** Sherwin Williams (see ad., p.13)

Courtesy KDG



Virginia Theological Seminary Boasts LEED-Certified Homes

by Jonathan Moore

Adhering to the Episcopal Church's Genesis Covenant of 2009 to reduce greenhouse gas emissions by 50 percent in 10 years, the Virginia Theological Seminary (VTS) now lays claim to Alexandria's first LEED®-certified semi-detached residences. Designed by Alexandria-based Cole & Denny Incorporated and built by Harry Braswell, Inc., these homes are sited on the spacious west end of the VTS campus at 1509 and 1511 N. Frazier Street just off Seminary Road. The homes' style reflect their setting amid the traditional 19th century structures on campus, but both 2,700-s.f. units are thoroughly modern with regard to their energy-saving features.

The homes share a common wall, which significantly reduces their overall footprint. The surrounding open landscaping accommodates geothermal wells and adjacent trees. Drought-tolerant plantings and permeable driveway pavement retain groundwater and reduce the need for potable-water irrigation. More than 75 percent of on-site construction waste was recycled. And the site's ready access to public transit and other community resources earned further LEED credit.

Other resource-conserving elements include high-efficiency gas furnace and air conditioner units, low-flow bathroom fixtures and faucets, spray foam insulation for the walls and roof, Energy-Star appliances, fluorescent and LED light fixtures, and low-VOC paints and sealants.

"Our design encompasses both aesthetics and efficiency," says Kristine Hesse, LEED-AP, the architect for this project and a principal at Cole & Denny. "Efficient land management and energy savings were top priorities for our client," she says. "The contractor wanted the experience of doing a LEED project. And the seminary was interested in getting LEED

Natural materials and low-VOC finishes enhance the interior air quality while LED and fluorescent lighting supplement abundant natural light and conserve energy.

certification, even if they had to pay a little bit more. It was truly a team effort and fits in with the culture of Alexandria as a whole in this day and age."

Alexandria's recent adoption of energy conservation and green building design standards aligns with VTS's sustainable ethos. "We view LEED as an important investment tool providing greater operational efficiency and long-term benefits for all of our buildings," says VTS Facilities Manager Dave Mutscheller. He notes also that the LEED certification process reinforced the seminary faculty's and students' appreciation of their pastoral setting in an otherwise bustling area of Alexandria.

Kim Carr, LEED-AP, assistant commercial project manager at Harry Braswell, foresees more residential projects pursuing LEED over time, though she says certification is currently more prevalent among commercial structures. "As architects and contractors incorporate more of LEED's concepts and practices, we will likely see greater adoption of green building standards among both commercial and residential projects," she says.

Likewise, VTS will continue pursuing green building principles, both as an integral part of resource-efficient physical plant operations and for the sake of environmental stewardship. "The Seminary Board of Trustees is deeply committed to witnessing the importance of the environment in all our building projects," says VTS Dean and President, the Very Reverend Ian Markham. "We are proud that the recently constructed townhouses received LEED certification. Going forward, environmental values will remain a top priority for our design and campus planning portfolios."

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- **Sherwin-Williams**
  10406 Tucker St., 3rd Flr.
  Beltsville, MD 20705
  Tel: 800-723-8766, ext. 3229
  Fax: 301-595-0435
  Email: bill.rains@sherwin.com
  Web: www.swgreenspecs.com
  Contact: Bill Rains, CSI, CDT

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- **Nitterhouse Concrete Products, Inc.**
  2655 Molly Pitcher Highway, S.
  Chambersburg, PA 17202
  Tel: 717-267-4505
  Fax: 717-267-4518
  Email: precast@nitterhouse.com
  Web: www.nitterhouse.com
  Contact: Daryl S. Wenger, Sales & Marketing Manager

Nitterhouse Concrete Products, Inc. produces a full range of sustainable precast/prestressed concrete products and complete building systems, including architectural and structural precast components, double tees, insulated wall panels, hollowcore plank, and residential ConCoreFloor™. Nitterhouse Concrete Products has achieved certification year-after-year by the Precast/Prestressed Concrete Institute (PCI), and employs its own in-house staff of certified, professional engineers. After 89 years, Nitterhouse continues to expand its products and expertise, capitalizing on the latest technological advancements and products in the concrete industry.

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- **Turner Restoration**
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  Detroit, MI 48202-2775
  Tel: 313-574-9073
  Fax: 313-871-9073
  Email: turnerrestoration@sbcglobal.net
  Web: www.turnerrestoration.com
  Contact: James A. Turner

Turner Restoration specializes in residential, commercial and institutional wood and steel window restoration as well as providing training for community groups, homeowners and artisans in the repair of both mediums.

The companies listed have chosen to support the VSAIA and the building/design community through their paid participation in these directories.

Contact Cathy Guske, cguske@aiava.org, 804-644-3041, ext. 301 for information.

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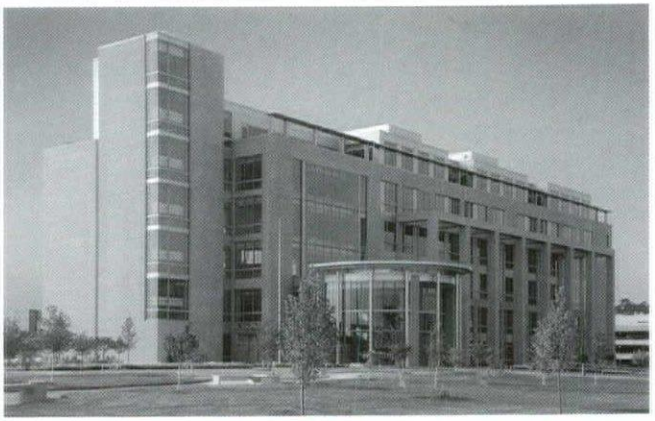
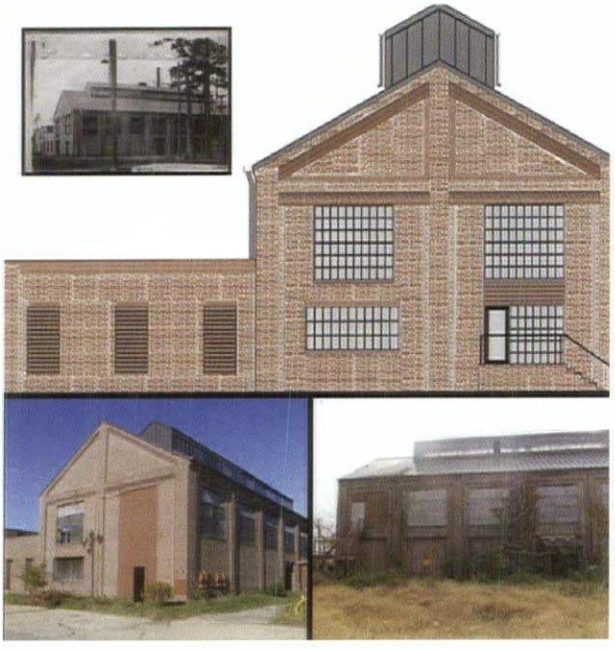


Architect: Dewberry Architects Inc.
Project: Stanley J. Roszkowski U.S. Courthouse, Rockford, Ill.

Built in association with Koetter Kim & Associates, the newly completed LEED® Gold-targeted federal courthouse provides a framework for the new urban district within the city. Tel: 703.698.9050 / www.dewberry.com

Architect: Clark Nexsen Architecture & Engineering
Project: Academic Instructional Facility Building at Marine Corps University, Quantico, Va.

This 130,000-sf LEED® Gold project provides state-of-the-art multipurpose classrooms, lecture halls, resource centers, and a 1,000-seat theater for instruction and war college simulations. Tel: 757.455.5800 / www.clarknexsen.com

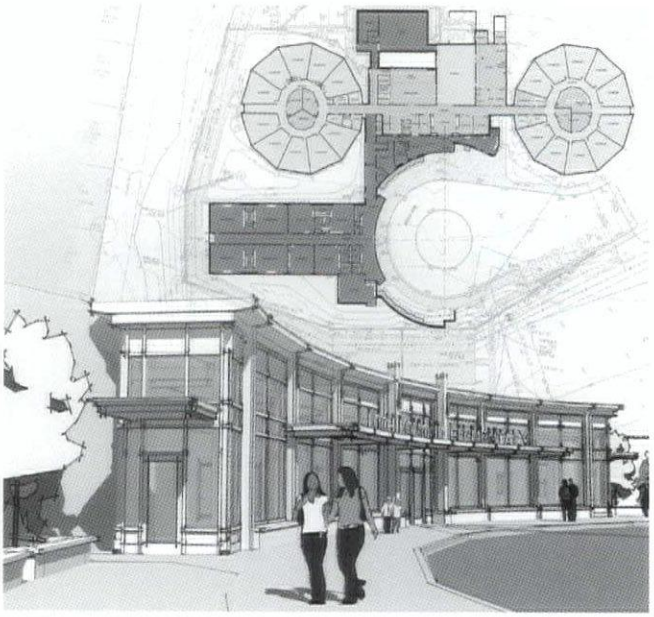


Architect: DJG, Inc., Williamsburg
Project: Repair & Renovations to Facility 1004, Hampton, Va.

This project will transform a former Air Force hydrogen production building into a new administrative and storage facility for the Security Forces Squadron. Tel: 757.253.0673 / www.djginc.com

Architect: HKS Architects, Richmond
Project: Palmetto Health Baptist Parkridge Hospital, Columbia, S.C.

This spring, Palmetto Health will break ground on this new 76-bed hospital. The facility broadens its network to the greater Columbia area. Tel: 804.644.8400 / www.hksinc.com



Architect: Moseley Architects, Richmond

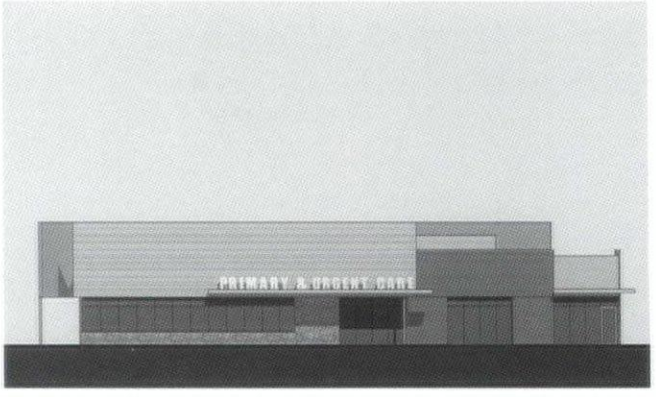
Project: Loch Lomond Elementary School, Manassas

This phased expansion and modernization project includes adding a more prominent entry, as well as providing new classrooms, administrative spaces, and art and music rooms. Tel: 804.794.7555 / www.moseleyarchitects.com

Architect: ODELL

Project: Research Forest Lakeside, Buildings 4 and 5, Woodlands, Tex.

Research Forest Lakeside Buildings 4 and 5 are part of a 10-office building and convenience retail project totaling over 1,798,398 sf near Woodlands, Tex. Tel: 804.287.8200 / www.odell.com



Architect: Price Studios

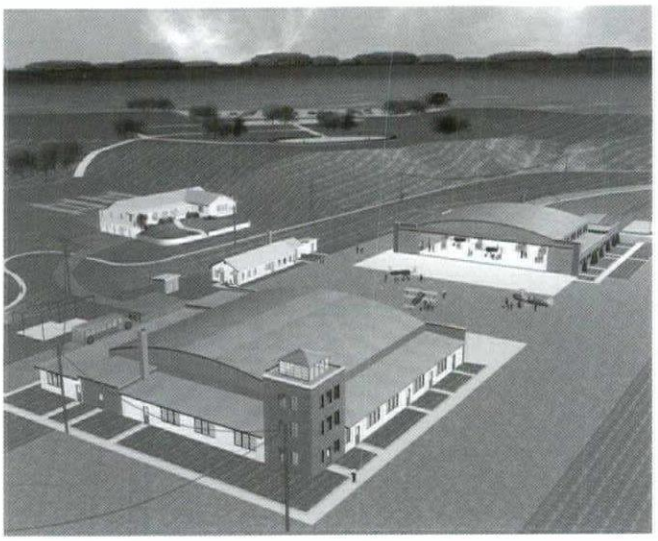
Project: Primary and Urgent Care, Spotsylvania, Va.

This 8,750-sf medical office building is a prototype for a small primary- and urgent-care facility, with the first model to be built in a retail center outparcel in Spotsylvania's Southpoint area. Tel: 804.521.2266 / www.pricestudios.com

Architect: SFCS Inc., Roanoke

Project: Rockhill Mennonite Community Healthcare Addition, Sellersville, Pa.

RMC Healthcare will have 36 healthcare and memory care beds arranged into nine-person households. There are 72 beds total. Rehab services will be available. Tel: 540.344.6664 / www.sfcs.com



Architect: Wiley|Wilson
Project: Tuskegee Airmen National Historic Site—Moton Field Rehabilitation, Tuskegee, Ala.

This current phase will complete the restoration effects of the 44-acre/16-building historic site for the National Park Service. Tel: 434.947.1901 / www.wileywilson.com

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Virginia **Senator Petersen** on Sustainability

As the Virginia legislature entered its 2012 session, Inform turned to Senator J. Chapman Petersen, a democrat who represents Northern Virginia and is an ardent supporter of planned, sustainable growth in the Commonwealth. Here are his responses to a handful of questions related to resource management in Virginia.

Inform: How will the issues of sustainability–water management, energy conservation, local resourcing of building materials, and technology development, for instance–drive Virginia forward for all Virginians?

Sen. Petersen: Sustainability is going to be one of the key issues as we transition from traditional development to future development. LEED standards are a great way for buildings to have a smaller impact on our society, both by saving us money by increasing efficiency as well as recycling materials for reuse. I was pleased to have my buildings standards bill (SB160) pass the Senate this year. It calls for certain state buildings to conform to Virginia Energy Conservation and Environmental Standards developed by the Department of General Services considering the U.S. Green Building Council (LEED®) green building rating standard, the Green Building Initiative (Green Globes®) building standard, and other appropriate requirements. Hopefully, after the House of Delegates hears it, it will become law.

As for locally sourced building materials, we have a plethora of great developments right here in Virginia. Our timber industry is strong and those trees should be manufactured into planks and boards here in Virginia rather than shipping the whole trees to China and then back as finished materials. Globalization has brought incredible changes to our world, but sustainability often has not been one of them. I think one of the big changes in the coming years will be a pushback on far-reaching shipping as local materials become more competitive and consumers demand great Virginia wood and stone.

Inform: Does the military drawback from wars in Iraq and Afghanistan have a negative impact or is there a positive side?

Sen. Petersen: Obviously we are all pleased that our veterans will be coming home to their families. One of the most important things that we can do for our veterans is help them find stability and jobs. Some of them will continue their work with the military, but many of them will need jobs. I am happy to have been co-patron to several bills this session and last that deal with licensing and education for veterans here in Virginia. As ours is one of the most important states for the military, we need to make sure it is one of the most accommodating for our veterans.

Inform: Possibly connected to that: Is there a strategy that you see for accelerating the transportation infrastructure (mass transit and highways, both) in Virginia?

Sen. Petersen: One of the biggest problems we have in regards to transportation is funding. The existing revenues are stagnant or decreasing. As citizens drive more efficient vehicles and drive fewer miles, the gas tax revenues are never going to increase. All the while, our existing transportation infrastructure has become derelict and is in need of replacement or maintenance. That's why I introduced SB162, which will index the gas tax to increases in vehicle mileage. As a net revenue, we won't pay any more to the state than in 2007, but we will have much more money to fund these necessary transportation projects.

As for transit, successful transit development often starts at a local level. Streetcars have been very successful in Norfolk, and soon we will be seeing streetcars along the Columbia corridor in Northern Virginia. Metro, despite its problems, serves millions of commuters who would completely clog our roadways if they commuted by car. Transit buses are a low impact (construction and land use) option that we can use to increase transit mobility by connecting nodes. Finally, transit is an important need for seniors and those with disabilities. As our nation grows older, we are going to need to have transit that allows those who cannot drive to continue to be active, mobile, and a part of our community.

Inform: How is the Commonwealth positioned to meet what looks to be a growing economy in the next five years?

Sen. Petersen: As our economy continues its recovery, we will have to make changes to the budget to recover services that we had to trim during the recession. The Commonwealth is positioned well: we fell less than other states, and we started our recovery faster. This, along with Virginia being the best state in the nation to do business, will jumpstart our economy and give us a head start for growth.

Right now, economic forecasts for Virginia are excellent in the next five years, and although many people have been hit hard by this recession, I am optimistic about the future prosperity of the Commonwealth.

The New Profession on the Block: **Estimators**

Architects have long found that their talents for estimating construction costs have been under-appreciated by clients and fellow design and construction team members. As unfair a characterization as that might be, there seemed little they could do about it. Furthermore, for those professionals who are adept at putting together accurate and timely bid packages—architects or not—there seemed to be little recognition of their talents or adherence to ethical practices.

These are a few of the reasons that 20 construction estimators came together in 1956 in Los Angeles to form the American Society of Professional Estimators. It has been a long, difficult 55 years of development and growth, but the ASPE now boasts thousands of members nationwide and, in 2011, admitted its 82nd chapter, the Richmond ASPE.

The organization as a whole promotes education, ethics, standards, certification, and fellowship to further the recognition of construction estimating as a profession. The Richmond chapter, which currently has about 25 members, meets downtown the third Wednesday of each month. In its first full year of operation, the chapter was especially proud to have been chosen to host the Northeast Regional ASPE Meeting March 2-3.

With building planning, design, and construction getting more complicated by the day, the professions and industries have found certification as a reliable confirmation for clients and fellow professionals to know they are working with, to name just a few examples, trained and experienced sustainable-design experts, project and quality managers, specifiers, and non-licensed design specialists. Anyone with the background and ability can become a certified professional estimator, including architects, engineers, constructors, subcontractors, and building owners and their representatives.

Although construction estimation does involve a certain amount of intuitive ability that comes with experience, the ASPE focuses on one's ability to understand the processes and technical aspects of construction time and cost estimation. To be certified as a professional estimator, one must pass two examinations and submit a research paper for peer review. Daunting as the tests are, they are passable reports ASPE-Richmond President-elect Ronald Semel, AIA. In retrospect, he says, the certification was as challenging as he recalled the ARE to have been.

Ethical estimation

The national ASPE has established nine ethical canons by which it holds its members accountable for the good of the design professions and construction trades as a whole and the clients and public they serve. Those canons cover:

- Discipline competence
- Continuing education
- The promotion of inter-disciplinary cooperation
- Business and technical confidentiality
- Integrity and adherence to the law
- Commitment to making detailed and accurate estimates and assignments
- Rejection of "bid peddling" (revealing subcontractors' bids to other subs to solicit lower bids)
- Rejection of acts of collusion or conspiracy (bid rigging)
- Rejection of the giving or receiving of gifts that might even be construed as bribery.

ASPE promotes education, ethics, standards, certification, and fellowship to further the recognition of construction estimating as a profession.

Anyone who is interested, certified or not, is welcome to attend the ASPE-Richmond meetings, Semel says. There is a nominal admission fee, and the meetings are currently held at the Baskervill offices at 101 S. 15th St. in downtown Richmond. For more information, visit the ASPE-Richmond Web site, asperichmond.org.

Meetings feature time to meet and greet as well as a continuing education session. At the January 18 meeting, for instance, attendees enjoyed a lively discussion of moisture barrier design, installation, and costing led by a registered AIA/CES Provider. Noting that 81 percent of construction litigation is related to moisture infiltration, she showed properly designed details as well as construction site photographs that showed what is and what is not proper detailing and application.

Laps must be properly sealed, especially at horizontal-to-vertical joints and penetrations, which is particularly problematic when multiple trades are involved and coordination among them is not monitored closely, she said. Although the presentation focused on large construction projects, the continuing-education provider also compared cost per square foot of a variety of commonly used systems, their puncture resistance, concrete adhesion, and pros and cons of various construction practices. Attendees were eligible to earn AIA continuing education learning units.

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