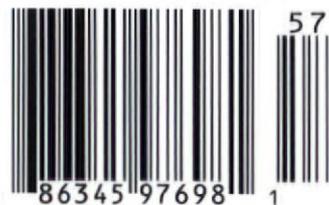


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JANUARY/FEBRUARY 2012

DEPARTMENTS

6 EVENTS

8 EDITOR'S NOTE

10 SHOWROOM

Kitchen designs are heating up

12 P.O.V.

Paul J. Matt remembers building the Salk Institute

14 GREEN WORKS

OHOME offers a faster, greener building model

16 MAKING THE GRADE

A CSULB student designs interiors for making music

18 WORKBOOK

Scraping the sky in style

44 UNBUILT

A Uganda classroom designed to be built with ease

FEATURES

2011 AIA/LA DESIGN AND NEXT LA AWARD WINNERS

30 RED BUILDING RISING

The Pacific Design Center's last piece is realized

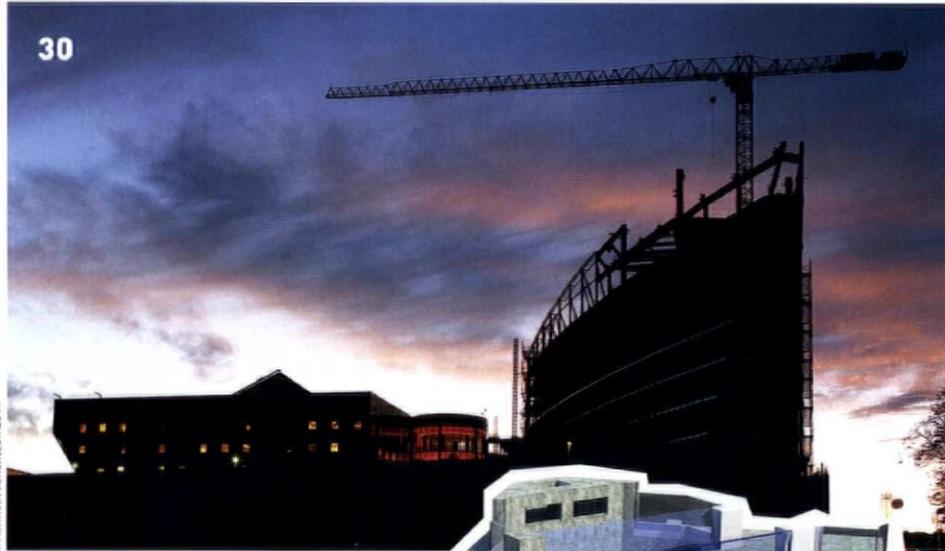
PHOTOGRAPHY BY KENNETH JOHANSSON

TEXT BY MICHAEL WEBB

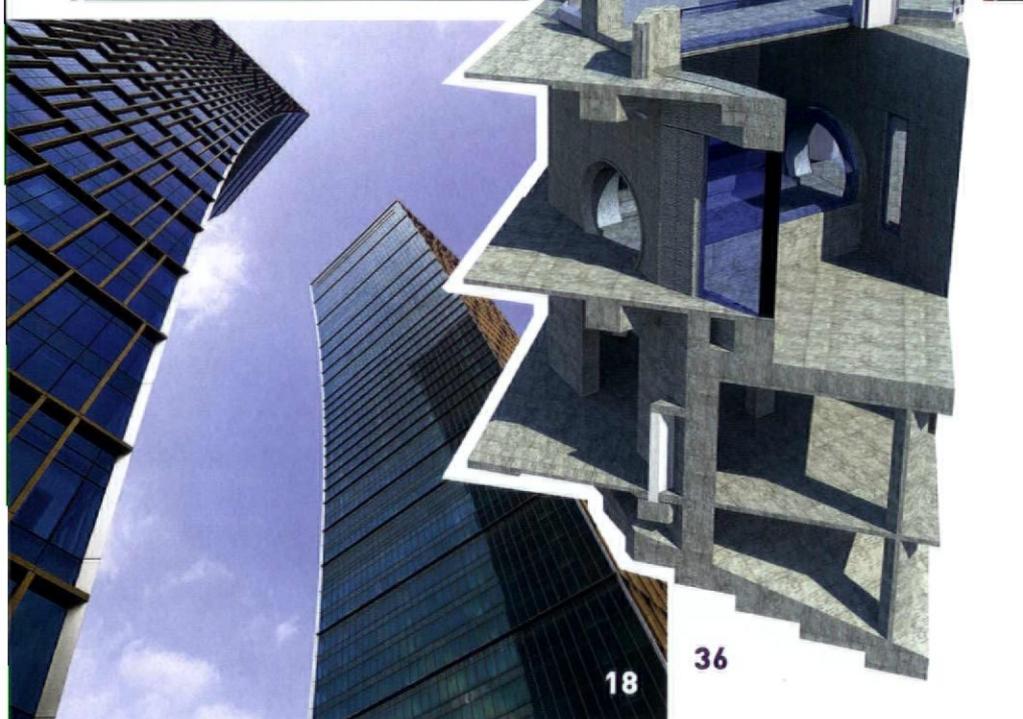
36 DIGITAL DIALOGUES

How BIM software is streamlining the building process

BY DANNY KING



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Cover image Red Building by Cesar Pelli. Photography by Kenneth Johansson



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EVENTS

Celebrating Surfaces Panelists discuss cutting-edge building skins with a packed house

FORM toasted the advent of the fall season with an exciting event at HOK in Culver City. Attendance was at an all-time high, and guests were treated to a fascinating panel discussion on intelligent building skins. Publisher Ann Gray moderated a panel of experts including Peter Simmonds of IBE Consulting Engineers, Mic Patterson of Enclos, Ernest Cirangle of HOK and Steve Selkowitz of Lawrence Berkeley National Laboratory. The packed crowd dined on complimentary hors d'oeuvres provided by HOK and enjoyed cocktails furnished by Corzo Tequilla. The Izza Beverage Company provided additional beverages. FORM magazine thanks its hosts, supporters and sponsors for their contribution to one of its most successful events.

Photography by Rob Casey



FORM ISSUE EVENT

CREATIVE CONSTRUCTION

A Conversation with Paul Matt

Thursday, February 9th, 2012, 6:30-9:30 P.M.,
Poltrona Frau & Cappellini Showroom
8950 Beverly Blvd., Los Angeles, CA 90048

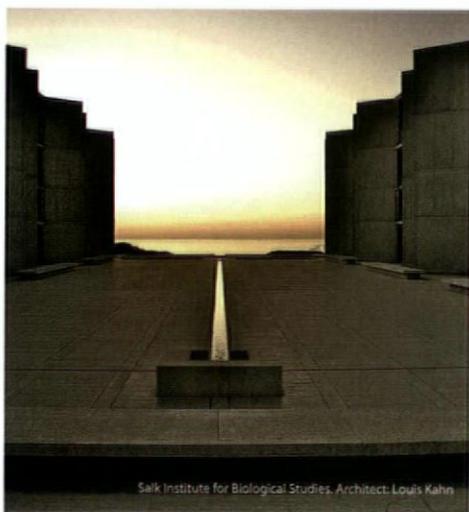


Over a career spanning five decades, Paul Matt of MATT Construction has collaborated with such celebrated architects as Louis Kahn, I.M. Pei, Frank Gehry, and countless others. Combining fidelity to architectural vision with technical ingenuity, he has helped bring many of California's most diverse, challenging, and iconic designs into reality. Join us on February 9th as Paul sits down with FORM Publisher, Ann Gray, and shares his most cherished anecdotes.

Enjoy the program in the comfort of the Poltrona Frau / Cappellini showroom. Expect cocktails, hors d'oeuvres, and some great storytelling.

Please RSVP to rsvp@FORMmag.net or 818.956.5313.
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Salik Institute for Biological Studies, Architect: Louis Kahn



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EDITOR'S NOTE

At FORM, we spend a lot of time and space celebrating the vision and designs of architects. We write about what inspires the shapes they come up with, the reasoning behind their material choices and the careful thought put into siting their buildings. But this is only half the story. What often gets overlooked is the team of contractors, engineers and construction workers who turn those ideas into realities. In this issue, we'd like to tell the rest of the story and shine a light on the intricate process of construction.

In perhaps the best testament to the teamwork and diligence involved in realizing a complex structure, Cesar Pelli's Red Building, designed for the Pacific Design Center forty years ago, has finally come to fruition thanks to a slew of architects, builders and engineers. Michael Webb writes of the intricacies involved with the construction, while Kenneth Johansson's photography captures the exacting process on a day-to-day basis (page 30). Our second feature by Danny King discusses the other end of the spectrum and learns how BIM software has shaped and is continuing to change the way architects and builders work together (page 36). Our Workbook section (page 18) spotlights the challenging engineering methods needed to build high-rise structures, while our Unbuilt column (page 44) shows that sometimes it's best to keep things simple. And what better way to showcase the importance of construction than reviewing the winners of the 2011 AIA/LA Design and Next LA Awards. Along with a picture of the winning projects, we include the name of the architect who had the vision and the talented team that carried it out.



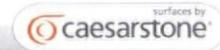
Carly Hebert

A handwritten signature in black ink that reads "Caren Kurlander".

Caren Kurlander
Editor in Chief



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FORM FOLLOWS LIFE



Home Cooking

Ranging from sleek to rustic, six kitchen designs offer tasteful options

1. BULTHAUP

With the **b2** kitchen workshop, Bulthaup has distilled the essence of the kitchen down to three customizable parts. A workbench includes a water point, work surface and cooktop, while a tool cabinet holds essentials—such as pots and pans, spices and crockery—on slatted shelves and in full view. Appliances tuck neatly inside a third cabinet. bulthaup.com

2. POGGENPOHL

Developed by Porsche Design and Poggenpohl, the **P'7340** design is the world's first kitchen to feature cabinetry made with carbon fiber. Usually associated with the automotive industry or aerospace, the ultra-light yet extremely strong material is laminated and then applied to a glass front giving the sleek cabinets a three-dimensional appearance. Poggenpohl.com

3. SNAIDERO

Code, the new kitchen by Italian manufacturer Snaidero, offers a highly customizable system that plays with volumes allowing for a variety of compositions. Available in two models, Colour (shown) and Natural, Code's single open modular unit creates a starting point, which can be modified to fit any existing wall or work as a freestanding unit. snaidero-usa.com



4. PEDINI

The just-introduced **Integra** kitchen model offers classic styling and countless opportunities for personalization. Available in matte or glossy finish in a range of colors and wood veneers, Pedini's design can also be modified with curved cabinets, flat fronts with a channel, a recessed handle or three-piece framed oak fronts with handles. pediniusa.com

5. SIEMATIC

German kitchen manufacturer SieMatic, known for its handle-free designs, is introducing a new concept to its renowned S collection. The **S3** line features recess channels, taller cabinets and the company's newly engineered SelectSurfaces, all while maintaining an affordable price point. The S3's adaptable design also makes it a smart option for small spaces. siematic.com

6. CISCO HOME

Known for their stylish sustainable furnishings, which are handcrafted in Los Angeles, Cisco Home has introduced the **100% Kitchen** with a similar ethos. Conceived as a system by Kevin Henry, each kitchen can be customized and is hand-built using 100-year-old timbers reclaimed from demolished buildings in Los Angeles. Clean, modern designs offset the rich, textured materials giving the line a one-of-a-kind look. ciscohome.net

CONSTRUCTION ZONE

Paul J. Matt, cofounder of MATT Construction, reflects on the creativity of architects and getting the Salk Institute right

Do you find similarities in very creative people?

All creative architects are similar in one way. It's the vision. You are there to help them make it tangible. They don't necessarily know how to accomplish that.

Of the projects you have done, which was the most fun for you?

I enjoyed, in retrospect, working with Louis Kahn. I was 30 years old, and I was the superintendent on the Salk Institute. That was the first time I got into trying to figure out what they were trying to accomplish.

What were some of the challenges?

The first thing I would do when we hired a new carpenter was get rid of the chalk lines because they would use red chalk and you couldn't put that on the forms because it would read through on the finished product. You had to throw the chalk lines away or wash them out and refill them with white chalk. That was where we first started doing form-tie patterns, which has been copied a lot since them. My son, Steve, and I—he was about 5 or 6 years old at the time—built the first lead plugs that you fill them with. Instead of packing them with drypack we put lead plugs in them. We made the first ones in the garage at home. Kahn didn't want them flush with the surface so we had a special tool that we would use to pound them in. As far as I know none of them have ever come out.

Did you work directly with Kahn?

He would come out to California. We would do 30 concrete samples—they looked like tombstones—and he would come out and say, 'I don't like it. The color isn't warm enough.' We could not get the right color. He wore very thick glasses so I couldn't understand how he knew exactly what he wanted. That's where we took and blended Riverside cement with pozzolan. To make sure we didn't get blotches—pozzolan has a

little different specific gravity than cement—we had it air-blended in Riverside at the plant. We blew it into the silo right with the cement it so would be evenly distributed. You can't buy pozzolan anymore because of environmental concerns. We didn't have concrete pumps at the time, so we had to pour it with a crane and a bucket.

Was he that exacting about everything?

Kahn did not want to see wood grain, and at that time you could not buy coated plywood—it just wasn't made. So we bought A-grade plywood and rented the fairgrounds in San Diego and laid it all out and put a two-part urethane plastic on it and coated it all the way around. Kahn didn't like paint so nothing got painted. The windows in the labs were stainless steel just the way it came off the sheet. He didn't like it polished. He also liked to use COR-TEN steel.

He was kind of the godfather for a lot of modern architects.

Are you able to train people in your philosophy of doing business or do you hire people that already understand it?

You have to train them and understand what kind of talent you need to do it. We got hired to do Skirball, and we have done five phases. In phase one, we had a young apprentice just learning the business. Since then he has worked on every one of the phases, and he is now the superintendent on the final phase 20 years later. It is very heartwarming for me to see that.

I am very encouraged with the younger generation.

Will you retire or die with your boots on?

The competition has been asking when I would retire almost from the day I started. You can only play so much golf, but I will probably be like MacArthur and just "fade away."

—Interview by Ann Gray

Paul Matt, left, with project manager Chuck Gruber, on the construction site of the Salk Institute for Biological Studies. Matt was superintendent on the project.

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Home Sweet OHOME

The Healthy Buildings Technology Group's answer to revolutionizing traditional building methods

Bob Massaro, CEO, LEED AP, of the Healthy Buildings Technology Group, believes that the construction industry should keep pace with—or stay ahead of—the times. “Any time you see stick construction,” he says, “the building is not taking advantage of new technology.” For the Healthy Buildings Technology Group, based in Napa, California, innovation began in the 1990s, when the company was using a hybrid construction process that focused on light-gauge steel, high insulation values and durable materials. By 2008, hybrid construction wasn't enough, and the company committed further to sustainable building practices. Enter the company's newest line of products: the OHOME series.

The OHOME series features standard models ranging in size from 150 square feet to 1,600 square feet, with a goal to build “faster, greener, healthier.” The components of each model are fabricated in a factory but assembled on site—with the highest possible commitment to sustainability and quality design. The shipping process offers a primary and unique benefit of the OHOME design-build. Traditional modular construction requires a cumbersome shipping process to move what amounts to boxes

filled with air. The panel technology used by OHOMES eliminates those disadvantages while still delivering assembly-ready components. “We are flat-shipping completed panels,” says Massaro.

Modular construction also suffers from an inability to customize configurations. While OHOMES have standard models and standard configurations, the system has the flexibility to conform to outside designs. Two OHOME projects currently in the design phase, including a school in Hawaii and a resort in Northern California, are designed by outside architects. The panels used in the OHOME process (Meditate II from the SierraPine Sustainable Design Fiberboard line) provide the Healthy Buildings Technology Group the flexibility to deliver more customized products than traditional modular.

The OHOME is built on site, but at a lower cost than conventional building practices—less than \$250 per square foot before upgrades (most standard models cost much less than that). After construction by an OHOME certified contractor, the OHOME is finished—complete with fixtures, cabinets and operational appliances—in three to

four weeks. The company considers the benefits of good design commensurate with manufacturing processes. “There has to be a sense of pleasantness, happiness and calmness in any project,” explains Massaro. The results also extend to performance: OHOMES offer 42 sustainable design elements (18 come standard), including features like net-zero energy, a living roof and home automation.

The OHOME is quickly moving to the manufacturing stage. An operational facility in Valencia, California, is currently showcasing the company's original model, and site work began in October, with 6 Series (640 sf) and 12 Series (1,260 sf) models on display at sites in Napa. The Healthy Buildings Technology Group's target market is single family and multi-family in the “specialty niche” (i.e., backyard studios or emergency housing).

It's clear that OHOMES are not intended to be all things to all people. The goal of OHOMES, according to Massaro, is loftier than that. “We want to elevate construction technology, and elevate the way buildings are built.”

—James Brasuell

BELOW LEFT: The OHOME 6 Series offers 640 square feet of adaptable space.

BELOW RIGHT: A 6 Series unit coming together in its fabrication facility.

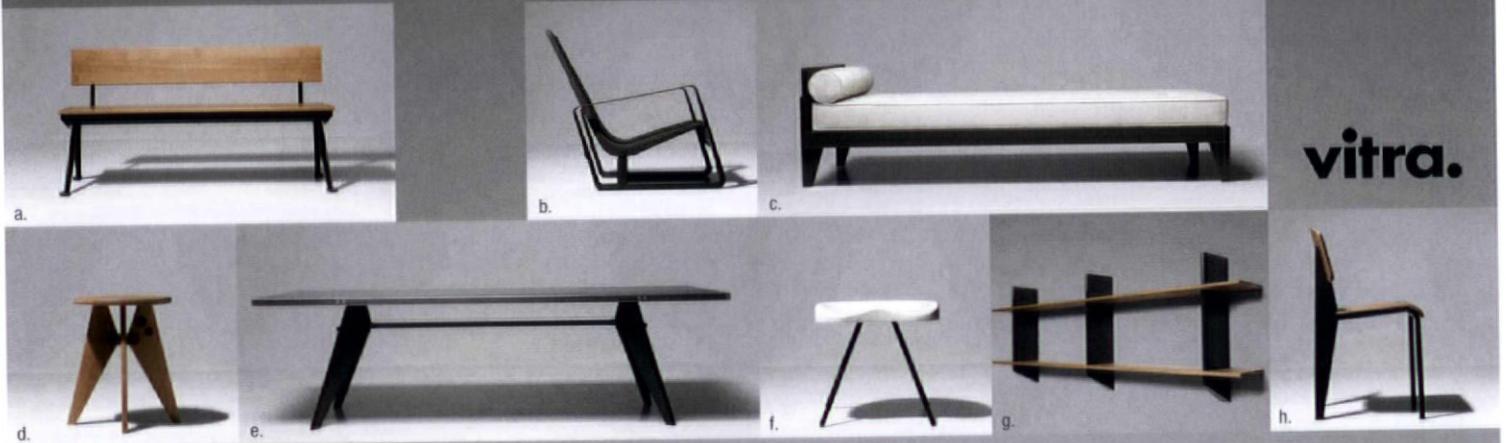


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MAKING THE GRADE

ASSIGNMENT:

Create a visually engaging and functional design based on a real client, user and existing building.

STUDENT NAME: Lauren Elyse Montgomery

SCHOOL: California State University, Long Beach

MAJOR: Interior Design

ADVISOR: Alec Johnson

PROJECT TITLE: The Muse

PROJECT DESCRIPTION: The Muse is a creative hub, where musicians can write and record. The Muse includes a lounge, lofts, restaurant, live performance space, practice rooms and a recording studio. The space is designed to be conducive to the unique creative process of musicians, and address the creativity, collaboration, vices and quirks of the musician community.

DESIGN TOOLS: 3ds Max with V-Ray and Adobe Photoshop

INSPIRATION: The inspiration behind The Muse explores how a song is created. The musician's process is distinct from other art forms, so the goal was to create a space metaphorically based on that process and its components. Melody, rhythm, beats and the bass line are concepts implemented for different spaces. In music, the magic is how those individual pieces come together to make a comprehensive, effective and beautiful song. I used this model to try to design a comprehensive and effective space for these artists.

DESIGN HEROES: Fashion designer Alexander McQueen and Walter Gropius.



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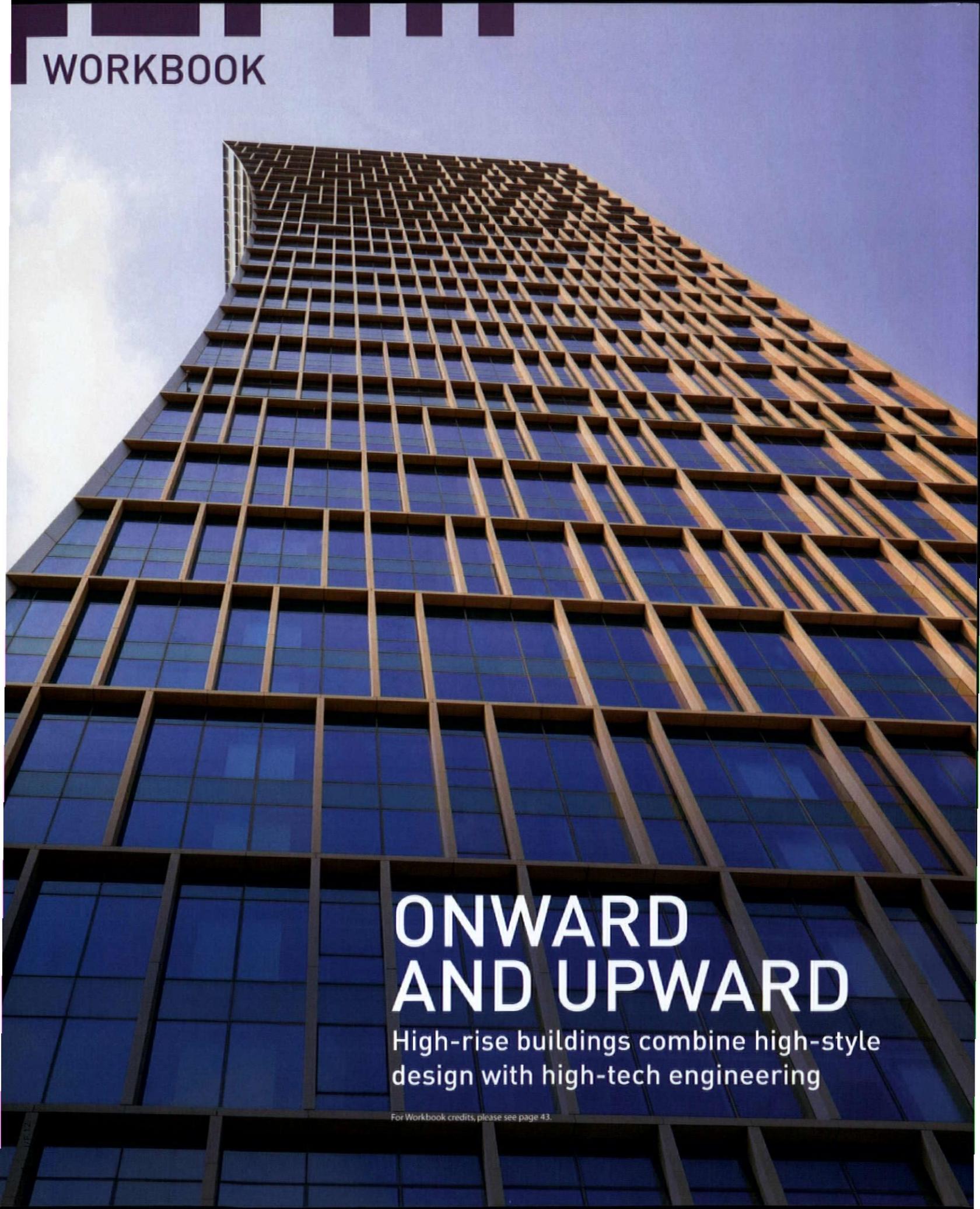
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Riviera TwinStar Square

Location: Shanghai, China

Designer: Arquitectonica

General Contractor: Shanghai Construction (Group) General Co.

Structural Engineer: Arup

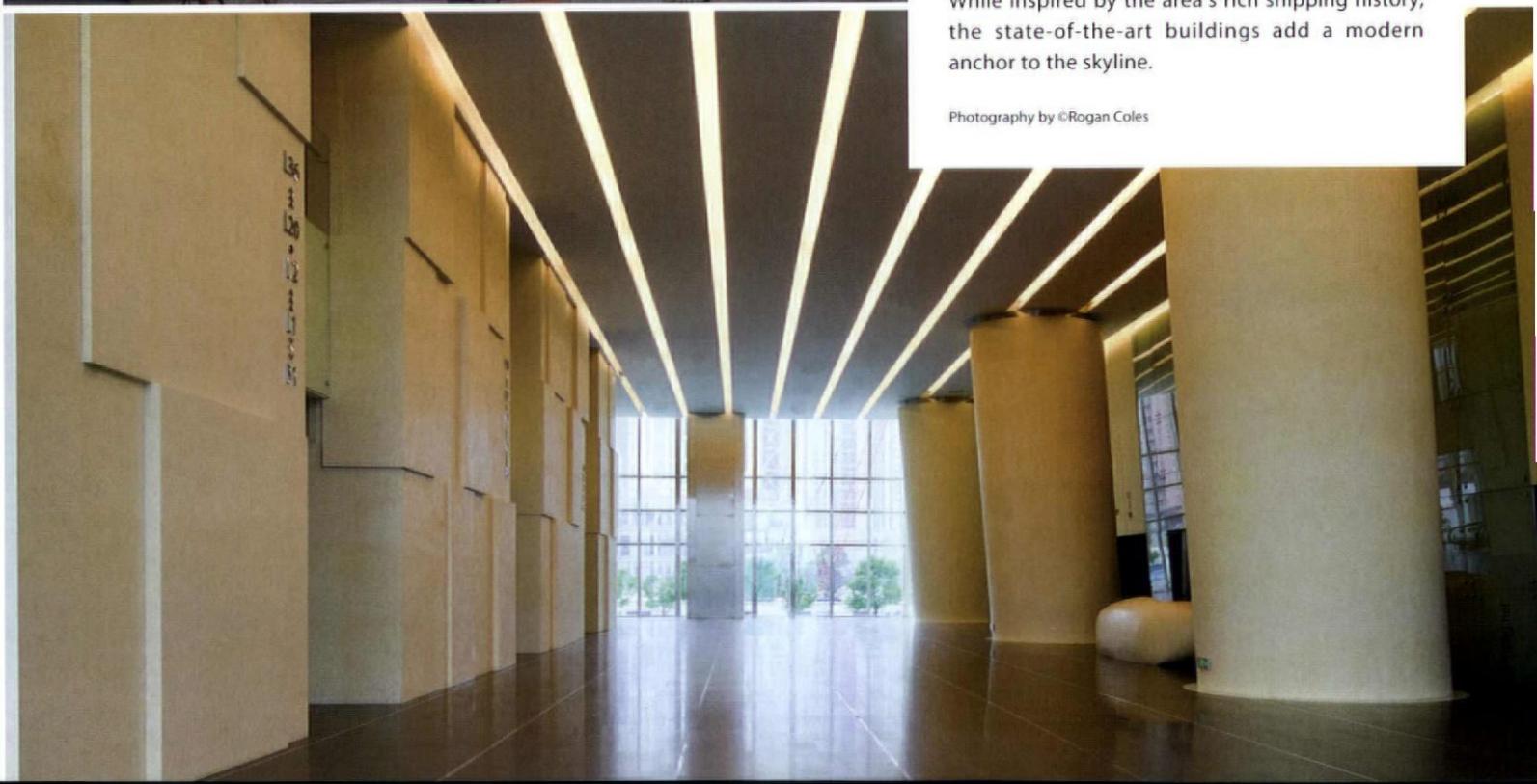
Websites: arquitectonica.com; scg.com.cn; arup.com

When Arquitectonica set out to design new office headquarters for Agriculture Bank of China and China Construction Bank, they took an unorthodox approach. "The new Shanghai is largely populated by object buildings, forms that are about themselves," says principal and cofounder Bernardo Fort-Brescia, FAIA. "We designed the two buildings to sculpt a space. The void between the buildings is the form instead of the two solids of the flanking towers. The orthogonal outer edges complete a rectangle within which the curving void appears."

That void is meant to represent the hull of a ship, as the riverside site was historically used as the city's shipyard. The two 49-story towers rise on axis with the main slip, which is being restored as a museum, creating a gateway to the river. The structures were built with reinforced concrete frames and steel reinforced columns in the lower sections. Inclined columns support the curved elevations. The architects kept sustainability in mind as they selected the triple-pane, low-e glass façade. The glass curtain wall, natural stone and aluminum cladding were all procured locally in China and are recyclable.

Built with Shanghai Construction (Group) General Co. and Arup, the towers are connected by an elevated platform, which protects a pedestrian corridor below and provides an outdoor public space. While inspired by the area's rich shipping history, the state-of-the-art buildings add a modern anchor to the skyline.

Photography by ©Rogan Coles



Century City Center

Location: Los Angeles, CA

Designer: Johnson Fain

Structural Engineer: Nabih Youssef Associates

Websites: johnsonfain.com; nyase.com

In designing a new office high-rise in the Century City neighborhood of Los Angeles, Johnson Fain is looking to do more than create a striking silhouette. The architects are aiming for the 37-story, 700,000-square-foot structure to be certified LEED Platinum. This would make the Century City Center only the sixth high-rise office building in North America to achieve that rating. "Today there is nothing more important than having, and communicating, the importance of carbon reduction and sustainability broadly," says Scott Johnson, FAIA, design partner with Johnson Fain.

Some features that will help the building achieve that goal will be 7,000-square-feet of solar photovoltaics, nighttime chillers to efficiently cool the building and a double-skin glass façade system. "The façade was an outgrowth of working with Arup on a series of solar exposure studies and calculating heat loads on a building with a long westerly facade," explains Johnson. "The most effective solution appeared to be a double ventilating and shading wall system. In addition to significantly reducing heat loads, the system preserves our predilection for a light, glassy structure, which is pure form."

The mainly glass and aluminum tower, which will be constructed with Arup and Nabih Youssef Associates, aims to draw the eye up with its dynamic lines. "The shape has everything to do with designing a highly kinetic and fractal form," says Johnson. Aside from the tower, the development will also include a public plaza with restaurants and outdoor seating, a mobility hub to encourage the use of public transit and low-rise creative office space.

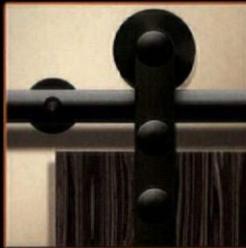
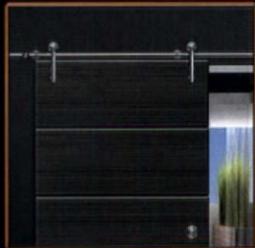
Renderings courtesy of Johnson Fain



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Yanlord Zhuhai Beachfront Center

Location: Zhuhai, China

Designer: NBBJ

General Contractor: Longxin Construction Group, LTD.

Structural Engineer: Architecture Design Research

Institute of South China University of Technology

Websites: nbbj.com; old.lxgroup.cn; en.scut.edu.cn

"One of the big challenges of working in Asia is controlling the quality of materials and finishes," says Tim Johnson, NBBJ's partner-in-charge of the Yanlord Zhuhai Beachfront Center. "The key is finding the most fail-proof construction method to achieve the best quality." Despite the challenges, NBBJ—working with Longxin Construction Group and Architecture Design Research Institute of South China University of Technology—is moving steadily forward with the construction of five towers that will add an iconic focal point to the coastline of Zhuhai.

The towers—four residential and one 45-story structure for commercial, hotel and office spaces—will be built in a unique streamlined design, allowing residents a view to the ocean from one side and the mountains on the other. All of the buildings will be strategically sited so no views are blocked. Three 32-story towers will be situated on a slight axis, while the two adjacent buildings will be set atop a five-story retail base and act as a public gateway to the complex.

The property's setting inspired the different expressions of the glass-and-metal facades. Horizontal balcony bands will echo the city's grid-like streets, while the opposite façade evokes the motion of the water. "Wavy shelves reflect the dynamic texture of the ocean," says Johnson, "and create overhangs that provide shade from the southern sunlight." A ribbon-like wrapper of vertical metal panels in a metallic finish will "provide a unifying, fluid visual language that binds all elements of the building together," adds Johnson.

Renderings courtesy of NBBJ



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Location: New York, NY

Designer: Perkins Eastman

General Contractor: M.D. Carlisle

Construction Corporation

Structural Engineer: Severud Associates

Websites: perkinseastman.com; severud.com

"Like any building, 835 Sixth Avenue had its challenges," architect Robert J. Marino, AIA, LEED AP, associate principal with Perkins Eastman says of the firm's latest project, which includes the Eventi Hotel and Beatrice Residences in Manhattan's Chelsea neighborhood. To start with, the 53-story building was constructed next to two active subway lines, and combines several functions—a 290-key hotel, 300 units of luxury apartments and two restaurants—behind a gleaming façade. "Rising out of a landscaped urban plaza in a location typified by its proximity to Penn Station, the building boldly interprets the rhythms of its neighborhood in its distinctive design."

The 620,000-square-foot tower addresses its different uses as it rises. "The variegated facade uniquely expresses each of the major uses while the overall effect is harmonious," explains Marino. The glassed-in ground level draws people in and reveals the building's activities. Glass and precast concrete mark the next levels, which house restaurants and meeting facilities. The structure continues in those materials for the levels containing the hotel, while the upper residential floors are set off with glass and aluminum panels and mullions.

In addition to the challenges of designing a successful mixed-use building, the slender shape of the tower led to innovative structural methods implemented by contractor M.D. Carlisle Construction Corporation and Severud Associates Consulting Engineers. Structural fins running the length of the north and south facades "cross and join each other at the building's top, serving to stiffen the building from seismic and wind forces," says Marino. "The framing is integral to the building's form."

Photography by ©Paül Rivera/ArchPhoto



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Rothschild Tower

Location: Tel Aviv, Israel

Designer: Richard Meier & Partners Architects

General Contractor: U. Dori Construction Ltd.

Structural Engineer: David Engineers, Ltd.

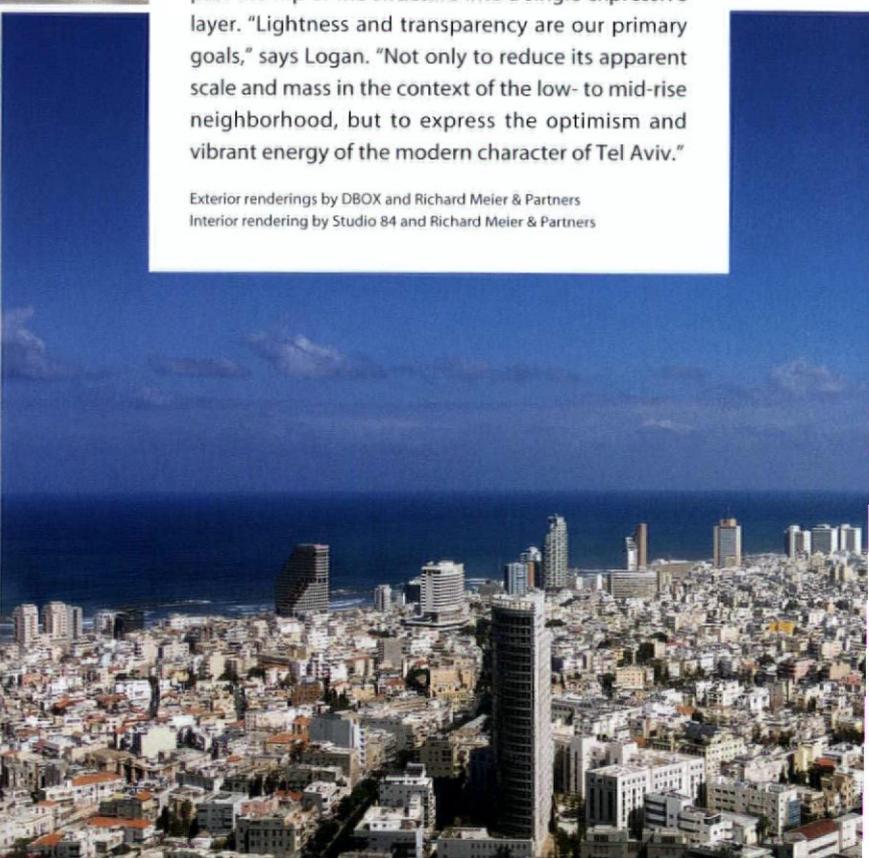
Websites: richardmeier.com; dori.co.il; davideng.co.il

"What is exceptional about Tel Aviv," says Reynolds Logan, associate partner with Richard Meier & Partners Architects, "is the Bauhaus school's early and continuing influence on modern urban architecture and planning. It's like having a conversation with Mendelsohn or Le Corbusier as neighbors." Within this familiar dialogue, Logan and his colleagues are designing a new 37-story residential tower that will rise up along Rothschild Boulevard in the White City.

The base of the tower will feature a lobby and retail space, where glass canopy structures will mark the street level and large openings will define the second floor. Working with contractors U. Dori Construction and David Engineers on the project, the architects' primary challenge "for the tall building with a small footprint and very tall base was not to overwhelm the grace of an open plan with too many bulky structural elements," says Logan. They arrived at the solution of designing "a single row of fewer and larger perimeter outrigger columns in lieu of many small ones that would clutter the plan."

As the tower rises, a clear-glass curtain wall veiled with a white-painted aluminum louvered screen will achieve an ethereal quality. Inspired by local *treeseem* blinds, the screen will add depth to the building façade and take on a sculptural role as it extends past the top of the structure into a single expressive layer. "Lightness and transparency are our primary goals," says Logan. "Not only to reduce its apparent scale and mass in the context of the low- to mid-rise neighborhood, but to express the optimism and vibrant energy of the modern character of Tel Aviv."

Exterior renderings by DBOX and Richard Meier & Partners
Interior rendering by Studio 84 and Richard Meier & Partners



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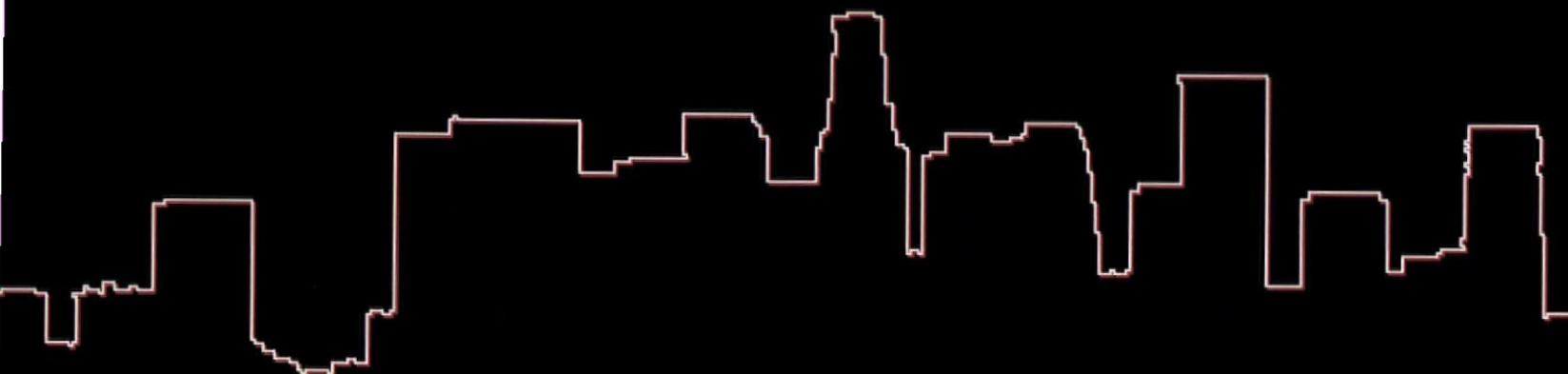


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As AIA Los Angeles Board President, I commend the remarkable work submitted for this year's AIA/LA Design Awards. The competition was unprecedented, with over 350 entries, challenging our jury of professionals to evaluate a vast array of world-class designs and choose those few which represent the very best Los Angeles has to offer.

The Design Awards winners were exceptional examples of the best of this year's built work, showcasing projects designed by Los Angeles architects in Los Angeles and abroad. Our Next LA awards offered a glimpse of significant designs, which will be realized in the future development of our city and others around the world. A surprising coincidence came with the selection of two projects by Neil M. Denari, AIA, as Best in Show in both categories, to be complimented by the AIA Gold Medal Presidential Award.

Denari, a highly regarded educator as well as a designer known for the exacting delineation of his drawings, is an outstanding example to the profession. He demonstrates that architects are no longer valued simply as creators of built form, but on their ability to inspire and lead future designers who will benefit Los Angeles and beyond.

AIA/LA's dedication to upholding the long tradition of excellence and innovation in the Los Angeles design community is mirrored in the work of the architects showcased and honored at the 2011 AIA/LA Design Awards. The following pages will confirm this generation's place in that tradition.

Thank You,

Hsinming Fung, AIA
President 2011
AIA/LA Board of Directors



David Luera

1 *Best in Show*

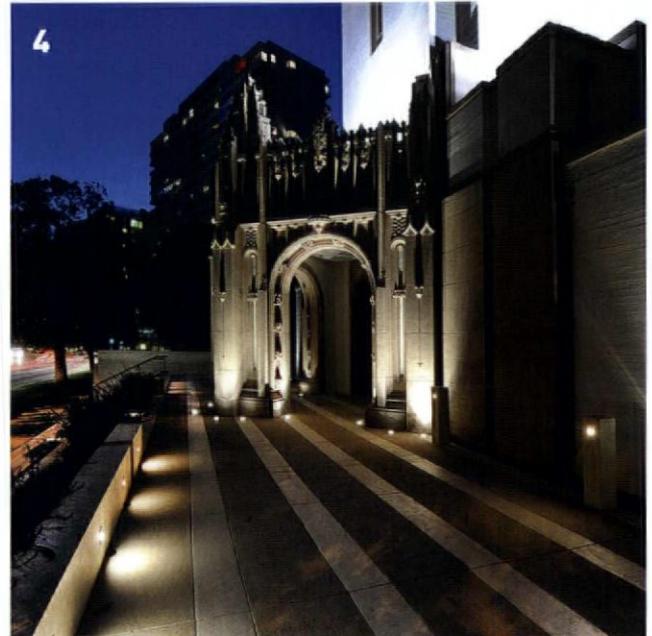
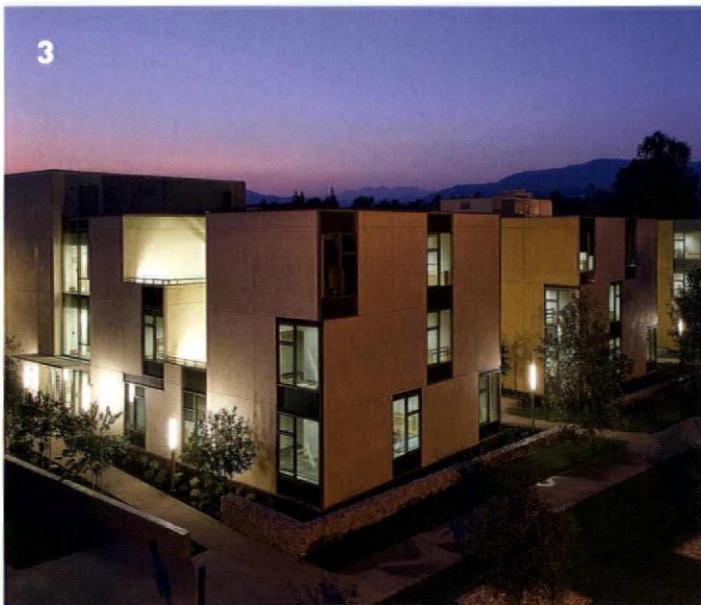


2



1: Rinze Van Brug 2: Michael Wells Photography

1. **Neil M. Denari Architects/NMDA** *Best in Show* PROJECT: HL23 LOCATION: New York, NY STRUCTURAL: DeSimone Consulting Engineers MEP: ADS Engineers GENERAL CONTRACTOR: T.G. Nickel & Associates 2. **Mike Jacobs Architecture** PROJECT: San Lorenzo House LOCATION: Los Angeles, CA STRUCTURAL: Gordon L. Polon Consulting Engineering GENERAL CONTRACTOR: MHF Design & Construction



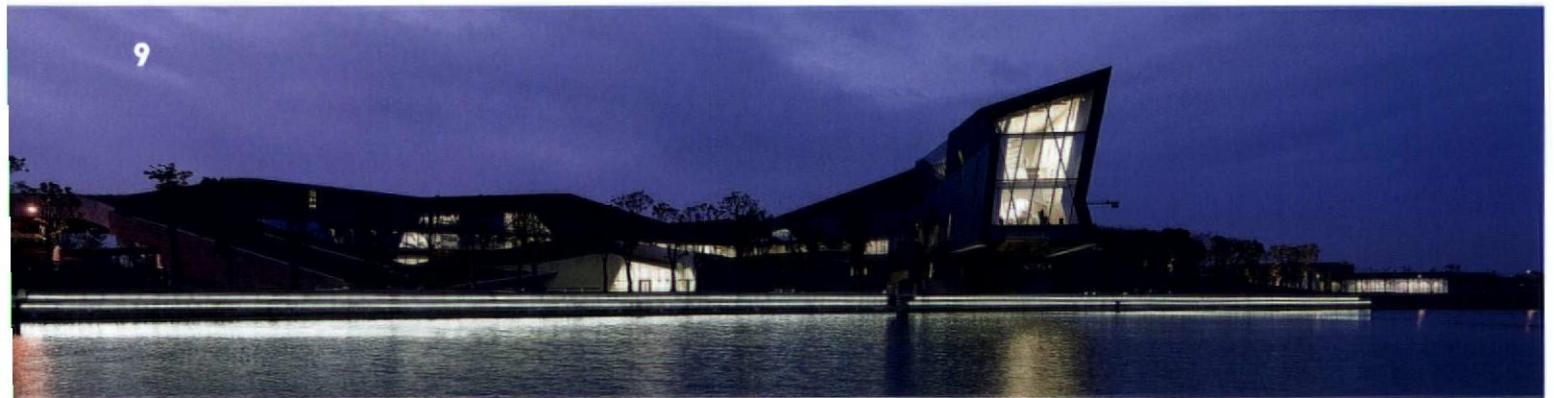
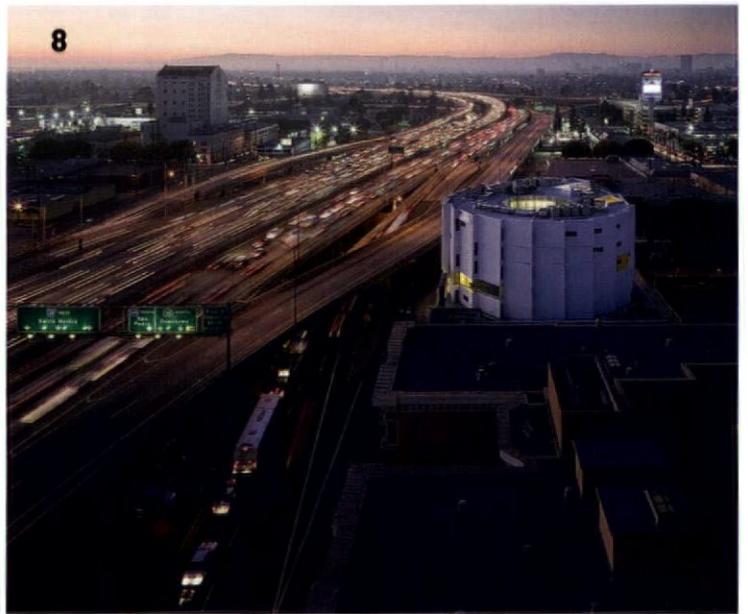
1. HGA Architects and Engineers PROJECT: Valley Performing Arts Center at California State University Northridge LOCATION: Northridge, CA STRUCTURAL AND MEP: HGA Architects and Engineers. GENERAL CONTRACTOR: C.W. Driver **2. XTEN Architecture** PROJECT: Nakahouse LOCATION: Los Angeles, CA STRUCTURAL: Axial Engineering Group, Inc. GENERAL CONTRACTOR: NWGC, Inc. **3. CO Architects** PROJECT: Claremont Hall LOCATION: Claremont, CA STRUCTURAL: John A. Martin & Associates, Inc. MEP: IBE Consulting Engineers GENERAL CONTRACTOR: Bernards **4. Lehrer Architects LA** PROJECT: Westwood United Methodist Church LOCATION: Los Angeles, CA STRUCTURAL: John Labib + Associates MEP: Davidovich & Associates GENERAL CONTRACTOR: Robert F. Vairo Construction **5. DLR Group WWCOT** PROJECT: South Region Elementary School No. 2 LOCATION: Los Angeles, CA STRUCTURAL: TMAD Taylor & Gaines MEP: S&K Engineers GENERAL CONTRACTOR: C.W. Driver **6. Belzberg Architects** PROJECT: Los Angeles Museum of the Holocaust LOCATION: Los Angeles, CA STRUCTURAL: William Koh and Associates, Inc. MEP: John Dorius & Associates GENERAL CONTRACTOR: Winters-Schram Associates

1. Tom Bonner Photography 2. Steve King 3. Paul Turang Photography 4. Michael B. Lehrer FAIA 5. David Lena 6. Iwan Baan



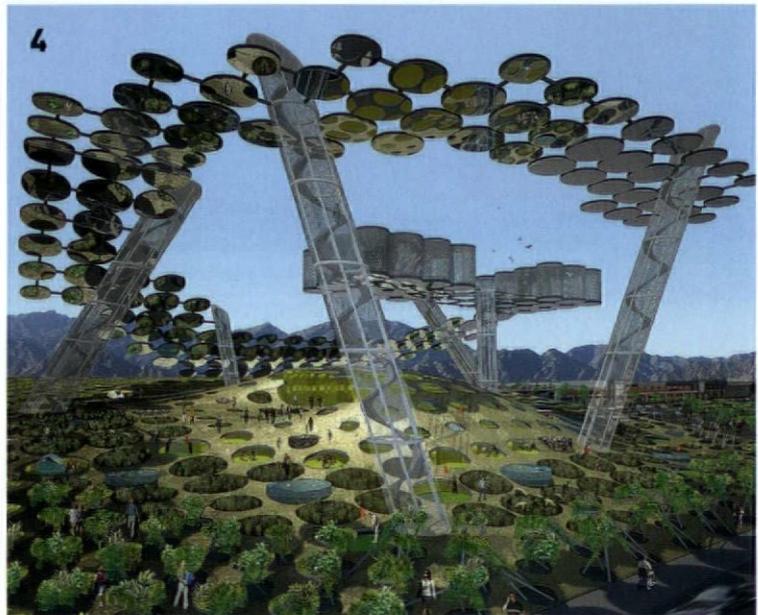
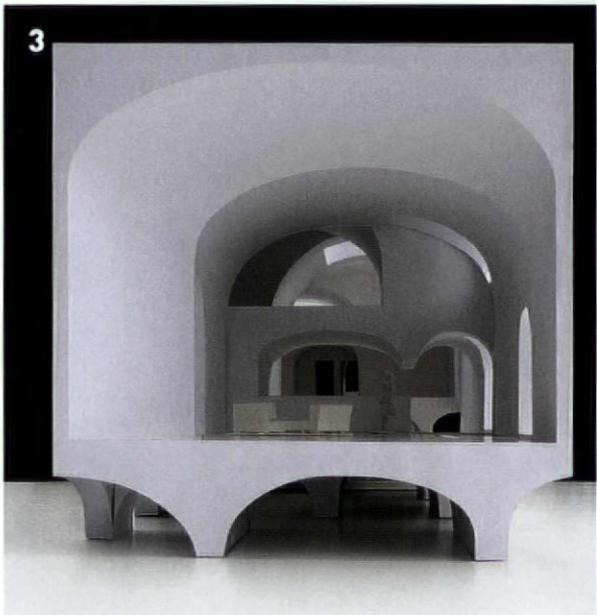
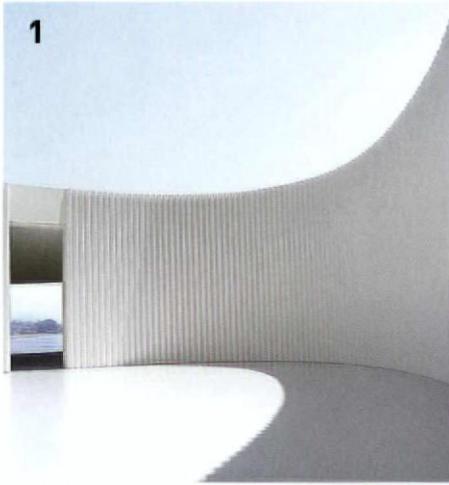
1. Benny Chan/Fotoworks 2. COURTESY OF EOA/Elmslie Oler Architect 3. John Edward Linden & Tim Griffith

1. Daly Genik PROJECT: Venice House LOCATION: Venice, CA STRUCTURAL: Gilsanz Murray Steficek GENERAL CONTRACTOR: CA Construction
2. EOA/Elmslie Oler Architect PROJECT: The Food Chain LOCATION: Los Angeles, CA
3. Brooks + Scarpa/Moore Ruble Yudell/Behnisch Architekten PROJECT: Santa Monica Municipal Parking Garage Improvements LOCATION: Santa Monica, CA ARCHITECT OF RECORD: Taylor Fierce Orne Architects STRUCTURAL: John A. Martin & Associates, Inc. MECHANICAL: Fruchtmann & Associates ELECTRICAL: G & W Consulting Electrical Engineers GENERAL CONTRACTOR: W.E. O'Neil Construction Company, Morley Construction Company
4. Daly Genik PROJECT: Tahiti Affordable Housing LOCATION: Santa Monica, CA STRUCTURAL: Gilsanz Murray Steficek MEP: MDC Engineers, Inc. GENERAL CONTRACTOR: Alpha Construction Co. Inc.



5. Giorgio Borruo Design PROJECT: Carlo Pazolini Milan LOCATION: Milan, Italy REFURBISHMENT, A/C, ELECTRICAL, PLUMBING: Real, S.r.l. GENERAL CONTRACTOR: Chiavari, S.r.l. **6. Barton Myers Associates, Inc.** PROJECT: Montecito residence LOCATION: Montecito, CA STRUCTURAL: Norman J. Epstein MECHANICAL AND PLUMBING: AGME Engineers ELECTRICAL: Smith Engineering Associates GENERAL CONTRACTOR: Caputo Construction **7. Johnston Marklee/Diego Arrigada Arquitectos** PROJECT: View House LOCATION: Rosario, Argentina STRUCTURAL: Gonzalo Garibay GENERAL CONTRACTOR: MECSA **8. Michael Maltzan Architecture, Inc.** PROJECT: Newport Carver Apartments LOCATION: Los Angeles, CA STRUCTURAL: B.W. Smith Structural Engineers MEP: IBE Consulting Engineers GENERAL CONTRACTOR: Westport Construction, Inc. **9. Morphosis Architects** PROJECT: Giant Interactive Group Corporate Headquarters LOCATION: Shanghai, China LOCAL ARCHITECT: SURV STRUCTURAL: Bao Ye/MAA Engineering Consultants (Shanghai) Co., Ltd. STRUCTURAL (CONCEPT DESIGN): Thornton Tomasetti Group, Inc. MECHANICAL: MAA Engineering Consultants (Shanghai) Co., Ltd. MECHANICAL (CONCEPT DESIGN): IBE Consulting Engineers ELECTRICAL: MAA Engineering Consultants (Shanghai) Co., Ltd. ELECTRICAL (CONCEPT DESIGN): IBE Consulting Engineers GENERAL CONTRACTOR: China State Construction Engineering Company 3rd Bureau

5. Alberto Ferrero 6. Chro Coelho 7. Gustavo Frittigatto 8. Iwan Baan 9. Iwan Baan



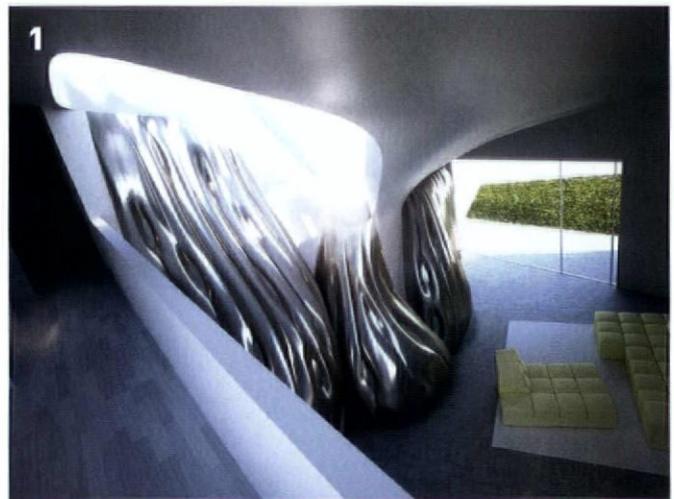
1. Courtesy of Johnston Marklee 2. Courtesy of Neil M. Denari Architects/NMDA 3. Courtesy of Johnston Marklee 4. Brendan Muha

HONOR *above*

1. Johnston Marklee PROJECT: META LOCATION: Penco, Chile ARCHITECT OF RECORD: Pezo Von Ellrichshausen Architects **2. Neil M. Denari Architects/NMDA** *Best in Show* PROJECT: No Mass House LOCATION: Los Angeles, CA **3. Johnston Marklee** PROJECT: Vault House LOCATION: Oxnard, CA STRUCTURAL: William Koh and Associates, Inc. GENERAL CONTRACTOR: RJP Construction **4. Roger Sherman Architecture + Urban Design, with Greg Kochanowski** PROJECT: TARGET NATION; Thinking Out of the Big Box LOCATION: Tracy, CA; Phoenix, AZ; Brooklyn, NY

MERIT *right*

1. Murrur PROJECT: Succulent House LOCATION: Chicago, IL



1. Courtesy of Murrur



1. Courtesy of XTEN Architecture 2. Courtesy of RNL Design/Charles Group International 3. Courtesy of Michael Maltzan Architecture, Inc. 4. Courtesy of Steve Roden/Formation Association/64North/Buro Happold

1. XTEN Architecture PROJECT: Stadtarchiv Luzern LOCATION: Luzern, Switzerland ASSOCIATE ARCHITECT: Haefelfinger Architekten **2. RNL Design/Charles Group International** PROJECT: Jin Tang Industrial Park White Collar Housing LOCATION: Chengdu, China **3. Michael Maltzan Architecture, Inc.** PROJECT: San Francisco State University Mashouf Performing Arts Center LOCATION: San Francisco, CA STRUCTURAL: Guy Nordenson and Associates MEP: IBE Consulting Engineers **4. Steve Roden/Formation Association/64North/Buro Happold** PROJECT: MAS/Long Beach Mobile ArtSpace LOCATION: Long Beach, CA ARCHITECT OF RECORD: 64North STRUCTURAL: Buro Happold

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John Chase, Assoc. AIA—Urban Designer, City of West Hollywood

BUILDING TEAM OF THE YEAR

Pacific Design Center Red Building (listed alphabetically)

Area Architecture

Charles S. Cohen

City of West Hollywood

Englekirk Structural Engineers

FBA Engineering

Gruen Associates

Jones & Jones

Pelli Clarke Pelli Architects

Thermalair Inc.

Tsuchiyama Kaino Sun & Carter

EMERGING PRACTICE AWARD

Lee + Mundwiler Architects—Principals, Cara Lee and Stephan Mundwiler

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Architecture Critic and Writer

Lilian Pfaff, Ph.D.

Architecture Professor, Curator, Writer and Editor

Robert Somol

Director and Professor, UIC School of Architecture

DESIGN AWARDS JURY:

James L. Cutler, FAIA

Principal, Cutler Anderson Architects

Mary Griffin, FAIA

Principal, Turnbull Griffin Haesloop Architects

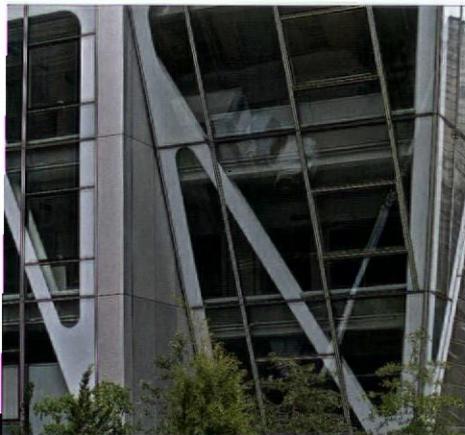
Mack Scogin, FAIA

Principal, Mack Scogin Merrill Elam Architects

GOLD MEDAL AWARD

Neil M. Denari, AIA—Principal,

Neil M. Denari Architects/NMDA





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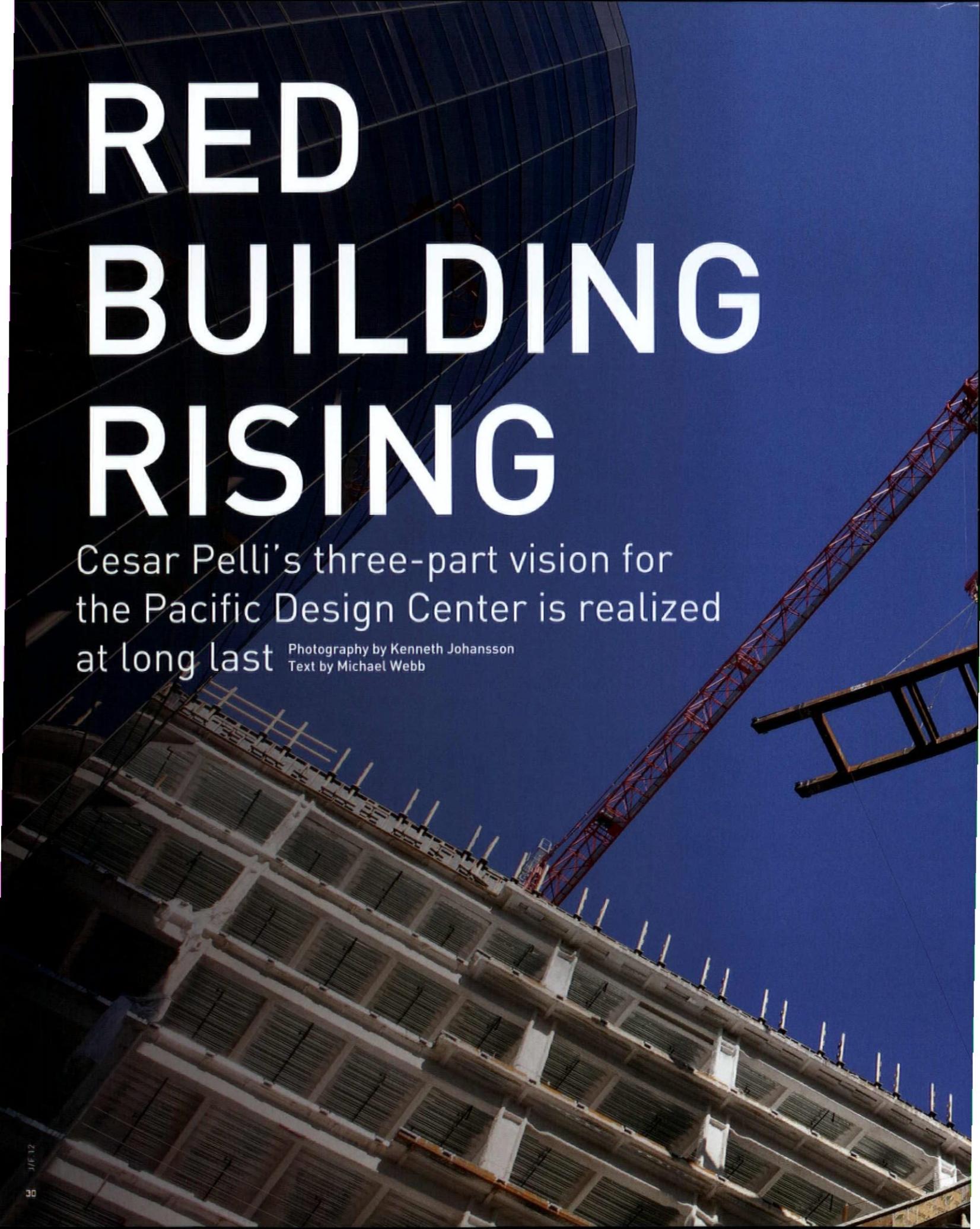
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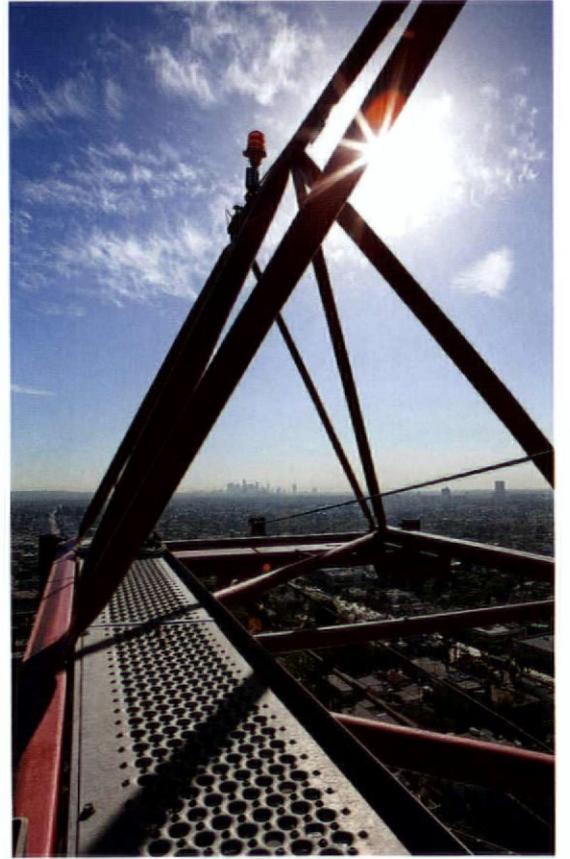


RED BUILDING RISING

Cesar Pelli's three-part vision for
the Pacific Design Center is realized
at long last

Photography by Kenneth Johansson
Text by Michael Webb





A COMPLEX STORY AND STRUCTURE ARE CONCEALED beneath the gleaming glass skin of the Red Building, the latest addition to the Pacific Design Center in West Hollywood. Cesar Pelli designed it forty years ago as one of a triad of windowless blocks. The demand for wholesale design showrooms has declined since the Blue Whale opened in 1975, and the 1988 Green Building has been retrofitted to accommodate offices. Long deferred, the Red Building is a period piece brought up to date. The bowed triangle of the original has been transformed into a split ellipse, with dramatically angled sides, while retaining its sleek finish. Structurally, it's a hybrid, and the construction of the building required a team of contractors and engineers working in concert and

original concept, infusing it with natural light and opening it up to sweeping views.

Two office towers—one of six stories, the other of eight—open onto a palm court atop a seven-level podium of parking and exploit the latest advances in curtain wall technology. Pelli specified a strong, non-fading red—something he could not have done in earlier decades, when this color employed the toxic element of cadmium. Windows are gray-toned or variably fritted to cut glare. The inner faces of the two towers are white to suggest that a fruit has been sliced through and the two halves moved apart.

The Minnesota office of Permasteelisa engineered the façade, simulating subtle curves with flat surfaces. Sheets of insulated

rectilinear form—everything is radiused, curved, canted or bent." He and Gruen partners Michael Enomoto, FAIA, and Debra Gerod, AIA, LEED, had to work on a confined site, sandwiched between the PDC parking structure and an MTA bus depot. Access to both was retained, even as the foundations were dug and two tower cranes erected. Clusters of piles, two thousand in all, were driven up to sixty feet into soil that might contain bubbles of methane gas. Luckily, they avoided that hazard and laid a membrane below the second basement level to check any future seepage.

The transition from concrete to steel was another challenge, and was mocked up before construction began. In the east tower, temporary columns were welded to each floor and the canted steel V of the prow was supported from below until the roof truss was in place and the supports could be cut away. Enomoto calls it "the oddest thing I've ever seen," and it required the crew to maintain the finest tolerances at every stage of the construction process. In contrast to the Media TIC tower in Barcelona (FORM, Nov/Dec 2011), where floors were suspended within a peripheral frame to reduce their bulk and the weight of the foundations, the system is employed here to realize the complex geometry of Pelli's design and meet the demanding seismic code. The slender plan left no room for a helipad; instead, the elevators in both towers were reinforced and isolated so that they could be used for emergency access.

At age 85, Pelli returned to L.A. to tour the building as it neared completion. "It's marvelous to revisit a design I began so long ago," he declared. "I like to tell students: this is one of the best arguments for being an architect—you have to stay alive to see your projects through to completion." ■

"It's marvelous to revisit a design I began so long ago."

—CESAR PELLI

employing novel technologies. Pelli's team—including Gruen Associates, Jones & Jones, FBA Engineering and Englekirk Structural Engineers—rose to the challenge.

In 1971, when Pelli worked for Gruen Associates, many L.A. artists were exploring color and finish. The trio of shiny, seamless containers might have grown out of DeWain Valentine's blocks of colored resin. The Blue Whale made a bold statement, but its success was short-lived. It has always felt forbiddingly hermetic and sterile; a sealed cocoon that takes no advantage of the benign climate and discourages public entry. Progressive contract firms, such as Knoll and Herman Miller, moved out and opened stand-alone showrooms. Charles Cohen, who bought the PDC in 1999, understood the need for a fresh approach. Pelli Clarke Pelli Architects (the latest iteration of an office the founder opened in New Haven when he left L.A.) collaborated with Gruen on a radical transformation of the

heat-tempered glass were fabricated and cut into 7,237 different sizes in China. These were shipped to Thailand and fitted into 3,784 aluminum wall panels. The glass was attached to the frames with silicon glue—a West Coast first—and all tilted panels were laminated to minimize the risk of injury from breakage. Each panel was numbered and bolted to U-channels to create a seamless façade. Reinforced concrete decks support steel trusses from which cantilevered floors are suspended. To the west they hover over a deeply recessed entry; to the east they form a sharp prow that suggests a ship is sailing past the Whale.

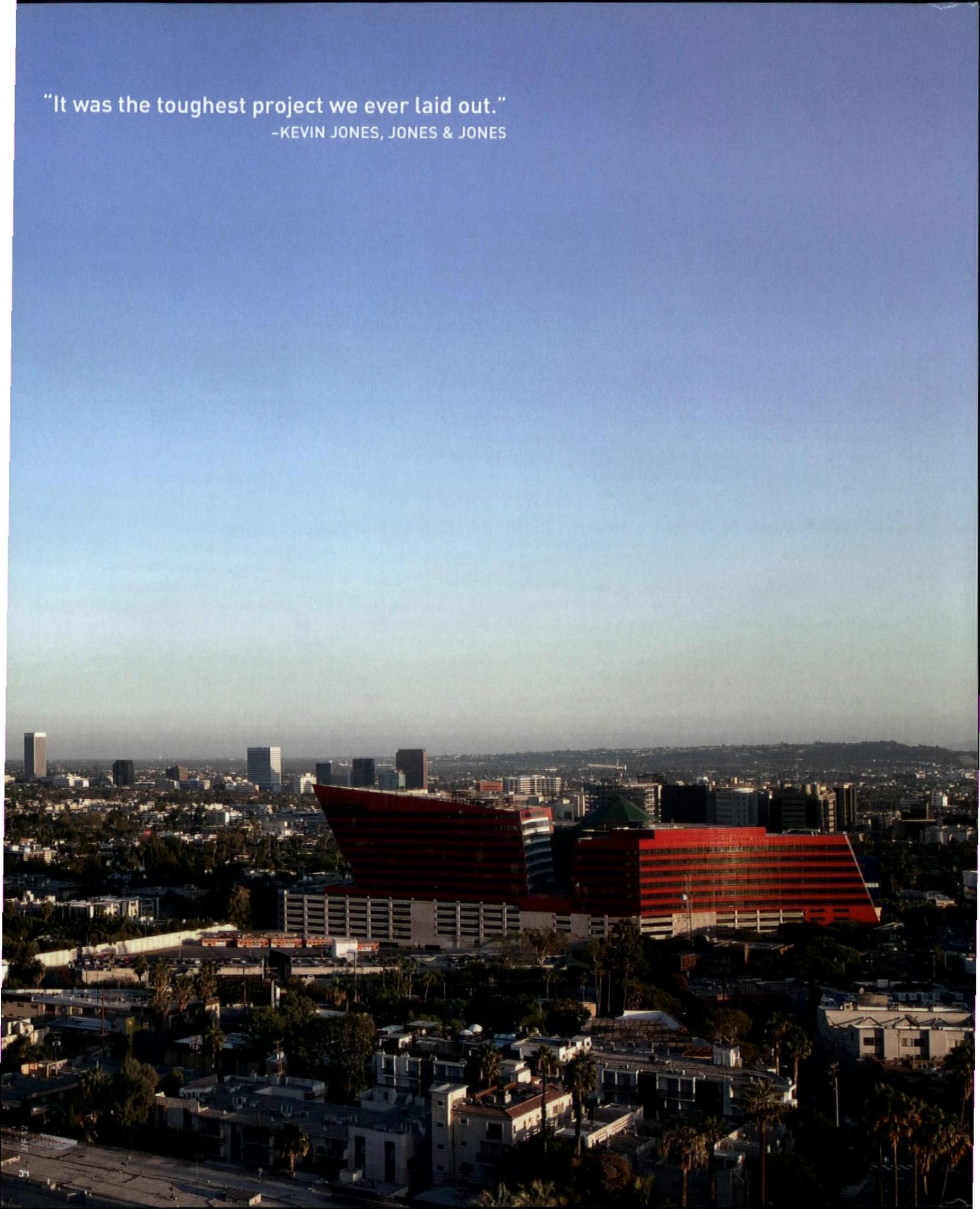
Structure and skin had to achieve a perfect match—a giant jig-saw puzzle assembled on a steel structure that was constructed as the panels were being fabricated a continent away. "It was the toughest project we've ever laid out," says construction manager Kevin Jones of Jones & Jones. "There is not a single

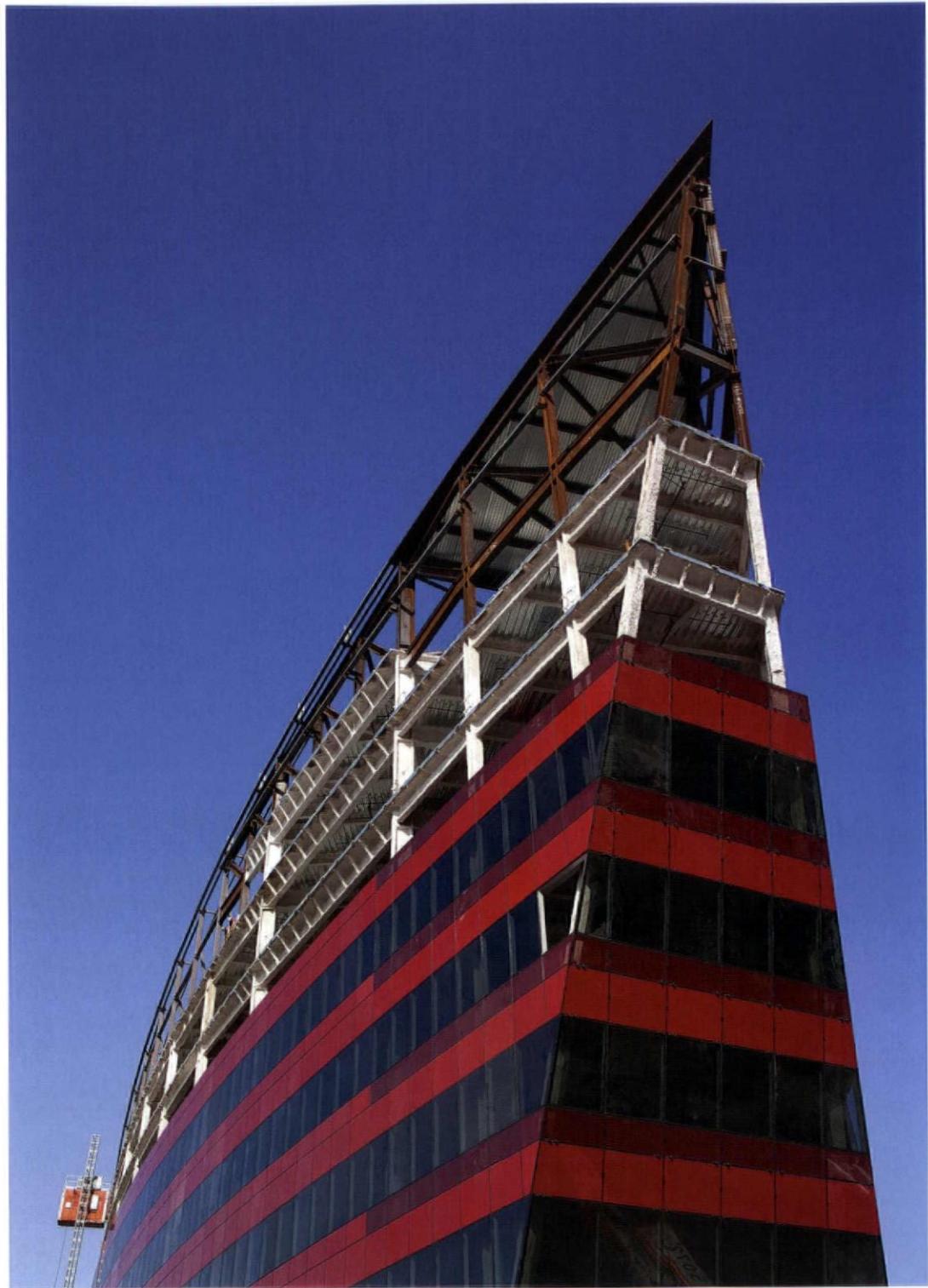
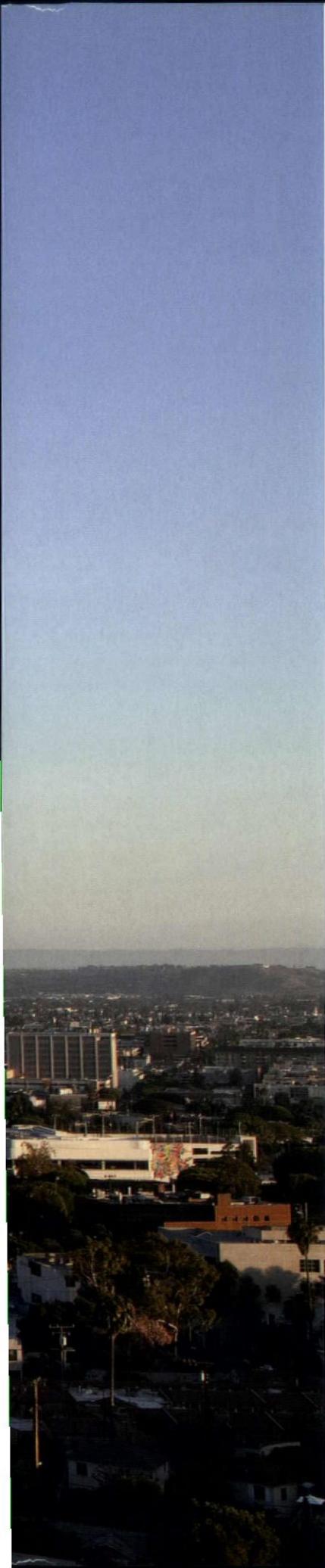
The Red Building was awarded AIA/LA's 2011 Building Team of the Year. For complete project credits, please see the Design Awards supplement in this issue. To see more of Kenneth Johansson's photography of the Red Building, please visit redgallerysite.com.

Architect Cesar Pelli designed the Red Building nearly forty years ago as one of three structures making up the Pacific Design Center complex in West Hollywood, California. PREVIOUS PAGES AND OPPOSITE: Workers construct the complicated steel-frame design.

“It was the toughest project we ever laid out.”

—KEVIN JONES, JONES & JONES

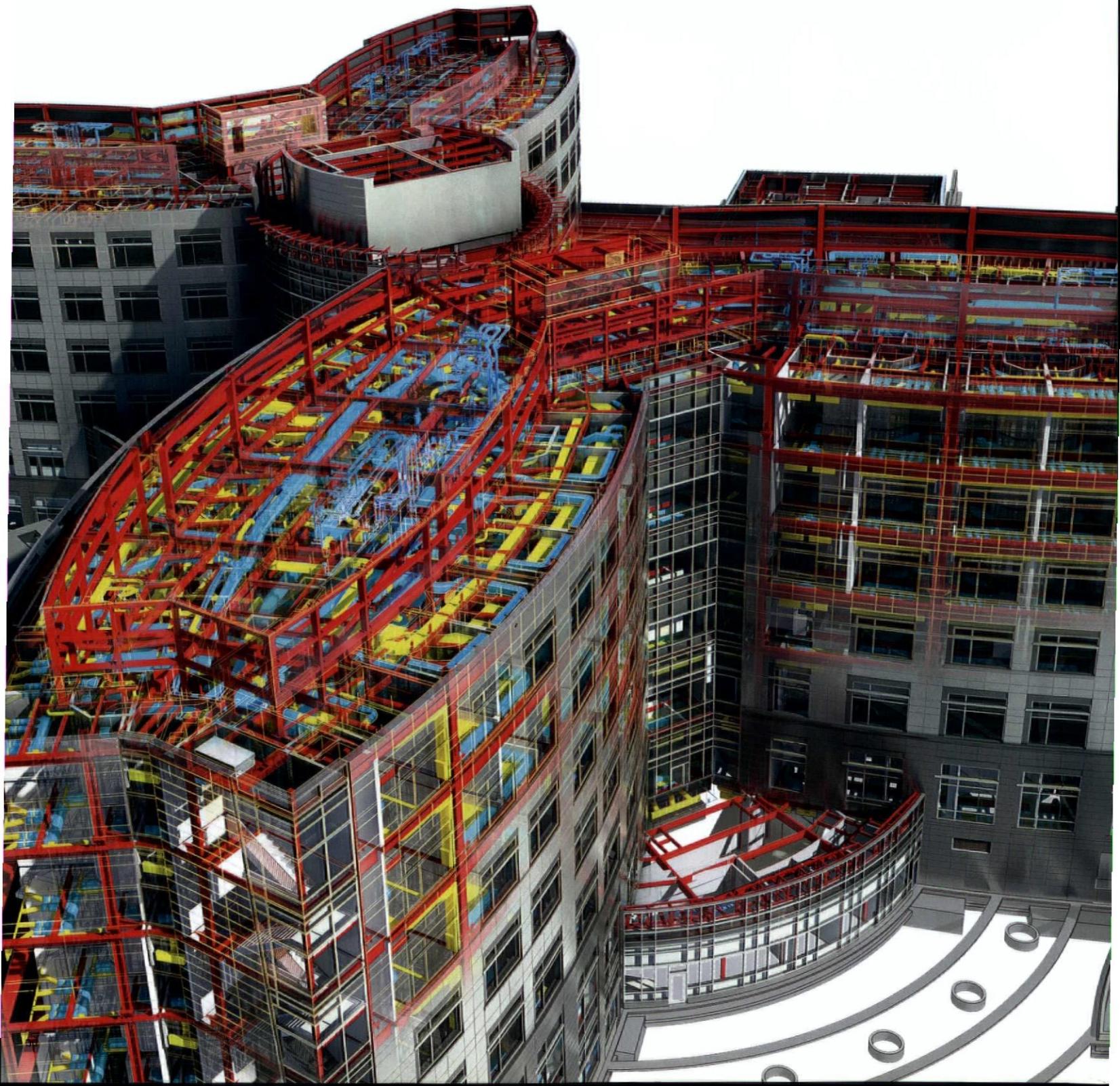




LEFT AND ABOVE: Pelli made modifications to his design but kept the red façade intact. Sheets of glass were made in China, put into aluminum panels in Thailand and positioned to suggest a curved surface.

DIGITAL DIALOGUES

How BIM software is transforming the language of building BY DANNY KING



IN A DESIGN AND CONSTRUCTION PROCESS WHERE time truly is money, construction industry veteran John Cowles, vice president of pre-construction and estimation at general contracting firm Hathaway Dinwiddie, makes a simple case of why the days of blueprints and two-dimensional computer programs are on the wane and why 3D software has become the norm. "A section cut that would take an architect 20 minutes to draft now takes 10 seconds," he says, while in the process of creating a simple rectangular building rendering on his desktop computer screen overlooking downtown Los Angeles. "Construction's all about predictability, and having no surprises. Now, we 'build' a building six, seven, eight times before we get out into the field."

Building Information Modeling, or BIM, software has become the common language between architects, contractors, construction companies and even subcontractors, who are all looking to get as much of a building created virtually before breaking ground. Whereas a few years ago, architects largely worked on two-dimensional programs like AutoCAD and left it to the contractors to work off of those programs or build out three-dimensional models themselves, architecture firms have more recently been spending the time and money—in the form of training and more expensive computer programs—necessary to create three-dimensional computer renderings in the form of files in programs such as Autodesk Revit Architecture.

Reginald Jackson, vice president at Santa Monica, California-based Morley Builders, says that at this point less than 10% of the projects they receive from architects and designers are designed in BIM, but he expects

that number to grow rapidly as developers demand more 3D designs from the outset. His firm, which works on approximately 25 projects a year, switched over to Revit about six years ago, when they started work on the Ecosystems Wing of Los Angeles's California Science Center.

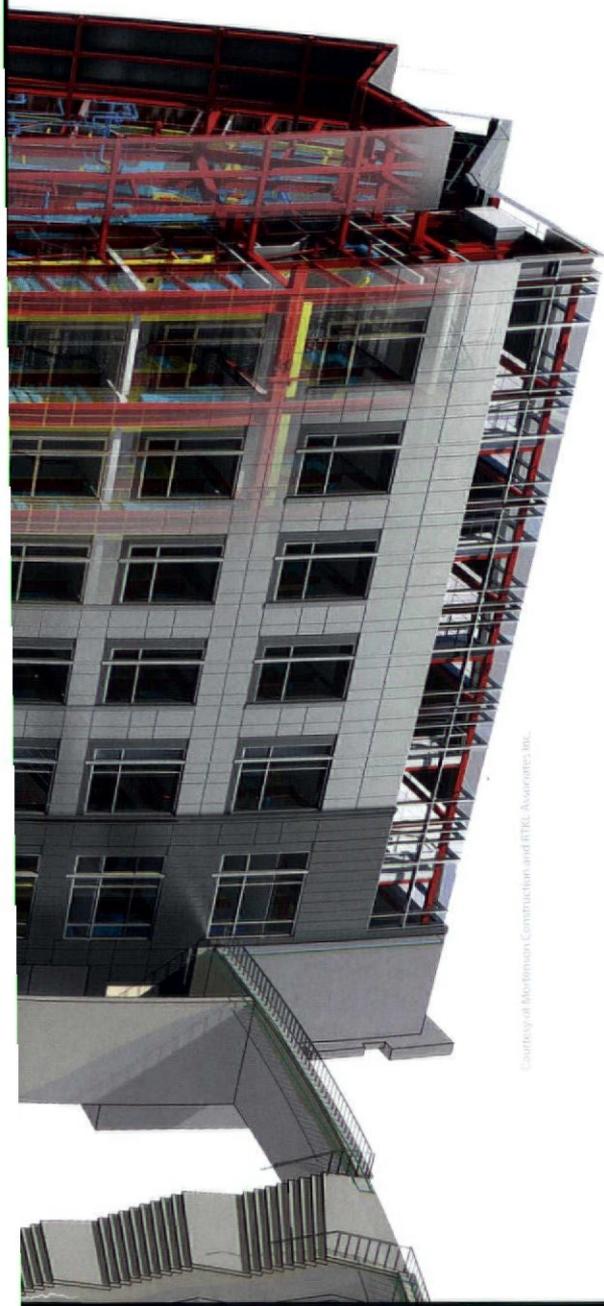
"The clients are telling the designers, 'we want that,'" says Jackson. He adds that many builders also use Revit to store information, such as manufacturer's data, material properties and phase or time of construction, and it's anticipated that future models will contain warranty information, maintenance schedules and other information that is useful after the building's finished. The clients are "seeing a lot of benefits on the back end."

The percentages of BIM-designed projects are substantially higher for the San Francisco firm EHDD Architecture, whose portfolio includes the Monterey Bay Aquarium and the renovations of UC Berkeley's Doe and Moffitt libraries. "We have fifteen projects right now, and fourteen are in BIM," says architect and associate Terry McCormick. "In the next five years, all of our designers will be proficient in Revit."

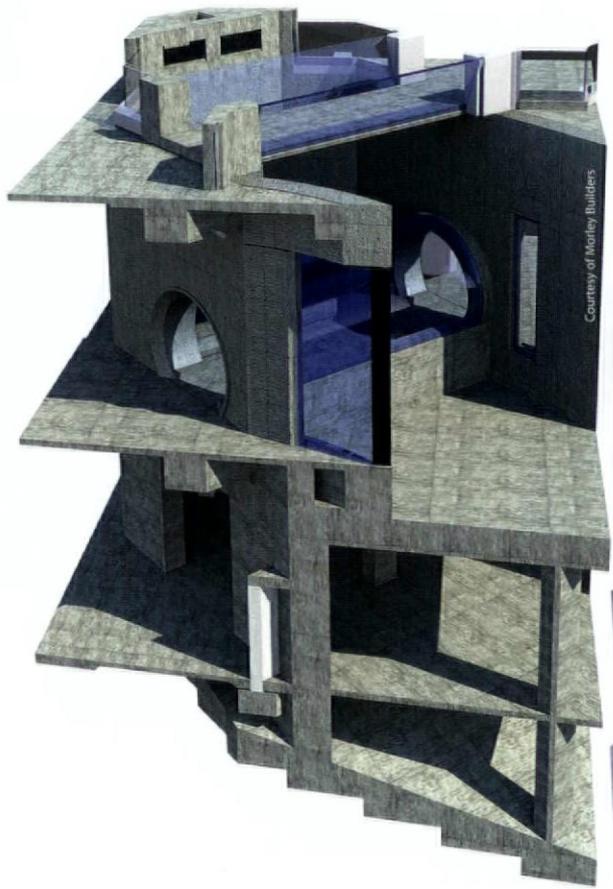
And for good reason. BIM programs such as Revit allow the designer to choose from thousands of points of data to do everything from dictating the size, thickness, material and angle of a floor slab or wall to virtually installing piping, electrical systems and HVAC ducts, all while keeping running totals of material usage and other calculations. It also allows for virtual walk-throughs and views from various angles.

Additionally, BIM programs allow for what both Cowles and John Kizior, global director for delivery technology for international

LEFT: Building Information Modeling (BIM) software allows designers to see the external architectural features and internal building components simultaneously, as in this rendering of Silver Cross Hospital in New Lenox, Illinois. Mortenson Construction and RTKL Associates Inc. used Autodesk Revit, Autodesk Navisworks and Autodesk 3ds Max software products in the design process.



Courtesy of Mortenson Construction and RTKL Associates Inc.



architecture firm AECOM, termed “federated modeling,” in which architects, contractors and subcontractors are able to access the same program and add construction and design elements so additions to the virtual building can be viewed in real time.

Both Kizior and EHDD senior associate Pierre Zetterberg say the transition from 2D to 3D began in earnest about five years ago and has mirrored the move from traditional

At this point less than 10% of the projects [Morley Builders] receive are designed in BIM, but Jackson expects that number to grow rapidly.

drafting to computer-aided design (CAD) programs about a quarter-century ago. While software makers started developing early versions of BIM programs about five years after software company Autodesk debuted AutoCAD in 1982, Revit Technology didn’t introduce the first version of its popular Revit program until 2000. That program made such an impact that Autodesk acquired Revit Technology for \$133 million two years later. Autodesk, which also makes software for manufacturing and entertainment clients, generates about \$2 billion a year in revenue,

more than a quarter of which is from architecture, engineering and construction (AEC) programs like Revit.

Granted, such a transition for architecture firms hasn’t come cheap. Whereas AutoCAD software can be had for as little as \$1,100, Revit starts at about \$5,500, pushing computer programming costs for a decent-sized architecture firm or contractor well into the five-figure area. What’s even more expensive

is the training involved in getting an architect or designer up to speed. While most architecture students are coming out of school with a basic understanding of BIM, the steep learning curve and the sheer volume of such programs—a file with a 3D rendering of a 20-story, 400,000-square-foot building can be anywhere from 100 to 200 megabytes—makes BIM training an expensive prospect. Cowles employs seven people alone at Hathaway Dinwiddie’s Los Angeles office who specifically work on BIM programs.

“Students who are coming out of school

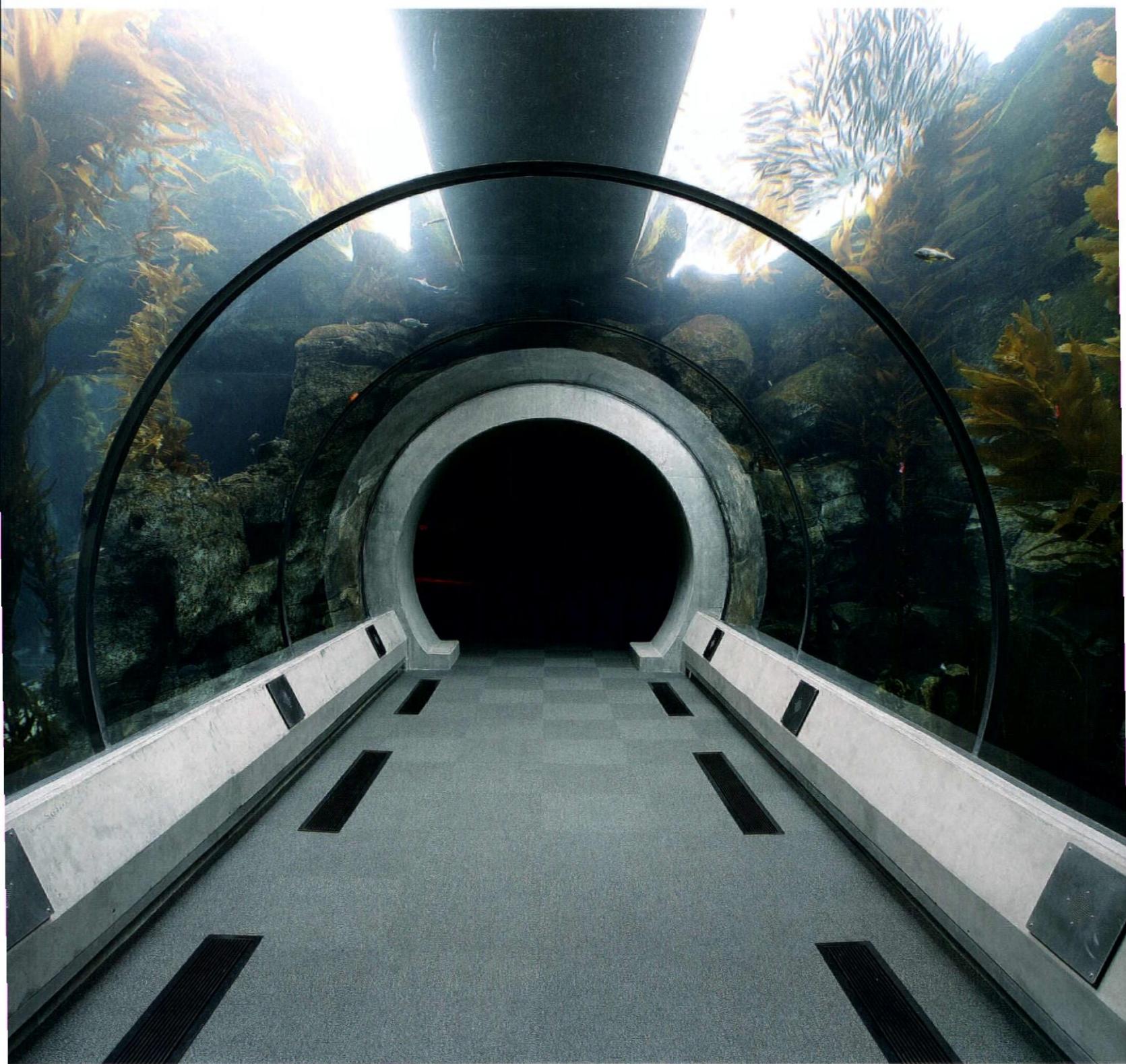
understand how to use the tool, but not necessarily how to implement it for construction,” says EHDD’s McCormick, whose colleague Zetterberg adds, “an individual needs to spend three months around key members to help them get up to speed. That’s 500 hours before they’re proficient enough in the field.”

Additionally, the combination of the seemingly unlimited detail of BIM and the ability for dozens of people to work on a single program can cause a project to get bogged down in excessive detail. “People can get mired into the details ahead of necessity,” said Cowles. “They try to get a specific door down to the hardware in the schematic, when they really don’t need to do that at the time.”

Still, the benefits of the additional detailing and communication between the many entities involved in building a project far outweigh the more expensive software and over-detailing. And if a firm needs to spend the money to train a talented architect or designer to get him proficient in BIM, so be it, says AECOM’s Kizior. “We always look for the correct person to come in and solve the project problem, not the technological problem,” said Kizior. “Technology can always be learned.” ■



Gary Krueger



OPPOSITE TOP LEFT AND RIGHT: Morley Builders started using Autodesk's Revit software when they began work on the expansion of the California Science Center. ABOVE: The project included a new pavilion with a 180,000-gallon kelp tank.

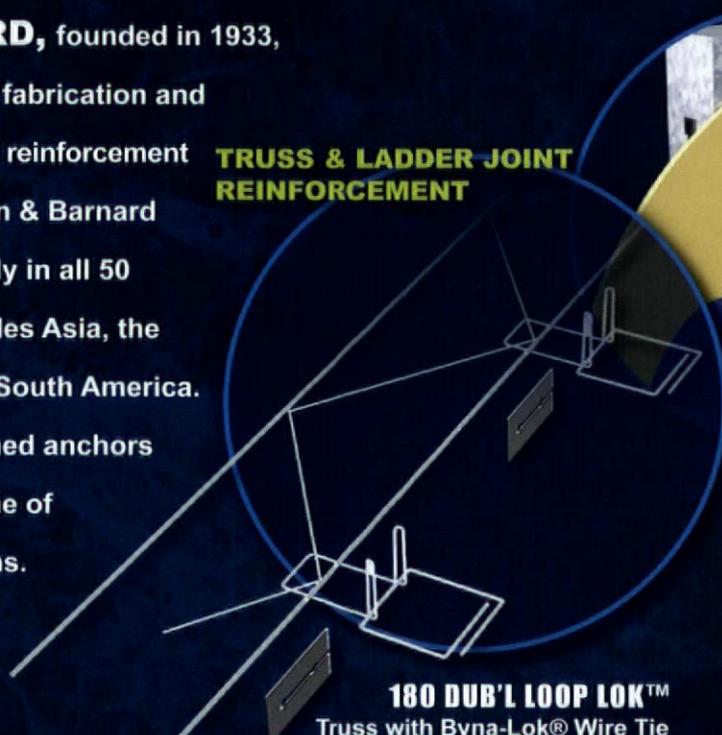
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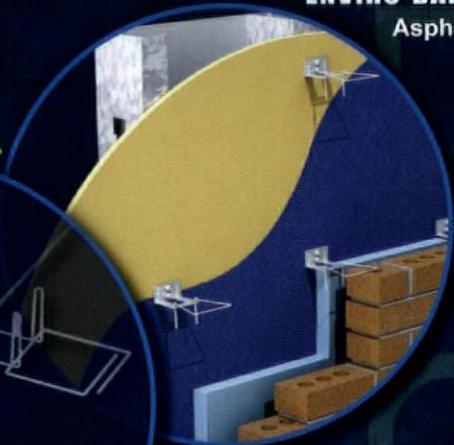


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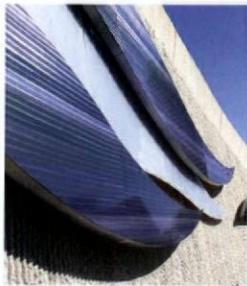
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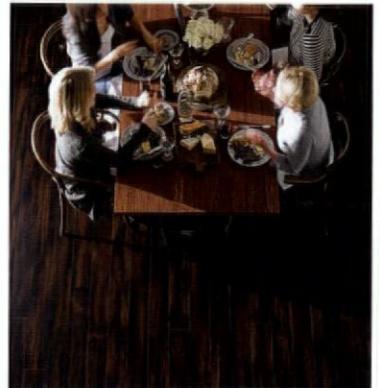


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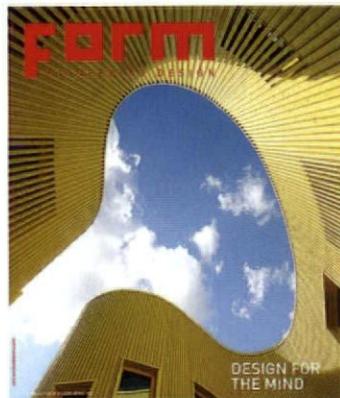
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SUSTAINABILITY: ARUP

STRUCTURAL ENGINEER: Nabih Youssef Associates

CIVIL ENGINEER: KPFF

CLIENT: Century City Realty, LLC
DIGITAL RENDERINGS: VStudios3d

Rothschild Tower

TEL AVIV, ISRAEL

ARCHITECTURE: Richard Meier & Partners Architects
INTERIOR DESIGN: Buki Zuker Designers & Architects Ltd

LANDSCAPE: Dan Zur-Lior Wolf Landscape Architects

LIGHTING: MK Lighting Design

STRUCTURAL ENGINEER: David Engineers, Ltd. (Israel David)

GENERAL CONTRACTOR: U. DORI CONSTRUCTION LTD

CLIENT: Berggruen Residential
RENDERINGS: DBOX and Richard Meier & Partners Architects

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SHANGHAI, CHINA

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DESIGN ARCHITECT: Arquitectonica

ARCHITECT OF RECORD: East China Architectural Design & Research Institution

INTERIOR DESIGNER: Arquitectonica

STRUCTURAL ENGINEER/ CURTAINWALL CONSULTANT : ARUP International Consultants (Shanghai) Co., Ltd.

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CIVIL: East China Architectural Design & Research Institution

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