Modern Steel Construction

May 2021

AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISC
FOUNDED 1921

2021 IDEAS² AWARDS

WHAT DO a factory-turned-office-building, a training facility with a C-suite-worthy treehouse, a state-of-the-art rodeo venue designed for today's cowboy, and a stacked school have in common?

They're all steel-framed, they're all beautiful, and they're all winners. Specifically, these four projects, as well as six others, are winners of the 2021 AISC IDEAS² Awards.

Why "IDEAS²?" Because the program recognizes Innovative Design in Engineering and Architecture with Structural Steel. Awards for each winning project are presented to the project team members involved in the design and construction of the structural framing system, including the architect, structural engineer of record, general contractor, owner, and AISC member fabricator, erector, detailer, and bender-roller.

New buildings, as well as renovation, retrofit, and expansion projects, are eligible, and entries must meet the following criteria:

- A significant portion of the framing system must be wide-flange or hollow structural sections (HSS)
- Projects must have been completed between January 1, 2018 and December 31, 2020
- Projects must be located in North America
- Previous AISC IDEAS² award-winning projects are not eligible

This year's five judges considered each project's use of structural steel from both an architectural and structural engineering perspective, with an emphasis on:

- Creative solutions to the project's program requirements
- Applications of innovative design approaches in areas such as connections, gravity systems, lateral load-resisting systems, fire protection, and blast protection
- The aesthetic impact of the project, particularly in the coordination of structural steel elements with other materials
- Innovative uses of architecturally exposed structural steel (AESS)
- Advancements in the use of structural steel, either technically or in the architectural expression
- The use of innovative design and construction methods such as 3D building models, interoperability, early integration of steel fabricators, alternative methods of project delivery, and sustainability considerations

The entries were placed in four categories according to their constructed value in U.S. dollars:

- Less than $15 million
- $15 million to $75 million
- $75 million to $200 million
- More than $200 million

National and Merit honors were awarded in the Less than $15 million and $15 million to $75 million categories, and National awards were given in the $75 million to $200 million and More than $200 million categories. In addition, Sculptures/Art Installations/Nonbuilding Structures National and Merit winners were also selected, and one project won a Presidential Award for Excellence in Adaptive Reuse. Congratulations to all of this year's winners!

Stephanie J. Hautzinger, SE, AIA
Associate Vice President, CannonDesign, Chicago

Stephanie, a structural engineer in the Chicago office of CannonDesign, has 25 years of experience in the design of healthcare, corporate, and education projects. During her career, she has made significant contributions to unique and award-winning buildings such as the University of Chicago Gerald Ratner Athletics Center and the Kline Center Addition at Dickinson College. Stephanie is a graduate of the University of Illinois, with a Bachelor of Science in architectural studies and a Master of Architecture in the structures option. Stephanie is active in the engineering community, serving as vice president of the Structural Engineers Foundation. She is also a proud member of the Structural Engineers Association of Illinois and the American Institute of Architects. Stephanie has been published on multiple occasions, particularly related to architectural engineering collaborations and the use of exposed structural steel.

Mark V. Holland, PE
Chief Engineer, Paxton and Vierling Steel Co., Omaha, Nebraska

Mark is the chief engineer for Paxton and Vierling Steel Co. in Omaha, Nebraska. Mark is an active member of the AISC Committee on Specifications, Chairman of the Committee on Stainless Structures, Chairman of the AISC Manual Committee, and a registered professional engineer in nine states. From 1986 to 2013, Mark was responsible for connection design, material procurement, detailing, shop scheduling, project management, and change order management. From 2013 to the present, he has been mentoring the next generation of steel fabricators. Mark is a regular speaker at NASCC: The Steel Conference as well as several other industry events on subjects related to fabricated structural steel and connection design.

Maysa Kantner
Atlanta Structural Steel Specialist, AISC

Maysa Kantner is an AISC structural steel specialist serving the greater Atlanta market. She earned her Bachelor of Science and Master of Science in civil engineering from the Georgia Institute of Technology. After graduation, Maysa started her career with Uzun+Case, where she worked on a wide variety of projects, including the new UGA Indoor Athletic Facility. She has five years of previous experience as a structural engineer and has since found her passion in the marketing and business development aspects of the structural steel industry.

Anders Lasater, AIA
CEO and Principal Architect, Anders Lasater Architects, Los Angeles

By the time he was ten years old, Anders knew he'd grow up to be either an architect or a heavy metal drummer. But, by the 1990s, grunge and alternative pushed heavy metal out of the spotlight, so he shifted focus from the practice studio to the architectural studio and began working for some of the best architects in Orange County. After finishing two degrees in architecture and design theory, he opened the doors to his own firm in 2005, where he and his staff focus on innovative designs for residential, restaurant, retail, and hotel projects. He's fortunate to have a diverse group of passionate architects working for him who finds the same joy in making thoughtful architecture as he does. Much to his wife's chagrin, he still lives out his rock-n-roll fantasy with his band, Thunderhose.

Wanda Lau
Editor, Technology and Practice, *ARCHITECT* magazine

Wanda covers technology, practice, and op-eds at *ARCHITECT* magazine, the journal of the American Institute of Architects. Based in Washington, she has won more than 30 national and regional awards for editing and writing stories examining everything from building codes to firm culture. She is also a host, producer, and editor of the *ARCHITECT* Podcast Network. Wanda has spoken regularly on building technology as well as on diversity, equity, and inclusion in professional practice, contributed to publications on high-performance design, and served on studio and award juries across the country. Her wide range of interests is reflected in her multidisciplinary background. A first-generation college graduate, she holds a Bachelor of Science in civil engineering with high honors from Michigan State University, a Master of Science in building technology from MIT, and a Master of Arts in journalism from Syracuse University. Prior to joining *ARCHITECT*, she worked for a decade in the AEC industry as an owner's representative, engineer, and communications director—but not all at once.

NATIONAL AWARD Greater than $200 Million

Dickies Arena, Fort Worth, Texas

FOR MORE THAN 80 YEARS, Will Rogers Coliseum served as the host of the Fort Worth Stock Show and Rodeo and also as a key architectural landmark for Fort Worth. Designed in the Southwest Art Deco style, the 1930s-era arena features an exposed structural steel barrel-vaulted roof crowned with a cupola. The coliseum's efficient and purposeful form created an intimate atmosphere for an immersive rodeo experience.

It also served as the inspiration for its replacement, the new Dickies Arena. However, it also represented the challenges of incorporating the deep history and intimacy of the Coliseum environment at a larger scale while creating the flexibility to be able to host other non-rodeo events. The architectural design team embraced this challenge and developed a roof shape that would reflect the original coliseum.

The new 14,000-seat, 715,000-sq.-ft multipurpose Dickies Arena features unmatched amenities and accommodations to host not only the Stock Show and Rodeo but also hockey games, concerts, conventions, and private events. A new icon for Fort Worth, the arena offers the community three spectacular entrances: a grand north stair connecting to the cultural district and the revered Will Rogers campus, a monumental stair linking to downtown Ft. Worth, and an ornate pedestrian bridge extending to the new parking garage. These stunning entryways draw patrons into a meticulously landscaped plaza. Like the arena, this three-acre space was designed in a Southwest Art Deco style to pay homage to the city's architecture and the region's cowboy culture.

This exceptional facility had three architects working collaboratively to create a cohesive design, and the structural team partnered with them to bring the design to life. Design architect David M. Schwarz (DMS) focused on the detailing and aesthetics of every space, sports architect and architect of record HKS prioritized the function of the arena and how it appealed to fans, including the sightlines and acoustics, and Hahnfeld Hoffer and Stanford, the architect for the arena support building, focused on the functionality and flexibility of that space. The Walter P Moore structural team worked closely with the architects to create innovative solutions for each space and function of the complex.

Even in a market dominated by concrete construction, some structures present themselves with challenges that can only be solved with steel, and Dickies Arena is a perfect example. The dominant structural form of the arena is the 420-ft by 280-ft clear-span roof that arches over the event space. Structural steel trusses with a shallow depth of 14 ft and generous spacing of 15 ft make the roof seem light and airy, as only steel can do. In addition to steel being the logical and appropriate choice for this element of the structure, the project's design architect envisioned exposed structural steel in various areas of the structure to complement the 1930s cowboy culture feel of the facility.

The exposed structural steel long-span roof was key to creating this feel visually and acoustically. While the barrel-shaped, double-arched roof form was chosen to pay homage to the original Coliseum roof, a tighter roof truss spacing was desired architecturally to create a regular rhythm and pace for the space. Most modern arenas use larger and deeper trusses spaced further apart to leverage the deck span capabilities and much lower piece counts. While Dickies Arena's tighter truss spacing is unique in modern arenas, the inherent structural efficiency of arched roof form allowed for lighter and more shallow truss elements to be used.

WT top and bottom chords and double-angle web members allowed the exposed roof structure to express its connections cleanly and elegantly, and an architectural review of the structural connection details was integrated into the design process to ensure that the design intent was met. The truss spacing created an expansive and highly flexible rigging environment with over 800 potential attachment areas and without a visually imposing rigging grid.

Exposed structural steel was also used extensively in the pavilion arena and the prominent pedestrian bridge. The bridge brings the architectural and structural beauty and practicality of steel outdoors for both event-day patrons and every-day passersby to experience, and also serves as a key entrance to the facility, welcoming visitors to the expansive elevated upper plaza on which the arena sits.

Not all structural steel on the project was exposed. Four geometrically-expressed grand stairs (two elliptical and two octagonal) cantilever off the main structure with steel framing and offer the impression that the spiraling stairs are dramatically floating above the grand lobby below. As with other areas of the facility, steel allowed strict adherence to architectural geometric constraints that could not have been accomplished with other materials.

Owner
Trail Drive Management Corporation, Fort Worth, Texas

Owner's Representative
The Projects Group, Fort Worth

General Contractors
Beck Group, Fort Worth
Austin Commercial, Dallas

Architects
HKS, Inc., Dallas
David M. Schwarz, Washington, D.C.
Hahnfeld Hoffer and Stanford, Fort Worth

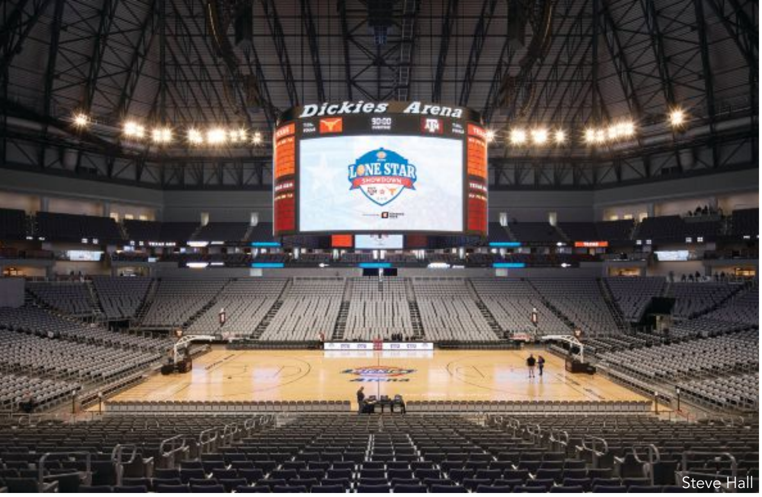
Structural Engineer
Walter P Moore, Dallas

Steel Team

Fabricator and Detailer
W&W/AFCO Steel AISC CERTIFIED FABRICATOR, Oklahoma City

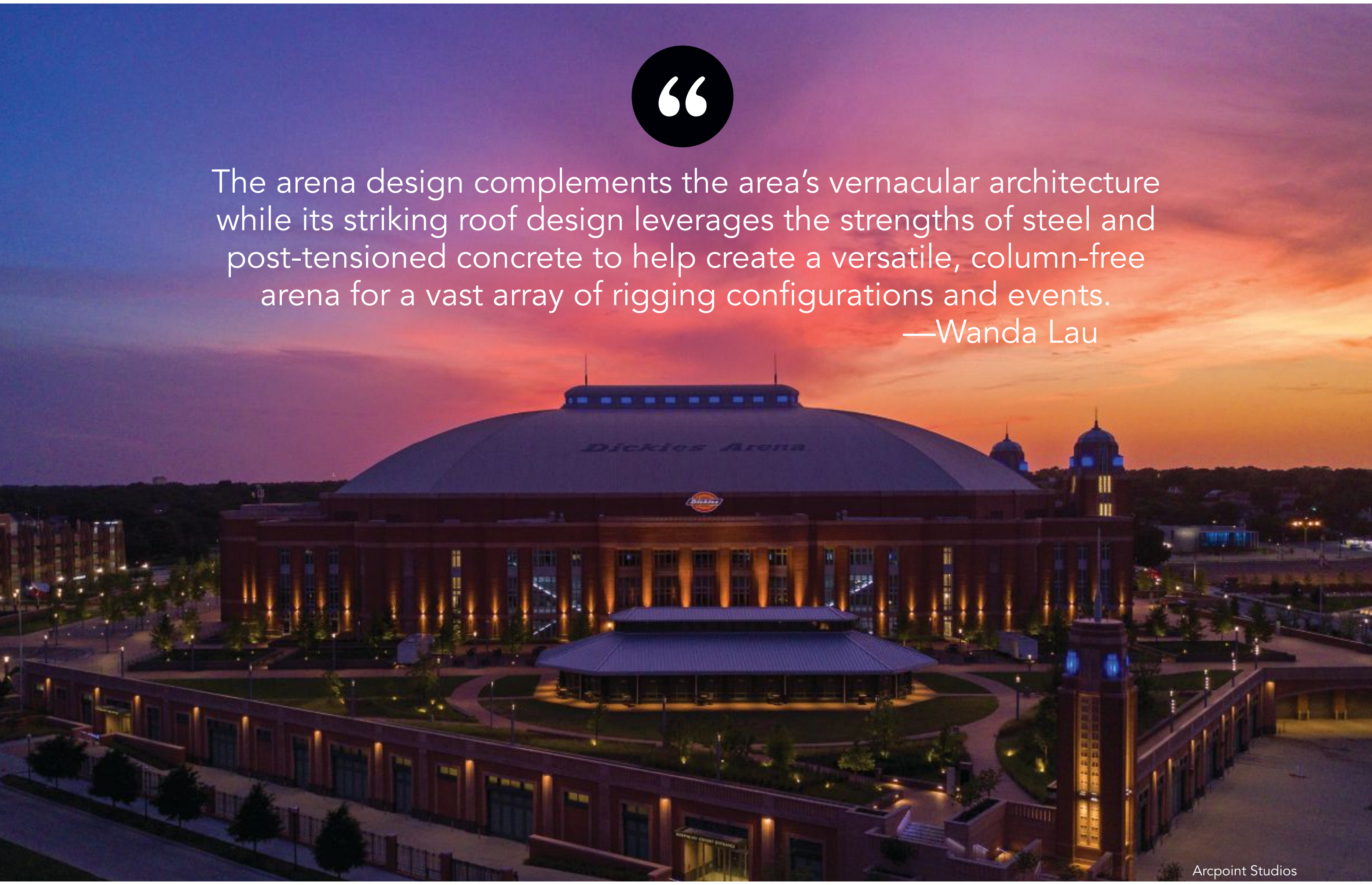
Erector
Bosworth Steel Erectors AISC ASSOCIATE AISC CERTIFIED ERECTOR, Dallas

Bender-Roller
Max Weiss AISC ASSOCIATE, Milwaukee



Steve Hall


Steve Hall



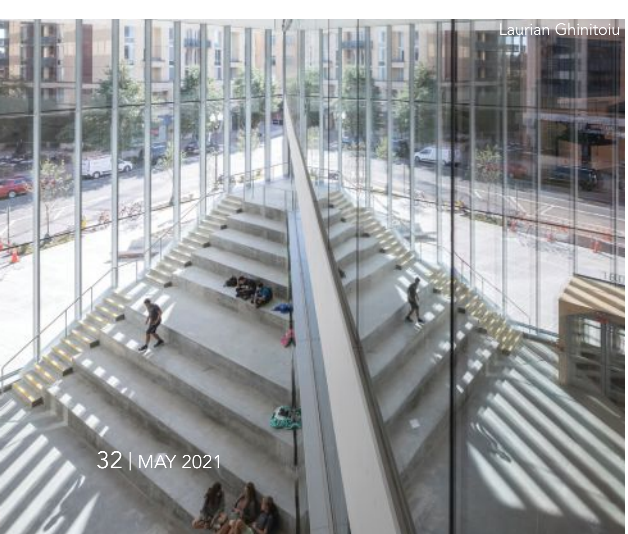
> The arena design complements the area's vernacular architecture while its striking roof design leverages the strengths of steel and post-tensioned concrete to help create a versatile, column-free arena for a vast array of rigging configurations and events.
> —Wanda Lau

Arcpoint Studios

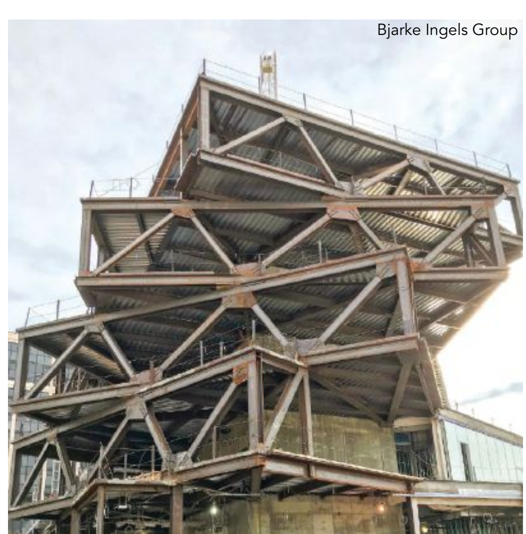

Steve Hall

Laurian Ghinitoiu

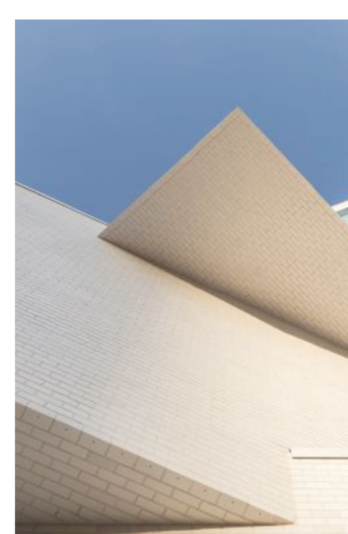
> The ambiguity of how this building is supported is one of the most fascinating features of the structure, and it is all due to the structural steel trusses behind the scenes.
> —Maysa Kantner



Laurian Ghinitoiu



Bjarke Ingels Group

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NATIONAL AWARD $75 Million to $200 Million

The Heights School, Arlington, Va.

THE HEIGHTS SCHOOL BUILDING in Arlington, Va., serves as the home for two educational programs: the Eunice Kennedy Shriver Program, which educates students best served in a specialized environment, and the HB-Woodland Program, which teaches self-motivation by making students accountable for their choices.

Due to the co-location of the two programs, careful planning to accommodate diverse technical requirements was paramount. As such, Arlington Public Schools set the goal for the design of creating the most cutting-edge 21st-century learning environment.

The concept for the five-story above-grade vertical urban school is based on the idea of using the building itself as a teaching tool. Outdoor classrooms, collaboration niches, writable vertical surfaces throughout, flexible classrooms, specialized maker spaces, advanced technology, supportive programming, and many other amenities make the Heights School learning environment unlike any other in the United States. The school is an excellent example of optimizing functional space to directly address user requirements.

The vertical design of the school creatively responds to site constraints and meets the main goals of providing a central space that connects the building levels and also giving access to outdoor spaces at all levels. The design team developed a scheme that creates separate classroom blocks that are all adjacent to terraces, which provides unique activities corresponding to their adjoining programs.

The new school, which opened in time for the 2019-20 academic year, consists of five stacked steel-framed "bars" that fan around a pivot. This fanning gives the feel of a one-story school building while also creating large open volumes beneath the bars. Fanning the bars around a pivot led to the development of an innovative load path concept using floating buttresses to support the corners of each bar.

The pivot was a natural location for vertical circulation and distribution of services, so a concrete core was designed to resist torsional, lateral, and gravity forces. The bars create floating corners on each side, and multiple structural concepts were evaluated to facilitate this design scheme, including cascading cantilevered steel beams with column transfers, cantilevered trusses parallel to each bar, and helical columns. Ultimately, the floating buttress design evolved from the helical column concept, where each column leans as the bar fans out. This created one helical load path at each corner that, while beautiful in structural elegance and simplicity, created sloped columns that occupied valuable interior space that couldn't be lost. To preserve this space, the helical columns were pushed out to the perimeter walls, forming a truss and floating buttress system framed with W12 and W14 sections. Each truss uses standard bolted gusset connections and bearing plates, and the buttresses use welded connections. The floating buttress resulted in additional out-of-plane forces, which are resisted by horizontal diaphragm framing that transfers diaphragm forces back to the core.

To simplify erection, each truss was designed to be fully erected into place by putting an upper truss on the truss below it, using a few shoring posts for stability during erection. Where trusses intersected in plan, the chords simply passed over one another in elevation. Structural engineer Silman collaborated with steel fabricator Banker Steel to simplify load-path continuity through geometrically complex connections at critical locations.

The framing above the gym, library, and atrium are all standard or built-up sections, and the framing over the theater uses shallow trusses. Trusses were not feasible for the available space above the gym, so plate girders and heavy W36 sections were used to transfer the columns from above, supporting bar floor and terrace framing, and double-W24 sections ended up being the most economical solution over the atrium. A dramatic cantilever over the atrium reaches toward Wilson Boulevard to the south.

To achieve the shallow floor depth, as well as the aesthetic desires of the project's architects, Leo A Daly and Bjarke Ingels Group, a dapped-end 24-in.-deep built-up double-web plate girder was used for the soffit. Due to the large terrace load from above and the short back span of this cantilever, the plate girder was anchored with a tension column in bar five. Above the theater, trusses were the optimal solution to meet the needs of potential future expansion, MEP routing, column transfers for the crossing bar above, and allowable floor depths.

Throughout the design process and especially early on, meetings between Silman, Banker Steel, and general contractor Gilbane were essential to ensuring economical solutions and constructability throughout design, as well as coordinating steel availability with the construction schedule, erection methods, preferred connection types, and site logistics. Some standard sections were changed to plate girders through this collaboration, while others remained heavy W36 beams spliced together in the field.

For more on this project, see the December 2019 article "Pivot Point" in the Archives section at ***www.modernsteel.com***.

Owner
Arlington Public Schools, Arlington, Va.

General Contractor
Gilbane, New York

Architects
BIG – Bjarke Ingels Group, Brooklyn, N.Y.
Leo A Daly, Washington

Structural Engineer
Silman, Washington

Steel Team

Fabricator
Banker Steel AISC CERTIFIED FABRICATOR, Lynchburg, Va.

Detailer
Sanria Engineering AISC DETAILER, San Jose, Calif.

NATIONAL AWARD
$15 Million to $75 Million
Truist Leadership Institute
Greensboro, N.C.


@2019 Tom Holdsworth

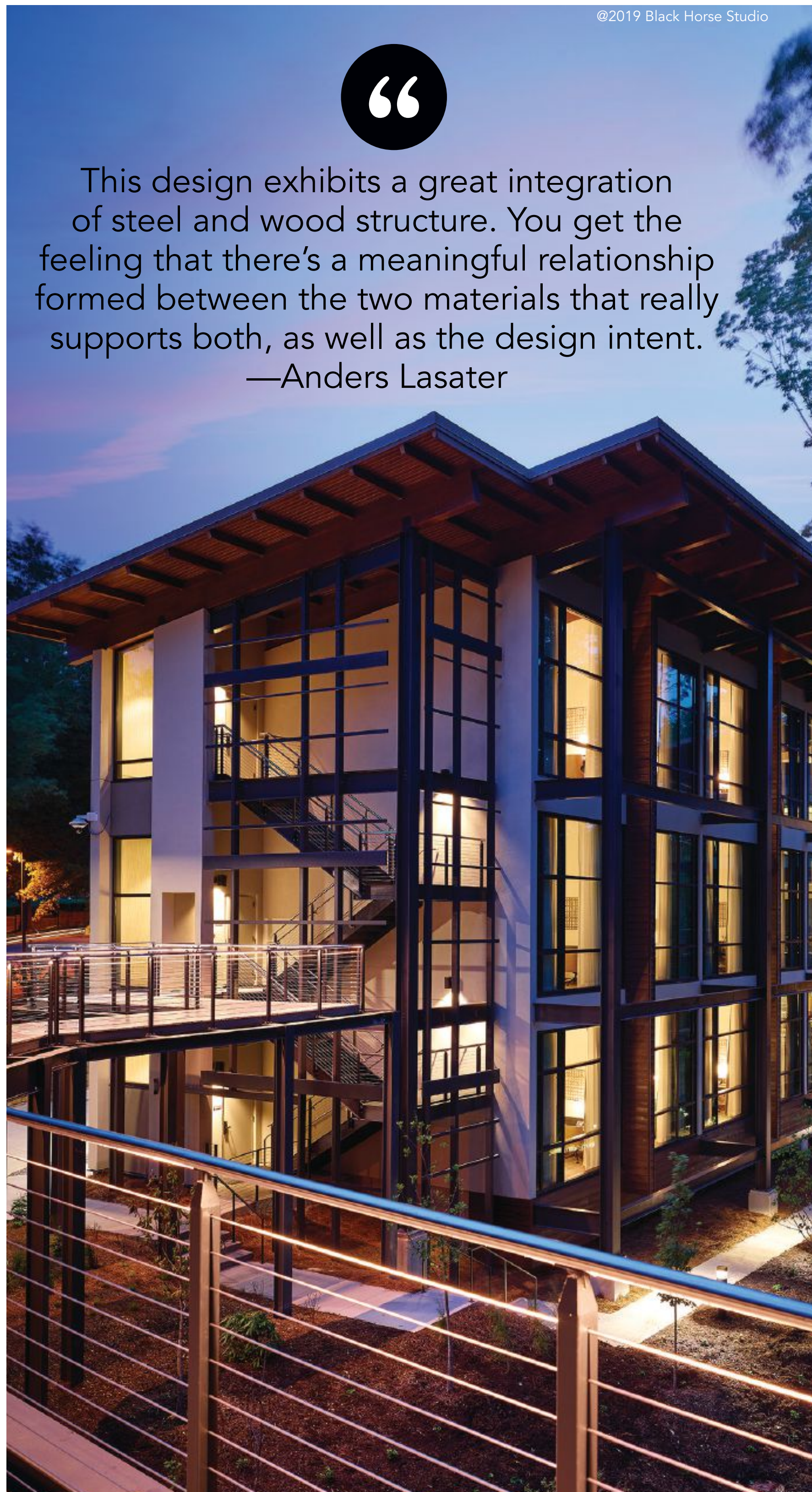
THE TRUIST LEADERSHIP INSTITUTE is a cluster of five buildings comprising 60,000 sq. ft, all nestled on a narrow, sloping, wooded site in Greensboro, N.C. The owner desired a retreat-like, holistic design that blurred the boundary between the natural world and the built environment. Steel made it all possible and is part of the "soul" of the building, which follows the shape and form of the wooded landscape.

The $35 million project includes two three-story corporate training and conference facilities and two 24-person guest wings for overnight accommodations. It also features a multipurpose "treehouse," nestled some 20 ft high in the treetops among three large oaks. Each building provides open, sweeping views of the woods and a nearby lake. Floor-to-ceiling glass, open stairs, and wide decks blend the inside with the outdoors, and steel-supported walkways connect the buildings, providing a welcoming entry point for guests.

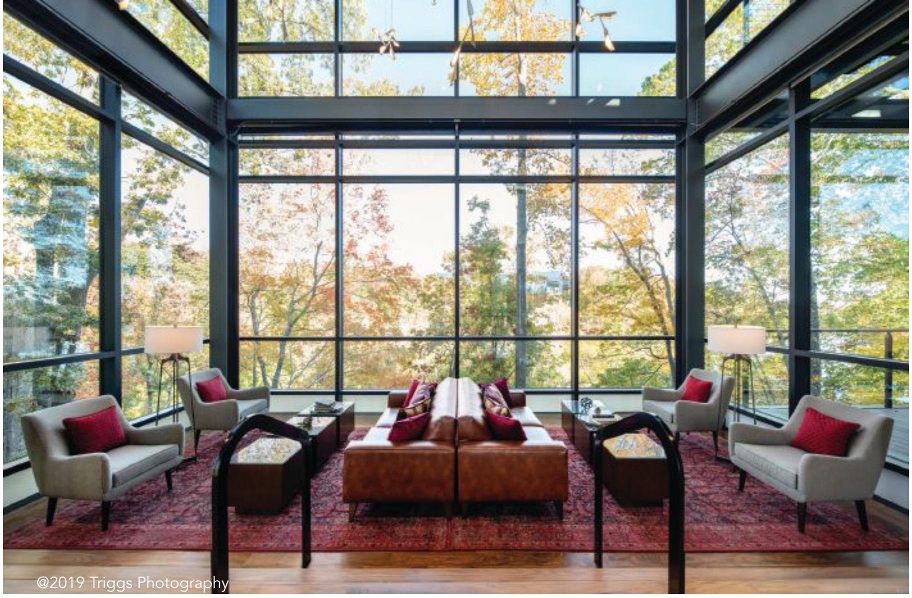
Steel was central to the project aesthetic and is exposed both inside and outside. Approximate 430 tons worth of steel was used, much of which met architecturally exposed structural steel (AESS) requirements. Architect Jeffrey Sowers notes, "Sometimes people think of steel as cold and hard. But in this project, it is just the opposite. Steel helped us make it warm, fuzzy, and inviting." He adds that the intent was for the vertical steel structural columns to feel like trees married to heavy timber-framed roof trusses that act as branches—with a large roof overhang becoming the "tree" canopy. The first floors of the buildings are elevated over the steel foundation framing, which makes the multistory buildings seem to "float," minimizing site disruption and creating a sense of drama.

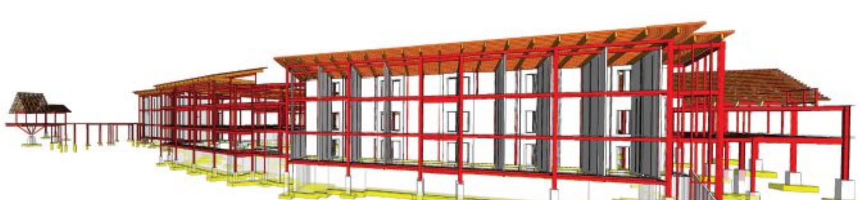
It took careful planning during the design and engineering phase to marry blue laminated steel with exposed timber-frame beams, aligning weight-bearing points and connections to transfer the sizeable load from the timbers through the steel and onto the supporting footings. In the guest wings, the challenge was even more complex, involving the perfect alignment of timbers and structural steel columns. The use of moment connections eliminated the need for brace frames and contributed to the openness of the building.

Because of the importance of steel to this project, the design team worked closely with fabricator SteelFab to develop two custom AESS finish categories that balanced aesthetic concerns with budget realities. These custom categories combined selected requirements from AESS categories 1 through 4 (for details on the various levels of AESS, see "Maximum Exposure" in the November 2017 issue, available



@2019 Black Horse Studio





at **www.modernsteel.com**). A more refined finish was used where the steel would be most visible, and a less refined finish was employed in areas where the structure would not be viewed up close. Close attention was required at the connections to ensure proper finishing of the welds, which was also addressed by the custom AESS categories.

The most unique of the five buildings in the project is the "treehouse," a multipurpose facility connected to the main campus by a steel pedestrian bridge. The building uses a single, central column to act as a "tree trunk," with steel braces extending like branches for support. The building appears to float in the treetops, with floor-to-ceiling glass providing 360 ° views while the forest floor below remains exposed and undisturbed.

The team at Fluhrer Reed used RAM Structural System and RAM Elements to create an analytical model that was transferred into the 3D building information model (BIM). The software was used to create a 3D model of the skeleton of the building, and the architectural "skin" and building systems were then created and applied, facilitating simpler planning of these systems around steel beams and heavy timbers.

Thanks to early collaboration between the design team and fabricator, including making up-front decisions about finishes and moment welds, the team was able to truncate timelines, control costs, and expedite construction. The early collaboration also allowed general contractor Frank L. Blum to place a mill order several months before issuance of construction documents.

The project is targeting LEED Silver certification and is designed for energy conservation and reduced water use. Low- and no-VOC materials are used throughout, and trees that were taken down were salvaged and repurposed as patterned walls, panels, and doors. And of course, the project's steel is contributing to the sustainable cause, thanks to its high recycled content and cradle-to-cradle characteristics.

*For more on this project, see the June 2020 article "Seeing the Forest for the Trees" in the Archives section at **www.modernsteel.com**.*

Owner
Truist Leadership Institute, Greensboro, N.C.

General Contractor
Frank L. Blum Construction, Winston-Salem, N.C.

Architect
CJMW Architecture, Winston-Salem, N.C.

Structural Engineer
Fluhrer Reed, PA, Raleigh, N.C.

Steel Fabricator
SteelFab, Inc., Raleigh, N.C.

MERIT AWARD $15 Million to $75 Million

Watershed Building, Seattle

PRODUCING A SUSTAINABLE OFFICE BUILDING to appeal to high-tech businesses was one of the main drivers for designing and constructing Seattle's 61,000-sq.-ft Watershed Building.

The other was to be recognized by Seattle's Living Building Pilot Program (LBPP), a prestigious green building program that measures building performance for at least 12 months after occupancy. Participating in the program gave Watershed 15% additional developable area and 20 ft of additional building height beyond the current zoning allowance for commercial office buildings. To meet the program requirements, the entire design team contributed solutions for the program's material, place, and beauty requirements, which included that materials must be sourced from a 500-mile radius of the project site and cannot be listed on the program's red list of harmful materials. Steel was able to contribute positively to the program's goals, as the building includes four steel-framed above-grade levels atop three levels of cast-in-place concrete and post-tensioned concrete levels.

Structural engineer DCI Engineers considered how its designs could contribute to the project's sustainability efforts via the framing system. The solution was in castellated steel beams, which provided an opportunity to bring in more natural light for the interior office spaces. The deeper castellated beam sections also provided better floor performance with their increased strength and stiffness. In addition, the depth of the castellated beams offers more layout framing options, thus a more flexible design to accommodate value-added requirements such as the tenant mechanical ducting, unobstructed views, and cantilevered building features. The reduced weight of the castellated beams also translated to a reduction in the seismic mass carried by the steel lateral framing system. The estimated 20% to 30% of savings in the weight of the beams resulted in smaller lateral system elements, which worked well with the desire to minimize structural impacts on the southerly lake and city view.

In addition to its structural advantages, the exposed castellated beam concept is aesthetically pleasing and gives the sense of higher ceilings, with light funneling through the hexagon cut-outs of the beams. For the Watershed Building (a Type III construction), fireproofing spray is not needed to cover these beams, so a simple coat of paint over the beams provides a clean, exposed look.

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On Level 7, there is a balcony for tenants to enjoy views of nearby Lake Union's marina waterway. In order to accommodate the required paver walking surface, the framing design incorporates a step in the castellated beams and metal deck. DCI's engineers detailed the castellated beam connections to accomplish the stepped feature by splicing a plate girder section into the castellated beam section. Proper column locations, customized cut beams, castellation patterns (infills were required at specific locations), and precise dimensioning all worked together to provide a flawless balcony installation in the field.

The engineers used braced frames for the building's lateral system to provide improved performance during earthquakes. To minimize the impact of the braces on building occupants' view, they positioned an X-brace frame further inside the building layout, and the lower portions of the braced frame were integrated through the lower concrete portion of the brace frame to the foundation level. The brace frame columns were then encased with concrete.

Watershed's location next to the Aurora Bridge gives the building an added opportunity to become a stormwater management solution. The building's steel gutter system, landscaping, and bio-retention vault direct toxic stormwater runoff from Highway 99, which is carried by the bridge, through a downward-slope filtration system to treat the polluted water before it reaches Lake Union. Watershed can clean 400,000 gallons of stormwater annually, helping to protect the water quality for a major salmon migration route that passes through Lake Union. Throughout the public walkways around Watershed, there are educational signs for passersby to learn about the bio-retention and natural stormwater filtration processes. In addition, Watershed's overhanging roof itself is designed for on-site rainwater harvesting, with rainwater being carried through the sculptural gutter system into an oversized steel scupper before it is stored in a 20,000-gallon concrete cistern for non-potable uses, such as the building's low-flow toilet fixtures and irrigation options (about half of the rainwater collected on-site will be reused in the building).

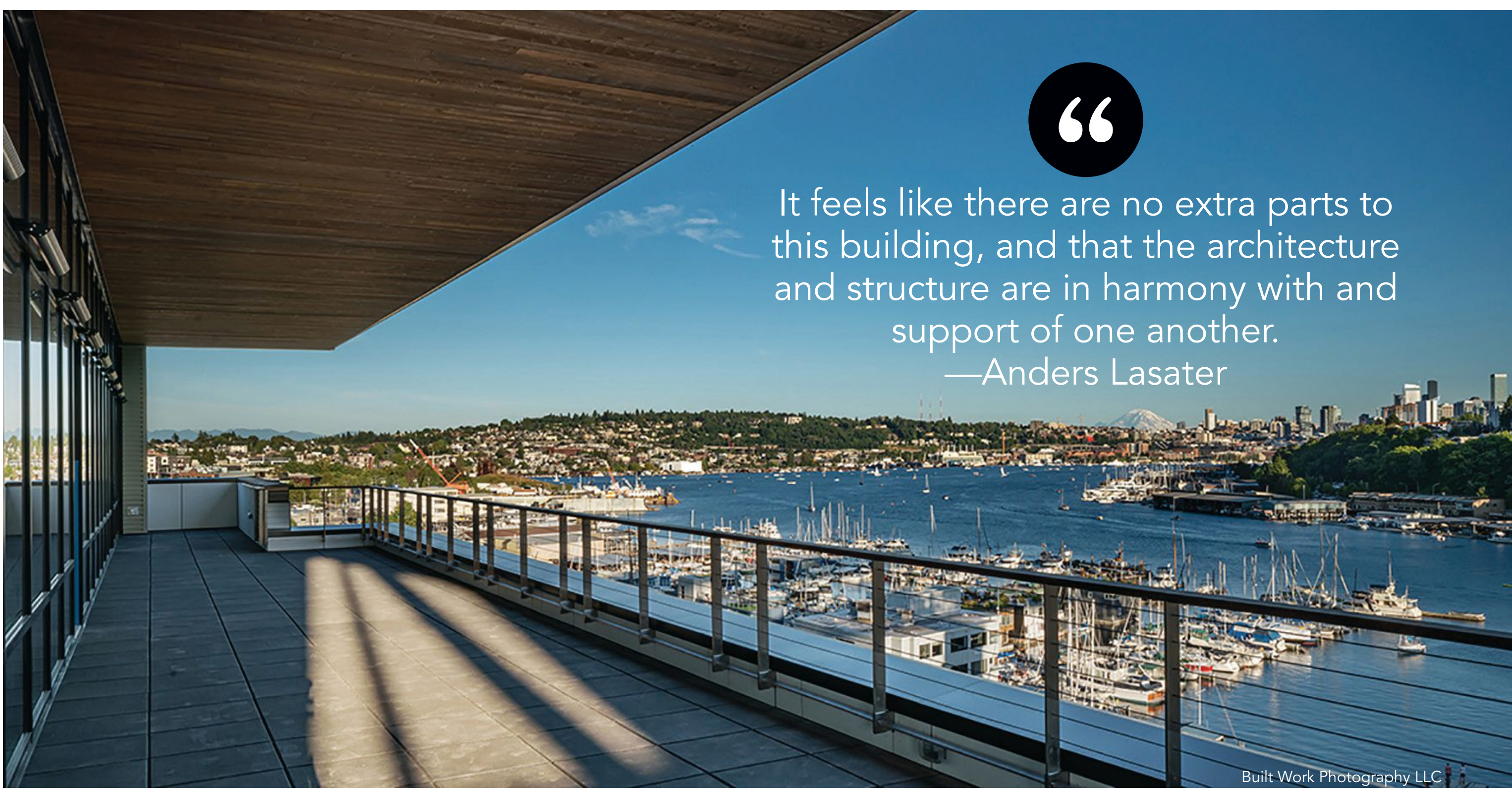
Owner
COU, LLC, Seattle

General Contractor
Turner Construction Company, Seattle

Architect
Weber Thompson, Seattle

Structural Engineer
DCI Engineers, Seattle

Steel Fabricator and Detailer
Metals Fabrication Co., Inc. (AISC Certified Fabricator), Airway Heights, Wash.



"It feels like there are no extra parts to this building, and that the architecture and structure are in harmony with and support of one another.
—Anders Lasater

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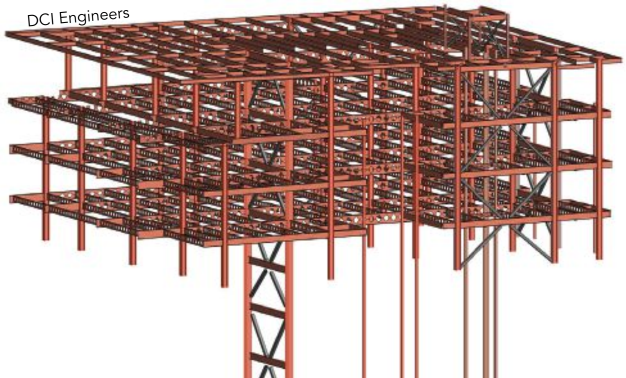
DCI Engineers



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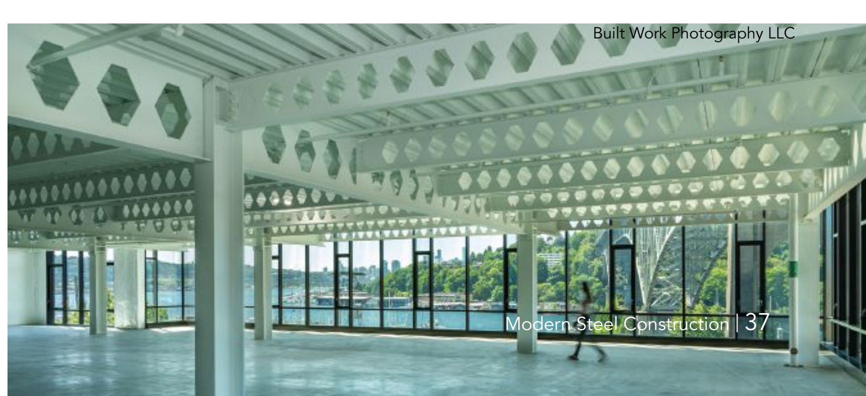


NATIONAL AWARD Less than $15 Million

Jacksonport State Park Visitors Center, Jacksonport, Ark.

SITUATED AT THE CONFLUENCE of Arkansas' White and Black Rivers, Jacksonport was a thriving port town in the 1800s, serving steamboats that held up to 200 passengers.

It's a place of contradiction geographically and historically, where the Mississippi Delta meets the mountains. Because of its accessibility to the Arkansas and Mississippi Rivers, Jacksonport was a Civil War strategic stronghold, being held five different times by Union and Confederate forces and serving as both generals' headquarters. Most importantly, Jacksonport was the location of the Confederacy's surrender of Arkansas.

In 1872, a beautiful courthouse became the town's centerpiece and county seat. But when the railroad eventually bypassed Jacksonport and river commerce waned, the town suffered. Devastating floods led to levee construction that forever separated the town from the river. In the 1960s, to save the historically significant courthouse from demolition, a new state park was established. Visitors, however, were still separated visually from the river. The new Jacksonport State Park Visitors Center was designed to remedy this situation.

While the design team was tasked with making a functional facility, the real challenge was to create a stage to experience and engage both river and town, past and present. The center creates three distinct second-level exhibit experiences: the river gallery overlooking the port, the town gallery overlooking the park/courthouse, and the inner exhibit gallery sheltering light-sensitive displays. The visually simple but rigorously detailed glass enclosure creates an elegant platform that recedes into the levee from the park's historic structures. A berm acts as a lawn theater for reenactments, while the entrance plaza's grove of six trees represents the almost 6,000 Arkansans whose war ended in this place.

Steel was the only logical choice for the delicate, light spans needed to create a column-free environment, which greatly helped with the interior planning of the exhibits. When researching the historic boats that once graced the port area, it was discovered that steel with wood decking and railing details was prevalent. In fact, the hull and much of the structure of the *Mary Woods II* steamship, a prominent feature of the park for years, were steel. The bridge leading to the boat from shore was a steel truss, and it served as the inspiration for the new building's "reunification" bridge that spans between two glass forms. Steel also offered the ability for authenticity in expression, facilitating the all-glass exterior cladding, and moment frames eliminated bracing, except for where it was desired at the bridge.

all photos courtesy of Timothy Hursley

With the building being next to a levee, coordination with the Corp of Engineers established exact parameters for placement of the footprint. Establishing a 15-ft setback from the levee toe to the road embankment that leads over the levee created the opportunity to make the building look like it was part of the levee by establishing a berm-theater on the opposite side of the road. This decision, and the challenge of anticipating a catastrophic flood possibility, led to the decision to use a combination of concrete and steel at level one behind the earth berms, but all-steel rising above at the second level. The solution tricks the eye into seeing a building sitting on top of the levee while actually concealing almost 50% of the building's mass.

Keeping the building as narrow as possible allowed the structural system to span the entire width of the building. However, the park's requirement for a hipped roof led to the unique idea of using a repetitive system of tension rods, a nod to the use of cables in steamships. The resulting trusses are beautiful in their simplicity and repetition, extending within the enclosures and across the outdoor spaces.

For a building that features the structure so prominently, early design charettes with the structural engineer were critical, especially when coordinating other trades such as mechanical and electrical paths as well as fire sprinklers. Revit was used extensively to model all conditions and contributed to animations that helped sell the idea to the client via flyovers and walk-throughs that took the path of the visitor from car to the exhibits.

The visually simple but rigorously detailed glass enclosure creates an elegant 360° viewing platform that recedes into the levee from the park's historic structures. Every part of the building and site tells a story, one that was lost for decades as the existing building deteriorated. The levee wall, plus the loss in recent years of *Mary Woods II* to a fire, damaged one of the most historically significant sites in the entire state, limiting the ability to tell its story properly. When the structures are gone, the stories, and history, tend to fade away. The visitor center's design solution restored the ability to learn through experiential education, attracting all ages to the park.

Owner
Arkansas State Parks, Little Rock, Ark.

General Contractor
Tate General Contractors, Jonesboro, Ark.

Architect
Polk Stanley Wilcox Architects, Little Rock

Structural Engineer
Engineering Consultants, Inc., Little Rock, Ark.

> To see a major corporation push to construct a net-zero restaurant reaffirms the importance of the environment. And to have structural steel play such a big role in this movement is fantastic. It allows the world to start viewing steel as the sustainable material.
>
> —Maysa Kantner

MERIT AWARD Less than $15 Million

McDonald's Net-Zero Quick-Service Restaurant Rebuild, Kissimmee, Fla.

McDONALD'S IS SERVING UP a flagship Quick-Service Restaurant in Kissimmee, Fla.

The project, a rebuild/remodel of an existing facility, will create one of the world's first net-zero fast-food restaurants. The 8,000-sq.-ft facility incorporates key strategies for sustainable design, such as solar panels, living walls, natural shading elements, solar lighting, innovative heat reduction techniques, and structural steel framing. Steel was chosen not only to create an efficient structural frame to support the weight of the solar panels and wind forces in Florida, but also to enhance the architectural features that the owner was looking for.

The design intent was to provide a facility in which all the heavy structural elements support the project's net-zero goal without compromising aesthetics. As part of this goal, the steel-framed building was designed to blend in with the surrounding natural environment. The living walls were attached to the steel frame in a manner that would soften the appearance of the facility as well as add a more natural aesthetic to the architecture. In addition, the design allows the wood louvers and photovoltaic cells to be integrated into the glazing of the building.

The location of this project, on Disney's property near Orlando, demanded a landmark type of structure that could hold its own with the countless eye-catching theme-park structures in the area. Structural steel was the perfect material for these conditions because of the endless possibilities in shapes and configurations that could be achieved by using structural hollow structural sections (HSS) and wide-flange members.

The project came with several early challenges, such as attaching the solar panels to the roof, lateral drift due to wind forces, and building the 35-ft cantilever for the roof. But the most significant challenge was building this impressive structure within an existing building that was partially demolished. The team used steel brackets welded to the wide-flange beams to support the solar panels and all electrical wiring. It also designed two braced frames with

all photos courtesy of Tyler Carr Southland Construction

round HSS to control lateral drift and used moment connections with plates and bolts for the long-span cantilever beams.

Using steel framing facilitated longer spans without multiple support columns, allowing the interior and exterior to capture an open-air feel as well as allow for more light capture within the facility. This was important as it was a critical aspect of lowering power consumption by reducing the need for artificial lighting.

The structure was designed to efficiently transfer all lateral and gravity loading in a direct load path from the roof diaphragm supporting the solar panels to the braced and unbraced steel frames. The combination of lateral and gravity loads, transferred through the braces and columns to foundations, generated high-magnitude reactions at the ground supports, which consist of 36-diameter cast-in-place caissons.

The critical path of the construction schedule required materials to be delivered to the site as soon as initial foundations were ready for erection. All critical structural elements arrived on-site fabricated, painted, and ready for immediate installation. It was important for the steel infrastructure to appear minimal to emphasize the louvered wood cladding of the exterior walls as well as the outdoor canopy, which is covered with transparent photovoltaic solar panels.

The overall structural steel system supports 1,066 solar panels spanning more than 18,000 sq. ft of roof space, 800 sq. ft of solar glass panels covering the outdoor seating area, and 600 sq. ft of louver windows that push the heat out and keep the cool air in.

Using steel supported every major building element and aesthetic desire, resulting in a sustainable structure that will educate and be admired long into the future.

Owner
McDonald's Corporation, Chicago

General Contractor
Southland Construction, Inc., Apopka, Fla.

Architects
CPH, Inc., Sanford, Fla.
Ross Barney Architects, Chicago

Structural Engineer
CPH, Inc., Sanford, Fla.

Steel Fabricator
P&A Welding and Machine, Inc., Mulberry, Fla.

MERIT AWARD Less than $15 Million

Ballston Quarter Pedestrian Walkway Arlington, Va.

THE BALLSTON QUARTER pedestrian walkway is intended to be an iconic structure while also blending into the surrounding streetscape in Arlington, Va.

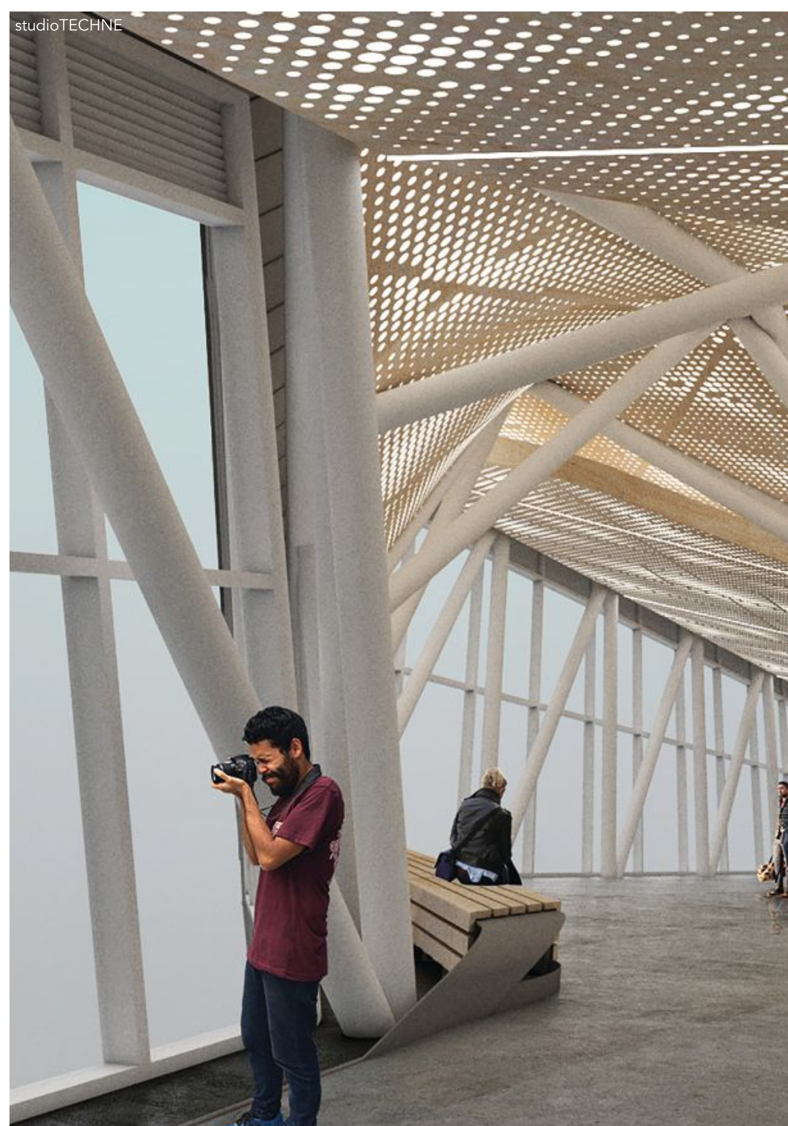
The design features a direct geometric approach, where the eccentric structure of the walkway oscillates between the wall and roof. The lines that comprise the structure and the transparent glass planes of the walkway engage the occupant, allowing an exploration of the transcendence of line and plane to provide a minimal sense of enclosure. This planar convergence transforms the experience of crossing the street, establishing unique view corridors and allowing participants to both observe and be observed as they move from private space to the public realm. Additionally, the walkway provides a direct connection to the DC Metro system, allowing people of all ages and physical abilities to access public transportation.

The steel-framed pedestrian crossing's design began with the investigation of various arrangements and configurations while crossing Wilson Boulevard and the way it connects the two buildings on the north and south ends. The entrances into the terminal buildings were approximately 155 ft apart and were offset from each other. The main goal was to avoid a design whose axis would be at a distinctive angle to the Wilson Boulevard. Therefore, the axis of the overpass required a crossover segment near its mid-span. The concept from the beginning was to enclose the overpass with glass and expose as much of the structure as possible. The decision was made to use round hollow structural sections (HSS) for the superstructure, both for their aesthetic value and also for their ability to resist the complex torsional, shear, and bending stresses in addition to all gravity loads.

The project site crosses one of the most heavily traveled streets in Arlington County, Va., and early on, the County placed significant restrictions on any closure of the street to vehicular traffic, which effectively eliminated the opportunity for the walkway to be constructed on-site. The site was also challenging due to the lack of a laydown area adjacent to the walkway location. These conditions required the design and construction teams to implement a design strategy that allowed the walkway to be fabricated, disassembled, shipped to a closed public park two blocks away, reassembled, and moved through the city streets as a single structure into its permanent position.

Additional challenges were presented by the building at the north terminal of the walkway, which had several levels of underground parking. A successful design solution required the walkway to impose no soil pressure on the foundation wall, as well as the development of a structural solution that allowed the walkway to rest with almost no imposed load on the two adjacent structures. Underground electrical duct banks feeding the majority of the adjacent buildings also limited the placement and design of the foundation system. A structural steel frame on concrete piers was the only solution that allowed the project to cantilever to the existing buildings, impose minimal loads, and maintain the necessary rigid-

MCiccarelli



studioTECHNE

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The crossover segment at mid-span creatively addresses the offset entrances of the connected buildings, and the steel HSS frame is an ideal choice to resist the complex forces of this innovative bridge design. The resulting structure has a sculptural quality that is visually captivating from both the exterior and interior.
—Stephanie Hautzinger

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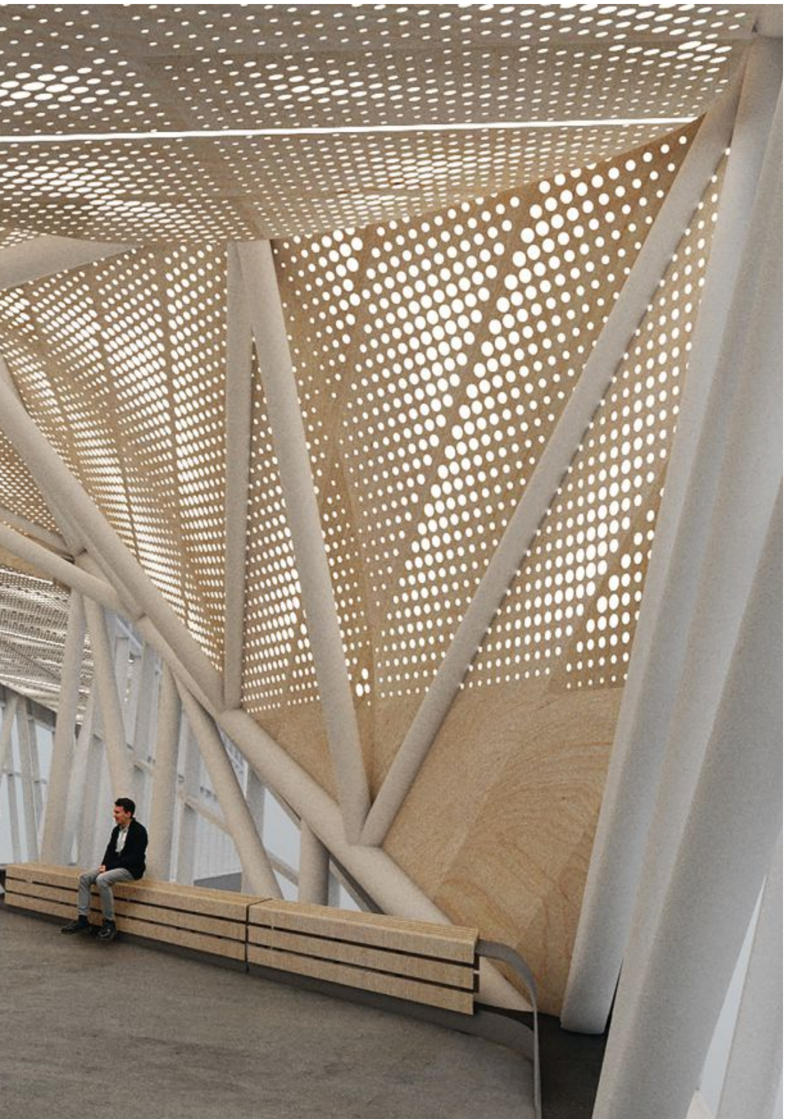


studioTECHNE

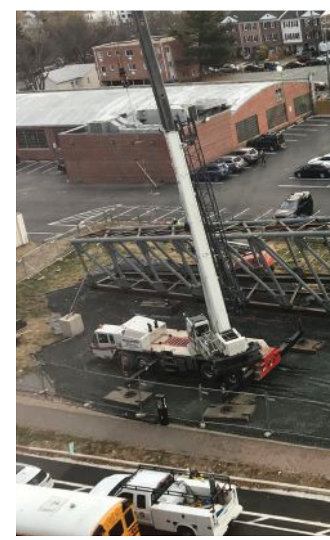
ity to minimize deflection and bounce for pedestrians traversing the walkway.

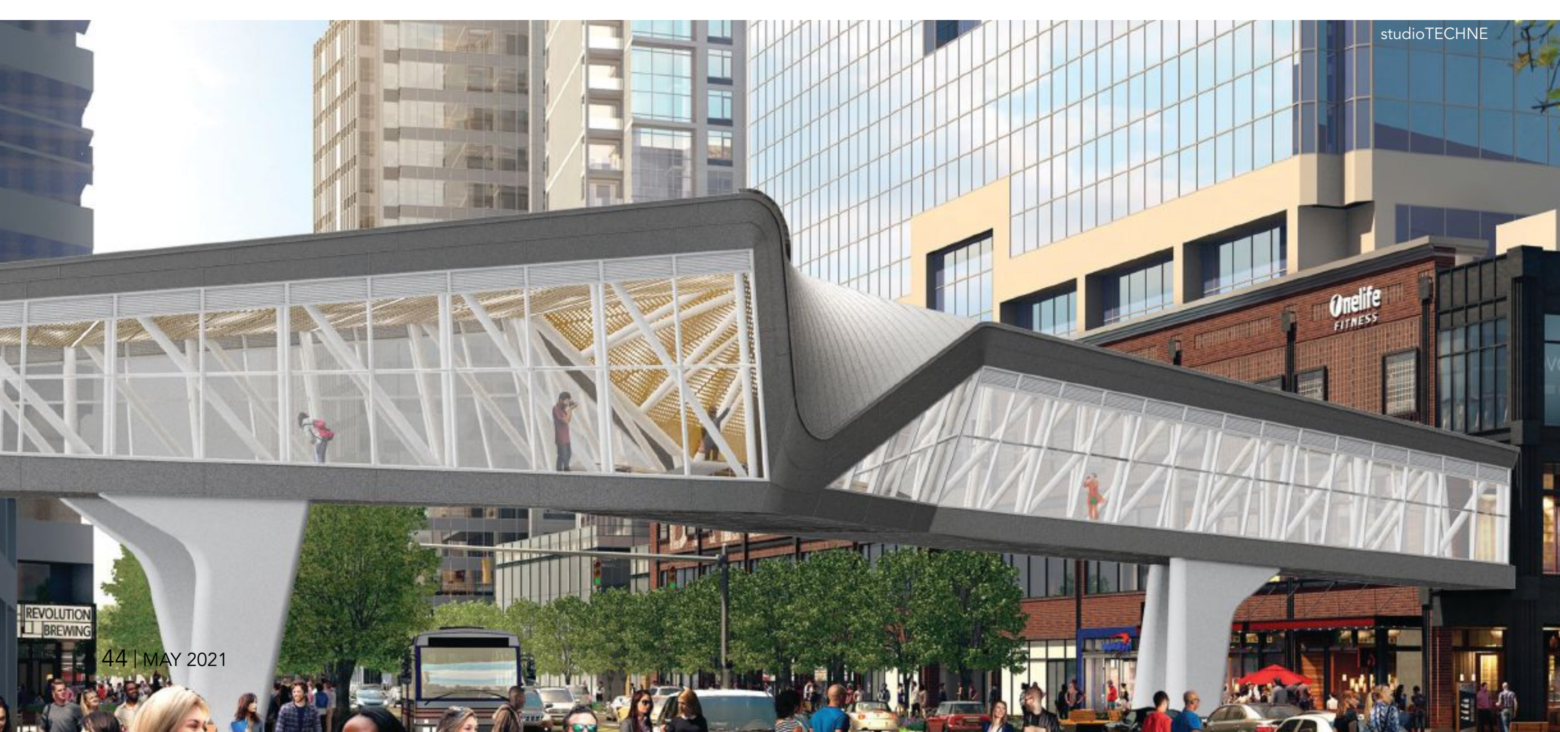
Expansion and deflection of the 155-ft-long walkway were also concerns. The calculated ideal air temperature for the final tightening of the bolts at the bearing points was 70 °F, which occurred a few weeks after the hoisting of the frame, at which time all bolts were tightened and welding at the bearings was completed. The casting of the concrete floor slab followed, and the deflection of the frame was monitored; it ended up matching the deflections predicted by the design calculations. Construction continued by architectural, mechanical, and electrical trades, and the iconic overpass began to take on its final appearance.

studioTECHNE Architects established the preliminary shape of the superstructure by defining the 3D locations for the main geometrical nodes. The geometry was subjected to large overall bending moments, shear, and torsional forces generated by gravity loads, wind pressures, and seismic forces that the individual members had to safely resist. The overall deflection was minimized to allow as much clearance as possible underneath the overpass for vehicular traffic on Wilson Boulevard. The unconventionally large floor area of the overpass and the large volume of the expected pedestrian traffic over made it necessary to structurally minimize perceptible vibration of the floor deck and to minimize wind-induced lateral movement on the entire superstructure. The four leaning concrete piers created some additional reactions on the superstructure and also imparted reactions into the superstructure, requiring fixed connections between the piers and the superstructure. In addition, thermal expansion and contraction had to be resisted by the same connections.

A "spine" was designed to act as a main supporting element that extended in a straight line in plan between the north and south ends of the superstructure, which became the largest steel element. Several other key elements were attached to the spine. The floor deck consisted of wide-flange girders along the two edges of the floor and beams with a composite metal deck and a concrete slab. The floor deck was designed as a diaphragm span from end to end and to resist the lateral wind and seismic loads and the associated torsional, shear, and bending stresses in addition to all gravity loads. Multiple rectangular rigid frames were designed to provide the required lateral stability of the superstructure's cross section against lateral loads. The roof structure, consisting of HSS and wide-flange purlins as well as steel angle cross bracing, acts as a supplemental


Williams Industries





studioTECHNE

diaphragm maintaining horizontal stability of the roof and equalizes lateral loadings. The two wide-flange edge girders were designed to resist thermal and seismic forces in the length-wise direction of the floor diaphragm. The large dimensions of the superstructure required bolted moment connections for assembly consisting of circular plates with bolts.

To facilitate transportation and erection of the completed bridge assembly, LIDAR scanning was used to digitally scan the entire site and develop a 3D model of the existing conditions. This permitted the construction team to test a number of lift and placement scenarios through which the entire 140-ton structure would be picked and lifted into position. The design team provided a complete 3D model of the structure, which the construction team used to develop sophisticated computer simulations to test a series of possible angles of arrival, tilt, and yaw required for placing the walkway, finally settling on a single crane to make the lift.

Fabricator Crystal Steel completely assembled the walkway in its shop, and the bridge was scanned to ensure the control points, with the tolerances matching what was required. The walkway was disassembled, shipped to the site, and reassembled two blocks from its final destination. The erector was given the calculated location of the assembled segment's center of gravity for proper hoisting and placement. Motion and deflection sensors were connected to the walkway to monitor movement, and it was then picked up, placed on Goldhoffer trolleys, and transported on the street to its final location. Owing to the precision of the planning and fabrication, the lift was executed as simulated, with perfect alignment of the walkway to the bearing plate assemblies.

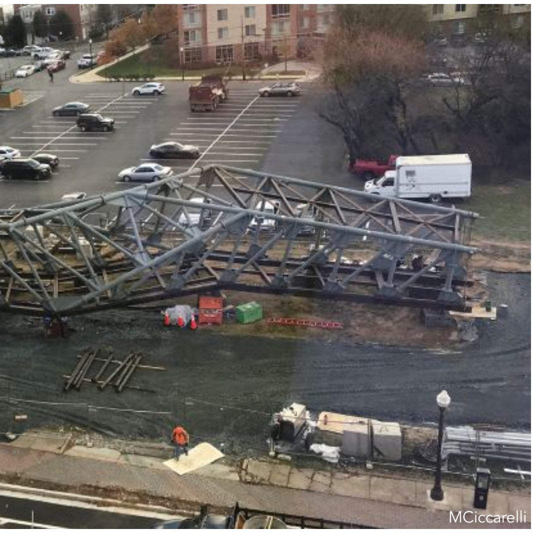
Owner
Brookfield Development, Washington, D.C.

General Contractor
Clark Construction, Bethesda, Md.

Architect
studioTECHNEarchitects, Cleveland

Structural Engineer
Peller + Associates, Westlake, Ohio

Steel Fabricator and Detailer
Crystal Steel Fabricators (AISC Certified Fabricator), Arlington, Tenn.



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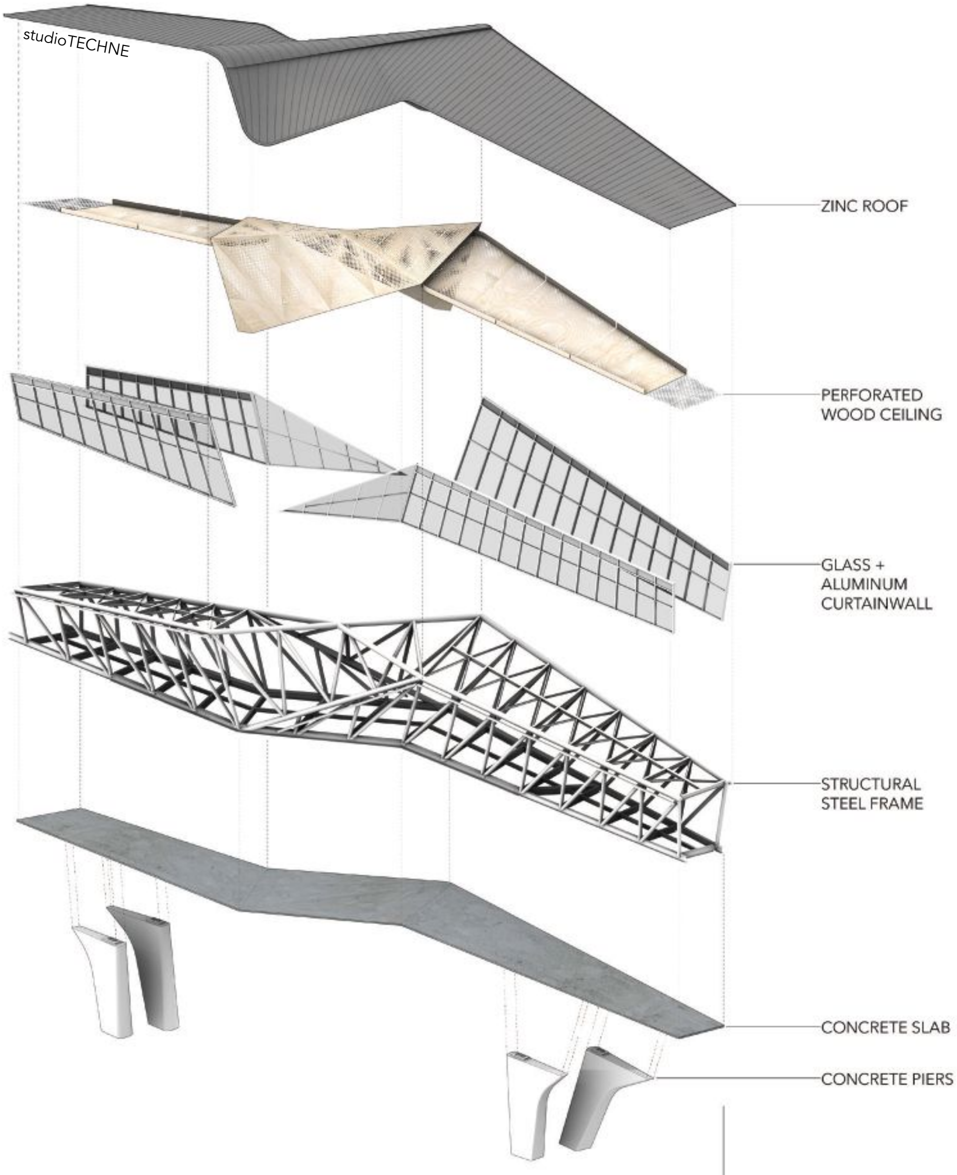


NATIONAL AWARD Sculptures/Art Installations/Nonbuilding Structures

Moscone Center Expansion—Pedestrian Bridges, San Francisco

THE MOSCONE CENTER is one of San Francisco's key economic drivers and serves as a jewel box for the city.

A recent expansion of the center provides a collection of light-filled spaces that accommodate a variety of convention-related activities, vastly improving the facility and its campus while allowing it to meet the evolving needs of a modern city. The project includes two new pedestrian bridges, enhances its lively neighborhood, and attracts both residents and visitors alike with a pedestrian-friendly design that connects the adjacent Yerba Buena Garden's new and existing open spaces, parks, and cultural facilities.

For the East Bridge and its tapered roof, steel box girders were the only solution that allowed for the required stiffness while achieving a narrow and tapering profile. The profile of the steel roof system was carefully studied, considering both structural and aesthetic drivers, with taper angles designed to minimize the visual profile of the bridge when viewing it from the street. Steel became a key part of the architectural expression of the East Bridge, and the steel rods and gusset plates were exposed in the bridge but also delicately integrated into the faceted glass enclosure.

The East Bridge was constructed on-site and then lifted into place in one day with limited street closures. The enclosed walkway is suspended by hanger rods from a built-up steel plate roof box girder, which achieves the 150-ft span while maximizing traffic clearance below and providing unobstructed views through the bridge along Howard Street. The bridge is seismically separated from the new building superstructure and includes its own steel concentrically braced frame and steel moment frame lateral system on the south side of Howard Street.

The final structure of the East Bridge uses a single optimally shaped, primary-load-bearing built-up steel plate box girder located along a central spine at the roof level. The bridge is integrally connected to the new Moscone South building structure and spans 150 ft to a buckling restrained braced frame (BRBF) on the north side of Howard Street. A system of hollow structural section (HSS) outriggers cantilevers from either side of the girder to support hanger rods at 6 ft on center along both sides of the bridge, and the bridge width varies from 30 ft at the ends to 23 ft at mid-span. The rods support 10-in.-deep rolled steel beams spanning the width of the bridge at Level 2, which act compositely with a 5-in.-thick composite metal deck slab, producing a floor structure of minimal depth.

In addition to the optimally shaped box girder, using HSS for the outrigger cantilevers maximizes the headroom under the bridge by transmitting gravity loads up to the roof level box girder and minimizing the thickness of the structure at the walking level. The width of the bridge is minimized at the center of the span, thus minimizing loads at the location of the maximum moment. These innovations, in combination with the lightweight cladding and finishes, make for a light and aesthetically elegant bridge whose form facilitates the flow of its users between the two buildings.

The West Bridge replaces an existing pedestrian bridge and connects Yerba Buena Gardens and the Children's Garden. The wide pedestrian deck is supported on two tapering structural steel box girders and stands as a sculptural, open-air walkway that passes over the southwest end of Howard Street, with public art and landscaping to act as a continuation of the adjacent park and plaza spaces.

The West Bridge is also a steel structure, comprising a pair of long-span built-up tapered steel box girders. These girders support conventional rolled steel beams that span between them and cantilever beyond. The beams support a conventional slab on a metal deck, and the bridge is supported by an existing steel structure, with a sliding connection to create a seismic joint. The south end of the bridge is supported by a braced frame and is supported by the reinforced concrete substructure of Moscone South. This bridge was also constructed on the ground and raised into place on one weekend day to minimize the impact on traffic. Similar to the East Bridge, it is seismically separated from the Moscone South structure.

Pedestrians around the Moscone Center now enjoy the mid-block lights they'll see on Howard Street. These lights change 30 times a second, turning red, yellow, green, orange, blue, purple, pink, and lavender. The idea is to celebrate the design of the bridge, activating the convention center and the surrounding area equally. The permanent LED light show is called *Point Cloud* and was installed by artist Leo Villarreal, who in 2013 turned the Bay Bridge into a nightly display of constantly shifting white lights. Similarly, *Point Cloud* is intended to be seen not only from up-close but also from afar, up and down Howard Street, from the nearby San Francisco Museum of Modern Art, and also from the buildings in the Yerba Buena district. The East Bridge also has a daytime presence, thanks to its enclosed steel and metal panel finishes and glass on both sides, adding a unique experience for conventioneers while creating an iconic reflective sky bridge above Howard Street.

Owner

City and County Of San Francisco

San Francisco Department of Public Works

San Francisco Travel

General Contractor

Webcor Builders, San Francisco

Architect

Skidmore, Owings, and Merrill LLP (SOM), San Francisco

Structural Engineers

SOM

SOHA Engineers, San Francisco

Tipping Structural Engineers, Berkeley, Calif.

Steel Team

Fabricator and Erector

SME Steel Industries AISC CERTIFIED FABRICATOR & ERECTOR, West Jordan, Utah

Detailer

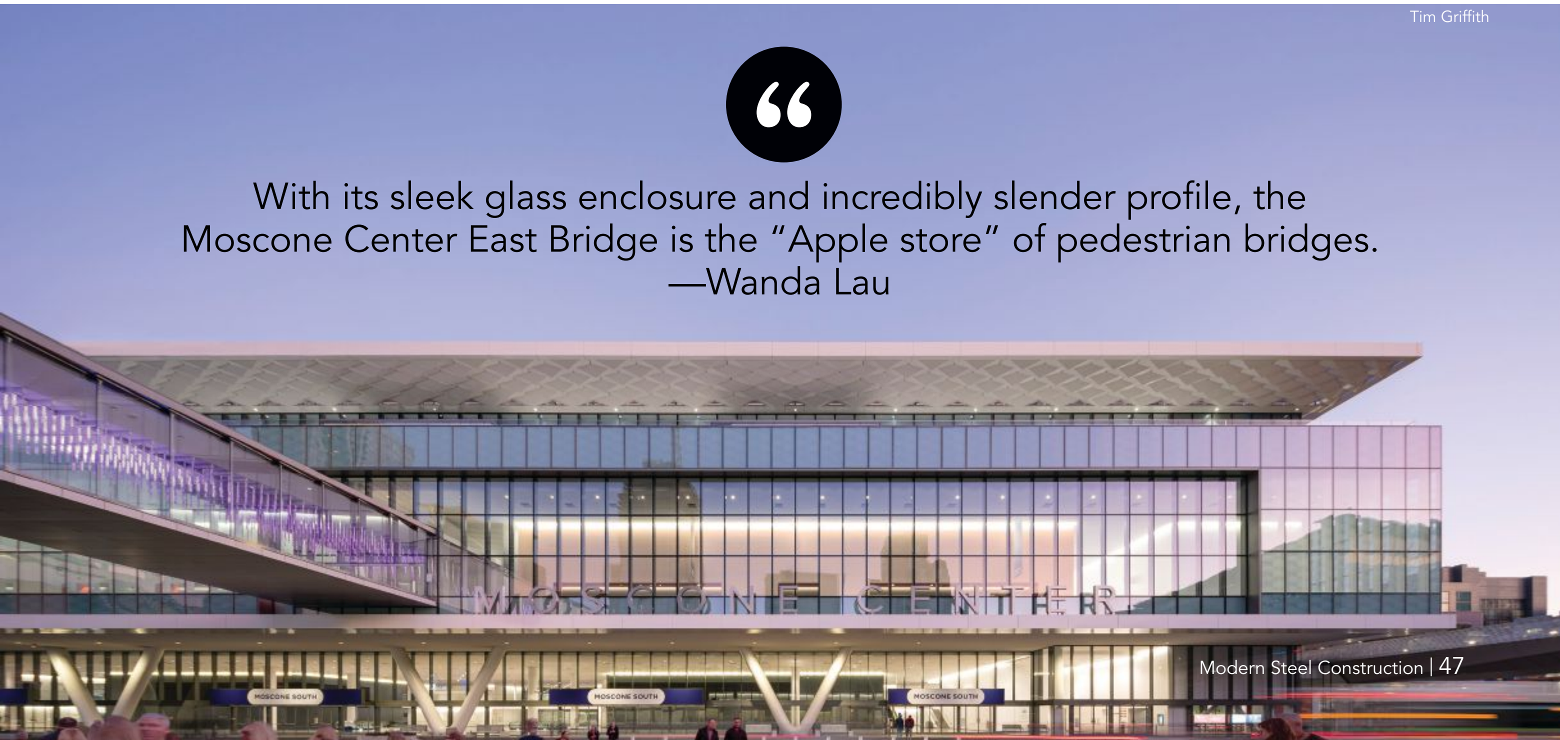
Pro Draft, Inc., Surrey, B.C., Canada

Matthew Millman

Matthew Millman

Matthew Millman

Matthew Millman



Tim Griffith

> With its sleek glass enclosure and incredibly slender profile, the Moscone Center East Bridge is the "Apple store" of pedestrian bridges.
> —Wanda Lau

> Although steel is doing the heavy lifting in this monument, there is a greater message that is meant to be the focus, that of civil rights, justice, and equality.
> —Maysa Kantner

MERIT AWARD Sculptures/Art Installations/Non-Building Structures

A Monumental Journey, Des Moines, Iowa

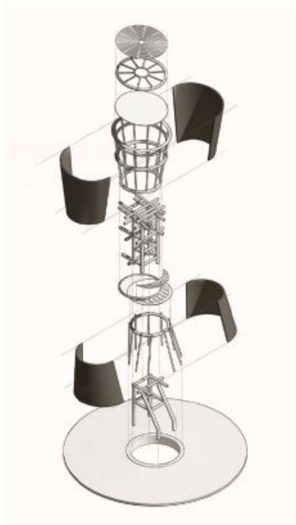
A MONUMENTAL JOURNEY, a sculpture by renowned artist Kerry James Marshall, celebrates the legacy of African American lawyers, who, in 1925, founded the National Bar Association, dedicated to civil rights, justice, and equality in the legal system.

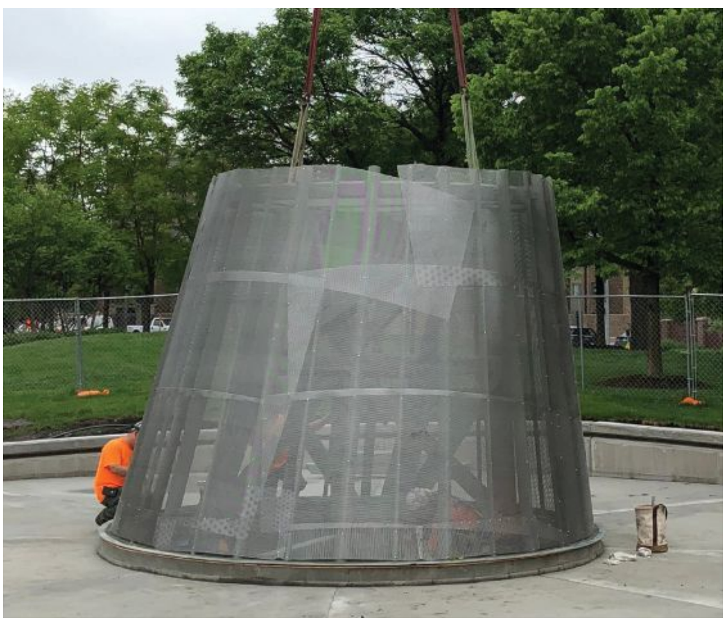
The architect collaborated with artist Kerry James Marshall to achieve the colossal, geometric sculpture. The shape is inspired by the form of the African talking drums, with one-drum precariously stacked upon the other, representing the notion of communication among diverse people and a legal system that, while not perfect, strives to be balanced. The sculpture stands 30 ft tall, embodying a sense of monumentality.

Located in Des Moines, Iowa, the sculpture is made of bricks to represent the feeling of weight and balance expressed in the piece. The stacking method of laying bricks also relates to the overall composition. The manganese iron spot brick chosen has a rich texture and tones of grey with a subtle shine due to the iron in the clay.

An impressive steel structure was fabricated to support the brick within this complicated tapered and suspended shape. The steel structure provided two advantages in the overall process: It allowed the masonry contractor to have a frame to follow while laying the bricks, and it gave a high level of precision since the structure was built off-site in sections.

A detailed 3D model of the steel structure was shared between the architect, engineer, and steel fabricator. Because of the cantilevered and heavy nature of the sculpture, multiple coordination meetings were set up to discuss challenges, such as how to divide the structure and how to achieve an uncomplicated expression of details and connections. Ultimately, the structure was modeled in three sections. The middle truss provides the main point of attachment, and special contour plates were designed to create a continuous frame on the exterior. The last section is the only exposed steel construction since it extends above the roof of the sculpture. The





top section also supports ring metal plates that are aligned flush to the top edge of the sculpture.

The ring plates were the only visible element at the start and end of the brick construction. They were laser-cut and made of galvanized steel, as was the rest of the overall structure. At the interconnection between the two volumes, a thin sheet of brushed stainless steel was attached underneath the upper drum. All the visible details where the steel and brick meet each other were kept to a simple and effective aesthetic. The exterior structural frame is made of round hollow structural sections (HSS) that follow the general geometry of the sculpture. Finally, the frame is wrapped in a perforated sheet metal against which the bricks were set.

To coordinate brick installation, each brick was modeled into a drawing software that explored the best pattern solutions and laying starting points, and each was custom-made and hand-cut in order to be used in this application. The short edges of the bricks were shaved to follow their circular configuration, while the corner edges were trimmed to smooth the exterior geometry of the sculpture.

Steel facilitated fast-paced fabrication and erection, meeting the requirements for such an intricate geometry in a timely manner. And all parties involved in the construction were local, making the project a success story for the regional construction community.

For more on this project, see the August 2019 article "What's Cool in Steel," available in the Archives section at ***www.modernsteel.com****.*

Owner
Greater Des Moines Public Art Foundation, Des Moines, Iowa

General Contractor
Neumann Brothers, Des Moines

Architect
substance, Des Moines

Structural Engineer
KPFF Consulting Engineers, Des Moines

Steel Team

Fabricator
Johnson Machine Works AISC CERTIFIED FABRICATOR, Chariton, Iowa

Bender-Roller
Albina Co., Inc. AISC ASSOCIATE, Tualatin, Ore.

PRESIDENTIAL AWARD FOR EXCELLENCE IN ADAPTIVE REUSE

Uber Advanced Technologies Group R&D Center San Francisco

UBER ADVANCED TECHNOLOGIES GROUP is a self-driving technology engineering team whose Research and Development Center is housed within Pier 70 in San Francisco. The center's four massive buildings, derelict and inaccessible for decades, now extend the site's legacy of transportation endeavors into the 21st century.

The approach was to retain and repair salvageable elements. If unsalvageable, the replacement element or material was specified to be historically compatible and environmentally benign. In addition, the project's conservation and environmental strategies included maximizing daylighting through skylights and windows, enhancing natural ventilation, providing radiant heating, and specifying permeable concrete at exterior paving. Elements like skylights, curtain walls, steel stairs, and others involved close design involvement between architect and developer, with shop drawings being regularly reviewed by the design team.

Thanks to their industrial beginnings, steel was already part of the language of these historic edifices. Original steel components were left natural or treated with transparent coatings, while new steel structural reinforcements are painted to draw a clear visual distinction between new and old. Steel and concrete mezzanines act as structural diaphragms to reinforce the buildings, which is especially crucial in the unreinforced masonry structures. Demising steel and glass walls echo the original steel windows and skylights and allow access between tenant spaces while preserving the large interior volumes.

It is to be expected that a 19th-century building in San Francisco was not designed for earthquakes. However, the Pier 70 buildings' vulnerability was exacerbated by many years of vacancy, during which vandalism, the stripping of materials and artifacts, and weather intrusion occurred. An egregious example: The exposed masonry at Building 113 had deteriorated to the point of crumbling to powder. During construction, the safety of the workers tasked with transforming the buildings was paramount. Before the new structural system was complete, protected zones were built within the complex so that construction crews could retreat to safety at the first hint of an earthquake tremor.

The design team developed a building within-a-building concept that preserves the historic perimeter brick walls, reduces the cost of temporary shoring, and retains the open volume in the 62-ft-tall space. The updated complex is designed to resist a 500-year-recurrence seismic event while also optimizing space. Steel columns and braces are strategically located along the existing building structure to minimize visual impact. New concrete mezzanines not only add leasable area but also brace the historic brick walls at mid-height. Full-height walls have upper portions sheathed in clear, multi-wall poly-carbonate to maintain the building's original site lines. Steel and glass walls preserve the spatial character of the industrial buildings for the client and its neighbors. Conference rooms and other program functions are free-standing elements within the large volumes. Lab, shop, and kitchen spaces are located under mezzanines, allowing for sound isolation, temperature control, and dust containment. In addition, natural ventilation teams up with ceiling fans and radiant heat systems to condition the cavernous spaces. ■

*This project was featured in the December 2020 article "What's Cool in Steel," which is available in the Archives section at **www.modernsteel.com**.*

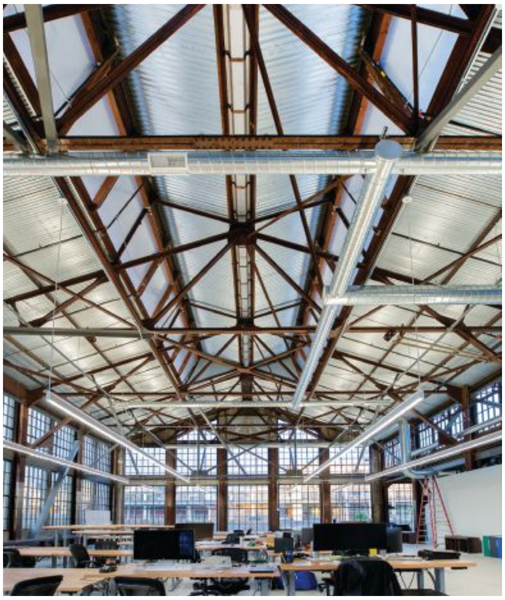
Owners
Orton Development, Inc., Emeryville, Calif.
Port of San Francisco

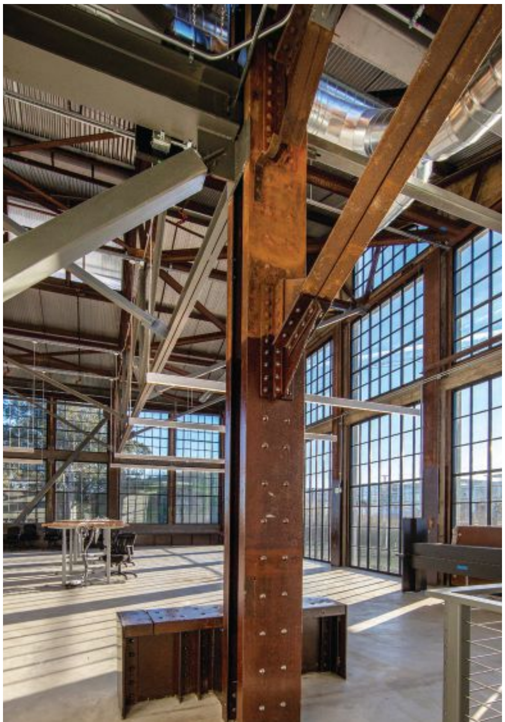
General Contractors
Novo Construction, San Francisco
Nibbi Brothers, San Francisco

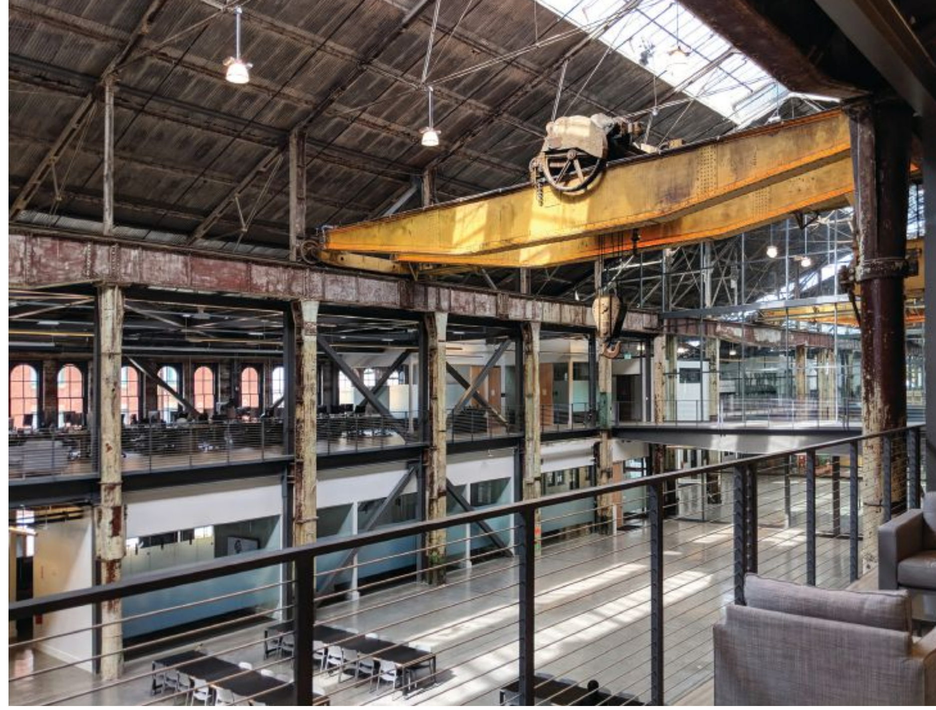
Architect
Marcy Wong Donn Logan Architects, Berkeley, Calif.

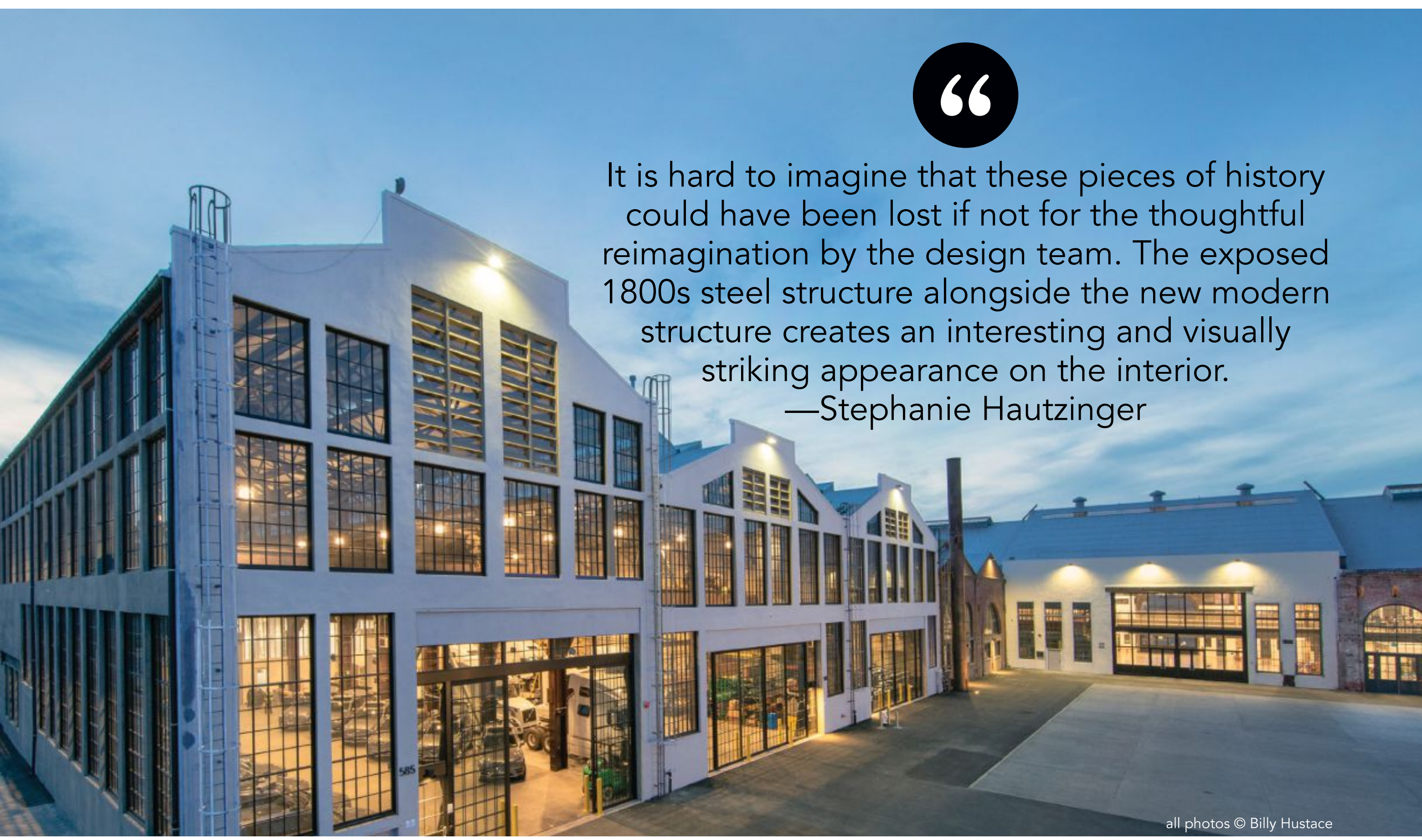
Structural Engineer
Nabih Youssef Associates, San Francisco

Steel Fabricator, Erector, and Detailer
Kwan Wo Ironworks, Inc. (AISC Certified Fabricator & Erector), San Francisco









It is hard to imagine that these pieces of history could have been lost if not for the thoughtful reimagination by the design team. The exposed 1800s steel structure alongside the new modern structure creates an interesting and visually striking appearance on the interior.
—Stephanie Hautzinger

all photos © Billy Hustace