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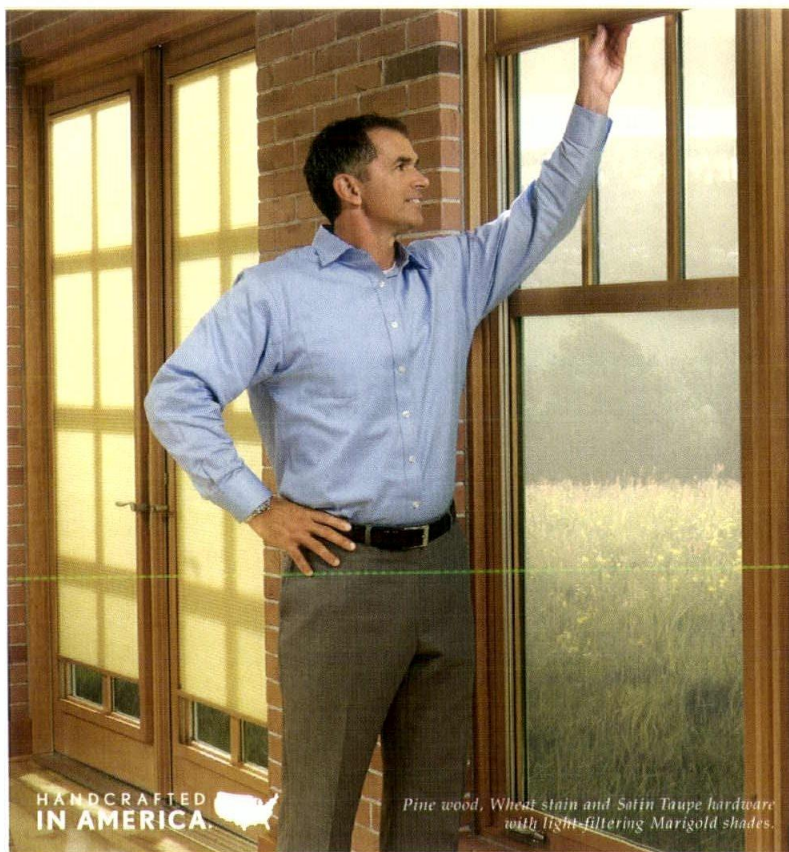
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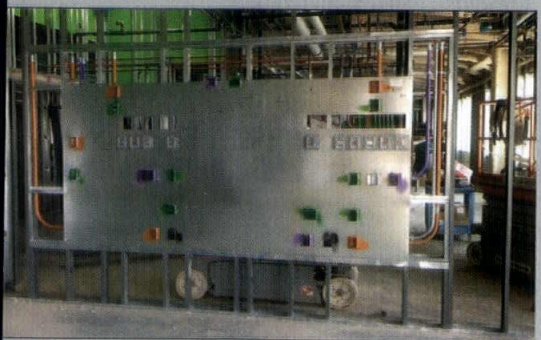
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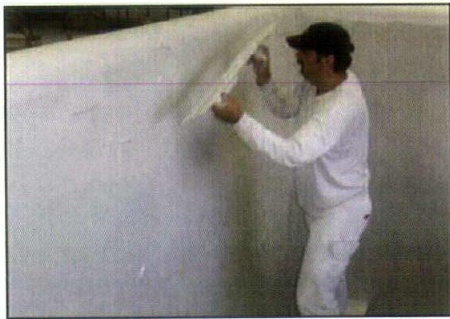
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Chicago Architect, the primary outreach tool of AIA Chicago, is published six times a year as an authoritative resource for architects, the larger design community and the public about architecture and related issues of interest to Chicago architects. The magazine communicates industry trends, the value of high-quality design and the role of AIA Chicago and its members in the world of architecture.

Publication Director

Zurich Esposito
espositoz@aiaichicago.org

Publisher

Tony Mancini
tmancini@sgcmail.com

Associate Publisher

John Rogier
jrogier@sgcmail.com

Editor

Dennis Rodkin
dennis@rodkin.com

Senior Editor

Ben Schulman
bschulman@aiaichicago.org

Managing Editor

Raissa Rocha

Consulting Editor

Rob Cassidy
Building Design+Construction
magazine

Designer

Kelsey Craig

Advertising Sales

Jeff Elliott
jelliott@sgcmail.com
616.846.4633

Pete Pirocanac
ppirocanac@sgcmail.com
847.954.7935

Advertising Coordinator

Lucia Currans
lcurrans@sgcmail.com
847.391.1005

AIAChicago



Contributors

Lee Bey
Cindy Coleman
Chelsea Corbin
Lynne Fort
Amy McIntosh
Pamela Dittmer McKuen
Laurie Petersen
Lisa Skolnik
Jeff Zagoudis

Vice President, Custom Media SGC/SGC Horizon

Diane Vojcanin
dvojcanin@sgcmail.com

Custom Media Manager

Melissa Sersland

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PRESIDENT'S LETTER

In 1869, five prominent Chicago architects set aside self-interest and professional rivalry to focus on professionalizing the practice of architecture and improving life safety. They advocated for the licensure of architects, contributed to Chicago's earliest building and zoning regulations and worked to enact mechanics lien laws. The decision to hitch their efforts to the American Institute of Architects, founded in New York two years earlier, set about the business that we continue today.

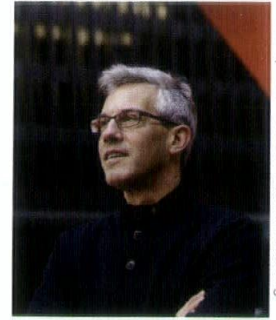


Photo by Tom Harris © Hedrich Blessing

As we mark the 145th anniversary of our chapter's founding, some of the same issues that motivated our predecessors continue to challenge us now. Constant vigilance is required to defend licensure, we continue to maintain a dialogue with the city to improve the building code and not long ago, we were even called upon to advocate for stronger mechanics lien laws.

Yet as we fight old battles, there are of course new challenges to meet. We are constantly reinventing our practices to address a world that grows increasingly complex. Environmental sustainability, new forms of project delivery, improved health outcomes and greater social justice engagement are just the most recent metrics added to the perpetual concerns of budget, schedule and design excellence by which we measure the success of our projects. AIA remains the primary tool most of us use to stay abreast of change and to assert influence on the environment in which we practice.

There is no question: AIA Chicago is a far more sophisticated organization today than in 1869. We have all the technological advantages of the information age, and a professional staff that works tirelessly on our behalf to increase the impact of our volunteer work. Despite these improvements, we are essentially still those five colleagues who came together 15 decades ago to serve their profession and society.

Everything the AIA has accomplished is the result of its members working with a shared set of values toward a well-defined goal. It is sometimes tempting to say 'The AIA should...' but there is no 'they' in AIA. When we see an unfulfilled need about which we are passionate, it is our responsibility to act. AIA Chicago offers extraordinary opportunities, unknown to our founders, to make our visions reality. Our knowledge communities, committees, *Chicago Architect* magazine and chapter staff empower us to leverage our energy and passion like never before.

At a presentation about repositioning at last year's Grassroots Leadership Conference, a lapel pin was handed out. It was one of those cheesy pictures that changes depending on the angle from which it is viewed. From one side it read 'AIA'; from another 'A we A'. A gimmick for sure, but it is as true today as it was in 1869.

Scott A. Rappe, AIA

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Correction

In the **January | February** issue, an article titled "An Artistic Breakthrough," about a stained-glass installation at a Chicago synagogue, incorrectly identified the donor of the antique windows. The Tawani Foundation donated the windows to Emanuel Congregation; the article mistakenly attributed the gift to Tawani Enterprises. In

addition, a reference to the Ark of the Covenant should have said simply the Ark. Members of the congregation have also requested a clarification: The article referred to a 'former rabbi' whose friendship with a Pritzker family member led to the donation; that rabbi holds the title 'emeritus.' We have made all three changes in the digital version of the issue that is posted at aiachicago.org. **We regret the errors.**



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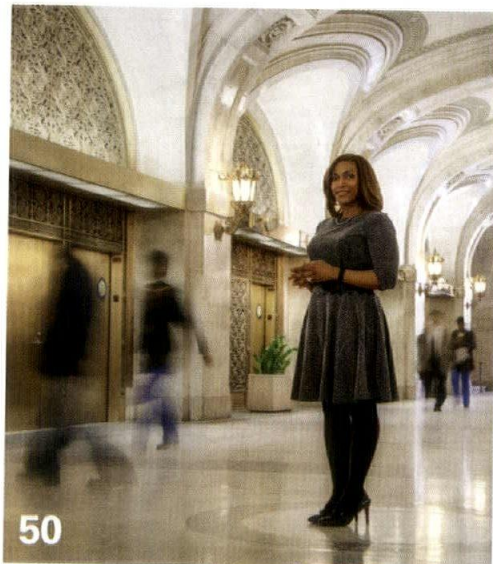
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Photo by Frank Flury



The library in Twifo Hemang, Ghana, is a functional, flexible space for local students to gather and study in the after-school hours.

Shelf Life

LIBRARY PROJECT IN AFRICA IS IIT STUDIO'S LATEST EFFORT

Months after returning to Chicago after building a library in the rural village of Twifo Hemang, Ghana, students in Frank Flury's design/build team from the IIT College of Architecture hope the ideals and techniques they brought to the rural village during their two-month stay will have a lasting impact on the community.

Each year, Flury's studio embarks on a project to take fourth- and fifth-year architecture students out of the classroom and into a real-world setting where they can

see their designs come to fruition.

Last year's project began when Teddy Mensah, a native of Ghana who had worked with Flury's studio on a previous design/build project, expressed interest in bringing a library to the village. While there are several schools in the community, there were no adequate facilities available for students to study in after school.

After securing Ghana radio station Joy FM as the project's client, the team began designing the building in the spring 2013

semester. Communication with the client was challenging, Flury says, but the team did as much research as possible from their Chicago home base.

As part of this research, the group performed a cost estimate based on online research and came relatively close to meeting their limited budget. But those months of planning were put to the test when Flury and his 16 students traveled to Ghana to build the library.

"When we came to Ghana, it turned out the buildings we designed were way too small



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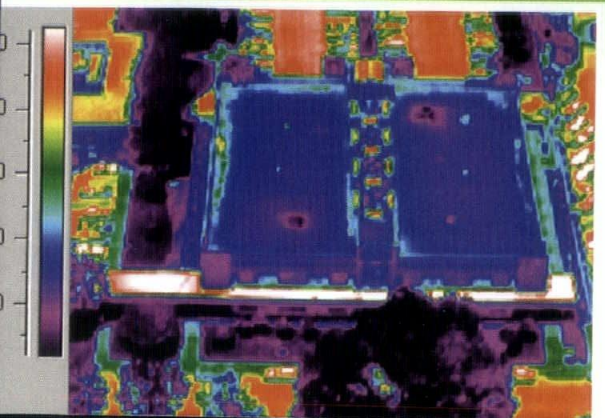


Photo by Frank Flury



IIT students lived in Ghana for two months and constructed the library from local materials, using hand tools.

"I think this experience really changed people, including myself," Flury says. "I think we're all a little more grateful of what we have."

For Sanni, stepping out of a classroom and into the field was a significant learning opportunity.

"Seeing the whole thing put together was actually a huge educational experience for me," Sanni says. "The whole design/build program is pretty important because apart from being able to translate things from paper to reality, you also get the real experience of learning what fieldwork is really like."

Mensah notes this was also the first time most of the villagers were exposed to Western culture. "[Ghanaians] have a culture where women do not participate in that kind of labor," Mensah says. "For the first time, the villagers saw females with hammers in their hands. They saw women laying bricks. We saw a mental and cultural shift in attitude. I was very happy to see that."

He hopes watching the IIT team in action will inspire the villagers to build their own structures and embrace creativity.

"Once we leave, they will realize, 'We can do this,' because we intelligently got them involved in what we were doing," Mensah says. "We weren't going in necessarily to tell them what they can and cannot do. We went in there with the same tools that they have, but we expressed the use of those tools in a different way."

To learn more about Flury's studio or to support this program, visit www.iitdesignbuild.com.

> **Amy McIntosh**

for what we needed to have," Flury says. "We had designed a building that was roughly 12-by-24 feet and they needed something that was three times as big."

The final design was a 24-by-36-foot structure built in three segments. An outdoor veranda separates two flexible enclosed spaces that can be used as study areas, or to store books or computer terminals.

"We were able to repeat the formwork of the 12-by-24 boxes," Mensah says. "That reduced our construction time and the amount of materials we were using. It helped us move fast and made it very manageable for us." Building the library in segments also ensured that if the team ran out of money or time, the village would still be left with a usable building.

The tropical climate drove many of the group's design choices. Building during the rainy season, the team chose concrete and termite-proof lumber over clay bricks for the primary building materials. Materials were locally sourced, purchased from a nearby quarry and sawmill.

Leaf-shaped cutouts in the exterior of the building allow for cross ventilation throughout all three sections and add to the library's distinctive look. The design of the roof was also a concern.

"Generally in America you can build any kind of roof you want, but it was important in this case that the roof had a certain amount of slope to it because they get pretty heavy rainfalls," says Oluropo Sanni, a fifth-year architecture student at IIT and member of the team. "We had to make sure the water doesn't sit on the roof or the roof doesn't get blown off."

During construction, power tools were not readily available, so the work was done entirely by hand. The IIT team members completed most of the construction themselves; volunteers in the village assisted in digging trenches and mixing concrete. Community members could also be found on the sidelines, offering construction tips and moral support.

"Sometimes [community members] brought us food to show their appreciation, because they knew we were doing something important for them," Sanni says. "They appreciated what we did and made sure we were comfortable and helped us out in whatever way they could."

Although the team completed the structure before leaving the village, Flury is working on raising money to purchase Ghanaian textbooks to stock the shelves. He also plans to return to Ghana this year to build another library.

They'll Settle for Metal

27-STORY HOTEL WILL HAVE WINDOWLESS WALL CLAD IN METAL

There are no rivers in the Chicago skyline. GREC Architects is looking to change that.

The firm is planning a five-color metal 'mural' to fill the west wall of a 27-story Hilton Garden Inn that is slated for construction at 66 E. Wacker Place, next door to Harry Weese's Christian Science church.

No windows will be on this wall of the hotel because the rooms will be on the north and south sides. At first, murals based on and involving Chicago's history were considered, says GREC principal David Ervin. But when the client team decided to go with a more abstract concept, preferring some kind of non-representational graphic to a literal mural, GREC began exploring other ideas.

The final plan was inspired by the Chicago River. More specifically, it was inspired by a video in which the river is digitized, transforming from gentle waves of water to grey, blue, black and white pixelated squares.

"Our office is just off the river," Ervin says. "We were taking videos of Ogden Slip. We digitized those images. We were interested in the straight video and the translation into the digitized [version]."

The mural will be built with metal panels that also serve as an exterior wall system. Average panel size will be 2 feet 11 inches by 11 feet 4 inches. To create a range from dark to light, the panels will be pre-finished with five different shades of grey. The use of five custom tones optimized construction costs while retaining the original graphic concept, Ervin says.

GREC will place the mural on the windowless west side of the building. Because of the narrow, 50-foot lot where the hotel will go up, Ervin says it made more sense to put the 191 rooms on the north and south sides of the building, thereby negating any need for windows on the west side.

Another consideration is the lot's neighbor to the west, the Seventeenth Church of Christ, Scientist. The current church is a lower building that would allow a view from a western-facing window, but in the event

another building is someday constructed there at a comparable height to the Hilton, the hotel would essentially lose the views. While Ervin says he considers this event unlikely, it was a consideration in the choice of the metal wall finish.

In addition, the building code requires that exterior walls that are built within 12 feet of an interior lot line have a two-hour fire-rated assembly, Ervin notes. Two-hour rated windows "come with an extraordinary cost premium," he said in an email.

Despite this rationale, there have been concerns among community members about the plan, given that it defies standard hotel design. That concern and others—including questions about how the metal wall finish will impact the historic Chicago Motor Club, which is immediately east of the proposed

structure—were aired at a November 2013 community meeting. GREC, 42nd Ward Alderman Brendan Reilly and the Chicago Loop Alliance were all present.

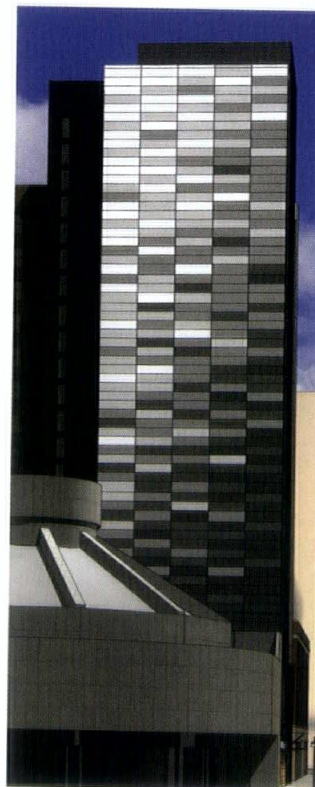
"So many people said, 'Why aren't there windows and balconies? It would add so much to the city,'" Ervin said. "I don't agree. This is an opportunity to add something compelling." According to Ervin, the alderman and the property owner, MHF Chicago MC IV LLC, have been very involved in the design process.

He suggests another reason the metal finish will be beneficial is that, given the signage for the hotel is limited to the ground level, the unique metal paneling will distinguish the building at the upper level.

"The primary goal is to treat this façade in an architectural manner, to make it a compelling response to the architectural challenge," Ervin says. "With the challenge of no windows—how can we take that challenge and make it a compelling addition [to the cityscape]? It had to be well thought-out."

The projected completion date of the building is spring 2015.

> **Lynne Fort**



The hotel's west side (seen in middle image, and at left in left image) will be visible due to the neighboring church's low height, meaning the metal mural will be seen not just from the street but also as part of the Chicago skyline.

Images courtesy of GREC Architects

One for the Books

ARCHITECT DESIGNS INSTALLATION FOR GRAHAM FOUNDATION'S NEW SHOP

Since 1963, the Graham Foundation has been housed in the Madlener House, whose Germanic-Neoclassicism-meets-Prairie Style-sophistication serves as the perfect venue for an organization that plays host to a rotating slate of esoteric exhibits and events. While the Gold Coast home has a welcoming entry sequence, it's never been the type of place that immediately grabs passersby off the street.

But now, as part of an installation by architect Ania Jaworska for the Graham Foundation's new bookstore, an electric sign emblazoned with the word "HI" beckons in people with a perky hello. The neon welcome, placed atop one of the installation table's arches, accentuates Jaworska's exhibit-worthy constructions, which double as practical shelving for the bookstore.

The installation consists of four large metal-mesh tables that subtly complement the detailing of the room's Sullivan-esque ceiling panels. Each table expresses a singular design for a singular program. A protruding gateway arch welcomes visitors into the bookstore, providing a spotlight for monographs associated with the Graham's current exhibit; zig-zagging surfaces allow periodicals such as *Icon*, *Metropolis* or *Frieze* to be displayed prominently; and a staircase-like construction resolves into a horizontal plane that features contemporary titles from or on Chicago-based artists, designers and architects.

The bookstore was launched in tandem with the exhibit, "Environments and Counter Environments. Italy: The New Domestic Landscape, MoMA, 1972," a showcase of iconic Italian architects and designers from the early '70s that was originally presented at the Museum of Modern Art. Jaworska, an instructor of design and architecture at the University of Illinois-Chicago and the School of the Art Institute of Chicago, is quick to note the influence of Italian designers such as Ettore Sottsass and his seminal Memphis Group on her ideas for the installation.

"It was an opportunity to play with iconic architectural forms that can be purposed for

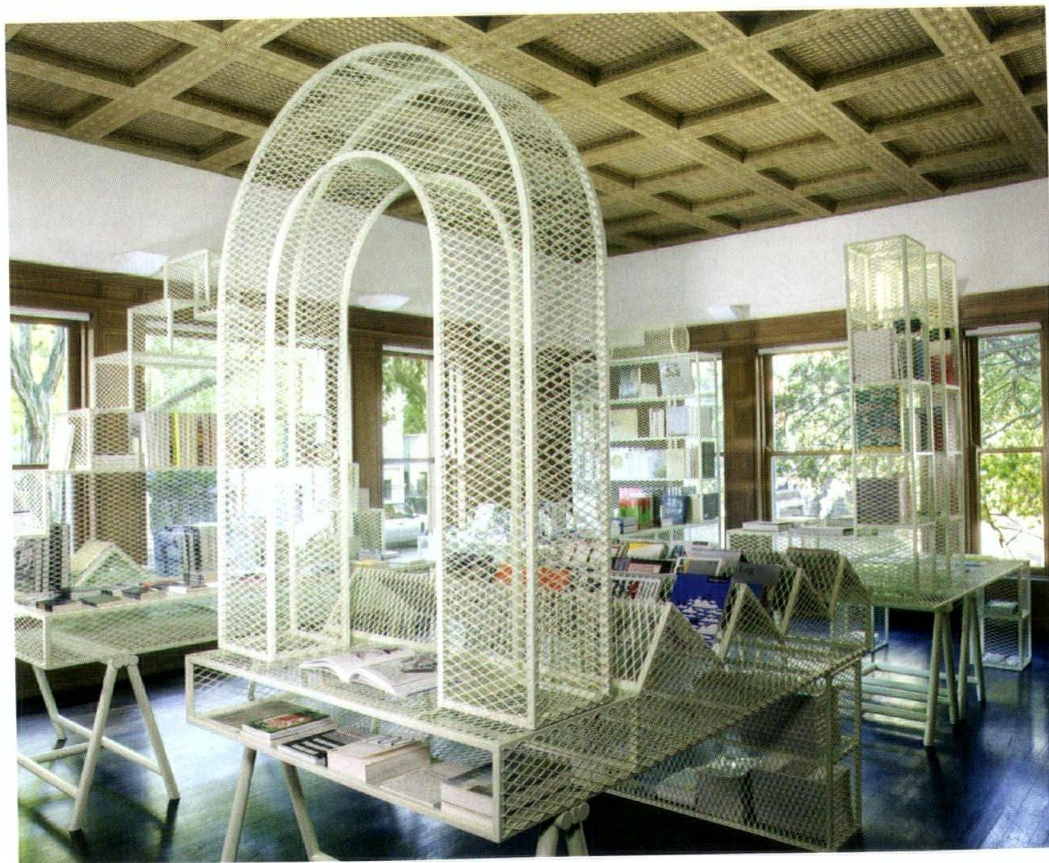
shelving forms," she says, much like Sottsass and his followers employed exuberant, comic and colorful designs to imbue staid furniture design with life. The pale, light green color of the metal work offsets the dramatic dark hue of the room's wood-paneled wall, and "is all about relating to the '60s and '70s," Jaworska says.

Jaworska's deft combination of color and material softens the austerity of the room, creating an airy and accessible space. The installation's lissome quality is due to "wider-wave mesh, which is not only really fun, but allows for visual pass-through," says Taylor Wallace, the owner of Bridgeport-based Metal Magic Interiors, who fabricated the installation's pieces. The forms are immediately approachable, attracting visitors to almost instinctually pick up a book and

begin browsing. Because of Jaworska's approach, "everyone is drawn to engage with the books in their own way," says Ellen Hartwell Alderman, the program director for the Graham Foundation. "The installation can be appreciated on many levels."

The Graham Foundation for Advanced Studies in the Fine Arts first came into being in 1956, a bequest from esteemed Chicago architect Ernest R. Graham to encourage the formation of new architectural ideas and provide a platform for their expression. The bookstore, Hartwell Alderman says, is part of an ongoing process to "open up the building to the community and make the Graham a public space," not to mention "a destination" for those looking to fill the void left by the 2009 closing of the architecture-focused Prairie Avenue Bookshop.

"Now, there's a place to buy books," Hartwell says. "And by being able to work with Ania [on the installation], we've commissioned work from a talented young designer, which is something that furthers our mission." > **Ben Schulman**



A gateway arch welcomes visitors into the Graham Foundation's new bookstore.

Upcoming Events

AIAChicago small projects

Small Projects Awards Party and Reception, May 9

The fourth annual Small Projects Awards, presented by the AIA Chicago Small Practitioners Group, will

recognize outstanding structures and objects from architects and firms with nine or less licensed architects and architectural interns.

All winners and entrants will be featured at the Small Projects Awards reception on Friday, May 9, 2014, at Architectural Artifacts, 4325 N. Ravenswood Ave., Chicago.

For more information on the awards program or for sponsorship materials, please contact Allison Garwood Freedland, AIA Chicago program manager, at freedlanda@aichicago.org or 312.376.2725.

To see last year's entries, visit www.aichicago.org/spa.

CHICAGO!

AIA Convention 2014 June 26–28, Chicago

AIA National Convention Headed to Chicago

The 2014 AIA National Convention is coming to Chicago and will take place at McCormick Place, June 26–28, 2014.

In addition to the nonstop educational sessions and keynote speakers presented by AIA National, AIA Chicago will be offering more than 80 tours to show off the architectural prowess of our city. The chapter will also be hosting numerous "Dining + Design" events, which will offer opportunities to relax, eat, drink and network with dedicated design and building professionals. Visit the AIA National Convention website – or AIA Chicago's standalone convention page at www.aichicago.org/aia2014/ – to stay abreast of the latest convention news.

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AIAChicago



BUILDINGChicago/ Greening the Heartland, Sept. 29-Oct. 1

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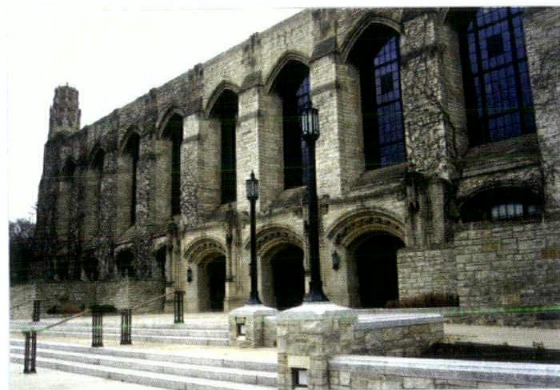
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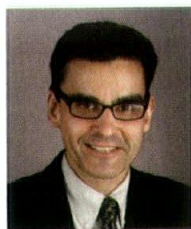
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PEOPLE + PROJECTS



HBRA Architects and its partner

O'Brien Metal won a pair of Acanthus Awards from the Institute of Classical Architecture for the restoration of Northwestern University's Charles Deering Library. HBRA Architects received an award for Preservation & Restoration, and O'Brien Metal won for Allied Arts & Craftsmanship.



Dominic J. Adducci, AIA, was promoted to a principal at The John Buck Co.

Marisa Zambuto, AIA, LEED AP BD+C, joined BKV Group as project architect.



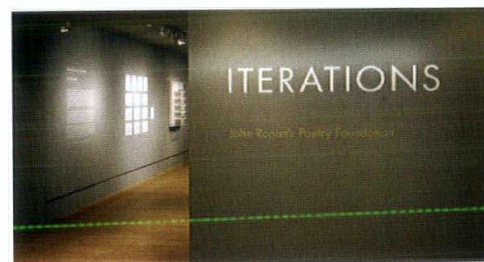
John Ronan Architects is collaborating

with Adamson Associates and developer The John Buck Co. to create 151 N. Franklin, a new office building at the northeast corner of Franklin and Randolph streets. The project will feature a 36-story tower with 825,000 square feet available to office tenants. Plans include a rooftop sky garden, grade-level plaza and second floor, and a publicly accessible outdoor terrace. The developer aims to achieve LEED Gold certification.

In other news of the firm, its award-winning Poetry Foundation building at 61 W. Superior St. is being featured at the Art Institute of Chicago. The exhibition, "Iterations: John Ronan's Poetry Foundation," looks into the design process of the building, from a sequence of concepts and sketches to the final presentation model. It runs through March 30.



151 N. Franklin



"Iterations: John Ronan's Poetry Foundation" exhibit at the Art Institute of Chicago



Robin Randall, AIA, joined

Legat Architects as director of K-12 education last fall. Her accomplishments include the founding of EDlab, a research engine aimed at achieving better learning environments, and teaching design and sustainability courses at Judson University. Randall brings 25 years of experience to Legat, adding to the firm's practice in more than 400 school communities.

The Chicago office of Harley Ellis Devereaux announced the following staffing moves:

- > Susan F. King, FAIA, LEED AP BD+C, became studio leader for the firm's Corporate & Commercial Studio. King also serves as principal and national sustainable practice leader.
- > Aaron Shepard, AIA, LEED AP BD+C, is now a principal. He will retain his role as project manager.
- > Michael Sullivan, AIA, became a principal. He will retain his role as studio leader for the Corporate & Commercial Studio.

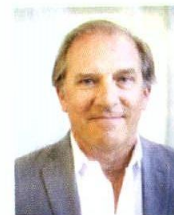
Harley Ellis Devereaux also announced it merged with San Francisco-based BFHL Architects, adding 15 professionals to its national healthcare practice.



Susan F. King



Aaron Shepard

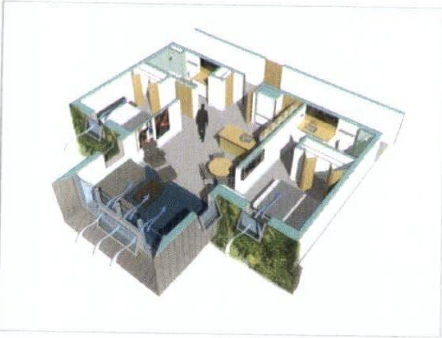


Michael Sullivan

All images are courtesy of the firm, unless otherwise noted. LEED AP status is indicated only if reported by the firm.

Booth Hansen

received the highest honor in the 2013 Architecture@Zero competition, the Merit Award, for its project entry CatalystSF. The challenge was to create a net-zero energy project with a grocery store and affordable housing units in a dense, mixed-income area. Booth Hansen's design incorporates features such as an on-site converter to turn rain and wastewater into hydrogen gas for use in fuel cells, space for a car share program, building-integrated photovoltaic panels and more.



Matthew Dumich, AIA, joined

the staff of Adrian Smith + Gordon Gill Architecture (AS+GG) in January as project manager, and will be working on high-performance projects around the world. He previously won AIA Chicago's 2012 Dubin Family Young Architect of the Year and was one of five Chicago architects to receive a Young Architects Award from AIA in 2013.



Wight & Company and Mortenson Construction have completed

major renovations at the College of DuPage campus in Glen Ellyn. The school's McAninch Arts Center (known on campus as the MAC) received a new front entrance with a glass canopy, as well as an art gallery for student and professional exhibits on the building's west side. Other upgrades included a new roof, radiant heating and the replacement of all exterior glass with energy-efficient glass. Wight & Company had also served as the MAC's original architects when it was built in 1986.

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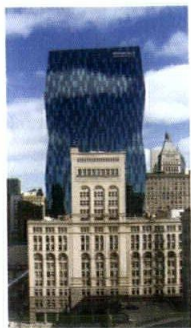
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VOA Associates' Roosevelt University tower in the Loop, a 2013 Design Excellence Award winner, has received

additional honors. In November the Society of Environmentally Responsible Facilities (SERF) presented the vertical campus with a plaque denoting its SERF certification. The Wabash building was also honored at the Urban Land Institute's (ULI) fall meeting with a ULI Global Award for Excellence.



Brenda M. Bush-Moline,

AIA, LEED BD+C, EDAC, became a principal at VOA Associates, assuming leadership of the firm's Chicago healthcare practice.



Adam Lund



John Haymaker

Perkins+Will announced

the additions of Adam Lund, AIA, LEED AP, and John Haymaker, Ph.D., LEED AP.

Lund joins the staff as a project manager. He recently served as senior associate and project manager at Farr Associates.

Haymaker joined the firm as director of research. Haymaker will oversee Perkins+Will's Innovation Incubator, the firm's practice-based knowledge centers; AREA Research, a nonprofit organization that conducts research related to the built environment for public benefit; and project-based integrated research.



Designed by FGM Architects, the new Franklin Park police station at 9451 W. Belmont Ave. is certified LEED Gold and features 36,700 square feet of space located on a brownfield site. The project replaces the original station, which the police department had deemed functionally and operationally deficient. The new station features bioswales to collect water and reduce stormwater runoff, and natural daylighting and occupancy sensors to reduce the total energy needed to illuminate the facility.

All images are courtesy of the firm, unless otherwise noted. LEED AP status is indicated only if reported by the firm.



The JGMA-designed Glass Cube at Westfield Old Orchard Mall in Skokie is a new 1,300-square-foot space for the open-air shopping center. Highly visible and featuring full glass façades, the Cube provides a distinctive destination within the mall's outdoor areas. It is currently occupied by Samsung.



Studio Gang Architects has completed

the new Midwest office of the Natural Resources Defense Council (NRDC), located in the historic Civic Opera Building. The project features reconfiguration of traditional office spaces for attorneys, with quiet areas and small-scale conference spaces spread throughout to let natural daylight in and eliminate private offices altogether. In addition to its LEED Platinum rating, the project is the first of its kind to meet the Living Building Challenge, a certification considered more rigorous than LEED.



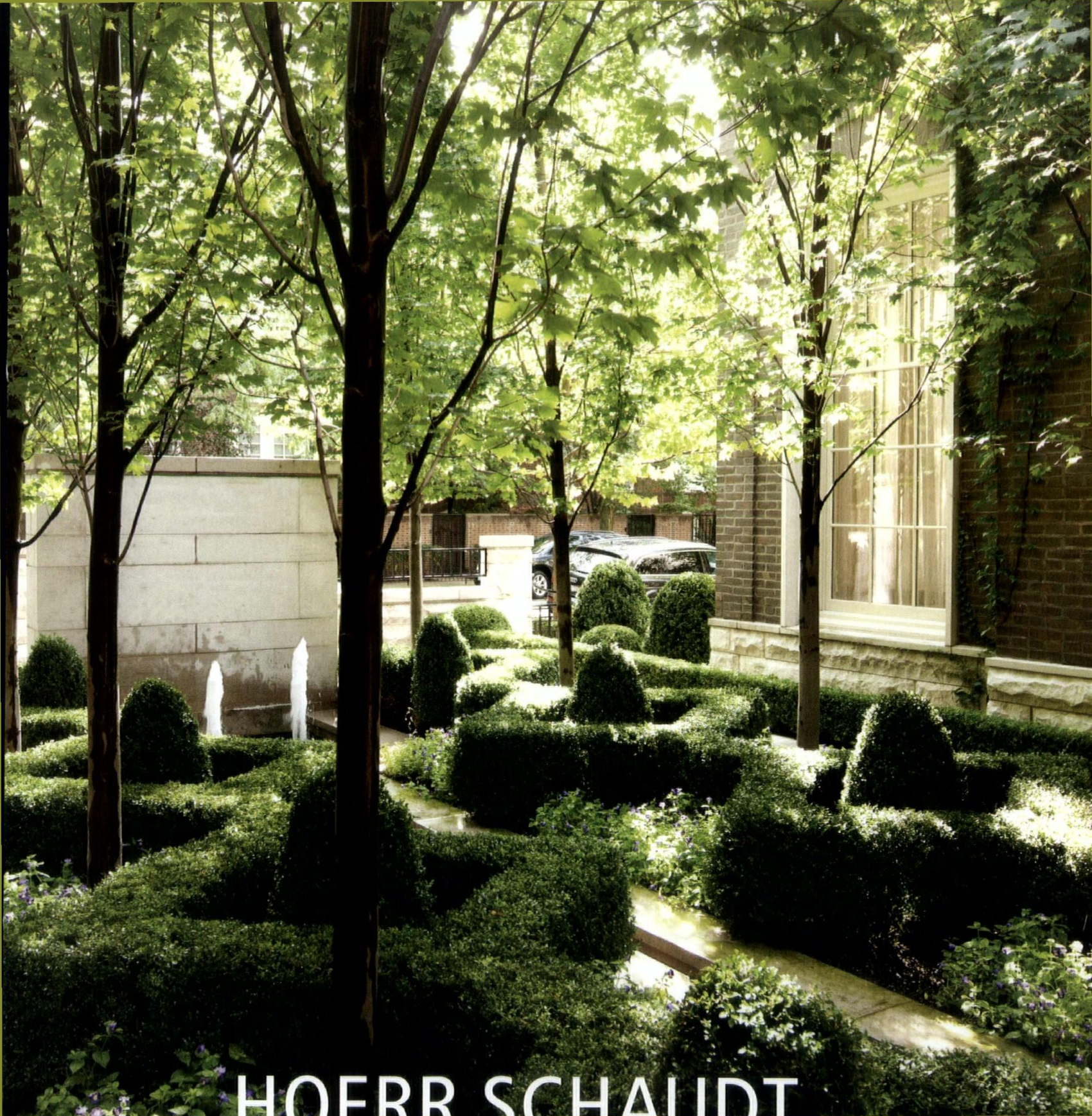
Robert Shook from the Chicago office

of Schuler Shook is the partner in charge of theatre planning for a winning project in the Gold Coast Cultural Precinct design competition in Australia. Schuler Shook partnered with Melbourne-based ARM Architecture to create a plan for revitalizing the current Arts Centre Gold Coast in Gold Coast, Australia. The design team will be designing indoor and outdoor spaces to support artistic programming in the area.



Michael Byun, IIDA, LEED AP, has joined

bKL Architecture as a director and interiors practice leader.



HOERR SCHAUDT

Everyone Wins

PUBLIC DESIGN COMPETITIONS WOULD FOSTER YOUNG ARCHITECTS AND IMPROVE THE BUILT ENVIRONMENT IN CHICAGO

By Iker Gil

What if we organized public competitions for the design of projects that utilized public funding? Would that change our expectations of a public project? Would that create a new landscape of diverse types of practices to flourish in Chicago? Would that foster a new generation of architects looking for opportunities to demonstrate their talent? And, most importantly, would we, architects and not, benefit from this?

One of the problems with most competitions available for young practitioners today is that they are ideas competitions: the winning entry is typically not a real commission, and prizes are small or non-existent. Architects, understandably, are

growing weary of participating, as the investment of money and time far exceeds the reward—for media exposure, there are easier and faster opportunities these days. However, in public competitions the winning entry would result in built work, not just an idea.

This is not a new concept. In Europe, the biennial competition Europan, for under-40 architects, has proven to be an excellent system for young architects to receive their first commission. In Spain, where I studied at the Barcelona School of Architecture (ETSAB), students and recently licensed architects are aware of any competition for public housing, civic centers, libraries or small parks in a small town—projects that

large or renowned offices might not focus on. These public projects are required by the government to start with an open design competition, and it is a perfect platform not only for testing ideas but, if successful, to see these ideas realized. Recently licensed architects and students team up, enter competitions and try to win the commission to start their practice. Even if they are not successful, they learn how to work with peers, understand deadlines, address real requirements and communicate their ideas. In short, they gain valuable experience.

Three years ago, while I was directing the architecture and urban series at the Instituto Cervantes in Chicago, we brought

Photo © Aitor Ortiz



examples of the result of these types of competitions as part of the exhibition "Young Architects of Spain," curated by Jesús Aparicio and Jesús Donaire. Featuring built work of under-40 architects, it was an impressive selection in terms of quality and diversity of scope, most of them the result of winning a public competition.

So why not apply this to Chicago? Every neighborhood, every community in Chicago has needs, and if public funding is involved, a public competition could be required. Competitions could help find the best solutions to any scale and budget, whether big or small. Even with tight requirements, people would be surprised by the possibilities of inventive thinking and use of resources. Why not use these competitions to reuse vacant school buildings, build public housing, design civic buildings or rethink underutilized public spaces or some of the city's 15,000 empty lots? These competitions could address whatever the specific needs of the city and neighborhoods are. AIA Chicago, as a recognized organization representing architects, could be very influential in advancing this effort, leading the initiative to create a system that will help these young architects to develop their careers.

The benefits of this process are multiple. Young architects get the experience of approaching a real project with a real client and needs, as well as managing a project and running a professional practice. If the concern is that younger architects do not have enough experience, the competition could require that young offices (perhaps less than 5-years-old)

have to partner with a more experienced office. To the latter, it would bring a fresh approach and a way of testing innovative ideas sometimes difficult to do with other clients. And, as the fees from younger offices are typically much lower, it could be an economic benefit.

Besides the architects, the community is the real beneficiary. With thoughtful and unique solutions tailored to specific needs, any neighborhood can improve enormously. We all appreciate experiencing something that is well-designed by someone who worked so diligently to create the best solution for the needs of our neighborhood.

Chicago's legacy of architecture has been a reference for architects all over the world. While studying in Barcelona, my history class focused on more buildings from Chicago than any other city. What if the present and future of Chicago could also become an international reference? Can we aim for (and demand) excellence in our public buildings, spaces and infrastructure? What better incentive for young architects than a real commission to come in with their best inventive ideas?

Open public competitions could be a starting point to let everybody know that Chicago is a city that expects nothing less than relevant, forward-thinking work for all to benefit and enjoy.

Iker Gil is the director of MAS Studio and the editor-in-chief of the quarterly design journal MAS Context. He is the co-director of the Chicago Expander program at Archeworks.



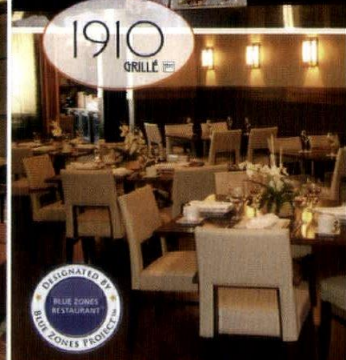
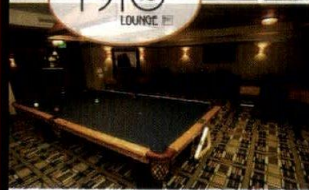
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THE NEXT

SCB'S RIVERSIDE PROJECT RACKS UP POINTS FOR GAMING FIRM

By Pamela Dittmer McKuen

FIRST OF ALL, THE NEW TECHNOLOGY CENTER FOR WMS GAMING HAD TO BE A 'WOW.'

The company competes against global tech giants for top talent to design and build slot machines.

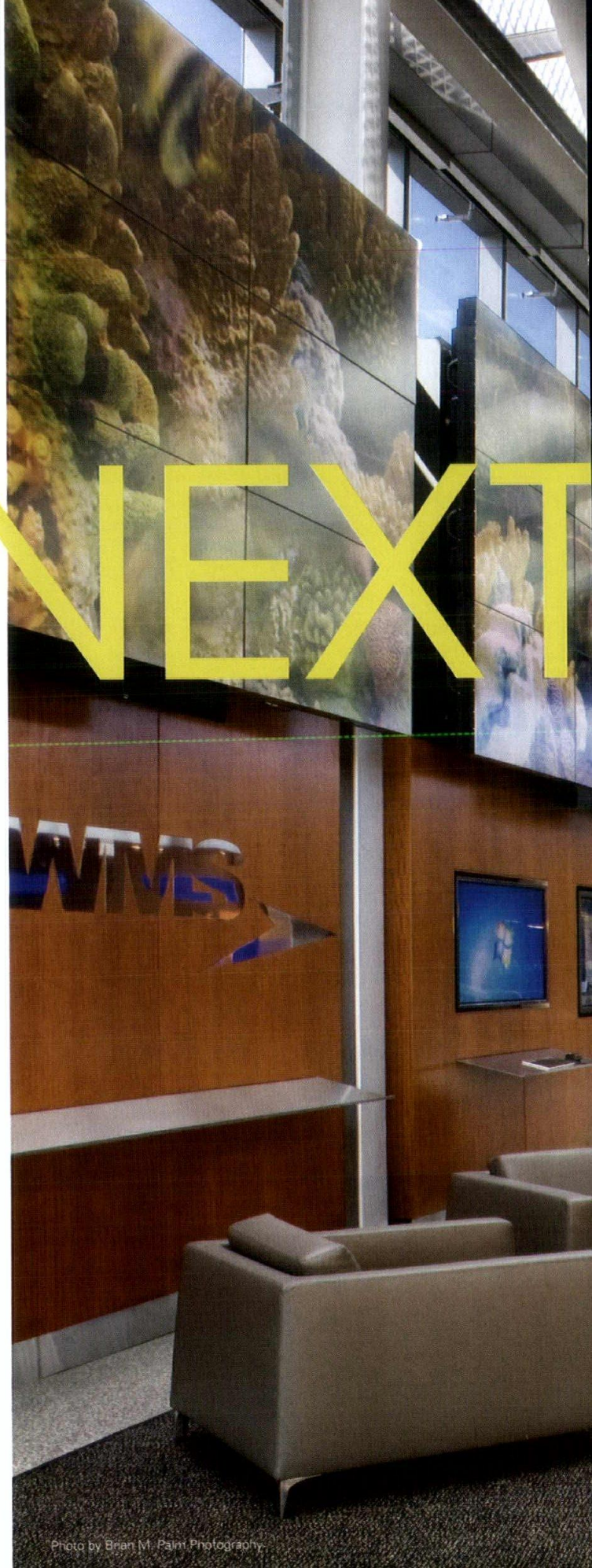
They are on the lookout for programmers, game designers, operating system and hardware

engineers, mathematicians, artists and more. To attract the people they want to work for them, rather than for the likes of Google and Yahoo, they needed an eye-popping environment and a robust amenities package, not to mention more space for the expanding company.

"Our goal was to create an environment that inspires energy, innovation and collaboration while preserving environmental resources," says Scott Schweinfurth, WMS' senior vice president, chief financial officer and treasurer.

To meet that goal, the company placed a winning bet on Solomon Cordwell Buenz.

The new five-story tower at 2718 W. Roscoe St. anchors WMS Gaming's Chicago Technology Campus of mostly one-story, vintage brick industrial buildings in the city's Avondale neighborhood. The 14-acre tech campus is where 600 employees develop gaming machines and digital gaming



LEVEL

Upon entering the front door of the WMS Gaming building, visitors find a light-filled lobby atrium and contemporary seating. Wood paneling warms modern furnishings and stainless steel accents.



content for the international casino industry. The private campus has a public complement immediately across the North Branch of the Chicago River: a striking new Chicago Park District boathouse designed by Studio Gang and funded in part by WMS. The 70-year-old company, whose earliest products were pinball and arcade machines, is headquartered in Waukegan. It was acquired in October 2013 by New York-based Scientific Games.

The exterior of the 120,000-square-foot tower is swathed in reflective glass. Above the front entrance is a canopy of folded glass reminiscent of the sharp lines of the WMS logo. The doors lead to a light-filled, two-story atrium that softens the stark contrast between the gleaming tower on one side and the industrial building on the other.

The entire first floor is designed as a community space, where employees from all over this campus and beyond are encouraged to meet and mingle. The atrium runs the full length of the building footprint. Along one long wall are the reception area, security force and cafeteria counters. Along the opposite wall is a band of seven enormous video screens in continuous, synchronized play. Within the expanse between the two are clusters of leather club chairs and winged pedestal chairs,

separated by glass and wood cocktail tables.

At the far end of the atrium is a glass-enclosed basketball court, convertible for volleyball games. And overlooking the Chicago River are a fitness center, dining room with outdoor patio, conversation areas and a game lounge equipped with pingpong and pool tables, and the latest in video game consoles. There also is a fully-wired auditorium with 120 desk seats for staging live meetings between any of the company's six U.S. and 10 international offices.

"These employees tend to work long hours and late into the evening," says Devon Patterson, principal at Solomon Cordwell Buenz and design lead on the WMS project. "They come to [this community level to] get food, take a break and relax for a while. Where they work becomes a second home to them, and we approached it almost like a luxury residential project."

About half of the campus employees work in the new building, which opened in August 2012. To mitigate any potential rivalries or hard feelings among the half who don't work in the building, steps were taken to be inclusive. Older buildings were remodeled, and the former basketball court was transformed into a yoga and Zumba studio. All employees are invited to enjoy the amenities,



Photo by Dave Burk © Hedrich Blessing 2012

2

1. Transparent panels wrap the indoor basketball court; it converts to a volleyball court when needed.

2&3: The folded canopy entrance (seen in both photos) connects the tower and an existing vintage brick building. The canopy is a stylized translation of the WMS logo. The floating roof above the fifth-floor Skyline Terrace is visible at right in photo 2.



Photo by Dave Burk © Hedrich Blessing 2012

3



1



2

wherever they are located, and to participate in programs like the annual company art show. An atrium wall serves as a gallery.

"We have a lot more special events now, just because we can," Schweinfurth says.

Moving upward through the building, floors two and three are dedicated to game development. Employees are divided into work groups called "studios," which are responsible for developing and testing new game themes. Each studio is made up of between 20 and 30 employees. At any given time a studio may be working on five to 15 different games. Collectively, the studios create about 100 new themes each year. As studio sizes expand and contract according to business needs, a raised floor design with electrical power running underneath allows workstations to easily be moved and rearranged.

The executive offices are located on the fourth floor, and the mechanical penthouse sits on the roof. That would have wrapped up the project if things had gone according to plan. But then someone noticed the fabulous, unobstructed view of the river that appears to merge into the downtown cityscape. That view just couldn't be wasted. The architects went back to work and added the fifth-floor Skyline Terrace, a dramatic indoor and outdoor rooftop space. The terrace hosts formal and informal meetings, receptions and conferences.

The outdoor terrace is appointed with a linear fireplace, flat-screen television, cushioned wood and wicker seating, and grassy plants. The floating shaded-glass roof provides a sense of enclosure as well as protection from sun and rain. The indoor terrace is encased with glass walls on three sides for year-round use.

Throughout the project, sustainability was a key consideration. WMS in 2009 had launched a commitment to "go green." The tower, its first new construction effort since then, aimed for and earned LEED Platinum certification from the U.S. Green Building Council. The rating was no small achievement in light of the significant amount of power needed to run the vast number of computers and games and to keep them temperature-controlled.

Meeting the certification requirements was an added expense, but today's workforce values companies that make the effort, Schweinfurth says.

"We had to look at everything to get the points they needed," says Patterson.

The team selected materials that would heat and condition air more effectively and minimized the need for those functions in the first place by implementing a high-performance building envelope, he says.

Among the sustainability measures that were employed:

- An underfloor air distribution system that maximizes the

Photo by Brian M. Palm Photography

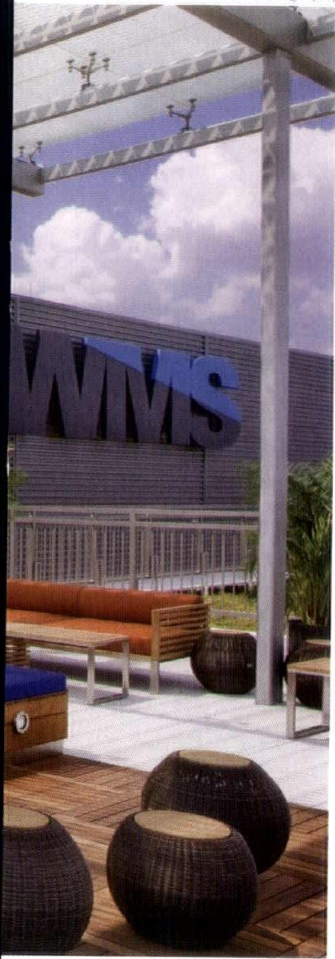


Photo by Brian M. Palm Photography



1&2: The outdoor terrace hosts both casual and formal meetings and events. Although not in the architects' original plan, the terrace was added to the design in order to capitalize on the downtown view.

3. In the lobby is a cafeteria with pedestal seating (avocado green) in conversation groupings.

4. One piece of the lobby level features flat-panel video screens for gaming and tournaments, and conversation-pit-style seating.

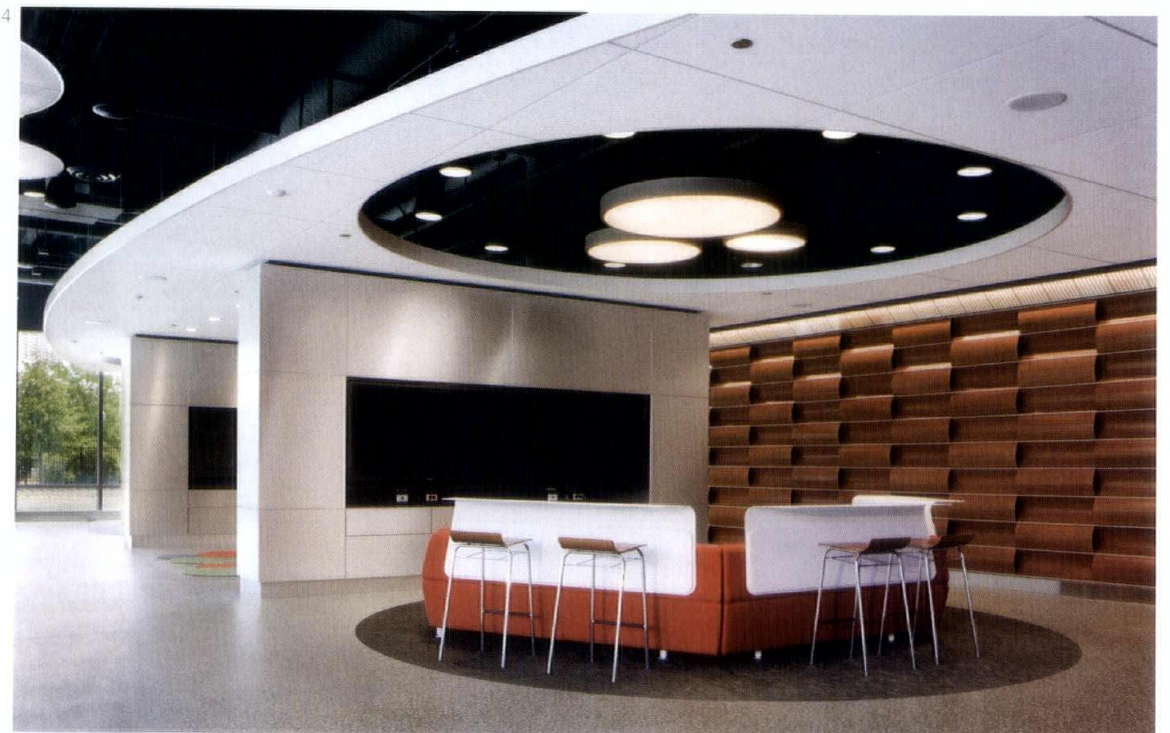


Photo by Brian M. Palm Photography



On one side of the first-floor lobby atrium, opposite the existing vintage brick building, is a large room with a glass wall that overlooks the Chicago River. The room is broken up into functions, delineated not by walls but by the different types of lighting, furniture and floor colors, as seen above. Spaces within the room include a dining area, game area and meeting areas.

ventilation's effectiveness. Air is delivered in a bottom-to-top direction, which minimizes mixing and promotes the continuous removal of contaminants away from occupants;

- A computer-controlled system that links sunlight and temperature to automatic window shades and lighting; and
- A green roof to absorb sunlight and improve insulation.

SCB also designed an innovative system that harvests rainwater to flush toilets. It works by directing runoff from the roof through drain pipes into a ground-level cistern, where it is purified and sent to the restrooms. The water is not potable, but it is suitable for flushing.

"It was challenging to get the plan through [state and city officials] because there is no provision for something like this," Patterson says. "We had to show how we were protecting the

health of the occupants. Once we did that, they were able to approve it."

From an aesthetic standpoint, the décor is simultaneously hard and soft, and bright and neutral. Brick walls contrast with stainless steel support columns. Citrus-colored upholstery fabric pops against gray carpeting and exposed black ceilings. A repeating element is the displays of wood paneling punctuated with rectangles of cobalt glass.

The designers found inspiration in the bright colors and flashing lights common to slot machines, Patterson says. "Those machines have a real beauty to them," he says. "When you look at them when they are lit up, they glow."

WMS got the 'wow' it was looking for. "The excitement hasn't worn off," Schweinfurth says. "It turned out to be everything we hoped it would be." **CA**

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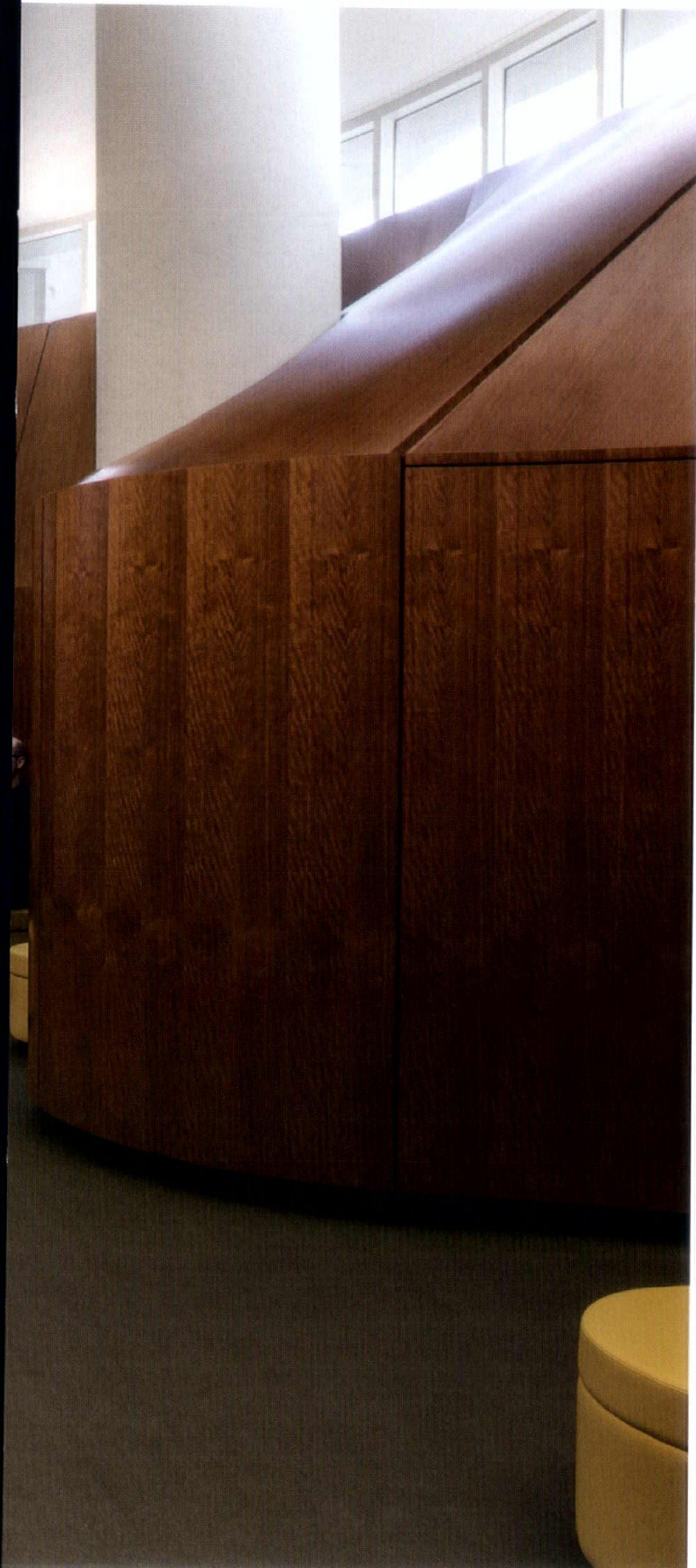
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MASSIVE HOSPITAL'S TINY CHAPEL
IS SACRED, SECULAR SPACE

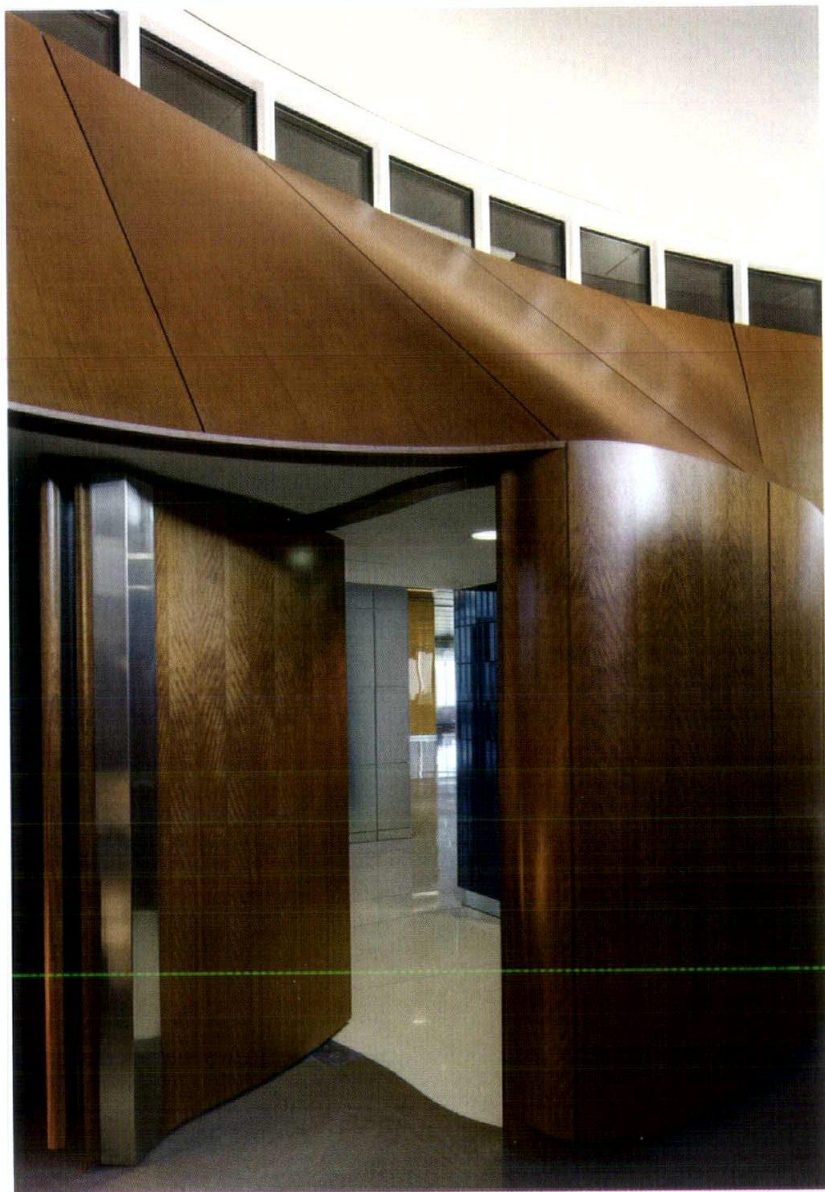
By Dennis Rodkin

WHETHER YOU SEE IT FROM A DISTANCE, DOMINATING THE HYDE PARK SKYLINE, OR WANDER ITS 10 FLOORS—EACH ABOUT THE SIZE OF THREE FOOTBALL FIELDS—THE UNIVERSITY OF CHICAGO'S 1.2 MILLION-SQUARE-FOOT CENTER FOR CARE AND DISCOVERY IMPRESSES WITH ITS GIGANTIC SCALE. Designed by Rafael Viñoly, FAIA, and opened in early 2013, the facility contains some of the latest and most complex medical technologies available.

Tucked into the seventh-floor lobby, one of the hospital's busiest and noisiest sections, is a small, secluded space whose entire purpose is to shut out all the action and all the immensity, not only of the building, but of the burden its users may be feeling.

Although it's a minuscule piece of the overall project, the hospital's chapel "may be the most important 650 square feet of the building, when you need to come in here," says Joe Cliggott, AIA, who was the Chicago-based project manager for Rafael Viñoly Architects on the hospital project. (He's now vice president and managing principal at HDR Architecture.) "Maybe a loved one is going through a procedure, or maybe you've received some bad news. This needed to be a place of solace."

Photo courtesy of Rafael Viñoly Architects, ©Tom Rossiter



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Photo courtesy of Rafael Viñoly Architects. © Tom Rossiter



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1. The door has been the cause of some consternation. When closed, it tucks into the wood so well that some visitors have struggled to find their way out.

2. The chapel is on a level that contains many visitor amenities, arrayed along the north (back) and east (right) sides of the building to capture stunning views of the skyline and lakefront. The logic of putting the almost fully enclosed chapel on the south (front) side is clear: In a space where thoughts will be focused inward, the view is of far less importance.

3. On a floor that combines many interconnected functions—visitors desk, cafeteria, doctor/patient meeting rooms and others—the chapel is the single component whose rounded form discreetly shuts out all the action.

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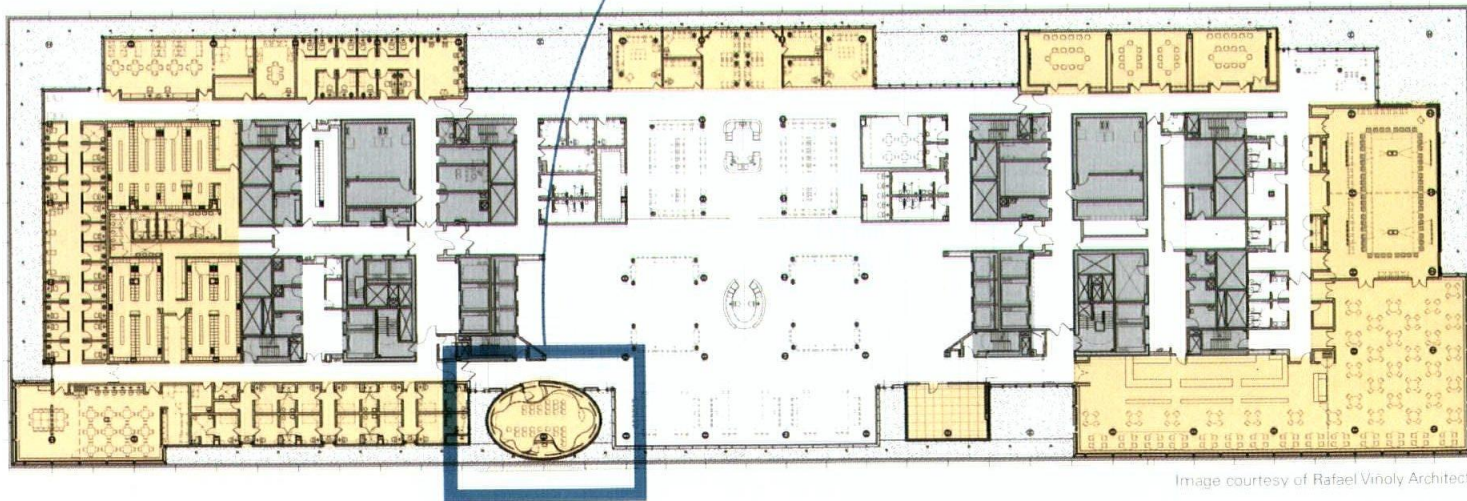


Image courtesy of Rafael Viñoly Architects

That is, solace and comfort for people of any faith, or of none, reflecting the needs of all the hospital's public. In other buildings, the university's medical center already had two religious chapels—the older one overtly Christian, the newer non-denominational but still clearly about faith, notes Marsha Sumner, manager of the spiritual care department for University of Chicago Medicine. Given that religious symbolism would make some portion of the hospital's clients uncomfortable in the very place where they went for comfort, the new one had to be "more of a meditation space than a prayer space," she says.

The meditative tone is first established by the chapel's outer wrap in blue tile, a calming color that was selected to signal a difference from the clatter of the cafeteria, the conversations at the front desk and other functions that share the seventh floor with the chapel. The lobby's 15-foot ceiling ducks down to nine feet for the chapel's entry alcove, whose cherry-paneled walls clarify the distinction from the busier areas. Push open the chapel door and step inside, and what's revealed is a curvilinear space, walled all around with cherry. Here, the ceiling rises to 15 feet again, the upper three feet of the walls replaced by a band of clerestory windows. The tall-low-tall entry sequence, borrowed from Frank Lloyd Wright, Cliggott says, and the feeling of envelopment by the curves and the wood inspire a sense of having arrived somewhere special, somewhere entirely unlike where you came from. There's no stained glass, no pews, no altar (although a portable altar is nearby in a closet), no pictures. It's a serenely simple space.

While the outer wall of the space forms a perfect ellipse, the interior curves in a few places, so that the footprint is "like an Alvar Aalto vase," as Cliggott puts it. The curves create a few separate nooks, where built-in benches give those seated a sense of privacy during what can be a very sensitive time. One enlarged curve bulges out from the elliptical baseline, creating inside it a storage room for the portable altar, extra chairs and a water source. The curves also create a dynamic canvas across which the images of the windows can move as time passes on a sunny day.

Cliggott says that while the elliptical shape and the colors of the chapel were among the first ideas settled in the design process and had changed very little along the way, making it work required effort and focus from all the players.

That included restraining the habit of placing light switches, air vents and other required mechanicals on the walls, a form of acne that would clearly have detracted from the uninterrupted surround that the architects envisioned. Supply air vents are out of sight at the top of the clerestory, and return air exits near the floor through vents that are concealed by edges of the paneling. Cliggott says there were also several junctures where he and the staff at Ebenisterie Beaubois, the Canadian millwork contractors, had to make unplanned decisions about how two curves or a curve and a straight line would meet, the object being always to sustain the seamless look.

One key sacrifice had to be made. Because the floorplan is an

Aalto-like squiggly line but the clerestory and the exterior wall that contains it are elliptical, the cherry panels had to be flexible enough to cover some uneven double curves. In the end, the walls were created in lower and upper sections. The lower ones, which generally only have to curve in one direction, are made of cherry wood with a rich, lovely grain. The upper panels, because "they have to resolve the geometry of the ellipse above and the sinuous form below, are made of a veneer that is slightly less natural than the lower panels," Cliggott explains.

The wall was fabricated at a Beaubois facility near Quebec City. Viñoly designed it with Rhino 3-D software and transmitted it to the contractor, who then used its own software to convert the design to milling plans. In effect, "the design tool became the fabrication tool," Cliggott says. "You can design anything you want using software, but the next question is, can anybody build it?" The software hookup and a close collaboration with the millworker made the envisioned fluid wall of wood come together, he says.

There is one aspect of that fluidity that didn't quite work out. Cliggott proudly describes the work on the chapel door, which is meant to disappear into the wall. It has no standard knob or grab handle; instead, the wood swells out at the door's edge and forms a rounded vertical ridge that's meant to fit comfortably into the U between someone's thumb and forefinger. "An architect looks at that and says, 'Oh, that's how you open the door,'" Cliggott says. The trouble is, most people who come to the chapel don't spot it.

"A few people have had experiences where they go in, and maybe they're anxious because their loved ones are in the hospital, and they have really struggled with not knowing how to get out of the room," Sumner says. She and Cliggott both say that the problem is compounded by the fact that because of the adjacent wall's curvature, the required exit sign doesn't really point toward the exit.

The hospital is exploring ways to mark the door without marring the door's part in the overall composition. It's something Cliggott wishes weren't necessary but acknowledges will need to be done.

One other bit of fine-tuning has little to do with the architecture, but a lot to do with the goals for the space. "You walk into this room that is completely devoid of religious symbolism, but it's called a 'chapel,'" says Sumner, who was not part of naming the space. "That's a Christian word. I'd have called it a meditation room or a prayer room."

She believes that for many visitors, the wood surroundings and daylight coming in from above create an instant, fundamental connection. "Many people find their spirituality in nature or natural things," she says. "So although there's nothing in the chapel that says anything about religion, it's a very spiritual space."

"It feels like you're in a womb," Sumner notes, approvingly, "a very safe place away from this place [the hospital] where you might not feel so safe with what's going on." **CA**

THE RAIL THING

RAIL LINES, CHICAGO
RIVER FRONTAGE DEFINE
SIDE-BY-SIDE DESIGNS

By Dennis Rodkin

AT THE MOMENT, CHICAGO HAS TWO TALL BUILDINGS GOING UP RIGHT NEXT DOOR TO ONE ANOTHER NEAR LOTS OF POSITIVES: prime Chicago River frontage, the Wacker Drive employment base, West Loop hot spots and commuter train stations. But just as the neighbors share in the magnetism of their location, they also share a defining site limitation: active rail lines that run right through the two parcels and have to be accommodated by vaulting the buildings, or parts of them, up over the tracks.

And while they look nothing like one another, the designs of the two projects—River Point at 444 Lake St., at the Y where the Chicago River's main branch splits into its north and south branches; and 150 N. Riverside, southeast of and immediately across the Lake Street El tracks from River Point—both grew directly out of that limitation.



Image courtesy of Goettsch Partners



Rail tracks that traverse the sites influenced design of both buildings—150 N. Riverside at left and River Point at right. A key difference is that at 150 N. Riverside, the tracks are behind the building's footprint; at River Point, they're in front.

Image courtesy of Neoscape

Because the tracks are near the river edge on River Point's site, roofing over the needed tunnel with park space became not only a pragmatic choice, but one that promises to be a focal point at the intersection of the river's three branches.



Image courtesy of Neoscape



Image courtesy of Goettsch Partners

The distinctive tuning fork shape of 150 N. Riverside was dictated by the narrowness of the slot available between the river and the rail tracks (which are concealed beneath landscaping in front of the red brick building).

"This is not making forms just for the sake of making forms; we're both making forms that have been derived through some of the constraints," says Anthony Markese, AIA, design principal at Pickard Chilton, the New Haven, Conn., firm that designed River Point. Speaking of his firm's project and the one next door, a design by Goettsch Partners, Markese, who grew up in Chicago, says, "a big part of the task had to do with coming up with an interesting solution from an engineering standpoint to get a great building onto those great sites."

The two adjacent sites are just different enough that the same solution couldn't work for both: The rail tracks are essentially the western edge of 150 N. Riverside's site and the eastern, water-hugging edge of River Point's. And while the tracks are straight north-south where 150 N. Riverside is being built, they curve in a northwesterly direction on River Point's land. The ways their design teams have responded to these conditions have led to two striking—and strikingly different—plans.

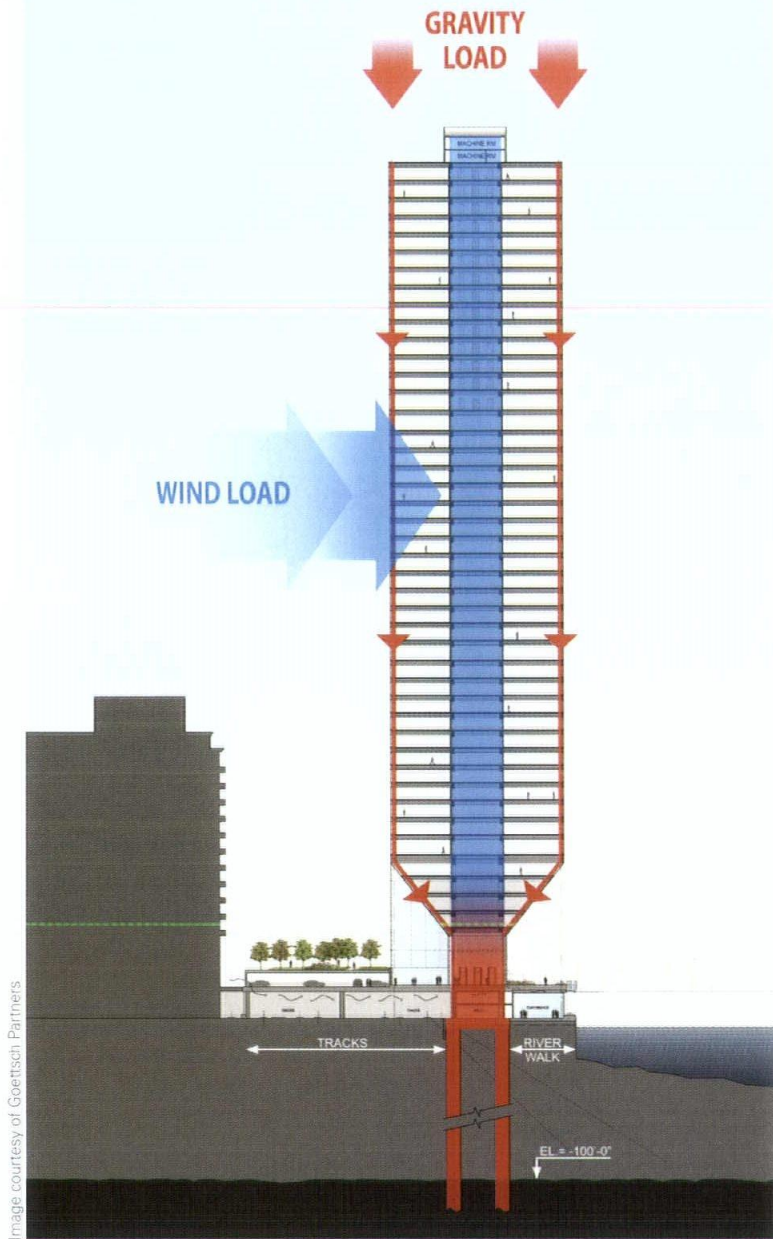
On the River Point site, the bend in the tracks dictated a curved line of structural columns for the building's east, river-facing façade. Rather than use that curve as the hypotenuse of a right angle, which would echo the lot's shape, the architects paired the curve with another, to create a football or fish shape. The curved wall, 45 stories high, then gets its complements in arching cutouts at the

top and the base of the building.

Meanwhile, on the next block south, the track layout left little room for columns, so the architects devised a structure that will make 150 N. Riverside appear to be standing on one foot. From the ninth floor up, the building will have 28,000-square-foot plates, but below nine, the building tapers as if needing to stuff itself into a slot in the ground. Which in fact is pretty much what it's doing.

The design puts a wide body atop a slender foot by breaking from the norm of having a concrete core that takes the wind load and a steel perimeter that takes much of the gravity load, as James Goettsch, FAIA, the firm's chairman, CEO and design director, explains. "All the load that is usually carried to the ground by the steel perimeter is [instead] diverted into the concrete core," he says.

"It's an unconventional way to do a conventional building," Goettsch says. It's not the first time the firm has used this device; a project in Abu Dhabi uses it, though for a different reason. There, the goal was to create a shade canopy as protection from that city's blistering heat. Before that, Goettsch proposed a similar design for 111 S. Wacker as a way to reuse the site's existing caissons. Then 9/11 happened, and the design looked to the clients as if it would be more prone to blast damage than a more conventional structure would, Goettsch recalls.



This diagram of 150 N. Riverside shows how the gravity load transfers into the vertical member that also receives the wind load.

enough for trains to pass beneath.) Markese sees that height as one part obstacle, three parts blessing.

It's an obstacle because the park level can't meet the sidewalk. Pedestrians will access the plaza via stairs, ramps, escalators or elevators, depending on which side they're entering. "We've tried to make the transition as graceful as possible," Markese says.

It's a blessing because once they get up to the plaza, visitors will find they've arrived at "this amazing elevated perch," as Markese describes it, "with a view all the way east down the river." A second, lower level will provide space to walk along the riverfront.

At 150 N. Riverside, the Goettsch Partners project for developer O'Donnell Investment Co., the heights are a little different and will let much of the outdoor space meet the sidewalk. Where it doesn't, the current renderings of the landscape plan by Wolff Landscape Architecture depict a lawn that slopes up from the sidewalk to the greenery that conceals the rail tunnel. Goettsch says the aim was to have a 'seamless' connection between the surrounding grid and the site. He notes that the building only touches 25 percent of the site; the other 75 percent is outdoor space. A concentric series of steps down creates a small amphitheater that looks over the river. A sheer wall of glass on the west (non-river) side of the building just barely encloses a lobby, giving the impression that the landscape and the street life flow right in.

The siting of the two buildings—River Point on the west portion, 150 N. Riverside on the east—dictated as it was by the placement of the tracks, turned out to make each building a good neighbor for the other. Because they don't line up next to one another but are staggered, River Point retains its views south, and 150 N. Riverside its north. That works out well for tenant leasing, but it's also good for people who may never enter either building. Pedestrians and brown-baggers out roaming at lunchtime will be able to roam around and through both sites as if they're one enlarged parcel. Markese adds that the staggered layout "will prevent the sense of having a sheer vertical wall of buildings lined up against the river, enclosing the canyon."

Together with the multi-building Wolf Point project a short distance away, 150 N. Riverside and River Point help fill in Chicago's other coastline, its riverfront. Goettsch notes his own puzzlement about how two such gifted sites could have been left undeveloped beyond surface parking and train tracks for so long, with the West Loop's growth in the past few decades as an employment center.

Markese, too, sees the projects as closing important gaps along the river, but he also sees them joining distinguished company, particularly the great green glass curve of 333 S. Wacker. Standing almost directly across the river from that icon, the River Point building subtly echoes its curve, Markese notes. He likes to think of the two as paired halves of a gateway "that opens the western end of the city's river." **CA**

After they resolved the issues of structural columns and the buildings they would shape, the architects of both projects found another issue on the table: how to treat the broad tabletop or pedestal that was created by covering the rail tracks with a tunnel. The solution was kind of obvious given the relative lack of green space in the western part of the Loop: Big, bold outdoor plazas will cover most of the tunnel's roof.

At River Point, the tunnel will be topped with a 1.5-acre park, and city money will cover \$29 million of the \$59 million cost of building them. The other \$30 million comes from the developers, a limited liability company that is a joint venture of real estate firm Ivanhoe Cambridge, the development firm Hines and Chicago businessman Larry Levy, who co-owns the land.

The required building height above the rail tracks combined with the additional height needed to accommodate the hefty 150-foot-long beams that support the tunnel's roof put the majority of the park land at a level that is several feet above the sidewalk. (The sidewalks here are already well above the ground level, high

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The Rainscreen Approach To A Better Building Envelope

By Bradley T. Charmichael, PE

LEARNING OBJECTIVES

After reading this article, you should be able to:

- > Identify conditions that lead to water infiltration, as well as the forces by which water moves into buildings, so as to develop a comprehensive water management strategy that protects the building and enhances indoor environmental quality (IEQ) for occupants.
- > Evaluate the effectiveness of various rain control methods, including mass walls, perfect barriers and masonry veneers, and apply the rainscreen approach to enhance the performance and durability of the building envelope for improved IEQ and occupant health and welfare.
- > Explain how the multiple elements of a rainscreen wall system work in concert to manage moisture and extend the lifespan of building materials, while identifying potential sources of error and premature deterioration that must be dealt with to prevent degradation of IEQ and occupant/visitor health and welfare.
- > Explore the environmental and health implications of catastrophic exterior wall failure, using the examples of the Pacific Northwest condominium debacle, the failure of early EIFS cladding and the subsequent improvement of EIFS systems.

It is often our quest for perfection that breeds our most glaring failures. We have sown wisdom and humility from the failed constructions of the past, but we are still learning to build new cities that endure amid the stone shadows of our ancestors. To last indefinitely beyond the reaches of rust and erosion would require diamonds, and reality teaches that permanence simply can't be achieved at the scale of our aspirations.

Accepting this fact—that we, and so too our buildings, are necessarily imperfect—is the humble origin of rainscreen design.

This can be a hard truth to face, as admitting imperfection involves incorporating redundancy into our designs. Exterior walls must then become not perfect barriers shielding us from the onslaught of nature, but rather multifaceted systems that refine and process natural forces.

At first glance, such measures may appear costly and cumbersome. The added bulk and limitation, however, may ultimately allow us to build our elegant cities not as fleeting experiments serving our immediate needs, but as gemstones set into our built environment for ages to come. In this light, let's explore the basic concepts behind rainscreen design to further understand how this approach may help bolster the durability and longevity of our buildings.

MOISTURE INGRESS AND HYDRODYNAMICS

Our relationship with water has always been enigmatic. It creates us, nurtures us, cleans us, comforts us and destroys us. We walk through the rain with little question of harm, yet a constant drip can

bore holes through stone and steel. Since water has been responsible for untold levels of damage and destruction to buildings, it is in furthering our understanding of it that we hope to better protect our buildings.

The climate in which a building is constructed will often dictate the extent of moisture protection necessary to the design. Humidity and precipitation data provide key indicators of the cumulative moisture to which a building will be exposed during storm events and over time, but beyond this, climatic factors such as prevailing wind directions, airborne salinity in coastal regions, the balance of wetting periods to drying periods and the balance of freezing periods to thawing periods are important additional considerations when establishing the required level of moisture protection.

There are many ways for water to wreak havoc beyond the outer building skin. Leaks through building façades via cracks, gaps and holes generally offer the first easy avenue for water infiltration. These entry points are more apparent and easier to control than some of the more subtle, yet still damaging, pathways.

Much smaller cracks, holes and pores in building materials can also effectively move water into the building through a phenomenon called *capillary action*. This occurs when the surface tension of the water reacts with the surface of the surrounding walls of a material opening, in small diameters, to draw itself up against the forces of gravity. This happens naturally in porous construction materials, such as wood, brick and concrete, but it can occur

through minute openings in nonporous construction materials as well.

Water will also find its way into wall assemblies in vapor form. This happens when moisture-laden air passes through an air-permeable wall assembly, and vapor condenses on surfaces within the wall. Water vapor infiltration commonly occurs when moist air is driven into the wall from the outside, or when air from humid building interiors migrates into the wall assembly.

The forces that drive moisture into a wall are varied and may include any combination of gravity, kinetic energy from wind, pressure differentials across the wall assembly and even temperature differentials causing inward solar vapor drive. Because these forces interact in complex ways, moisture control demands more than simply plugging all of the visible gaps and cracks in the wall. It was not until the building industry understood and accepted this principle that the notion of abandoning the perfect barrier in favor of a multi-layered approach first began to take hold.

MOISTURE CONTROL STRATEGIES

For all their variation in color, texture and style, most buildings rely on a surprisingly limited set of strategies for keeping water out. Let's look at several of the primary strategies that have been widely implemented for controlling moisture and preventing leaks.

Our earliest buildings were constructed long before the advent of waterproofing membranes, and yet many of the water-protection methods used then are still used today. The predominant strategy used in historic construction, and still in use today, relies on the *mass of the wall material* itself for moisture management. This strategy is commonly employed with solid concrete, stone, brick and other types of masonry. Provided the wall has sufficient mass to absorb and store moisture during periods of wetting until it can eventually evaporate during periods of drying, the risk of leaks can be greatly mitigated. One reason this method has been so common throughout history is that the mass of the wall was also required for the structural support of the building, something that is less of a consideration today.

As construction technologies progressed through modern times, the need for

massive walls declined, and slimmer and more easily constructed wall types became more prevalent.

Many of these newer wall systems rely on a waterproof cladding surface and impervious sealed joints to eliminate water entry points. In practice, such assemblies rarely achieve a perfect barrier, not only because complexities of the systems make absolute water tightness difficult, but also because the forces of nature and aging lead to eventual degradation and failure of components. This approach to controlling moisture in walls tends to be cheaper to install than other system types, but the cost of ongoing maintenance, damage repair and eventual replacement can be considerable.

Another approach that has been widely used in lighter wall construction involves a *masonry veneer* with a cavity between the exterior and interior surfaces, for the purpose of drainage and ventilation. Lacking the storage capacity of their solid-mass counterparts, masonry veneers are designed on the principle that moisture penetrating the outer layer will dry or drain, via gravity, back to the exterior through weep holes at the bottom of the cavity. However, the space between the inner and outer layers must be large enough to avoid capillary action.

Building upon the cavity wall concept of earlier masonry veneers, the rainscreen approach operates on the assumption that water will inevitably find a way into the wall, and so provides multiple, redundant provisions for controlling water infiltration into the building. Like masonry veneers, rainscreens incorporate a secondary drainage plane behind the cladding to dissipate moisture through the combined action of gravity and evaporation. What distinguishes rainscreen wall systems is the addition of elements that further mitigate moisture ingress by restricting air movement and balancing pressures across the wall assembly.

When properly designed and detailed, exterior walls incorporating rainscreen principles can effectively protect the wall from moisture damage, even in climates prone to significant rainfall. This is because the rainscreen approach doesn't depend on any one element to provide perfect waterproofing protection, but instead relies on the combined effect of a multi-component strategy.

ANATOMY OF A RAINSCREEN

In its most elemental form, the rainscreen approach incorporates six basic functions into the design: the *cladding*, a *cavity*, one or more *thermal layers*, an *air barrier*, a *moisture barrier* and the *supporting wall*. In some instances a vapor barrier is also included, but that is largely dependent on the particular façade design and conditions. The applications of this approach are diverse, from walls constructed of individual elements each serving a different function, to prefabricated wall cladding systems with components that serve multiple functions, to windows and curtain wall units that perform most or all functions.

Cladding. The exterior cladding is the visible surface of the wall assembly and the basic water-shedding layer. As the outermost portion of the façade, the cladding is exposed directly to the elements, and so must be designed to withstand long-term weathering. To minimize the amount of moisture that passes into the wall system, the cladding must also shed the majority of water it encounters. The rainscreen approach to cladding is unique in that this initial barrier does not necessarily need to be perfectly watertight. In fact, incorporating open joints and vents into the outer layer is often necessary for ventilation and drying of the cavity behind the cladding, as well as for balancing the pressure across the cladding surface.

Cavity. The cavity behind the cladding serves as a means to reduce the impact of moisture that passes beyond the outer layer of the wall assembly. The cavity drains incidental moisture via gravity to through-wall flashings, dries the wall assembly through ventilation and breaks the surface tension of water to stop capillary action. The cavity does take up valuable real estate within the space of the wall, but in return it adds considerably to the longevity of the wall assembly.

In some instances, cavity volumes are compartmentalized and vented to balance pressures across the cladding, minimizing forces driving moisture into the wall. This approach toward achieving a *pressure-equalized rainscreen* (PER) has been shown to improve the performance of cladding and curtain wall assemblies, as well as to reduce the level of sustained wind loading on certain

FIGURE 1. Typical rainscreen configuration

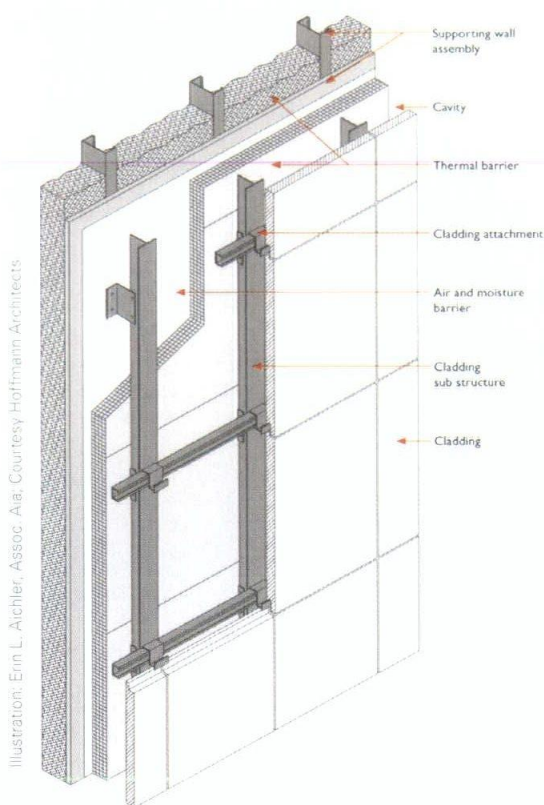


Illustration: Enn L. Achler, Assoc. AIA, Courtesy Hoffmann Architects

components within the assembly. In practice, the challenge to quantifying the benefits of PERs is that the real-world nature of wind-driven forces is dynamic and often unpredictable on the scale required for compartmentalization.

Thermal layer. Historically, insulation was afforded by the mass of the wall itself and wasn't considered as a distinct element. Eventually, as separate insulation was used in lighter wall assemblies, it would be placed on the interior side or between the wall studs. Contemporary exterior wall designs—and the energy codes that now govern them—generally position continuous insulation outboard of the wall studs, in addition to insulation between the stud framing, so as to provide a more efficient thermal layer. As a result, insulation is often placed within the cavity behind the cladding, or in some instances within the cladding itself.

The prevalence and placement of exterior wall insulation has also increased the exposure and resultant material requirements of that insulation, as we are now positioning it in a much more demanding environment.

Properties such as moisture resistance, UV stability, dimensional stability, combustibility, permeability and density are becoming more and more crucial in how we select the insulating products that we use in our walls.

Air barrier. The purpose of the air barrier layer is to prevent air, often laden with moisture, from migrating across the wall assembly and causing moisture-related damage to the materials within. Preventing air leaks is a complicated endeavor, as it requires a continuous envelope around the building to perform effectively. This means sealing penetrations and gaps, and tying into different assemblies in an airtight manner. Additionally, since the air barrier is commonly concealed within the wall assembly, it needs to be durable enough to withstand forces such as wind and building movement, and to last for a very long time.

The standard test procedure for an air barrier material is ASTM E2178 "Standard Test Method for Air Permeance of Building Materials." Air barriers by definition require an air permeance of less than 0.004 cfm/sf measured at a pressure of 1.57 psf. In practice, a wide variety of construction materials are used as air barriers, often serving other functions within the wall assembly as well.

Moisture barrier. Behind the cladding, cavity and other components lies the moisture barrier. The moisture barrier provides a continuous secondary layer of waterproofing protection across the building façade. This layer is the redundancy that prevents the further ingress of incidental moisture that passes beyond the cladding and cavity. Moisture barriers work in conjunction with the cavity and through-wall flashings to direct incidental moisture to the building exterior.

Supporting wall. The foremost function of the wall is to stand up. Whether through backup masonry, studs and sheathing, curtain wall mullions or other means, support is essential to all walls and provides the backbone for the assembly, which can hardly be overlooked.

Mounting the cladding to the supporting wall presents challenges for rainscreen construction and so requires careful attention to detail, as it is one of the most critical design elements of the assembly. Because support anchors often penetrate the layers of the wall system, from the cladding through to

the supporting wall, there is potential for problems to arise. The constraints are many: The mounting has to have enough integrity to support the cladding, but the size of the anchorage elements cannot be so great as to compromise thermal resistance across the insulation layer or to obstruct drainage and venting. Where fasteners penetrate the air and moisture barriers, the attachment to the support structure has to have an extremely light touch. Additionally, the cavity behind the cladding is intended to get wet, so the mounting for the cladding needs to be moisture resistant.

All of these challenges can be resolved, but it takes careful planning and coordination in the wall assembly design to prevent the mounting of the cladding from becoming a source for future problems.

RAINSCREEN DESIGN: CONTINUOUS IMPROVEMENT, GROWING USE

Over the past few decades, the application of rainscreen design principles has become more widespread in North America, with success in both new construction and rehabilitation. The principles are incorporated into most high-performance façade designs today, and continue to see growing use as the benefits of rainscreen design become more demonstrable over time.

To many, the value in this approach may already be evident: that it is pragmatic to build contingency into our designs. At the same time, façade design over the past century has tended to push aside conservative traditions in wall construction in pursuit of slenderness and construction efficiency in a seemingly limitless and dramatic fashion. Once viewed as inefficient, redundancy is now explicitly incorporated into our most efficient wall assembly designs. This is a fairly radical shift in discourse, and it is due in part to a humble acknowledgment of the difficulty of achieving a perfect outer layer to our buildings.

Ironically, it is through the maxim "perfect is the enemy of good," and the design imperatives this truism imposes, that we may hope to pursue bold designs that last not just for our needs now, but for ages to come. Perhaps the rainscreen approach will be the tool that allows our design aspirations to take a humble, imperfect step further in our perpetual quest for perfection. **CA**

Photo by Malt Wagner



A Chicago Studio student explaining his project to 46th Ward Alderman James Cappleman.

solving as it is about thoughtful alternative generating. Problem solving alone is too often focused on a single response, rather than exploring alternative design scenarios for the best environmental condition."

In advance of their fifth-year thesis project, fourth-year students are encouraged to apply to programs that provide an alternate curriculum and setting for a semester. There are programs in Washington D.C./Alexandria, Va., and Europe, as well as individual internships. Over the last decade, Chicago Studio has evolved into a popular option.

The studio benefits from "wide-ranging support from Chicago's architectural community," says associate professor Kathryn Albright, AIA, who created Chicago Studio in 2002. "The students' design approach is broadened by having their projects reviewed through the eyes of practicing architects."

In the beginning, students split their time between Blacksburg and Chicago. In recent years, Chicago Studio director Andrew Balster has expanded the program to be a full semester in Chicago for 16 students. The students are divided into teams of two to five, which can contain a mix of architecture, interior design, landscape architecture and urban planning majors. As will happen throughout their careers, the students must learn to develop projects in conjunction with people from other disciplines.

Supporting this process is a network of practicing architects in Chicago. Students are based in host firm offices—currently Cannon Design, Skidmore Owings & Merrill, GREC Architects and Von Weise Associates—where they can receive daily support for their projects. In addition, other Chicago

Study Abroad Shoulders

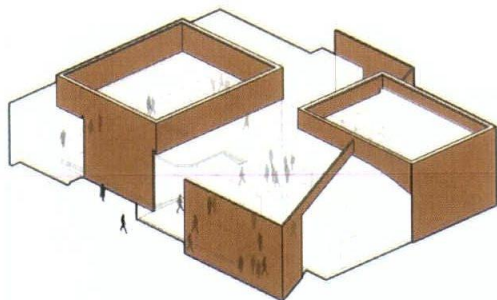
HOW VIRGINIA TECH'S CHICAGO STUDIO ENHANCES ITS ARCHITECTURE STUDENTS' EDUCATION

By Carl D'Silva, FAIA

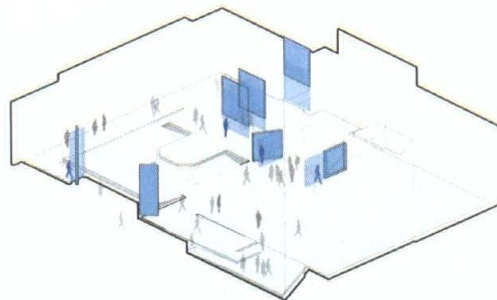
Steeped in a strong foundation of modernist thinking, Virginia Tech's School of Architecture + Design has had a well-decorated history of preparing students to meet the challenges of their future careers. Situated amongst the picturesque mountains of southwest Virginia, Blacksburg offers a quiet and rural environment for aspiring

architects to work toward their five-year Bachelor of Architecture degree. One of the college's underlying educational philosophies is to challenge the students to not just "find the answer" but to also help define the questions and problems that require solving. As current Dean Jack Davis, FAIA, phrases it, "architecture is not so much about problem

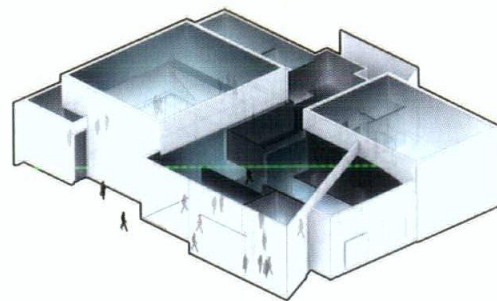
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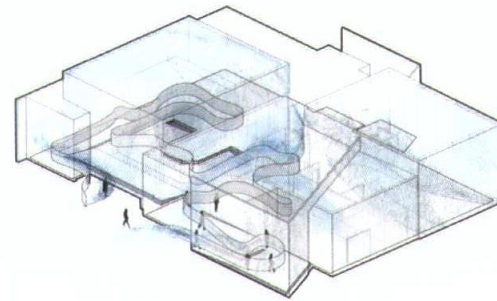
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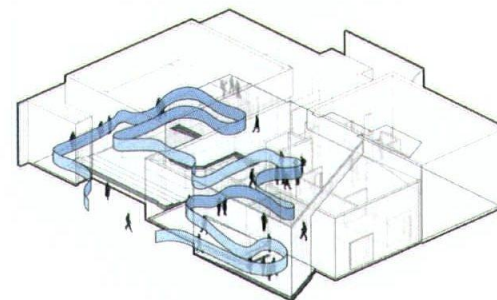
LIGHT



SOUND



PROCESSION



These isometric extractions of a community theater adaptive reuse project were part of a Chicago Studio project.

Image courtesy of Virginia Tech Chicago Studio

architects offer their individual time as project reviewers, mentors, lecturers and case study presenters. The curriculum has now expanded beyond studio design projects for students to learning the latest building/materials technology, pro practice experience and effective time management in a professional environment.

Recent projects have focused on redevelopment potential in the Uptown and Chinatown neighborhoods. Balster has actively recruited the mayor's office, local aldermen, developers and community activists to help create project design briefs, which are often based around the actual needs and current planning efforts of these communities. Those stakeholders also provide feedback during the semester, creating an interactive platform that benefits all parties involved. The students' studio projects start to address many of the developmental, financial and political issues they will encounter in their future professional lives. The aldermen and developers get a chance to see how various redevelopment options, with a strong focus on design, could be realized in their wards. And the professional architecture community participates in developing the next generation of designers, who will soon become some of their peers.

For the last month of the semester, the students' professional experience shifts into a brief internship at the host firm. Sometimes this internship can be an extension of the studio project, when it ties into current office projects. Other times it can be a completely different workload, working with a project team for

an upcoming deadline.

While the program's schedule and workload is more intense than some students had anticipated, many have commented afterward that it was a significant benefit toward how they approached their thesis projects during the following year.

"Chicago Studio introduced a critical approach toward making fast-paced design choices," says 2013 student Greg Catron. "The need to confidently progress in a project gave stamina to the process of exploration, and the rigor expected in Chicago easily reinforced the scope and drive of investigation in my thesis."

In the future, Balster hopes to expand the program into other prime redevelopment neighborhoods around Chicago while maintaining the existing relationships with the Uptown and Chinatown communities. The intent is to establish continuity within the program where the work of students one semester can be used as a foundation for those who follow in subsequent semesters. He believes "the program inspires students with the confidence that they can better our world through design. We help them build the skills to do so, expose them to the tremendous opportunity in our profession and connect them to real stakeholders. The curriculum is designed to test ideas for bettering Chicago's future. With committed professional and local community support, we believe the students' growth is ultimately a service to society." **CA**

Carl D'Silva, FAIA, is a vice president and principal architect at JAHN Architecture, an alumnus of Virginia Tech and an active contributor to Chicago Studio.

Photo courtesy of Robin Carlson, Chicago Botanic Garden



The green roof on the Daniel F. and Ada L. Rice Plant Conservation Center at the Chicago Botanic Garden features several viewing platforms where visitors can learn about what they're seeing and how the roof functions.

Beauty and brains

"What we're seeing currently is more of a public-use potential for green roofs," says Joe King, AIA, LEED AP, principal in Booth Hansen's San Francisco office. King adds that there's also "kind of a psychological factor of bringing a bit of nature or a sense of greenery into the space."

The green roof on the Daniel F. and Ada L. Rice Plant Conservation Center at the Chicago Botanic Garden is one example. Completed in 2009, the roof was the product of Washington, D.C.-based landscape architect Oehme, van Sweden & Associates (OvS); the Plant Conservation Center itself was designed by Booth Hansen.

The green roof's role at the garden is twofold: While it is undeniably an attraction for visitors, the garden also uses it as a space for scientific study. The roof's north and south sections encompass a total of 16,000 square feet. Researchers at the garden are using it as a sort-of proving ground for different plant types, determining what can be most effective in future green roofs. Garden researchers also welcome high school and college students from around the Chicago area on an almost daily basis, including students in Northwestern University's Plant Biology and Conservation program.

Creating the roof was a group effort, according to Mann. The Chicago Botanic Garden worked with OvS and manufacturer Sika Sarnafil to determine what media would be used. "It ended up really being a combination of all types of green roofs," Mann says.

The project has been the recipient of

View From the Top

SOME GREEN ROOF PROJECTS EMPHASIZE PRACTICAL USES OF THE SPACE

By Jeff Zagoudis

One could argue that green roofs represent a bit of a shift in thinking when it comes to architecture—one that says sometimes, it's better to work from the top-down. These rooftop gardens act as living laboratories for all manner of new ideas—including what goes into a green roof and what they're used for.

"Zoning ordinances are starting to incentivize green roofs, which has led more

building owners to look into them," explains Booth Hansen's David Mann, AIA, LEED AP, about the growth of green roofs, particularly in the Chicago area. With this boom, architects and scientists are using each new attempt to learn more about how green roofs can impact a building and the city where it resides.

Two projects in particular are leading the charge for discovery.

numerous awards, including a 2012 Award of Excellence from Green Roofs for Healthy Cities.

Across the building's entire roof structure, the soil is 16 inches deep. The Botanic Garden, however, wanted to see how different soil depths would affect plant growth. So Booth Hansen used foam blocks in some places to fill in the gaps up to 4 or 8 inches below the surface. In all, the two sections of roof hold more than 300 different groups of plants. The roof also has an irrigation system, although it has only been activated twice since installation.

Keeping all of this in good condition can be difficult if not given proper consideration. "There's always the fear by the clients that something will happen and you'll have to pull up the whole green roof," says Mann. That's why the design team installed an electric mat beneath the roof assembly; when there's a leak, the electricity will help maintenance workers pinpoint the exact spot of the leak,

saving the time and hassle of digging up the whole roof.

A glimpse of the future?

In the five years since the Chicago Botanic Garden debuted its green roof, the concept has continued to be refined and expanded, as firms experiment with building and plant types, locations and other factors.

One recent example is CatalystSF, a design by Booth Hansen's San Francisco office for the 2013 Architecture@Zero design competition. The annual net-zero energy design contest challenges architects to come up with the most creative net-zero buildings they can imagine, within a specific footprint. For the 2013 event, entrants had to design a 150-unit mixed-use apartment building with a full grocery store on the ground level.

Booth Hansen's design—which received a Merit Award, the competition's highest

honor—featured two green roofs. The two areas serve very different functions though, according to King.

The lower green roof, situated on the second floor terrace directly above the grocery store, was imagined as an urban garden that could be shared by building tenants and the grocery store. In King's mind, the two groups could even work together, supplementing the grocery store while providing job training and education for the low-income neighborhood the building serves.

The other green roof in the design is located on the eighth floor terrace, adjacent to an exercise room. It's "definitely more of a building resident amenity space," according to King, a place where residents can go and relax and enjoy the outdoors.

"It goes back to making an amenity out of that space," King says. Indeed, "it's like having a private park in the middle of the city." CA

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BD+C university offers architects, engineers, contractors and building owners/developers who specialize in the commercial, industrial, and institutional markets a convenient education platform. The site offers access to a variety of educational components such as:

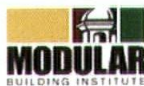
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Photo by Brian M. Palm Photography



Photo courtesy of Rafael Viñoly Architects, © Tom Rossiter



Image courtesy of Neospace



Image courtesy of Goettsch Partners

THE NEXT LEVEL

- (Page 24)
- Architect:** Solomon Cordwell Buenz
- Client:** WMS Gaming
- Structural Engineer:** Halcrow Yolles
- Mechanical Engineer:** Environmental Systems Design
- Lighting Consultant:** Benya Lighting Design
- Landscape Architect:** Wolff Landscape Architecture
- Furniture Consultant:** Archideas
- Woodworker:** Imperial Woodworking Company

A SEPARATE PEACE

- (Page 32)
- Architect:** Rafael Viñoly Architects
- Client:** University of Chicago Medicine
- General Contractor:** Gilbane/W.E. O'Neil (Joint Venture)
- Structural Engineer:** Thornton Tomasetti
- MEP/FP Engineer:** Affiliated Engineers/Primera
- Millworker:** Ebenisterie Beaubois

THE RAIL THING

- (Page 36)
- RIVER POINT**
- Architect:** Pickard Chilton
- Architect of Record:** Kendall/Heaton Associates Inc.
- Contractor:** Clark Construction Group

150 N RIVERSIDE

- Architect:** Goettsch Partners
- Owner/Developer:** O'Donnell Investment Co.
- General Contractor:** Clark Construction Group
- Structural Engineer:** Magnusson Klemencic Associates
- MEP/FP Engineer:** Cosentini Associates
- Lighting Consultant:** One Lux Studio
- Landscape Architect:** Wolff Landscape Architecture
- Elevator Consultant:** Jenkins & Huntington
- Civil Engineer:** Epstein
- Acoustics Consultant:** Shiner+Associates
- Traffic Consultant:** KLOA
- LEED Consultant:** Goby
- Wind Tunnel Consultant:** RWDI

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LATE IN 2013, MAYOR RAHM EMANUEL TAPPED A FORMER DEPUTY CHIEF OF STAFF AND CHIEF FOR PUBLIC SAFETY TO SERVE AS COMMISSIONER OF THE CITY'S DEPARTMENT OF BUILDINGS. Felicia Davis, once a Chicago police officer and a Kendall College administrator, is a lifelong South Sider who served on the mayor's transition team before he took office in 2011. As DOB Commissioner, she took over the role held by Michael Merchant, who, after leading the implementation of the DOB's E-Permit system, became CEO of the Chicago Housing Authority last fall.

Zurich Esposito met up with Commissioner Davis at City Hall to chat about her new role and her agency's relationship to the architecture and business community.

Zurich Esposito: What kind of police officer does it take to run DOB?

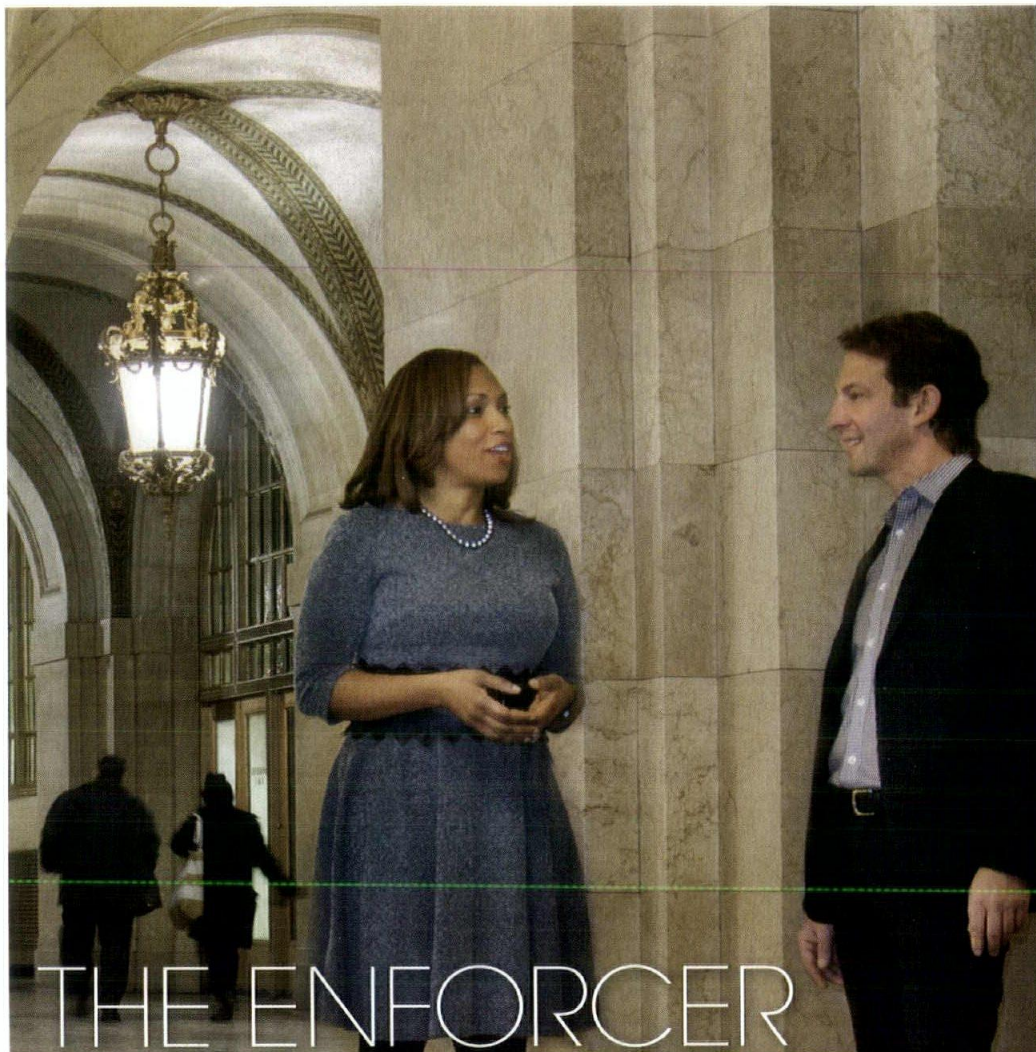
Felicia Davis: Well I was a patrol officer then a violent crimes detective. Combined with my other professional experience, it gives me what I need.

ZE: Should I be afraid to ask what your management style is like?

FD: An adage of mine is seek first to understand, then to be understood. As we think about ways to move the department forward, I don't want to mess up the secret sauce. I have to have full understanding before making changes. But I have a high standard for myself and for the team. At the end of the day, every dollar that we spend in this department was first earned by another taxpayer. I want to be sure we're using those dollars effectively.

ZE: How is the department structured and staffed?

FD: We have just fewer than 300 employees. There are three community offices in neighborhoods, where homeowners go to get questions answered about permits. Our City Hall office is where plans submitted by architects are reviewed and where we work with our colleagues on zoning. About 70 percent of our workforce works from our



THE ENFORCER

WITH SELECTION OF FELICIA DAVIS, MAYOR EMANUEL BRINGS BIG GUNS TO THE DEPARTMENT OF BUILDINGS

office on Racine, where our inspectors are based. And our inspectors are a dedicated team whose story and job description doesn't get told often—in addition to the building inspections taking place for new projects, they're making sure families have heat, making sure people aren't living in squalor and holding landlords accountable. It's not unusual for us to relocate a family to a safer environment. It's all part of the job.

ZE: What are the primary goals of the DOB?

FD: We have goals beyond our important role in enforcing the code and licensing subject matter specialists. Mayor Emanuel wants Chicago to be the "business friendliest" city in the country. To do that, we've

done a lot of things to streamline our permitting and business licensing processes. The partnership we've had with AIA's Small Practitioners Group has been valuable and has led to efficiencies. I plan to continue that partnership and look for more ways to work in collaboration with the design community, learning what their experiences have been and listening to their ideas and collaboratively exploring opportunities to move the department forward.

Chicago already has the toughest building code in the country. The permit process doesn't have to be equally tough. Technology is helping, but I want to continue to expedite the process. Supporting the business growth happening in Chicago is important to our department. **CA**



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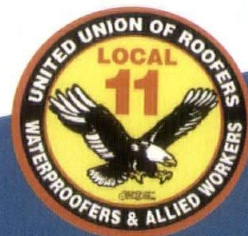
With building owners and managers harvesting the roof for gardens, reflective, ballasted and photovoltaic or wind power, the roof has become a critical building component. Plus, investment payback times roof harvesting with photovoltaic panels, garden roofs and wind power can be 25+ years. A new roof, if installed right the first time, can last that long.

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