

THE MIDWEST ARCHITECT'S NEWSPAPER

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Having amassed a slew of buildings in both the suburbs and city center of Milwaukee, insurance giant Northwestern Mutual made a big bet on downtown when it decided to locate its new flagship building along the shore of Lake Michigan.

Rendings show a new 32-story tower at the corner of North Cass and East Mason

streets, curving in a structural gesture toward the lake while tying into the company's historic South Building with glassy skywalks.

Northwestern Mutual said the new building, which replaces the existing East Building, will keep 1,100 jobs in the city and make space for 1,700 more. That promise won the company more than

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Cleveland's new Global Center for Health Innovation hopes to sell MRI machines the way furniture expos promote bathtubs and dining sets.

Dr. Toby Cosgrove, CEO of the Cleveland Clinic, got the idea for a "med mart" while

touring Chicago's Merchandise Mart with his wife in their home renovation days. The concept of setting up avenues of showrooms filled with all the medical equipment with which a doctor would want to outfit his hospital stuck,

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CHICAGO'S PULLMAN NEIGHBORHOOD EYED FOR NATIONAL PARK

ALL ABOARD?

The Pullman neighborhood in Chicago has for years been part of the city's living history, and a reminder of the nation's past labor struggles. Now, a national landmark designation could bring increased recognition for this once-tumultuous section of the South Side.

The National Park Service (NPS) recently released a study assessing the 300-acre Pullman Historic District for possible inclusion into the agency's National Park System, a registry that includes approximately 400 sites across the country. Looking at the historic significance of the neighborhood—originally developed as a company town for employees of 19th century railcar tycoon George Pullman—as well as the need for

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SPECIAL ISSUE: GLASS

THREE CASE STUDIES DEMONSTRATE THE PERFORMANCE, PROGRAMMATIC, AND DECORATIVE POTENTIAL OF GLASS. SEE PAGE 12 PLUS INNOVATIVE GLASS PRODUCTS. SEE PAGE 8.

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STREETSCAPE CHANGES TO REINVENT NICOLETTE AVE.

Mall of Minneapolis

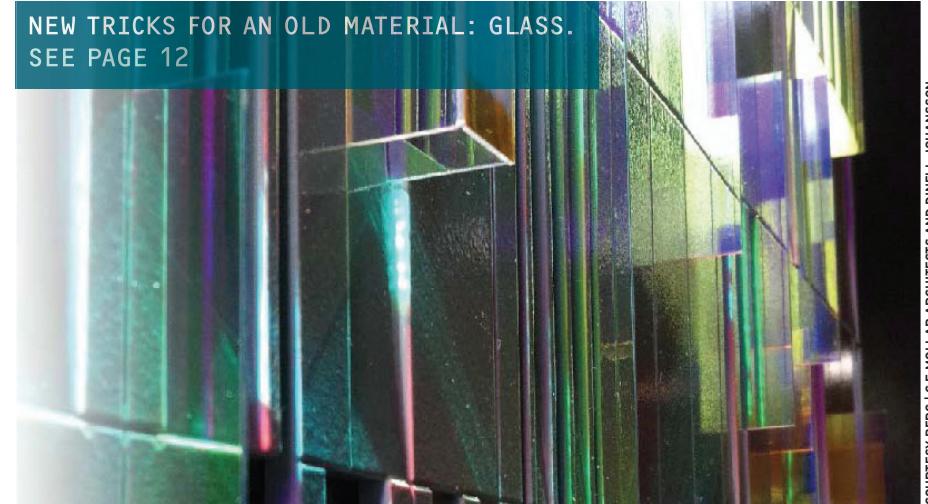


In its first major update since the 1980s, Minneapolis is planning to turn its historic Nicollet Mall into a wavy, tree-lined promenade. City officials solicited proposals

for the project earlier this year and recently selected James Corner Field Operations, which worked on New York's High Line and London's Queen

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NEW TRICKS FOR AN OLD MATERIAL: GLASS.
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INDEX SLOWS AFTER MONTHS OF STRONG FIGURES

Billings Bummer

After a three-month streak of positive growth, the Architecture Billings Index (ABI) revealed a small dip in the demand for design services. The ABI score slid down from 54.3 in September to 51.6 in October (any score above 50 indicates an increase). AIA Chief Economist Kermit Baker said that the Government Shutdown contributed

SHORE UP SOLAR

In the dead of a Midwest winter, sunlight can seem scarce. But the future of the solar energy industry here looks a little brighter, thanks to recently announced plans to cut red tape for residential and commercial building owners who want to install rooftop solar panels.

In October, Mayor Rahm Emanuel unveiled Chicago Solar Express, a "one-stop shop" for getting rooftop solar permitted, installed, and connected. Instead of 30 days, city approval for such projects now takes only one day. Meanwhile a \$750,000 "SunShot" grant from the Department of Energy will help cut the price of that permit by 25 percent, to \$275. The SunShot Rooftop Solar Challenge is a national initiative to make solar power cost competitive with other sources of energy by 2020.

The move is well timed. A tax break for projects with renewable energy is set to fall from 30 percent to 10 percent at the end of 2016. Eligible projects have to be up and running by that date, so there will be a rush to get them online.

Federal incentives are still crucial for the U.S. renewable energy industry, which has seen explosive growth in recent years. In 2011, when Congress seemed ready to cut the production tax credit for wind farms, experts warned the business could grind to a halt. The credit was renewed as part of an 11th-hour budget agreement, and 2012 was a banner year for wind energy.

Critics argue renewable energy's reliance on government incentives and grants is evidence that the industry is a losing bet. But those who want to see the programs continued point out fossil fuel companies benefit from subsidies, too—many set up during the 20th century and taken for granted today.

At any rate, a solar building boom should make solar cheaper, which could help make such subsidies unnecessary. The price of crystalline silicon photovoltaic cells today is 74 cents per watt according to Bloomberg, less than 1 percent of what they cost in 1977.

And Chicago's push to make it faster and cheaper for building owners to add solar power is not the only development. ComEd said it would launch its Online Interconnection and Metering Enrollment program by the end of the year. The policy is aimed at connecting distributed solar to an online platform, so solar panel owners can be paid (through credits on their electricity bill) for the power they put back on the grid. (The company launched a pilot program to spur rooftop solar and smart metering in 2010.) Other companies, like NRG Energy-backed Geostellar, are working to streamline the process of matching solar panel customers with installers and financiers.

Small-scale, distributed power generation is a good thing not just for ratepayers who could see lower bills as a result, but for the nation at large, whose carbon footprint is slowly shrinking in part as a result of growing renewable energy generation.

But challenges persist. A Toledo *Blade* investigation of that city's push to become a leader in solar panel manufacturing found the state has struggled to create the jobs that it promised would help reinvent Ohio's industrial base. Squandered loans, litigation, and taxpayer frustration snarled an effort to compete with Chinese manufacturers. Common knowledge holds that low labor costs make China a leader in the field, but analysts from the National Renewable Energy Laboratory and Massachusetts Institute of Technology (MIT) said it has more to do with the scale of manufacturing there, and with China's "less restrictive business and regulatory environment." Supply-chain advantages give China-based manufacturers access to cheaper capital, materials, and machinery than their U.S. counterparts can get.

One lesson seems to be if the rust belt wants to resurrect its industrial base with clean technology it is going to need a technological advantage that can make better solar cells for less.

But there is plenty of room for growth. A recent study found the grid operator in charge of the eastern Great Lakes and mid-Atlantic region could handle as much as 30 percent renewable energy without threatening electricity delivery—much more than previously assumed. But it needs an overhaul of its transmission infrastructure to do so. There's an opportunity to energize the rapid growth of renewable energy generation in the Midwest even further: when done well, subsidies can speed up technology price reductions, leaving more money on the table for infrastructure investments that enable technological innovation and expand the market for new renewable energy products. No one knows when solar energy will be cost-competitive with fossil fuels, but smart cities need to be ready when it is. **CHRIS BENTLEY**

to the drop in activity last month.

"There continues to be a lot of uncertainty surrounding the overall U.S. economic outlook and therefore in the demand for nonresidential facilities, which often translates into slower progress on new building projects," said Baker, in a statement.

October was a month of mixed results for architects across the country. Numbers rose slightly in the South, jumping from 54.1 in September up to 54.4 in October. The Midwest also came out strong climbing to 51.6 from 51.

The West, though, took a bit of a nosedive, falling from 60.6 to 55.9. The Northeast (49.7) also didn't fare quite as well as the previous month.

There was a surge of multi-family and residential projects last month. The sector climbed up a couple of points from 55.6 to 57. Meanwhile figures showed a decline for the other sectors: commercial/industrial (53.7), mixed practice (53.2), and institutional (50.2).

The rise in new projects inquiry, however, bodes well for the future—moving from 58.6 to 61.5 last month. **NICOLE ANDERSON**

U. OF MINNESOTA PROGRAM TO HALVE THE TIME TO GET LICENSED

FAST TRACK

Between coursework, internships, and on-the-job learning, it can take as much time to become a licensed architect as it does to become a brain surgeon.

The National Council of Architectural Registration Boards (NCARB) last year released data showing the average time from graduation to completion of the mandatory Intern Development Program (IDP) is 6.4 years, plus another 2 years to complete the exam and actually receive a license to practice. That's more than 14 years after high school graduation for many students.

Renée Cheng, a professor at the College of Design at the University of Minnesota, wanted to shorten the time it takes aspiring architects to enter the field as licensed practitioners. That's why she and Tom Fisher, the college's dean, helped develop a new M.S. in Architecture with a concentration in Research Practices degree. The one-year MS-RP program aims to help B.Arch or M.Arch graduates achieve licensure within six months of graduation, potentially receiving their diploma and license at the same ceremony.

"We believe it's unique in the architectural field," said Fisher. "We said if pharmacists can do this why can't we?" The goal is to cut the amount of time from high school to licensure in half, from an average of 14.5 years to 7.

Students in the University of Minnesota's program spend 25 hours per week in a research practice internship based out of a local architecture office, in addition to completing coursework in research methods and analysis. The firms pay students for 15 hours per week, while the university provides research assistance for the other 10, in the form of tuition breaks and stipends.

But Cheng stressed that the program isn't privileging technical skills over a broader education. "It's less about the conventional skills that are currently taught and more about these research skills," she said. "It's more than just speeding up the conventional way of doing things."

In partnership with students and faculty, participating firms and non-profits choose topics like sustainability research, integrated project delivery, or developing a new digital fabrication strategy. This "consortium," to use the university's term, "creates a robust knowledge loop" of mutual benefit.

"Even though they are competitors and the firms are sometimes competing with one another for projects, they also know that we're able to achieve more together," said Cheng. "It's a shift in the culture."

The firm generally keeps the intellectual property developed during the internship, while IP for work done in the academic setting "would normally be shared between the University and the student," according to the school's website.

This fall marked the inaugural year for the program, but Cheng and other faculty members tested out a pilot version two years ago. In its first official capacity, seven firms and four interns participated in MS-RP. Cheng said she was expecting two to four students in the spring term, but has already revised that estimate.

MS-RP may not be for everyone, Fisher said, but he expects other universities will start similar programs.

CB

THE AFTER PARTY'S IN THE HOTEL LOBBY?

During Chicago's last real estate boom it was all condos, and during the following bust developers were all about building apartments. The buzzword during this modest recovery, if you can call it that, is hotels. Eavesdrop used to have panic attacks thinking about a completely condo-fied downtown, with a deflated business district. The new-and-now planned or rumored hotel for every block of the Loop, it seems, leaves us confused. Is this good or bad? Will tourists fill these West Of The Shopping hotels on the weekends? Will the Loop get a much-needed jolt of life after 6:00 p.m.? It's hard to defend the Loop to New Yorkers, whose inevitable first question is, "Where are the people?" In Eavesdrop's humble opinion, it's only going to happen with good design, as no one is going to stay after work to sit and sip in a cookie cutter Westin lobby (sorry, Starwood!). The glut of new projects from Hyatt, Kimpton, Virgin, Hilton, and the new Indigo better up the design ante—dump your in-house designs for something truly unique. Additional plus: most of these appear to be adaptive reuse and not tear downs—fingers crossed!

WALMART-TOWN GETS CLASSY

Speaking of hotels, 21C Museum Hotels continue to rake in the accolades. We noticed every dang travel magazine has rated the new Cincinnati and Bentonville (aka, Walmart-town) outposts as Super Number One Hotel In America. We jest, but seriously, the point made above about Chicago has been successfully executed multiple times now by Deborah Berke Partners in lesser cities, creating destinations for locals and travelers alike.

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SOUTH LAKE SHORE DRIVE OPENS UP MAJOR DEVELOPMENT'S FUTURE



COURTESY CHICAGO LAKESHORE DEVELOPMENT

DRIVE ON, SOUTHSIDE

On October 26, Illinois Governor Pat Quinn and Mayor Rahm Emanuel cut the ribbon opening a brand-new roadway through the former site of a massive U.S. Steel manufacturing plant. Over the next 40 years, McCaffery Interests is planning to build a massive, sustainably designed mixed-use development known as Lakeside on this 600-acre area in South Chicago.

City and state transportation departments have been planning the South Lake Shore Drive extension to reroute through traffic on U.S. 41 around residential areas since before McCaffery and Skidmore, Owings & Merrill revealed the Lakeside master plan in 2004.

The \$64 million, state and city-funded road now connects to 79th Street at Rainbow Beach Park in the north and crosses the Calumet River with Ewing Avenue in the south. It does more than provide a bypass of residential areas to the west. South Lake Shore Drive, which connects to Lake Shore Drive via South Shore Drive and Marquette, gives Lakeside the edge it needs to attract retailers to anchor its first phase, called the Market Common.

During a tour in October, McCaffery Interests project manager Nasutsa Mabwa said that the road was delayed for three years. In 2010, press reports said construction would begin in 2012, but it wasn't until Mayor STEVEN VANCE

Rahm Emanuel came into office in 2011 that the road's construction got back on track.

South Lake Shore Drive is 1.9 miles long and was built with some sustainable development features. For example, it offers parallel parking atop permeable pavement, is illuminated with LED street lights, and is planted with 600 new trees. It also has wide bike lanes along half its length.

The Lakeside website presents a transit vision of using rapid bus routes and light rail that cut down the travel time from the development to Midway airport and downtown. An electric commuter rail is less than half a mile away. Mabwa said that the images on the website are ideas. "We know we have some weak points and we know we have to bring the rail transit closer," she said. The Chicago Transit Authority has the option to plan bus routes on South Lakes Shore Drive. All of its existing bus routes serve residential areas located a couple blocks west.

South Lake Shore Drive also opens Park 523 to the public for the first time. The park was built in 2008, just a year after Solo Cup sold some land to Lakeside Development, and five years after 87th Street was connected to meet it and provide access to a proposed Solo factory.

OPEN> BAR

> CH DISTILLERY

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Architect: Sullivan,
Goulette & Wilson



ARNOLD KLEIN

Chicago's first joint distillery and cocktail bar got its name from two of the three elements that comprise alcohol's chemical structure: carbon and hydrogen. In its design for the West Loop bar, local firm Sullivan, Goulette & Wilson emphasized the textures of the building materials.

Large windows behind the bar reveal the working distillery floor, where custom-built stainless steel and copper stills shine against an industrial backdrop of exposed concrete columns. Wooden ceilings hang over the bar and lounge-like seating areas. In the evening, the bar glows a pale blue, while dozens of tiny overhead lights hang from the ceiling, arranged in neat rows of three. The culinary team—whose collective resume includes Blackbird, The Publican, Avec, and Perennial—crafted a cocktail menu around CH's "grain-to-bottle" operation, which produces vodka, gin, rum, and whisky. CH's Mark Lucas told *Time Out* that vodka is his favorite liquor. CH makes its vodka only with Illinois-grown grains.

CH may take the menu seriously, but a tiff with pharmaceutical company Purdue Pharma over the cocktail formerly named for their popular painkiller OxyContin proved a little levity can be therapeutic. Faced with a cease and desist order on the drink's name, CH's Krisy Schutte renamed the gin concoction "Cease and Desist." CB

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A HIGHER LEVEL continued from front page \$73 million in city incentives, including tax increment financing (TIF) and infrastructure improvements toward the \$400 million construction project. Under the deal, Northwestern Mutual fronts the money for all the work, and the city will repay 70 percent of the increased property taxes on the new building for 25 years, or until Northwestern Mutual recovers \$54 million—the amount of its TIF funding.

New Haven, Connecticut-based Pickard Chilton's design bends along its eastern edge, opening up the glassy tower to views of Lake Michigan, as well as the park below, and allowing the infiltration of daylight. Jon Pickard said the intent was to stitch together an urban campus, integrating the new tower with its neighbors and the updated "commons" area at its base.

"Up until the new project," he said, "they had these disparate buildings connected with what some were calling 'gerbil tubes.'" Skyways crisscrossed the downtown blocks. Most of those will go once the new building comes along, but Pickard Chilton will preserve and update two, including a connection to the neoclassical building that has housed Northwestern Mutual since 1914. That entrance, converted from an exterior courtyard to an interior atrium during the early 1980s, has begun to leak. The new project will preserve the glassy enclosure

that bridges the wings of the original building's U-shaped plan.

The columns of that building speak to Northwestern Mutual's corporate logo and its publication, *Columns*, but also to the company's values, said Pickard. At 155 years old, the company is more interested in longevity than flashiness.

"I think the new building, too, reflects their values of stability, beauty, understated elegance," he said. "We didn't want to shout too loudly. We wanted sophistication."

The new tower, however, is nearly column-free. Instead, it opts for an abundance of natural light and open space that its designers hope will encourage interaction. An open, multi-level dining area seats 2,000. "They found that by dining together, their people are talking," said Pickard. "What's almost more important than the office space is how you bring employees together."

The tower is tall and somewhat striking for Milwaukee's skyline, even among a recent flurry of interest in development along the city's lakefront. The rising motion of its steel and glass form beckons to Santiago Calatrava's celebrated Art Museum just two blocks east, said Pickard.

The building's airy top floor, which reaches 50 feet high along the southern edge, is dedicated to conference rooms, kitchens, and open space for events. The team took pains to hide mechanical equipment, extending the open feeling conveyed in the lower floors. By turning the standard 5-foot-wide curtain modules on their side and stacking them, the design replaced the aluminum grid that clutters some floor-to-ceiling glass towers with expansive windows.

Landscape architect James Burnett's office designed the three-acre commons and garden area, which is crisscrossed with pedestrian walkways and gathering spaces. The building's lower levels will contain public cafes. And while entrance to the tower will be guarded by security, pedestrians are free to pass through a reopened Cass Street connection that will now feature massive windows 50 feet across.

Construction is set to begin next year and could be complete by 2017. **CB**

Landscape architect James Burnett's office worked on the three-acre commons and garden area.



JAMES CORNER FIELD OPERATIONS

MALL OF MINNEAPOLIS continued from front page Elizabeth Olympic Park, to complete the job along with local firms Julie Snow Architects and Coen+Partners.

According to Minneapolis officials, approximately 140,000 downtown workers currently use the 12-block mall along Nicolette Avenue every day. Mayor R.T. Rybak summed up his aspirations for the project in a video posted on the city's website. "We can either rebuild this street as a perfectly fine mediocre street, or we can build this as the great street that a great city deserves," he said.

The project comes amid a wave of development downtown, including plans from Minneapolis-based UrbanWorks Architecture and Minnetonka-based Opus Development to replace a downtown parking structure with a cluster of high-rises. Rybak said he expects the Nicollet Mall redesign to continue that trend.

Field Operations' design imagines the outdoor mall as more of a civic walk, James Corner told AN, connecting the city's two epicenters of nature and culture: the Mississippi riverfront at the northeast end of Nicolette Avenue and the Chain of Lakes that begins at its southwest end. Details will come after a series of public meetings. Corner said programming could vary block by block, but that the overall design vocabulary would be consistent.

"We've got the good bones of a conceptual approach," said Corner. "It is a great opportunity to create a great public space right through the heart of Minneapolis. There's so many new businesses and users of Nicollet Mall that it should be the best it could be."

Stormwater contingency plans for the project include a trench drain and porous pavement, along with an underground retention basin and periodic plantings of oaks, elms, aspens, maples, and birch trees. The street meanders along Nicollet Mall, creating varied spaces along each block for programming. What goes in each space will depend on public input, Corner said, but will fit with one of three major themes: Work, Play, and Live.

Work, at the walk's center, might feature widened sidewalks, newsstands, and bike

shelters, for example, while the Play zone between 11th and 12th streets could have space for public art and outdoor dining. Concepts for Live, nearest the Mississippi River, show social seating areas and a public fire pit.

"By working with the curvature, adapting it depending on what's happening on each block, it creates a larger public space," said Corner. "The strength of the curvilinearity is that it creates these wider public spaces."

Numerous skyways connect the high-rises that line Nicollet Mall, but wayfinding between the walkways and the streets they overlook is currently a challenge. The design team is investigating a color scheme—a yellow ribbon pattern is one idea—to make connections more obvious. Conceptual renderings also depict light posts several stories high along the mall itself.

As justification for the Nicolette Mall project, Mayor Rybak pointed to several indicators of Minneapolis' economic development, including Target's decision to locate its headquarters downtown. The retail giant previously hired Julie Snow Architects to design its facility in a former shoe-store on Nicollet Avenue and South 10th Street. U.S. Bancorp, which owns U.S. Bank, also located its headquarters along Nicollet Mall.

Mayor Rybak also said that plans to expand light rail service in downtown could encourage growth. The area is already home to the busiest bus stop in the state. Field Operations' design leaves room for active transportation elements. Corner said the team is investigating putting bike lanes in the middle of the street, separated from traffic.

Construction is scheduled to begin in 2015 with an expected completion date in 2016. The city will fund the project, which is expected to cost between \$30 and \$40 million, through a mix of bonds and fees on private businesses along the street. The structure of the fees has not been determined.

Nelson/Nygaard, SRF Engineers, Tillotson Design Associates, Kestrel Design Group, and Cost Construction Services also contributed to the design proposal.

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THE ARCHITECT'S NEWSPAPER DECEMBER 12, 2013



LMN aimed to meld a modern look with Cleveland's Daniel Burnham-designed plaza.

COURTESY LACASSE PHOTOGRAPHY

turn of the century. To avoid jarring the viewer, the Global Center was planned to relate to the mall. At the same time the architects attempted to convey the sense that there was something important and innovative going on inside an otherwise classically proportioned and austere building. LMN decided ultimately to apply a pre-cast paneling system to the facade with a surface texture that is a deliberate reference to the rusticated facades of the many traditional masonry buildings surrounding the complex.

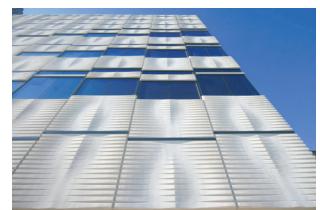
"Burnham could never have foreseen that a global medical center could find a home in this space; could never had foreseen the convention center," said Van Dyck. "At the same time he knew the lake was there and the topography of the city gave way on and exposed these beautiful views of the lake to the north. For us, it was those general principles that led to the design."

Currently about 80 percent occupied, the Global Center's

managers expect to fill all reserved vacancies by February. Original managers Merchandise Mart Properties estimate that the Global Center will host 90 events by the end of the year and book 100,000 attendees. After the success of the Cleveland Clinic Medical Innovation Summit, which was held the weekend of October 14, the center appeared to be on its way to buttressing Cleveland's newly imposed image as a medical hub.

"We have a quite complete overarching strategy with a mission and a vision of being very attractive to visitors and to spawn innovation and ideas," said Bennett. "The business model is to drive traffic to Cleveland by listing the only place in the world where the best of what is possible in health and healthcare is shown and constantly refreshed. Think of us as the Epcot Center for Healthcare."

SUSAN DU



MEDICAL MART continued

from front page and though proposals to construct such a building popped up in New York City and Nashville, it was Cleveland that followed through.

"The need in northwest Ohio was not for a medical mart. It was for economic stimulus," said Cosgrove. "I felt that in order to have a viable Cleveland Clinic, we needed to have a viable community around us." Cleveland ranks high on the list of the nation's poorest cities, yet medicine is one of its biggest industries. Cosgrove's Cleveland Clinic is

the largest non-governmental employer in the state.

After years of construction, a strategic re-interpretation of the original "med mart" vision and about \$500 million spent altogether, The Global Center for Health Innovation—a mix of convention, civic event, and showroom space—opened on October 7 as one element of the 2 million-square-foot Cleveland Convention Center complex, which also includes a convention center and historical Daniel Burnham mall overlooking Lake Erie. Seattle-based LMN Architects principal Stephen Van Dyck

called the Global Center "the most prominent visual icon of the whole place."

LMN designed the Global Center so that the building faces the center point of the Daniel Burnham mall. From the main atrium, visitors can either go below grade to connect to the convention center or go up to the mall and look out over the park. A junior ballroom on the ground floor corresponds to a main ballroom in the convention center below. Above are three floors of open-plan showroom space.

"This is the only building in the world that is a full-time

showroom for the medical device industry," said Van Dyck. "The intent is that this building, coupled with the convention center, will be the center of gravity for the medical convention world. So that's all just to say that we've never done anything like this because it's never existed before."

The medical use of the building was a relatively minor influence on the overall planning approach, added Van Dyck. The biggest consideration was how to integrate the new Global Center into a historic space planned by Burnham at the

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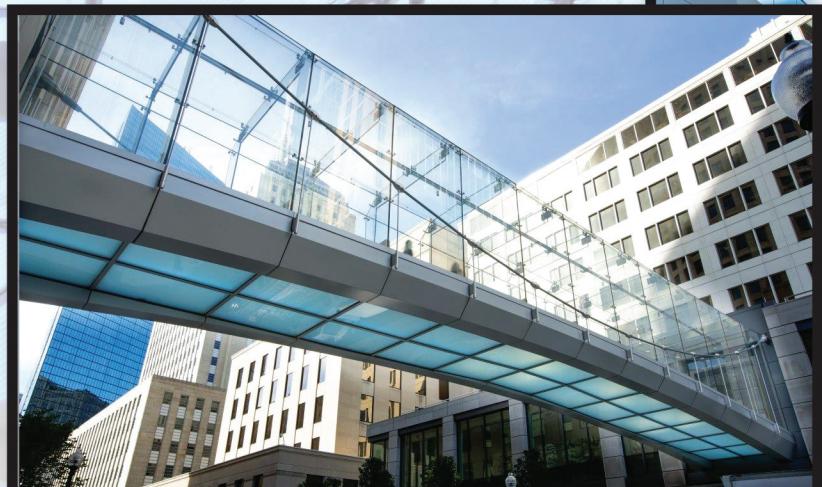
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THE ARCHITECT'S NEWSPAPER DECEMBER 12, 2013


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generalglass.com


**CLEARSHADE GLAZING UNIT
PANELITE**

This honeycomb-like insert fits between two sheets of glass and redirects up to 70 percent of natural light, reducing solar glare and heat gain for midday-SHGC measurements as low as 0.11. The cellular configuration is made from a durable but transparent polymer that is resistant to UV rays. The product's bi-directional scattering distribution capabilities are compatible with Radiance, Energy Plus, and SketchUp modeling programs.

panelite.us


**PRESSED GLASS
3FORM**

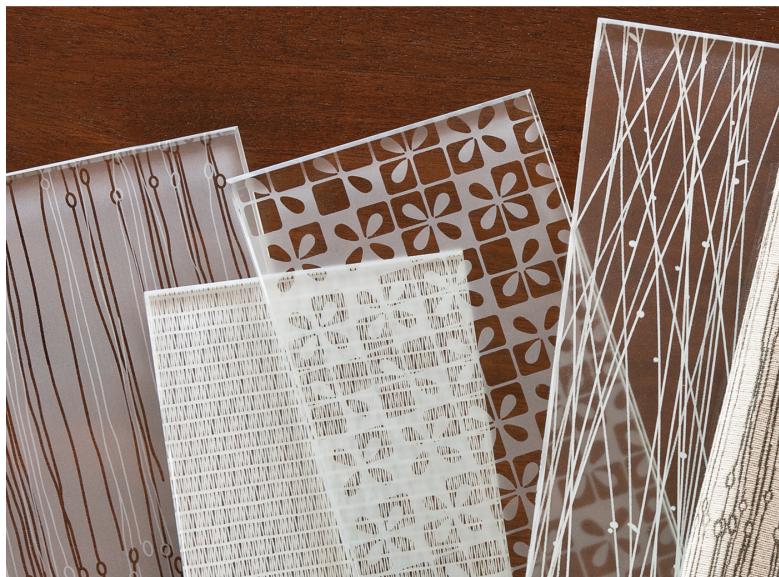
3form's Pressed Glass is newly available in the Strand pattern, a compressed interlayer of fine gauge threads in three monochromatic colorways. It can be further customized through color matching, etching, and fritting options. Available in widths as large as 48 inches and lengths of 120 inches, it can be specified in either a 5/16-inch or 1 5/16-inch gauge thickness. Its inherent strength meets ANSI Z97.1 standards.

3-form.com


**DF-PA DICHROIC FILM
3M ARCHITECTURAL MARKETS**

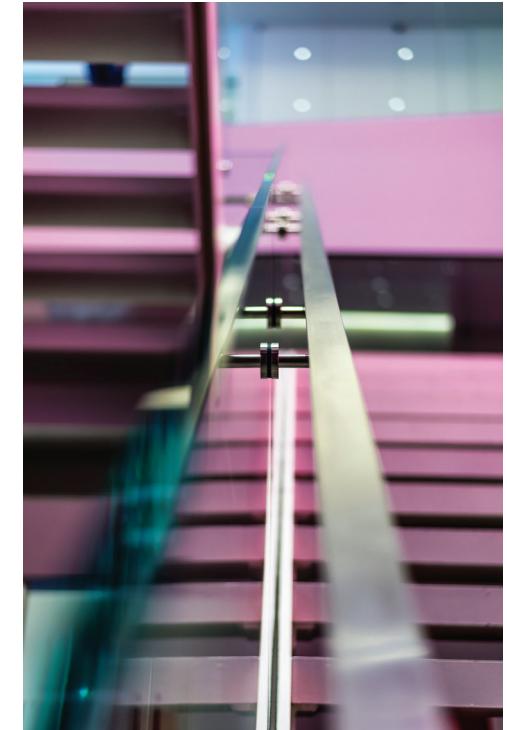
3M's Dichroic films can be applied to any smooth surface with a pressure sensitive adhesive; the DF-PA is recommended for glass applications. Two color values—Chill and Blaze—span color ranges from blue to magenta to gold, in either a fully covered opacity, or as a decorative graphic. Durability complies with interior and exterior use, and the film can be easily removed from architectural screens, window fronts, curtain walls, or glazing when it is time for an update.

3marchitecturalmarkets.com


**THE KNOLLEXILES GLASS COLLECTION
SKYLINE DESIGNS**

Seven designs from KnollTextiles are rendered on glass through two production techniques: Eco-etch achieves varying levels of opacity, and AST Digital Glass Printing introduces color to partial transparency. These options provide for customization of classic patterns like Divine and Enchantment, designed by Dorothy Cosonas, or the mid-century Cyclone and Fibra, designed by Eszter Haraszty.

skydesign.com


**RAILINGS AND FLOORS
CARVART**

This structural laminated glass can be safely specified for floors and railings. Flooring can be installed as a freestanding finish or incorporated into another system with specially engineered mounting hardware, and stair treads can appear to "float" or integrate into stringers. For railings, top and side mounting options can be affixed to most structures, or can be suspended from coordinating adjustable point fittings. Railing caps are available in round, oval, or square profiles.

carvart.com

MASTER GLASS

As the buzzword "transparency" gains greater meaning in product specification, glass is an energy-saving, sustainable, and aesthetically pleasing option. By Emily Hooper



SUNGATE 600
PPG

This double-glazed insulated glass unit boasts an efficient configuration tailored to the region of application. In climates where heat gain is optimal, coating on the Number 3 surface blocks heat loss for a U-value of 0.33, while maintaining a 0.65 SHGC and visible light transmittance of 71 percent. For higher insulation values, the Sungate 600 coating can be placed on the Number 4 surface when combined with a solar control low-e glass, for a net gain in U-value of 20 percent.

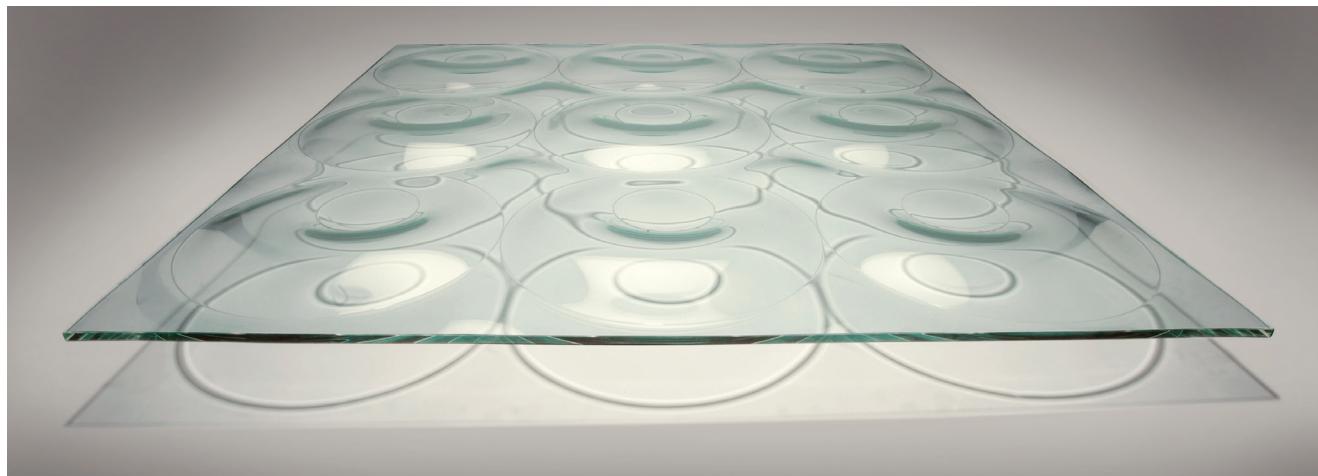
ppgideascapes.com



DYNAMIC GLASS
VIEW GLASS

Insulated glass units as large as 5 feet by 10 feet feature programmable electrochromic levels of 60, 40, 20, and 4 percent tinting with user controls from a smart device app to reduce heating and cooling loads, electric lighting, and solar glare. An intelligent setting can be programmed for sensory occupancy to optimize energy usage as well as user comfort. All four tint levels can be achieved in one unit, with adjustment times akin to the passing of a cloud overhead.

viewglass.com



OLIVIA
JOEL BERMAN GLASS STUDIO

The circular, three-dimensional pattern of Olivia is enhanced with subtle reflectivity to inflect motion into any space. Back painting options are available in a range of colors on panels measuring 53 by 108 inches. Produced for interior applications, it can be tempered for safety and impact resistance on exteriors as well.

jbermanglass.com



SUNGUARD SUPERNEUTRAL 68 TRIPLE GLAZED
GUARDIAN INDUSTRIES

Guardian's triple-glazed insulated glass units help retain energy in colder months and repel heat gains in warmer conditions with SunGuard SuperNeutral 68 treatment on the Number 2 and Number 5 surfaces. The product provides visible light transmission of 52 percent and a solar heat coefficient of .32. It can also be laminated for noise depreciation and hurricane protection.

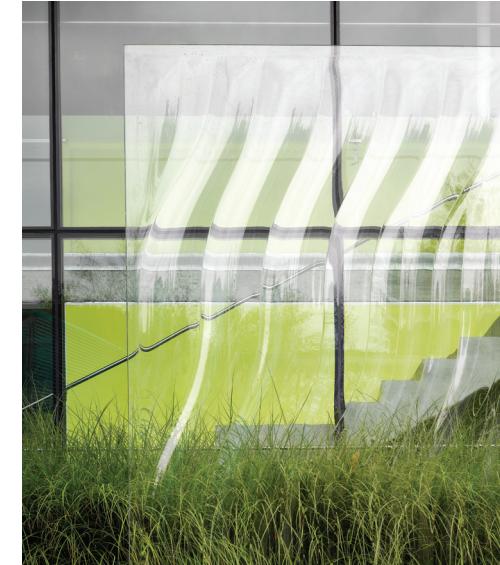
sunguardglass.com



BISTRO GREEN
VETRAZZO

Vetrazzo, the recycled glass division of Polycor, has been diverting glass from the waste stream since 1996. The surfacing material uses consumer beverage containers, waste from glass manufacturers, building demolition, traffic light lenses, windshields, shower doors, and more. It takes nearly 1,000 bottles to make one 5- by 9-foot panel that is 85 percent glass by volume and bound with Portland Cement. Sixteen of Vetrazzo's product lines are Cradle to Cradle certified.

vetrazzo.com



LIQUIDKRISTAL
LASVIT

Designed by Ross Lovegrove, Liquidkristal was inspired by dynamic forms found in nature. The design was first modeled digitally to simulate thermo induction, which can imbue the qualities of water to glass under very high temperatures. A large-scale mold system was formed from the study's results, to produce multiple pattern variations over multiple sheets. In addition to interior applications, Liquidkristal is also suitable for glazing and facades.

lasvit.com



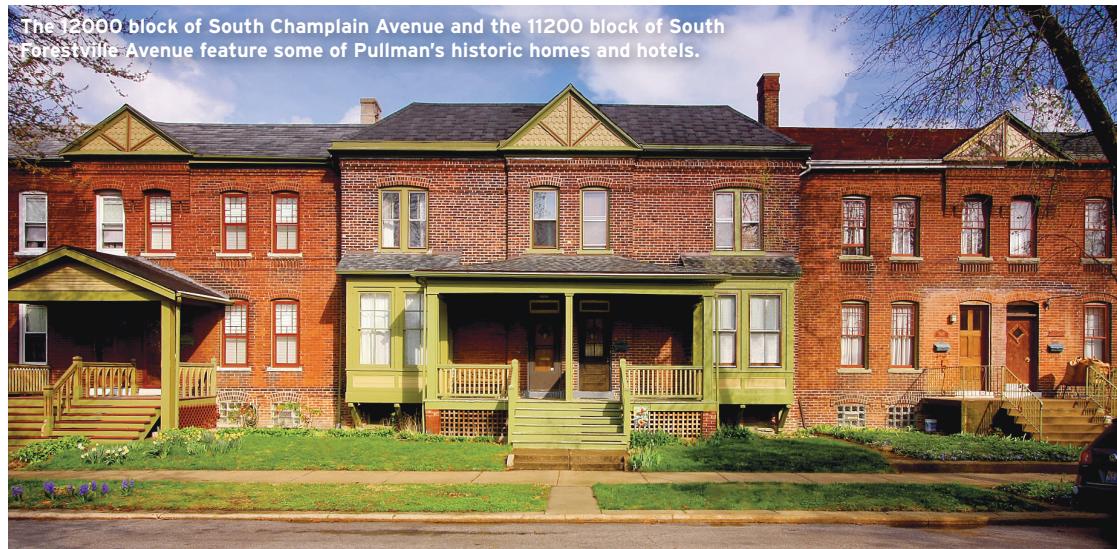
SAGEGLASS SIMPLICITY
SAGE ELECTROCHROMICS

This electronically tintable glazing is available in a solar-powered, wireless format. In lieu of low-voltage wired connections, a strip of solar photovoltaics interfaces with a low-profile electronic controller and battery pack that can provide power for up to two days without a charge. The wireless system also configures with light and building management programs from Siemens, Lutron, Schneider, and Johnson Controls.

sageglass.com

THE ARCHITECT'S NEWSPAPER DECEMBER 12, 2013

The 12000 block of South Champlain Avenue and the 11200 block of South Forestville Avenue feature some of Pullman's historic homes and hotels.



ALL ABOARD? continued from front page management oversight, NPS concluded that the district "appears likely to meet the national significance and suitability criteria" needed to warrant an additional "special resource study."

Natalie Franz, Midwest region planner for NPS, described the bureaucratic protocol for determining Pullman's eligibility. Such an assessment would be conducted by the NPS only after receiving congressional and presidential approval, and could take as many as three years to complete once funding is in place, she said.

Located 12 miles south of downtown, Pullman offers a detour for Chicago sightseers. Boasting historic buildings designed by architect Solon Spencer Beman—including the Hotel Florence, the Romanesque Market Square, and the fire-damaged Administration Buildings, which served as the executive offices of Pullman's Palace Car Company—the area is already recognized by local and state historic landmark bodies.

"The historical significance of Pullman has been acknowledged for over 40 years," said Michael Shymanski, president of the Historic Pullman Foundation. About 90 percent of the neighborhood's original homes, most in the Queen Anne style, have been preserved.

Completed in 1880 on what had

previously been prairie land, the neighborhood is known for the labor strike born on its streets in response to wage decreases instated by Pullman, whose profits in the luxury railroad car industry began shrinking shortly after he finished building the town. The area was annexed to the city in 1907.

Today, the racially diverse neighborhood is served by a handful of Metra commuter rail stops. A proposal currently being vetted for the Chicago Transportation Authority's Red Line train extension project foretells more transit access. CTA previously announced plans to expand the Red Line as far south as 130th street, but no timeline for the project has been set.

Asked what an NPS designation would mean for the residents, Franz said, "It depends." How legislators draw the boundaries of the potential park site, for example, could affect the way resources are administered and what kind of assistance would be given to property owners within the proposed borders. Whether the site will be established at all is also a long shot. Franz said that "not a huge amount" of sites that receive preliminary studies go on to achieve National Park status. "I think that reflects the rigorous analysis needed to determine whether or not something should be included in the system," she said.

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DESIGNER: ROBERT MASCHKE ARCHITECTS



Rectilinear lines play off curved surfaces in Maschke's bamboo-accented redesign of this Ohio University admissions building.

Wright State University (WSU) selected architect Robert Maschke of Cleveland-based robert maschke ARCHITECTS to redesign and oversee the construction of its new Student Enrollment Center, which recently reopened in the heart of campus. This once dark building has been transformed into a light, dynamic, and inviting space.

"We were commissioned to give the university a cutting-edge image that would attract new

students and keep current enrollment numbers high," said Maschke. "These students want to enjoy convenient and cozy socializing areas."

Maschke's architectural design is so sharp a contrast to the former imagery of the enrollment center that one would hardly recognize the building shell and structural system remain unchanged. Most striking is the delicate juxtaposition of rectilinear angles, surfaces, and spaces

against softer, curvilinear edges. The signature bamboo wood surfaces bend around and through the space. Bamboo was chosen as one of the materials for its natural coloring, environmental benefits, and affordability.

Maschke played a key role in working with the university to reprogram the spaces in the enrollment center. The staff's workspaces are now grouped together as teams. Homework hub rooms and other socializing

areas were added for private meetings with prospective students and for current students to use as study space in the evenings. The building's entrance and the concierge desk were relocated.

One more of Maschke's key goals for the project was to increase the amount of lighting. All of the exterior windows were left open to the space to allow as much natural light as possible. Much of the artificial lighting

is indirect—directed up toward the ceiling, diffusing down into the space. Sustainability studies show that indirect artificial lighting mimics natural sunlight and lifts morale in what would be otherwise gloomy interior spaces.

The privacy walls around group study rooms are constructed with a type of finely porous fritted glass. The elevator shaft was redesigned with a screen of multi-colored slats that shimmer as one travels up and down in the elevator. Another interesting detail is the fine joinery between matte white drywall surfaces and shiny white solid surface benches. It appears as though the bench bends up against the wall and then across the ceiling as one distinct object, made with two different yet white materials.

"We pushed and pulled the bamboo in the space," said Maschke. The bamboo appears to defy gravity, while at the same time giving the stark white surfaces a warmer contrast. The white lattice ceiling surfaces emerge as though they break through the bamboo surfaces at times. The dynamism of these two contrasting materials in the space is articulated by a blurring of the walls and ceilings. The boundaries between the walls and ceilings are unpredictable and constantly changing.

The level of detail involved with this project is high, but the budget was held relatively low. Maschke and his staff provided details, three-dimensional diagrams, and drawings to make the construction process efficient.

The designers hope the dancing variety of materials and spatial effects make students feel alive, encouraged to be individuals, and empowered to be in control of their own education.

STEPHANIE AURORA LEWIS

RESOURCES:

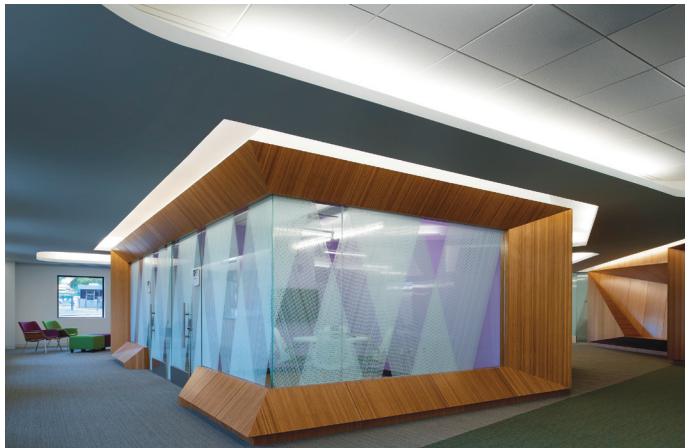
Bamboo paneling:
Ted Bolle Millwork
bollemillwork.com

Carpet
Atlas
atlascarpetmills.com

Furnishings
Herman Miller
hermanmiller.com

Vitra
vitra.com

Paint
Sherwin Williams
sherwin-williams.com



JAMES JOHN JETEL PHOTOGRAPHY



FIRST GLASS

THREE CASE STUDIES SHOWCASE THE PERFORMANCE, PROGRAMMATIC, AND DECORATIVE POTENTIAL OF CONTEMPORARY GLASS.

OHIO STATE
UNIVERSITY SOUTH
CAMPUS CENTRAL
CHILLER

COLUMBUS, OH

Ohio State University's south campus central chiller is a utilitarian powerhouse. It pumps cool water to more than half of the campus' buildings. It is also host to a dynamic light show, thanks to an array of glass fins affixed to its concrete facade.

"Rather than just showing the pipes, we wanted to represent energy itself," architect Carol Ross Barney told *AN* when the project was first announced in 2010. Now complete, the 95,570-square-foot building sports dichroic glass, composed of multiple micro-layers of fused metal oxides. A coating just 30- to 35-millionths of an inch thick can contain up to 50 layers of these materials, which condense on the glass after being vaporized by an electron beam in a vacuum chamber.

Those tiny bits of metal reject certain wavelengths of light, so the dichroic fins reflect and transmit different colors simultaneously. Which colors pass through and which bounce back depends on the angle of view. The end result is a constantly shifting array of colors that dance across the building exterior.

Previously it hadn't been affordable to laminate dichroic film between layers of glass. Ross Barney Architects worked with glass manufacturer Goldray Industries to laminate the dichroic film, which was originally developed by NASA for use in space. The exterior application created concerns for the longevity of the thin film, so Goldray tested several glass products to sufficiently protect the film without distorting its ability to transmit light. Based on its success, Goldray has since used similar fins on projects from Indianapolis to Istanbul.

Structural shapes and welded plates hold the glass fins perpendicular to the building's precast panels. The incandescent fins themselves convey a sense of energy, Barney said, but clear sightlines into the mechanical innards of the chiller plant also put the building's utility front and center.

Still, no moving parts are visible. Instead, the precast plates that make up the ten-story building are punctuated with varied rectangular windows, complementing the geometry of the glass fins. Oldcastle manufactured the aluminum curtain wall window system, whose insulated exterior panels also cut down on energy use. Inside, equipment decks are grated for natural cooling so the chiller, which anticipates LEED certification, won't have to be chilled itself.

To hear the designers tell it, in a rundown of their research and development process, "the building becomes an ethereal expression of the functional process of releasing thermal energy into the air to produce chilled water."

Cool. **CHRIS BENTLEY**

The chiller's iridescent glass fins create a visual representation of the thermal energy within.

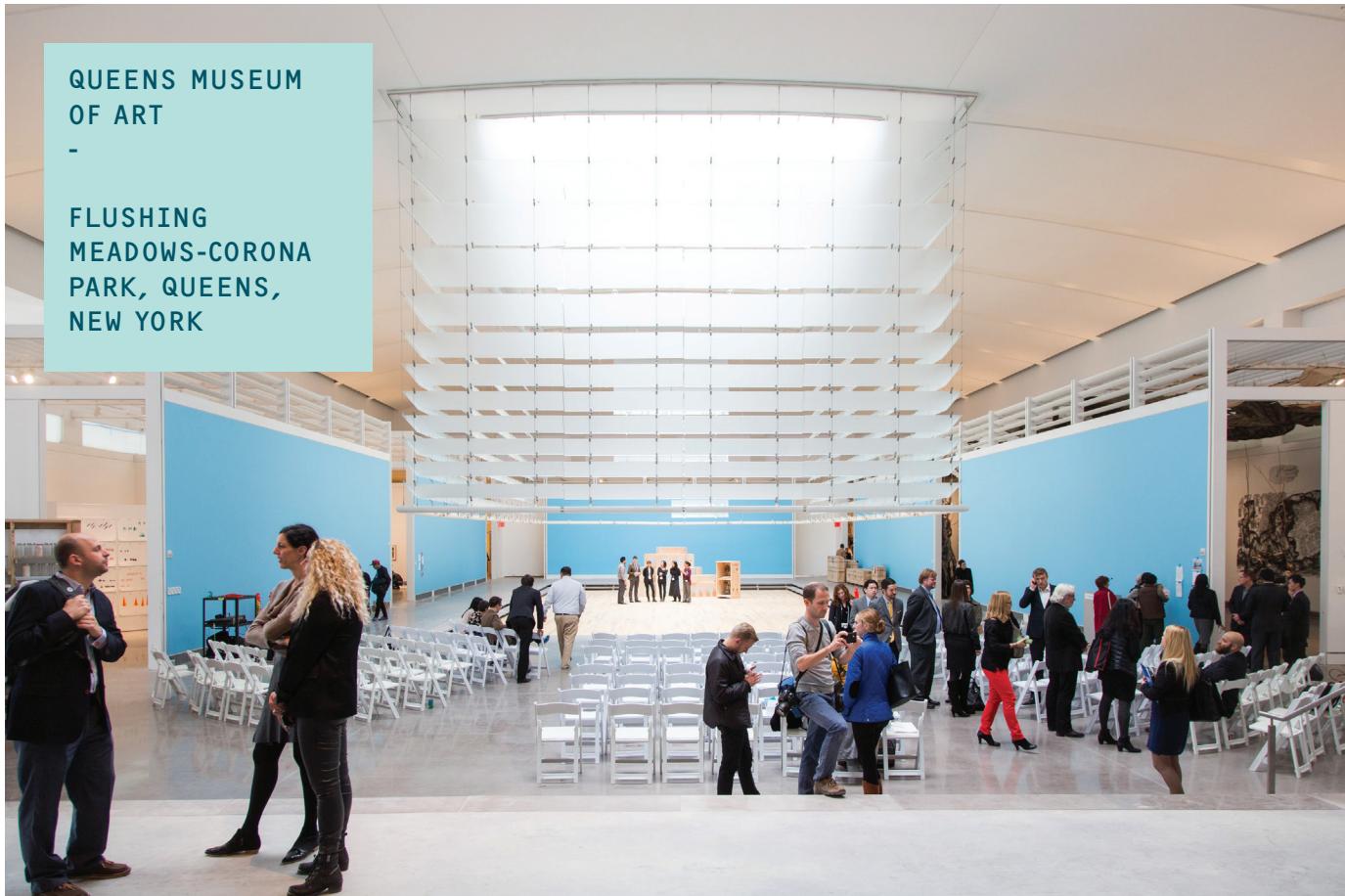


BRAD FEINKNOPF

Architect:
Ross Barney Architects
r-barc.com

Glass fins:
Goldray Industries
goldrayindustries.com

Curtain Wall:
Oldcastle
oldcastle.com



Left: A hanging lantern of acid washed glass and stainless steel cables captures and diffuses daylight throughout the large works gallery.

foot building for the first time since being founded in 1972.

The architects saw the opportunity to greatly improve the museum's somewhat confusing circulation scheme, as well as support its mission of bringing the community together around art. By shifting the main entrance away from where it had previously been off the north parking lot, at the narrow end of the rectangular plan, to the center of the longer west facade, they were able to usher visitors directly into the building's cavernous central volume. By arranging temporary exhibition galleries around this space, which functions as a large works gallery, the architects created an easy to navigate experience where figuring out where to go next is simply a matter of looking around.

Glass played a key role in supporting Grimshaw's design concept and in creating a bright and airy experience on the interior. Both eastern and western faces of the building were opened up with glass walls that let daylight in, welcome the community, and create a view corridor that passes straight through the space from the Grand Central Parkway to the Unisphere—the great, globular icon of Flushing Meadows-Corona Park. The west facade features a screen that can be animated by a color-changing LED system. A variety of artists will be invited to program the system over time.

Even with the glass facades, the large works gallery, with its soaring ceiling,

Grimshaw's recent renovation of the Queens Museum of Art involved the task of unifying a previously divided building under a single program. The institution used to share its walls with an ice skating rink. The museum

occupied the north half of the building—originally constructed as the New York pavilion for the 1939 World's Fair—and the rink the south half. When, in 2008, the rink moved into the newly completed Handel Architects-

designed Flushing Meadows-Corona Park Natatorium and Ice Rink, which was part of New York City's 2012 Olympic bid, the museum had the opportunity to stretch out, occupying the entire 105,000-square-

SCOTT RUDD

THE ARCHITECT'S NEWSPAPER DECEMBER 12, 2013



promised to be a dark space. This could be solved with skylights, but then skylights, without control measures, can create tricky daylighting conditions for museum artifacts, many of which deteriorate in direct sunlight. In addition, the architects wanted to create a seamless experience, where visitors could go from outside, into the great hall, and then into the galleries without perceiving the difference in light level. "On a bright day, it's 10,000 foot-candles outside," said Mark Husser, managing partner for Grimshaw's New York office. "We had to step that down to about 15 foot-candles in the galleries, and we attempted to do that without having a noticeable change or a lot of glare or shadow."

In order to accomplish this effect, Grimshaw designed what is unofficially referred to as the "Hanging Lantern," a daylight chandelier of sorts composed of canted glass louvers suspended by stainless steel cables around the great hall's central skylight. The glass louvers, which range in

width, are built up from two 5mm-thick pieces of low iron tempered glass that are laminated together with an SGP interlayer. The down facing sides of the louvers are acid washed, to catch and diffuse daylight, while the up facing sides are left glossy, to make them easier to clean as well as to create a shimmering effect on the inside of the lantern. The edges of the glass louvers are polished, post lamination, a delicate process that removed a mere 1/64-inch of material to clean up the edges and create a sparkling, diamond-like effect. The louvers are canted at different angles to catch sunlight entering from the skylight, which also features louvers, and direct it to the galleries, whose ceilings are outfitted with louvers of their own that further diffuse the light. "We did sun studies to determine the angles of the louvers," said Casimir Zdanius, Grimshaw's head of industrial design. "When direct sunlight hits the pieces of glass they light up like a halogen."

Grimshaw designed the Hanging Lantern, which combines daylighting

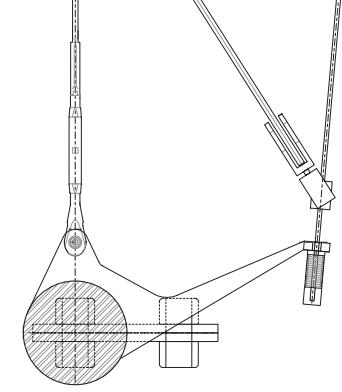
and structural design, with consulting engineer Michael Ludvik. The tempered glass louvers, which handle some structural loads, are attached to inner and outer sets of steel cables that drop down from the ceiling with machine finished 304 stainless steel connections. At the bottom of the lantern, which hangs more than 31 feet down from the ceiling, is a ring beam made up of 6-inch-diameter solid steel billets fastened together with heavy-duty bolts. At 20,000 pounds, the ring beam pulls the cable system into tension. While the 8mm-diameter outer cable carries most of the load, the 6mm-diameter inner cable attaches to the ring beam via a spring connection that allows the pendulous structure to sway without breaking the glass. The inner cables are also tuned to achieve a sensuous curving profile on the inside of the lantern.

Grimshaw also designed a glass-treaded feature stair that encourages access to the second floor and provides a series of landings that offer a good view

Left: The feature stair has laminated glass treads and landings.

Center: The main entry facade is outfitted with a programmable light display.

Right: A custom-designed ring beam attaches to the bottom of the lantern's cables, pulling them into tension.



Architect:
Grimshaw Architects
grimshaw-architects.com

Architect and engineer of record:
Ammann & Whitney
ammann-whitney.com

Engineer:
M.Ludvik Eng'g
mludvik.com

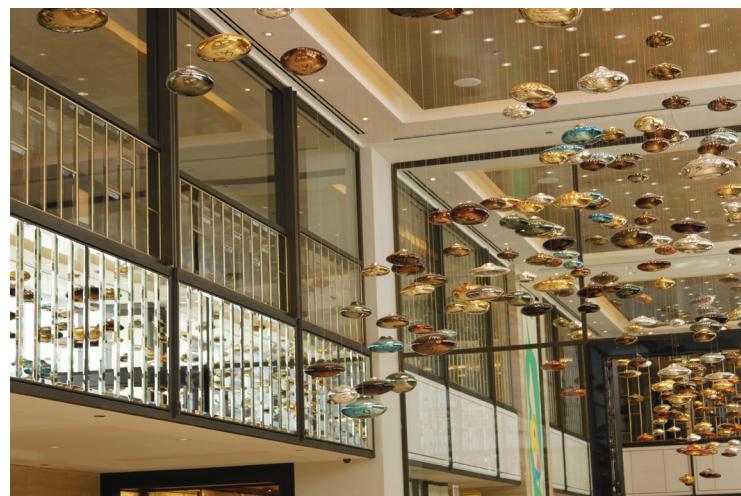
Glass fabricator:
ANGORA
agnora.com

Stair glass installation:
M Cohen and Sons
mcohenandsons.com

Lantern Fabrication and Installation:
AMG Design
amgdesign.net

of the large works gallery and the Hanging Lantern. The landings and treads are composed of four piles of ½-inch-thick low iron annealed glass laminated together with SGP interlayers. The upper surface features an acid etched non-slip surface and the structure was designed so that even if all four piles break the interlayer will continue to carry the live load. Annealed glass was chosen, as opposed to tempered, so that the edges could be polished down flush without shattering, a detail that gives the edges of the treads a jewel-like translucency.

AARON SEWARD



scraper's key materials: glass. "We wanted to emphasize the extensive use of glass on the facade," Richmond Group's Deborah Bray said in a press release, "to deliver an individual and innovative design, which reflected the linear elements of the existing architecture."

Alliance Glazing and GLASSource helped outfit the lobby's two-floor RiverRoom with a unique array of composite panels of Pilkington Optiwhite glass. They bonded ¼-inch low-iron beveled glass to both sides of an extremely flat 3/8-inch monolithic panel, computer numerically controlling each panel to keep the floor-to-ceiling array of panels uniform. Individually cut and fit brass strips divide each panel.

"The feel is almost like you're in a prism. The light reflects in different directions," said Alliance's Dan Shields. "But when you get close to it, you're able to get nice views out, so you're not taking away the skyline feel. It's more art than it is just glass."

Over six months of testing

and mock-up production, Alliance and Bohle Group developed an adhesive that cures under ultraviolet light, keeping the composite panels together without forming bubbles in the glue. Despite being made from many small pieces of beveled glass, the feature wall appears unified.

GLASSource's Jim Arnold said the UV bonding was the first of such detail and scope. "Full size vinyl templates were printed to control the layout process and each small section took between two to four days per panel just to do the UV bonding," he said. "After almost 15 months from the first discussions the designers vision and the end result turned out to be very spectacular as well as unique."

Langham Hotel opened its Travelle restaurant and bar this year, completing the bottom floors' transformation from office space to high-end hotel; and the focus on glass does not end at the lobby. Electrochromic glass from Guardian separates the bathrooms—with the flip of a switch, the glass switches from opaque to

Left: A unique array of composite panels creates a prism effect in this rehab of a Mies landmark.

transparent. Televisions within the mirrors add another touch of luxury, rounded out by custom diamond-cut shapes in each mirror enclosure that match the carpeting.

Designers:
Richmond
www.richint.com

Lohan Anderson
lohananderson.com

Rockwell Group
rockwellgroup.com

Glass fabricators and installers:
Alliance Glazing Technologies
allianceglazing.com

GLASSource
glassource.net

Guardian
guardian.com

LANGHAM
HOTEL

-

CHICAGO, IL

Like many who attempt to transform Mies Van der Rohe landmarks, interior designers Richmond Group got some flak for putting a glitz hotel into one of the architect's stately modernist icons along the Chicago River. Langham Hotel, which now occupies floors 2-13 of the 52-story tower, is more known for glamour than clean geometry.

But the design team's intervention narrowed in on one of the sky-

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DECEMBER / JANUARY 2013-14

DECEMBER
TUESDAY 10 LECTURE Kai-Uwe Bergmann: Architecture is Art...Is Architecture Art? 6:00 p.m. Museum of Contemporary Art Chicago 220 East Chicago Ave., Chicago mcachicago.org
The Past is Present Gallery Talk: Dan Austin 6:30 p.m. Museum of Contemporary Art Detroit 4454 Woodward Ave., Detroit mocadetroit.org
FRIDAY 13 EXHIBITION CLOSING Daniel Libeskind Chamber Works Drawings Knowlton School of Architecture, Ohio State University 27 West Woodruff Ave. Columbus, OH knowlton.osu.edu
Fall Faculty Exhibition: Transforming... School of Architecture, University of Chicago 845 West Harrison St., Chicago arch.uic.edu
SATURDAY 14 LECTURE Development of Streeterville 3:00 p.m. Museum of Contemporary Art Chicago 220 East Chicago Ave., Chicago mcachicago.org

SUNDAY 15
TOUR New Design Gallery 2:00 p.m. University of Michigan Museum of Art 525 South State St. Ann Arbor umma.museum
EXHIBITION CLOSING Research on the City Taubman College, University of Michigan 305 West Liberty St., Ann Arbor taubmancollege.umich.edu
WEDNESDAY 18 LECTURE Lunch Talks: Unbuilt Third Coast 12:15 p.m. Chicago Architecture Foundation 224 South Michigan Blvd. Chicago architecture.org
SYMPORIUM Trickle Up: The Scale of Water in Chicago 6:00 p.m. Chicago Architecture Foundation 224 South Michigan Blvd. Chicago architecture.org
FRIDAY 20 FILM Antonio Gaudí 6:15 p.m. Gene Siskel Film Center 164 Slate St., Chicago siskelfilmcenter.org

SATURDAY 21
EXHIBITION OPENING Three Michigan Architects: Part 1 - David Osler University of Michigan Museum of Art 525 South State St. Ann Arbor umma.museum
JAUNARY
WEDNESDAY 1 EXHIBITION OPENING Shattered: Contemporary Sculpture in Glass Frederik Meijer Gardens & Sculpture Park 1000 East Beltline Ave. NE Grand Rapids, MI cia.edu
THURSDAY 2 LECTURE Express Talk: Thomas Sully: Painted Performance 12:00 p.m. Milwaukee Art Museum 700 North Art Museum Dr. Milwaukee, WI mam.org
SATURDAY 4 TOUR Design and Art as Companions 1:00 p.m. Indianapolis Museum of Art 4000 Michigan Rd. Indianapolis, IN imamuseum.org
FRIDAY 20 EXHIBITION OPENING Archive State Museum of Contemporary Photography 660 South Michigan Ave. Chicago mcp.org

SUNDAY 5
EXHIBITION CLOSING 3 in 1: Contemporary Explorations in Architecture and Design The Art Institute of Chicago 230 South Columbus Dr. artic.edu
FRIDAY 10
TOUR Contemporary Design Gallery Tour Indianapolis Museum of Art 4000 Michigan Rd. Indianapolis, IN imamuseum.org
SUNDAY 12
TOUR The Design Arts: Decorative and Applied 2:30 p.m. Indianapolis Museum of Art 4000 Michigan Rd. Indianapolis, IN imamuseum.org
FRIDAY 17
EXHIBITION OPENING Jaron Childs and Jonathan Bruce Williams Minneapolis Institute of Art 2400 Third Ave. South Minneapolis artsmia.org
MONDAY 20
EXHIBITION OPENING Archive State Museum of Contemporary Photography 660 South Michigan Ave. Chicago mcp.org



COURTESY INDIANAPOLIS MUSEUM OF ART

IMPRESSED:
MODERN JAPANESE PRINTSIndianapolis Museum of Art
4000 Michigan Road, Indianapolis, IN
Through January 26

In traditional Japanese woodblock printing, a team of four artists worked to create a single piece. In this collaboration, the publisher directed the designer, the engraver, and the printer to apply their respective artisan skills for the creation of a final artwork. During the early 20th century, however, a new printmaking method arose in Japan, transforming the group project into an independent endeavor. The *Sosaku hanga*, "creative prints," school of printmakers became the first solo artists in Japanese woodblock printing, designing and executing every aspect of their artworks by their own hand. Currently on exhibit at the Indianapolis Museum of Art is a collection of these masterpieces, including some of the best known *Sosaku hanga* printmakers from the last century. Running through January 26, *Impressed: Modern Japanese Prints* explores the effects of blossoming individualism on woodblock prints. Distinguished by intricate detailing and the look of a highly textured surface, the exhibition's display of print works by Tajima Hiroyuki, Iwami Reika, Saito Kiyoshi, and Maki Haku shows that artists of this movement considered the woodblock print an art form, not a commercial venture.

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THE ARCHITECT'S NEWSPAPER DECEMBER 12, 2013



The concept behind *New Views: The Rendered Image in Architecture*, an exhibition of contemporary architectural renderings, grew out of an issue of the New York-based, print-only journal *CLOG*, which describes its mission as exploring "a single subject, relevant to architecture now. Succinctly, on paper, away from the distractions and imperatives of the screen."

The journal's admonition against "the screen" is paradoxical in the exhibition, because its primary content—four loops of digital images projected onto large framed surfaces—clearly read as pictures on screens. And while the digital nature of the images themselves is rather prosaic compared to the kind of material we are used to seeing in museums—paintings, sculpture, and the like, it is nevertheless exceptionally thought provoking. It raises basic questions about the field of architecture—both as a design discipline and as a commercial venture—as well as a consideration of the eternal question, "what is art?"

Architectural renderings have served a mostly commercial purpose throughout the history of the architectural profession, although the art world has deemed certain of them in a more elevated category: the lushly embellished prints of Frank Lloyd Wright's work as published by Wasmuth in pre-WWI Germany, or the dramatic, atmospheric drawings of streamlined skyscrapers by Hugh Ferriss. By the 1980s, **continued on page 17**

Domo Arigato Mr. Roboto

Archaeology of the Digital
Edited by Greg Lynn
Sternberg Press, €29.00

The term digital in architecture carries a certain connotation: the promise of improved collaboration, efficiency, and ease. So often, the use of *digital* is qualified by "in the future." Greg Lynn inverts the idiom by examining "the recent past" in his curatorial and editorial compilation, *Archaeology of the Digital*, by discussing four prominent architects at their creative apex in the 1980s. Along the way, a fifth star dominates the conversation—the unsung heroics of the machine, computer, code, and scripts.

As Mirko Zardini points out in the introduction, the term archaeology suggests a great sense of loss. Lynn's ambition, in conjunction with exhibitions and seminars by the Canadian Centre for Architecture (CCA), is to challenge how we think about preservation of digital iterations, even permitting access to digital records for future use and research. How can currently inaccessible byproducts of architectural design, such as a digital model, be curated alongside the classic documentation objects (sketches, physical models, and drawings) to heighten the interactive delivery experience of future research and curated exhibitions? *Archaeology of the Digital* is one format that relies heavily on static documentation and anecdotal interviews about a time

distant from the present—a time when computers were limited by speed.

The 1980s was a decade where interest in the digital world existed among many forward-thinking architects, but was not commonplace. Perhaps the most notable early adopter was Frank Gehry's office, Gehry Partners. The Fish, a sculpture located on Barcelona's waterfront for the 1992 Olympics and one of the first public projects by Gehry, pulled in aerospace industry veteran Rick Smith to develop methods to model and build complex shapes. When Gehry asked the question if the structure could be built, Smith responded with "a fish is kind of aerodynamic... sure." And so it began. Utilizing digital modeling, Gehry Partners proceeded to projects such as the Guggenheim Museum Bilbao, leveraging the digital model to bring the most sculptural of forms to life. Prior to project bid, the office educated six bidders in CATIA software, resulting in a one percent spread and 18 percent below budget. Though the value of digital tools and process was clear, Gehry never lost sight that it was personal intervention that transformed computer information into the built form.

At the time, aerospace and engineering industries would design directly within the computer environment, but leaders in architecture like Gehry were still heavily reliant on physical models. Tensho Takemori explained the extensive efforts to mold physical sheets of velvet, lathered with beeswax, to achieve the complex ripples of the proposed Lewis House roof, then translate the sculptural shapes via a digitizing arm into the computer, and finally proceed with documentation. Fundamentally, the

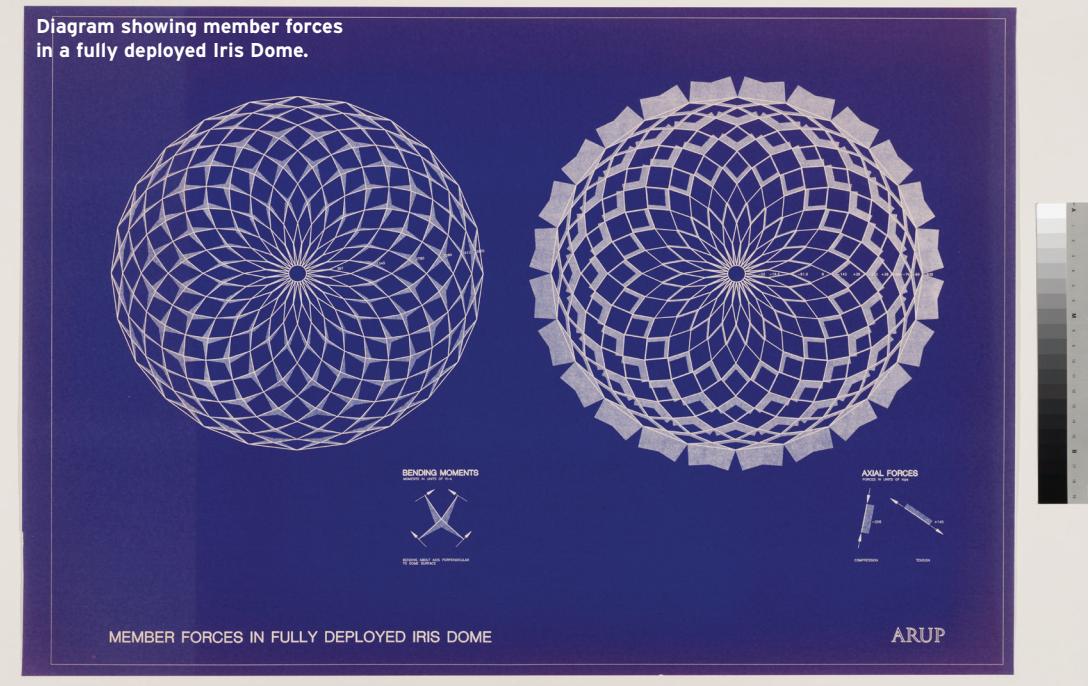
processes adopted from aerospace and automotive industries were not commonplace in architecture because the ability to prototype for a one-of-a-kind building is cost prohibitive compared to a 747, for example.

The dialogue continues with several perspectives from the team of Peter Eisenman's competition design for Biozentrum, including Eisenman, Benjamin Gianni, Chris Yessios, Joe Tanney, and Lynn himself. Though the project did not seek to be parametric, the parallel role of the computer, alongside traditional methods, was used to perform *macrotransformations* (consolidation of multiple transformations into a single operation) on forms seeking to provide variations

resulting from DNA strand algorithmic inspirations. As Eisenman states, application of form from diagram "was so dumbly literal." It was not the digital process or computational algorithms, but instead, the diagram that interested him. As Gianni points out, Eisenman's interest in the diagram was its potential ambiguity and ability to be misread. While the project was being designed in Eisenman's New York office, students in his Ohio State University studio were facilitating the computational iterations that would be sent overnight by FedEx on a daily basis. It was an iterative feedback loop of optioneering, whose breadth and speed were made possible through the application of computational

analysis.

The interviews proceed with Chuck Hoberman and Bill Record regarding kinetic forms and artwork they've collaborated on, and Shoei Yoh regarding the application of computational structural analysis on long span structures in Japan in the mid-1980s. Hoberman's work is founded on mathematics, geometrical understanding, and kinetics, and he even states that the computer is not necessary to his process. Yoh acknowledges that the computer allowed the building to be thought of "more as a machine or organism" permitting iterations and refinement. Ultimately, forms were driven by the programmatic **continued on page 17**



RENDER-O-RAMA continued from page 16 however, surging interest in architectural drawings by, among others, Rem Koolhaas, John Hejduk, Michael Graves, and the Memphis group, had created a new niche among serious collectors.

By the second decade of the 21st century, of course, computer aided design resources have revolutionized the realm of architectural renderings. The range of styles presented in the *New Views* show illustrates, however, that the movement away from unique, hand-drawn images to digital ones hasn't reduced their importance or appeal. Computer aided design has opened up the range of artistic expression substantially.

It has also raised a whole series of questions that *CLOG*'s show does a good job of addressing, both with the images displayed and the very helpful didactic materials.

Among the issues the organizers highlight are those of authorship and ownership, particularly in light of displaying these works in a museum setting. If architectural renderings are works of art, despite the fact that they are usually commercially commissioned, who owns them? Is it the architectural renderer? The architect? The building owner, who presumably paid for it in the first place? And who gets credit? Here, some of the images are credited to designers: Zaha Hadid and Greg Lynn among them, but more often to the out-sourced design studios like Luxigon and Labtop, where many people collaborate to produce a finished product. This reinforces the notion that the making of architectural renderings is similar to the making of much contemporary art. The concept of the

lone painter or architect in a garret studio is obsolete. There's very little difference between the process of creating computer-generated renderings and fabricating the work of Jeff Koons or Damien Hirst.

Another salient issue the show raises is what, really, is a rendering? Is it a photo-realistic depiction of how the finished project will look? Or is it an expressionistic image suggesting something else entirely? It is possible to look at many of the works and wonder whether they are renderings or actual photographs of the constructed building; others are clearly fanciful products of the designer's or renderer's imagination.

Probably the most interesting item in the show is the single piece created especially for it: an image created by Eric De Broche Des Combes, a founder of the "visualization company" Luxigon, illustrating a view of the Art Institute gallery where the exhibition is installed. The view shows multiple reflections of the digitized images in the exhibition in what is really an "impossible" view. It is simultaneously a commentary on the infinite creativity and innovation that digital rendering can produce, but also an allusion to the history of art: tiny depictions of a man and woman at the focal point of the view are clearly renditions of the husband and wife in van Eyck's famous Arnolfini portrait, considered by some art historians as the first painting to depict ordinary people in scenes of everyday life. Unlike the rest of the materials in the exhibition, this one will remain in the Art Institute's permanent collection.

PHILIP BERGER IS A FREQUENT CONTRIBUTOR TO AN.

DOMO ARIGATO MR. ROBOTO continued

from page 16 layout and the importance of light in his structures, not by the computer or computationally derived roof structure. Though both designers' works could be achieved without computers, the integration of computer analysis and visualization changed the process by which the structures were developed.

A distinguishable characteristic of Lynn's compilation is the side-by-side, parallel presentation of discussion and visual representations with *Field Notes* on the left side and *Project Files* on the right. This ingenious layout allows the reader to flip through sketches, project documentation, analytical output, and model photographs about the projects being reviewed without losing one's place. This notion of parallelism, however, is a theme that goes beyond the book's physical format and surfaces in the work of the four designers. Whether it was the tandem modeling in physical and digital by Gehry, or the OSU students and computational files FedExed to Eisenman's office in New York, translations and iterations between mediums were integral to facilitating design process but with multiple digital and analog formats explored simultaneously.

Another almost shockingly consistent message that emerges is the four lead architects' hands-off approach to integrating the digital into the offices and processes. In some cases, it is almost described as despise for the computer. As Takemori noted, Gehry learned the computer's capabilities, but relied on the physical artifact (the model) because it possessed honesty, or inability to misconstrue like the computer screen. Yessios describes Eisenman as "anti-computer," though Lynn

credits him as thinking like a computer and parametrically. Hoberman flat-out disregards the computer (and even pencil and paper) as being essential to his process. Strangely enough (and to their credit), these sentiments did not prevent these pioneers from supplementing their process with the digital, integrating perhaps what they were most uncomfortable with, leveraging the talents of the fifth star—the machine, computer, code and scripts—and their creative operators: the Rick Smiths, Benjamin Giannis, Chris Yessios, Bill Records, and Kenshi Odas of the world.

The book is astute in identifying the challenge presented in documenting and preserving the digital nature of architecture practice today. However, beyond the clever side-by-side format, the booklet medium misses an opportunity to pull in digital documentation. Could the book be supplemented with a link to digital models hosted on the cloud? This raises questions about how successful the curatorship was in gathering digital files from these nearly three decade old projects. Were they lost or does one have to visit the exhibit to engage with these files? Would it have been more successful if a collection of more recent projects were used? How about the side-by-side format? How does that translate to an eBook format?

Lynn and contributors have laid out the problem. Now, as a community, how do we move forward in digitally archiving the abundance of information we generate day in and day out, in a time where computers and analysis are not necessarily limited by speed, but by our ability to navigate, understand, and store data?

JEFFREY VAGLIO IS THE ASSOCIATE DIRECTOR OF THE ADVANCED TECHNOLOGY STUDIO AT ENCLOS.

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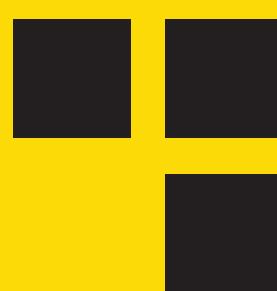


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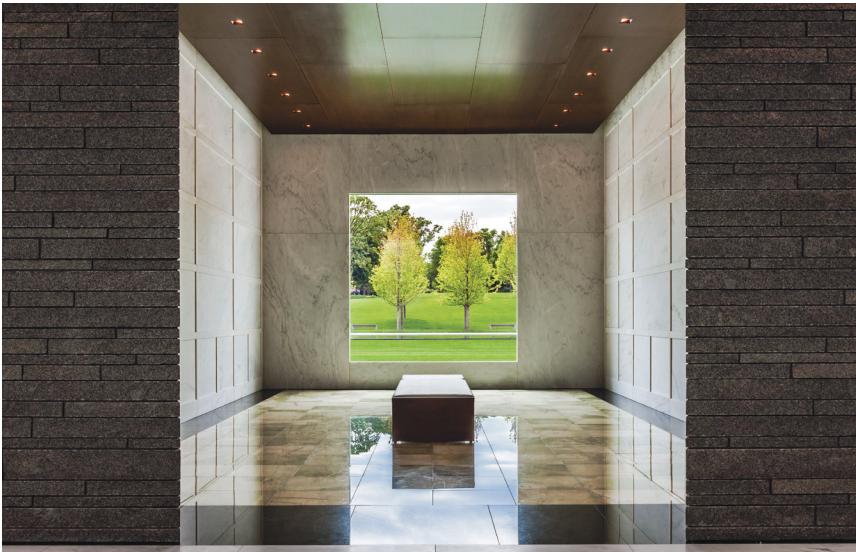
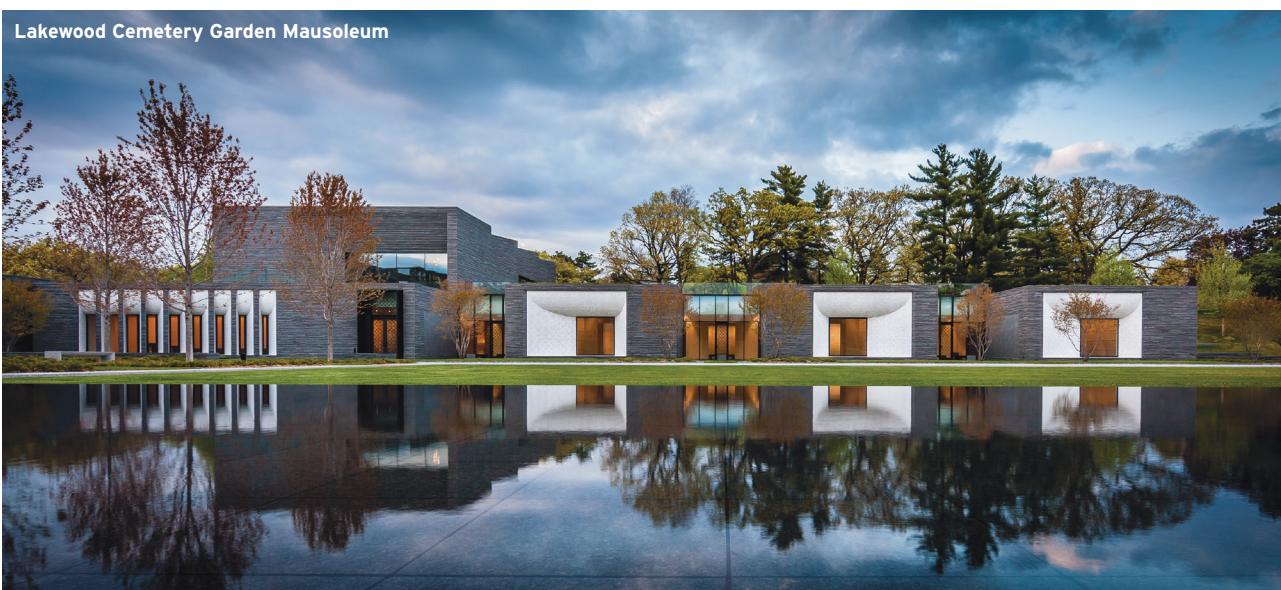
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in different environments. For instance, when you have to install a light in an auditorium that is eighty feet in the air, how do you service that?

In terms of what I try to avoid, the first thing that comes to my head is shiny surfaces. Whether it's a nice piece of wood or something else, I try not to shine light on them. When a surface has too high a sheen, it reflects the light source when lit. Sometimes we find solutions in using more ambient light or making the contrast of the material lighter. There are other ways to emphasize those materials other than through lighting.

What are you working on now?

Right now we are working on a renovation project at the Minnesota State Capitol Building [built in 1905]. We're mostly restoring the building to its historical character, and in some spaces we're doing an interpretation of the historical lighting. It's a very challenging project in a way, but it's fun.

That gets back to the idea of updating the lighting scheme in an older building. Are there roadblocks in keeping the capitol building well lit?

In general, the main public chambers are pretty well lit, but from a lighting perspective there are some challenges. Historic buildings have typically low lighting and rely largely on daylighting. But how we use these buildings now is so different. For example, they now do lots of TV production there, and we have to provide a high level of lighting to accommodate video while maintaining the historical feel of the building. Those things just don't go well together.

As a teacher of lighting design, what are some of the main ideas you try to instill into your students?

I was teaching interior design students, and with them I tried to convey the concept of conceiving lighting with the design, so that it does not become after thoughts.

I also try to emphasize the importance of experience: You can't just sit in the classroom and imagine things, you have to go out and observe. We did a lot of lighting journals where the students thought about what worked and didn't work in different settings.

Thirdly, I ask them to pay attention to how light behaves. To someone who is not an experienced designer, it might seem like a light will stay perfectly framed on an object or a wall, but it's not that way. Unless you have a beam shaper, light tends to spill out. The light fixture itself is just a physical piece of material, and what it produces is a totally different thing.

Are there other areas of study that an aspiring lighting designer can pursue to supplement their academic practice?

I think a good lighting design student needs to be educated in the arts. You have to have that grasp of what is good form, what is a good use of space. The technical side of lighting can be taught. What is really hard to teach is the intuitive sense of the art itself. As an artist, you can be taught how to make the brush strokes, but what is really important is whether you have passion. **IAN FULLERTON**

HGA'S SENIOR LIGHTING DESIGNER TALKS ABOUT LIGHT'S NATURAL BEAUTY, AND THE ART AND SCIENCE OF LIGHTING DESIGN

Whether lighting an office building or a train station, Tao Ham likes to let nature take its course. Originally from China, Ham, a senior lighting designer with the Minneapolis-based architecture firm HGA, gained attention earlier this year when her shop took home an International Association of Lighting Designers award for their work on the Lakewood Cemetery Garden Mausoleum. She earned her Ph.D. in interior design from the University of Minnesota, where she has taught lighting design for interior designers. Ham shed a little light on her design philosophies during a chat with Ian Fullerton for AN.

Ian Fullerton: When developing the lighting design for a project, where do you start?

Tao Ham: I think this is where my training in architecture comes into play. I imagine myself going through each of the spaces, touching every surface of the building, and feeling it from all different aspects of my sense—not just visually. I totally start a project by thinking about just walking through the front door and then finding out what needs to be emphasized in each room.

In presenting HGA with an award for its work on the Lakewood Mausoleum, IALD said that aspects of the building's lighting design "heightened the spiritual qualities of the space." What role did the balance between natural and electrical

lighting play in achieving this effect?

I think natural light is the most beautiful thing that a building can bring in and that you can look out onto. In the mausoleum, every skylight has its own shape and position, so each chamber has its own individual quality.

Not only is daylighting an energy saving measure, it also transforms the nature of the building, and it's important not to disturb those qualities. After that, you can think about how electrical lighting acts as a supplemental source. Even during the day, natural light sometimes needs to be complemented; in contrast, a big bright window can make another wall look dark. Hopefully visitors don't even notice that electric lighting is there, but it just gives the room a subtle balance.

When should lighting design be considered on a project and how do you work with architects or other designers?

Ideally, lighting should be involved in the early stages of any design work, and a lighting designer should be invited into the team at the beginning in order to brainstorm ideas and concepts. A lot of great lighting schemes aren't just attached to a building's surface; they really should become integrated into a building system. For example, if you wanted to hide light fixtures into cavities on the wall, you really have to have those ideas incorporated early. If we all wait

until the last minute, the space for those wall slots might already be occupied by other building elements.

I really believe my strength is that I can conceive the building, so when introduced to the design team early I can start to define where lighting needs to be expressed.

Do you find inspiration for natural lighting design in older, possibly pre-electricity architecture?

Funny you should mention that. I just finished a renovation project on an old train station, the Union Depot in St. Paul, which was built in the 1920s. It was interesting to see how little light people got by on back then. The lighting instruments in that space were limited to sconces and pendants, and they barely met our egress standards for today. I think back then people were largely using daylight as their main source. If you are talking about inspiration, I'd say historic buildings give us a lot of ideas on how to introduce daylighting that is not only functional but also enhances the experience of the building.

What are some of the major challenges of lighting in architecture? Are there any specific methods, materials, or styles that you try to avoid?

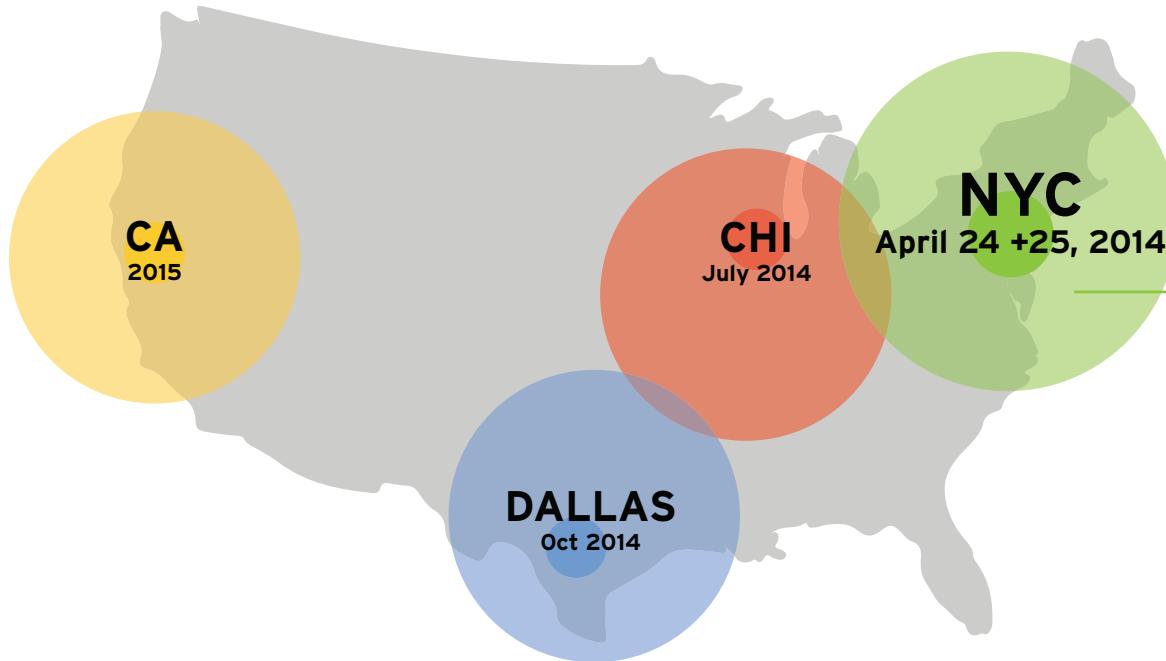
I think one of the big challenges is to design a lighting system that is maintainable

facades⁺

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