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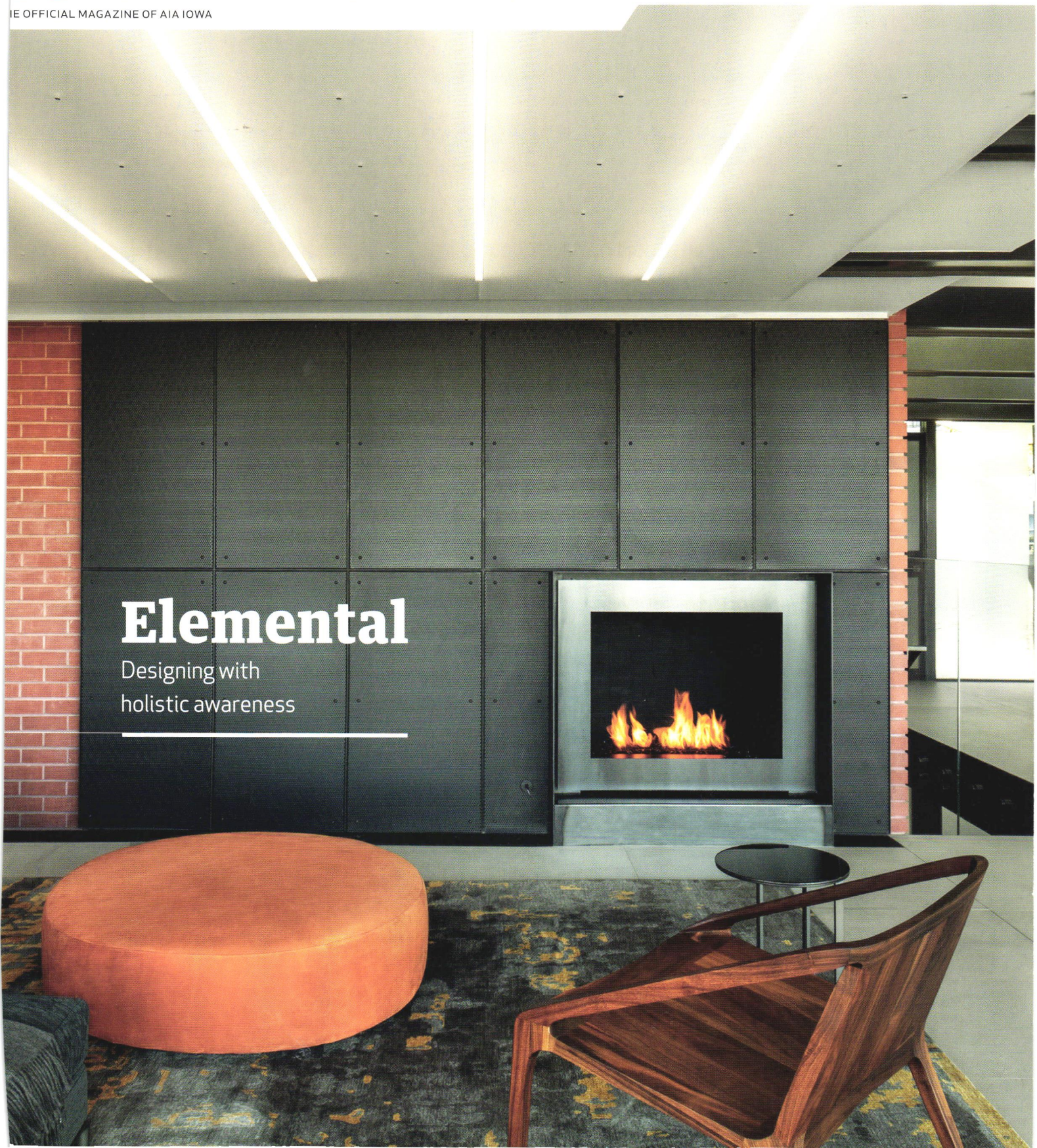
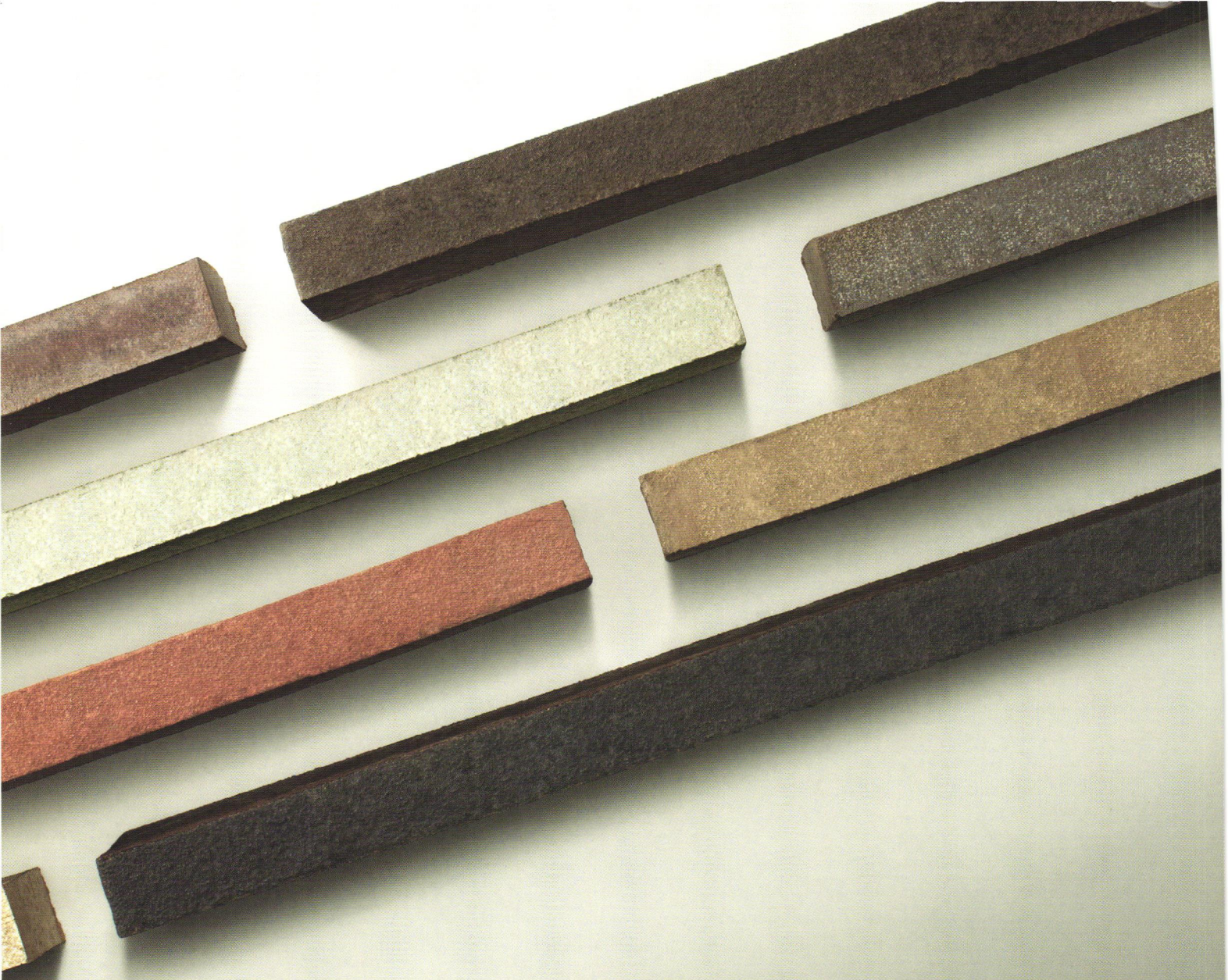


Elemental

Designing with holistic awareness



Length + Luxury

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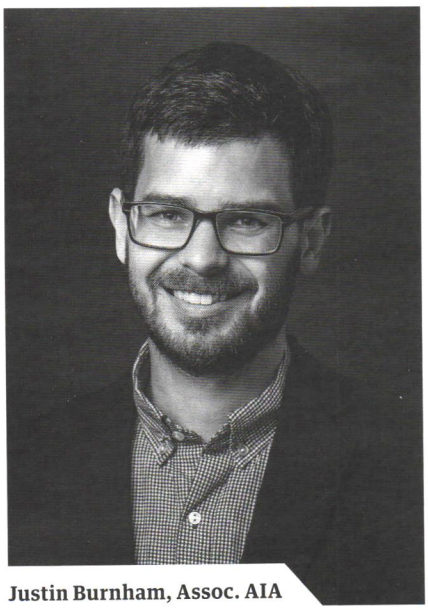
editor's letter



Justin Burnham, Assoc. AIA
Editor, Iowa Architect

Welcome!

This year, workers planted new trees along the boulevard I use to commute downtown. A variety of species have replaced ash trees cut in recent years. As elements, these trees are spatial and utilitarian. Once mature, their grandiosity defines the street character and they provide much needed shade in summer months. Soon, the leaves will mark time by turning brilliant colors then falling–resulting in many indelible memories for residents, joggers, and commuters alike.

This issue explores how parts are selected and organized into a holistic expression. Each material has a life cycle that begins with origins from the earth, then architecture reorganizes nature. Compositional choices range from pragmatic to poetic. Factors often include the program and some degree of protection from the elements–sun, wind, and rain.

How are design decisions broken down into elements, literally and figuratively? In one case, it may be a budget-conscious backdrop for hosting community-led art workshops. In other cases, it may be responding to the context–ranging from a block with a recognizable architectural legacy, to rethinking a house with a good framework, to inserting new elements within an existing building.

As Lou Kahn famously said, "Even a brick aspires to be something better than it is." In this issue we feature projects that speak a language with an elemental awareness.

iaarchitect

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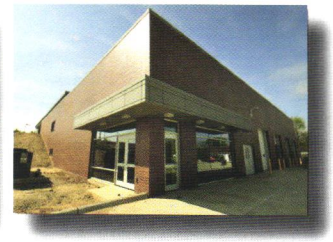
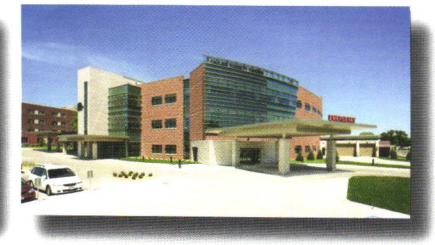
MASONRY INSTITUTE OF IOWA





Top 10 Reasons Why You Should Choose Masonry

1. **Fire Resistant /** Non-combustible materials.

2. **Weather Resistant** / Exterior walls that will hold up to heavy storms, UV degradation, blistering heat, and sub-zero temperatures.

3. **Termite Resistant** / Exterior walls made of masonry means there's no wood to eat.

4. **Protection from Rotting, Mold & Fungus**/ With no exterior wood, there's nothing to rot. Masonry plays a large role in significantly reducing or eliminating the buildup of fungus and mildew between interior and exterior walls.

5. **Superior Sound Proofing /** Masonry blocks out noise better than traditional building materials, resulting in a quieter environment.

6. **Virtually Maintenance Free /** When used in its natural form, masonry provides lasting beauty that requires considerably less maintenance than other building materials.

7. **Lower Utility Bills /** Concrete block, combined with 'thermal mass' insulation systems, stores more energy, meaning it stays warmer in winter and cooler in summer, reducing electric consumption.

8. **Lower Insurance Premiums /** Because masonry provides a higher level of security, fire and termite protection, and does a better job of weathering the storm, many insurance companies may offer discounts on policies.

9. **Environmentally-Friendly "Green" Products /** Masonry products are recognized by government programs as a contributor to green building status. Masonry products are also earth-friendly because they do not deplete precious natural and limited resources such as timber.

10. **Increased Resale Appeal /** Studies show that masonry constructed buildings and homes offer a greater resale value than other forms of construction.

Working to build a better Iowa – with brick, block and stone.

Want to know more about building with masonry?
Contact the Masonry Institute of Iowa at 515-252-0637
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Founded in 1975, the Masonry Institute of Iowa is a non-profit association dedicated to promoting the use of brick, stone, and block in construction. We look forward to meeting with you and your team to help you define your goals in designing with masonry. Call us today to learn more!

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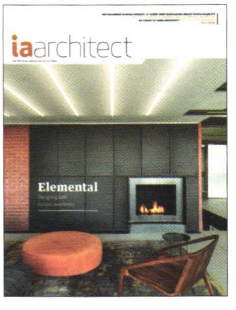

ON THE COVER
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65 Years of Iowa Architect

Celebrating decades of change for the AIA Iowa's official magazine

WORDS : JUSTIN BURNHAM

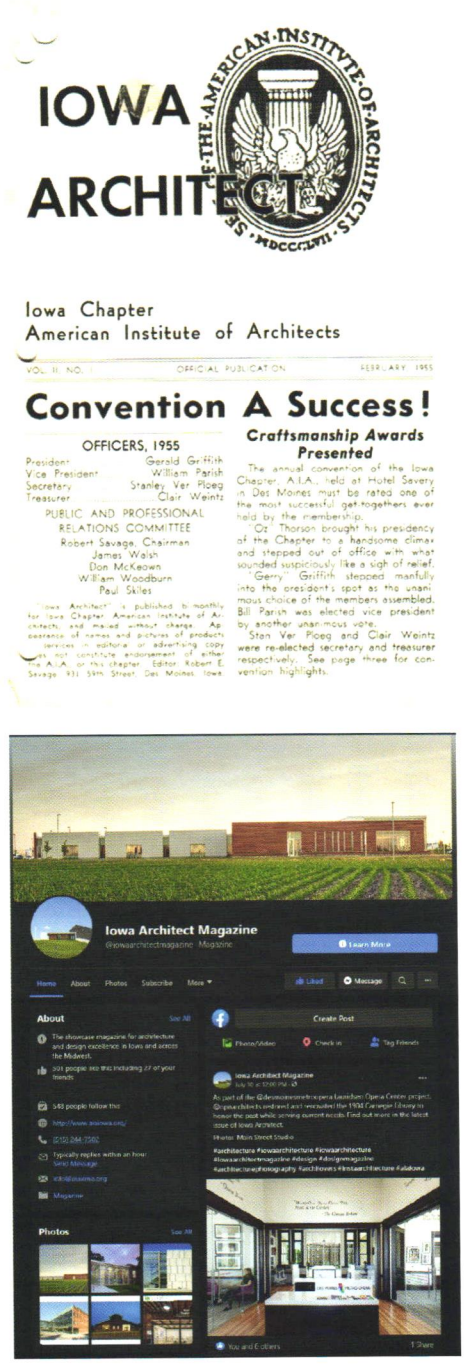
Iowa Architect began as a newsletter to reach colleagues 65 years ago. Over time, this publication transformed into a magazine. Today, *Iowa Architect* magazine can be read online and has two social media pages—Facebook and Instagram. The mission has since expanded to reach a more diverse readership; as such the content and the format aim to reflect our times.

What does it take to tell a story or share an idea? This is our existential question. The first issue was just seven pages single-sided. Some 50 years ago, the images were run in black and white and it was not unusual to find articles of 1,800 words. Fast forward to today, the articles are roughly half as long and our most recent social media post was just 35 words. (Please follow us!)

How can we keep your attention? The average issue has approximately 40 pages to capture our readers. Luckily, our members are the content. The great work done by AIA and Associate AIA Iowa members make this aspect of the job easy. We feature stories of professional and community involvement, ideas about practice, and projects that are making an impact through design.

As this platform has incrementally evolved it has taken the response of many talented teams. We appreciate the support for this magazine ranging from the publishers, writers, designers, printers, and advertisers. We must give thanks to current and past volunteers on the editorial board. Since the content is not in short supply, the debates and edits are not always easy. Fortunately, each year, the sharp thinkers in our group find themes—for three of our four issues—to frame the issues around.

Thank you to our members and readers. Keep up the great work.



Top: Iowa Architect launched as a newsletter in 1955, as seen by this original cover. **Bottom:** Today, outreach includes emails, Instagram, and Facebook, as seen in this snapshot.

A COLLABORATIVE RENOVATION

AIA Iowa office is given new life

WORDS: HALEY SMITH **IMAGES**: KUN ZHANG, IRIS22 PRODUCTIONS

It's a unique circumstance for an architectural firm to take on an office renovation for a space visited and utilized by all Iowa architects. Fortunately, RDG Planning & Design was eager for the challenge when the American Institute of Architects, Iowa Chapter (AIA Iowa) enlisted its expertise. "Since we moved into our current space back in 2009, the office and what it represents for our members and staff have been my favorite part," says Jessica Reinert, Hon. AIA, executive director of AIA Iowa.

The new office space not only serves employees but also the community. Firm member displays, the Art x Architects program displays, as well as a library of Iowa Architect magazines and other resources related to the history of architects and architecture in Iowa is open to the public. "The Center for Architecture has always been about community and advancement of architecture in the state of Iowa," says Nathan Harris, AIA, project architect, RDG Planning & Design. Passersby in Cowles Commons are encouraged to stop and look at the special exhibits hosted in the AIA Iowa office space.

RDG Planning & Design addressed several functional issues in the renovation, including the conference room acoustics. Because of the linear shape of the room and the adjacent stairwell, it was a challenge to hear conference call conversations. Led by Collin Barnes, interior designer and project manager, RDG Planning & Design resolved this issue by removing the ceiling cloud application. Sustainability was also a priority for this renovation. By selecting materials that maintained the LEED Platinum status and upgrading to energy-efficient appliances, "the renovation upheld the passion for sustainability," says Barnes.

The AIA Iowa office location and layout promote collaboration among its members by providing open spaces for members to complete their work while remaining accessible. "It is such a well-designed space that allows for collaboration between all of the people who are connected to AIA Iowa," says Reinert.

A SPECIAL THANK YOU TO THE COMPANIES THAT OFFERED IN-KIND DONATIONS OR DISCOUNTS, IN ORDER BY CONTRIBUTION:

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Koch Office Group
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JTH Lighting Iowa
Mannington Commercial
Shaw Contract Group
InterfaceFLOR
AES Lighting Group
Integrated Sales, Inc.
Lighting Solutions
Beeline + Blue

Opposite: The new office layout encourages collaboration between members and allows staff to complete their daily work in moving the organization forward. **Top:** RDG Planning & Design lighting designers Shelby Klooster and David Raver upgraded the lighting fixtures to LED, which offers health and productivity benefits as well as meets sustainability goals. **Middle right:** Glass walls define office space while maintaining an open concept design. **Bottom right:** Once a pain point for AIA members, the conference room is now highly functional thanks to improved acoustics. **Bottom left:** Views of Cowles Commons public park can be seen from within the AIA Iowa office. Passersby are welcome inside to view displays.

on the boards

Projects In Progress

Cedar Falls Community School District High School

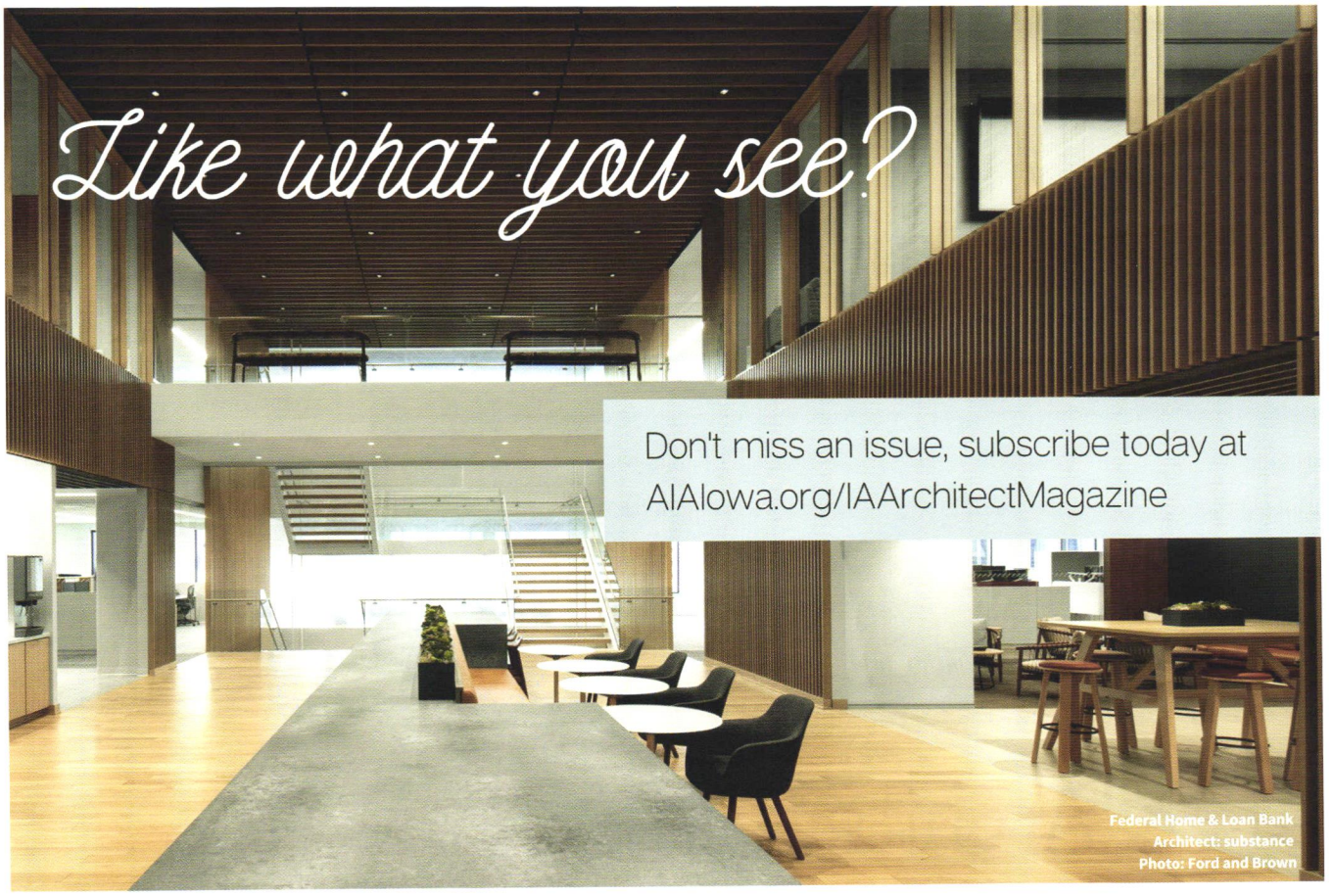
Cedar Falls, Iowa
INVISION

Prior to beginning the design of the new high school, INVISION met with more than 1,000 students, staff, and community members to hear feedback on what is important to the Cedar Falls Community School District (CFCSD). The CFCSD's goal is to create a space that will inspire creativity, promote collaboration, and enhance educational experiences for every Cedar Falls student. The project includes approximately 70 acres of greenfield development for the new high school campus, which will include a 310,000-square-foot building as well as options for a full competition stadium, athletic practice fields, integrated landscapes, courtyards, and sustainable site practices. The design strategy, centered around 21st century learning, promotes student learning, staff development and recruitment, efficiency, durability, and flexibility for years to come.

Marion YMCA

The new 70,000-square-foot facility—realized by a partnership of the City of Marion and the YMCA—will be a huge community asset on a modest budget. The social hub for recreation, wellness, and education will boast four gyms, two pools, group fitness rooms, a track, racquetball courts, family locker rooms, childcare, a juice bar, and a large lobby that will also serve as a community gathering space.

Marion, Iowa
OPN Architects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AIAIowa.org/IAArchitectMagazine
Federal Home & Loan Bank
Architect: substance
Photo: Ford and Brown

Above: Carolina Sardi. Purple Cloud. Painted steel. Principal Corporate 2.

MOBERG OFFERS A RANGE OF SERVICES FOR CLIENTS WITH VARIOUS PROJECT SCALES, INCLUDING:

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Art & Architecture

Moberg Art Services brings projects to life with curated pieces for corporate, public, and residential clients

WORDS : ABBY GILMAN

When Principal embarked on its downtown Des Moines campus renovation with OPN Architects nearly a decade ago, they knew thoughtful consideration on how to utilize their current art collection would be an important final touch to tie it all together. Insert Moberg Art Services. Working in close collaboration with OPN, the lead designer on the project, the Moberg team assisted Principal in the curation of their existing collection and recommended new unique pieces that would fill several walls in need of site-specific artwork, including "Purple Cloud" by Argentina-native Carolina Sardi.

"Principal remodeled a space that had a large open wall in need of a site-specific art piece," says TJ Moberg, owner of Moberg Art Services and Gallery. "We looked at more than 30 artists from all over the world that would be capable of creating such a large piece and the group fell in love with the work of Carolina Sardi. We asked Carolina to propose a work of art for the space and she came up with several versions for our consideration. Ultimately the committee liked 'Purple Cloud' the best."

Since 2003, Moberg has been a leader in the Des Moines art scene, working with myriad clients from corporate giants to public services and private residents. As soon as Moberg is engaged to consult on a project, the curators cull together existing and/or proposed site-specific commissioned works to present to the client. With the aid of digital renderings, clients are able to visualize the options in their physical spaces. From offering guidance and recommendations, to procurement of the chosen pieces, through fabrication, custom museum-quality framing, transportation, and installation, Moberg handles every step along the way. And the work doesn't end there: Moberg offers ongoing collection management services, including inventory, documentation, storage solutions, restoration, and rotation.

"Principal was looking for an art partner that could handle many roles, like moving and storing art, reframing and restoration work, art collection management, and acquiring new artworks, to name a few," says Moberg. "Our relationship has continued to grow and expand. Last year, we oversaw a live painting event where three international artists and one local artist painted large canvases over five days on Principal's campus. At the end of the event, we were able to add four large-scale significant pieces to Principal's collection."

CONTACT TJ MOBERG OR VISIT MOBERGARTSERVICES.COM TO VIEW RECENT PROJECTS.
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SERIES : **THREE** of **THREE**

ENVIRONMENT & INVOLVEMENT

How to be Most Effective

WORDS : JUSTIN BURNHAM, ASSOC. AIA, AND DANIELLE HERMANN, AIA

This article is the final installment in a three-part series. In 1969, Iowa Architect highlighted ongoing warnings from nature with a cover story by Jim Wilkins titled ENVIRONMENT: INVOLVEMENT. His article posed three questions that we are re-asking today: What is the level of concern? What really is the state of the environment? How can we be most effective?

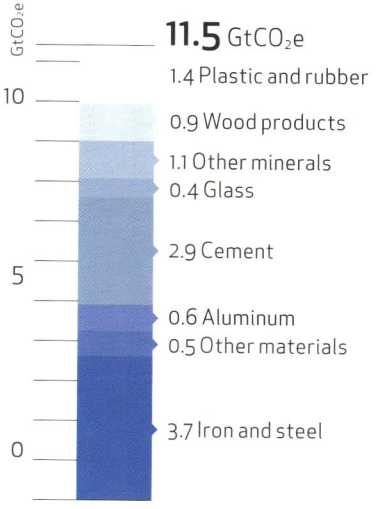
The series began with a look at our profession's level of concern via the resolution passed by the American Institute of Architects (AIA) in late 2019. In the summer issue, we explored how carbon emissions impact us, globally and locally. In this final installment, we focus our exploration on areas in which architects have the most control, such as material and systems selections, while acknowledging the influence of areas we often have less control over, such as whether a building draws power from a clean source. Building construction and operations account for 11 percent and 28 percent of global carbon emissions, respectively. To curb emissions, design professionals must look to curb energy consumption.

How can we be most effective—curbing embodied energy and operational energy?

While these topics can be complex and technical in nature, fundamental design principles can also frame this examination. The enduring tenets of Roman architect Vitruvius are adaptable to this contemporary conversation. He postulated that good design includes firmness, commodity, and delight.

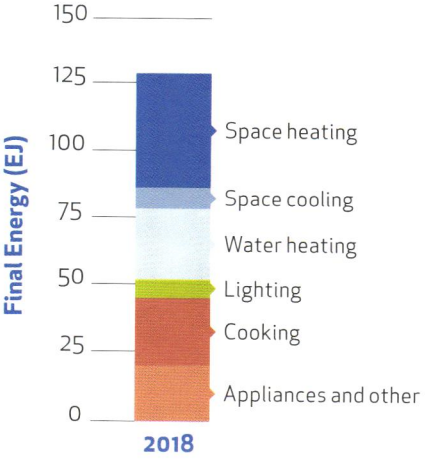
Firmness—understood as structural efficiency and expression—can be applied to reduce embodied carbon. Embodied carbon correlates with energy needed to produce, deliver, and install a given material. This has many variables. For example, one manufacturer may run on coal and another solar or wind; also, a given product may originate from overseas or be available from a regional source.

The entire assembly must be factored. For example, a timber-framed building consumes roughly half the carbon of concrete or steel. Materials with low embodied energy are often consumed in high volumes. Simply specifying concrete mixed with fly ash reduces carbon released by curing. Both the visible structural frame and



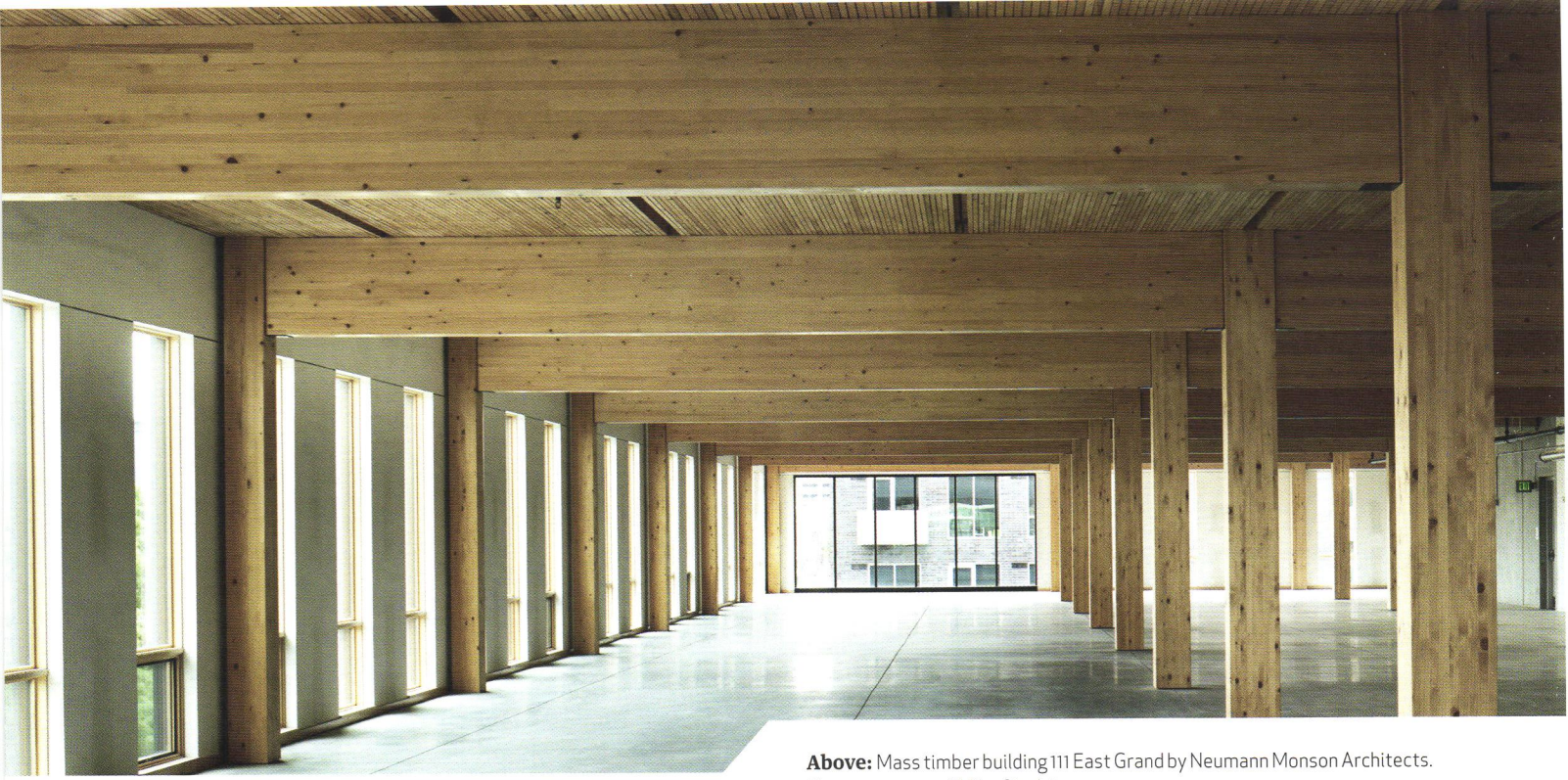
MATERIAL CONSUMPTION

Three materials—concrete, steel, and aluminum—account for more than half of global carbon emissions.



BUILDING ENERGY CONSUMPTION

Cooking and water and space heating demand the most energy use, cumulatively. However, space cooling demands have increased 33 percent and appliance and other plug loads have increased 11 percent over the last decade.



Above: Mass timber building 111 East Grand by Neumann Monson Architects. Photo courtesy of Mike Sinclair.

concealed sub-structure present opportunities for carbon reduction.

In addition to the core, the shell contains embodied energy. Architects can utilize computer programs such as Tally or the EC3 calculator to quantify interior and exterior walls. Claddings should be calculated and compared. For example, aluminum requires four times as much energy as zinc. Naturally, the well-worn idiom of Reduce, Reuse, Recycle factors into other best practices. Reduce with specifications that curb jobsite and manufacturing waste, reuse existing structures, and recycle with specifications for recycled content in material ranging from flooring to structural steel.

Commodity—understood as purposeful arrangement of space—can be applied to reduce operational carbon. Operational carbon is consumed while the building is in use, which relates to user comfort and productivity. Aspects of both the building enclosure and program must be factored, holistically.

How does daylight best suit the users? Window openings reduce the need for artificial lighting but are a source of heat loss and heat gain. Good design balances the energy efficiency of various elements including walls (R-Value), lighting, and mechanical equipment—it considers the site, massing, and solar orientation. Architects can utilize computer software such as Sefira and Daysim for these purposes.

Fortunately, adopting stricter codes and technological advancements have reduced operational consumption. Energy use has dropped 30 percent since the introduction of the International Energy Conservation Code (IECC). Mechanical and lighting systems are increasingly more efficient. For example, LED lights have supplanted fluorescent in terms of cost and performance. Likewise, architects can employ high-performing strategies like triple-pane systems, geothermal, solar panels, and green roofs, among others.

Delight—understood as beauty and harmony—remains timeless in architecture. Designing buildings and spaces that endure, as well as inspire their inhabitants, is where our true value lies. We need not look further than AIA's Framework for Design Excellence to see this Vitruvian tenent in practice.

"Look at the structures more than fifty years old that are still being used and loved in our cities: They are inevitably the special ones," Matthias Sauerbruch wrote in the spring/summer 2009 issue of Harvard Design Magazine. "Buildings of particular beauty and solidity, with generous and useful spaces of personality and grace, will be more likely to survive than those that have no special qualities."

Simply stated, a building that successfully balances all of these aspects and is designed to be beautiful, flexible, and adaptable has long-term benefits to its current owner, as well as anyone who may want to rehabilitate or repurpose it later.

Participate—the three Vitruvian points could benefit from an update, including this fourth point. Some 50 years ago, Wilkins weighed our role as professionals and involved citizens. "We are admonished from all sides to become involved, to be relevant," Wilkins wrote. "At the same time, however, we are warned to not dilute our efforts and talents, especially in those areas for which we are not trained and do not practice ... Our unique training in special sensitivity and creative problem solving, along with our developed ethical standards, has drawn us into the search for a better environment." Wilkins advocated that designers: influence the formation of public policy; influence the field of education at all levels; work collaboratively with multiple disciplines; support regional planning; and get personally involved—share what we know.

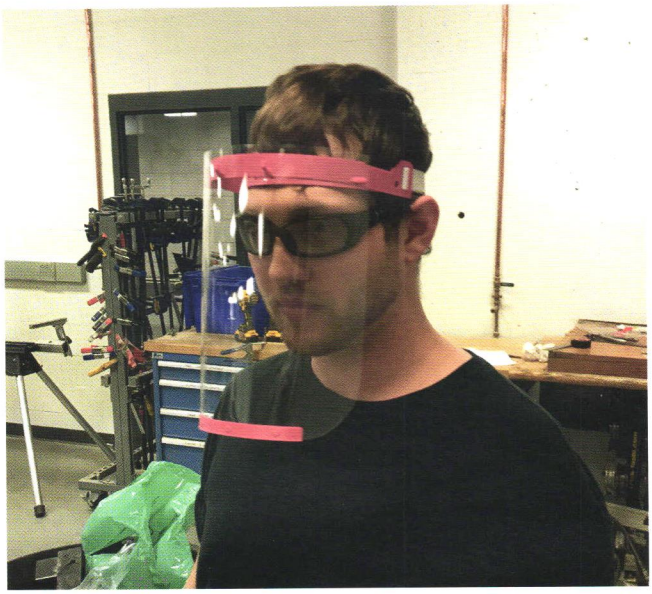
Today, our profession embraces environmental advocacy through participation within our professional and local communities. The AIA asks its members to engage in reducing carbon emissions, discussing the environment with clients, and working together to report achieved results. This is the path for our professional influence to be most effective, and time is of the essence.

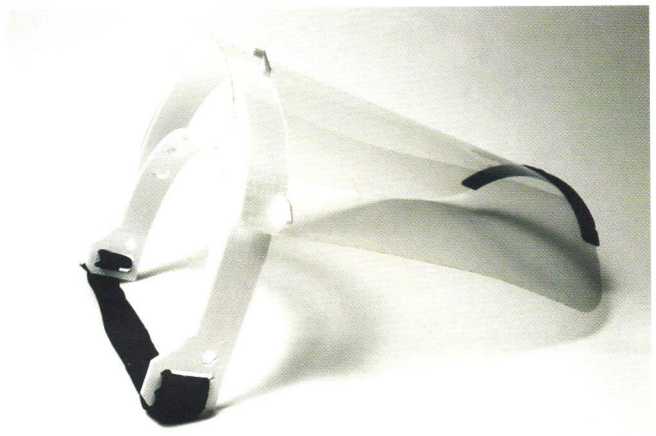
The 1969 ENVIRONMENT: INVOLVEMENT article can be found at bit.ly/3dubOp6.

Turning Challenge Into OPPORTUNITY

How one architect viewed the challenges of coronavirus as a chance to make an impact

WORDS : JULIA DELLITT





Opposite: Rows of 3D printers used to develop the masks sit in Doyle's lab. **Top:** One of Doyle's students tests out a prototype. **Middle:** The team set up a socially distanced assembly line, and worked with recipients who provided feedback to tweak the prototypes, such as this one. **Bottom:** Shelby Doyle, AIA, in her lab at Iowa State University.

As co-founder of the Iowa State University (ISU) Computation and Construction Lab (CCL), Shelby Doyle, AIA, focuses on using technology and architecture to create a more equitable future, especially in small-town communities.

The 2,500-square-foot lab originated in 2016 and houses robotics, fabrication equipment, hand and power tools, and plastic and 3D printers. There, Doyle—who also serves as assistant professor of architecture at the ISU College of Design—supports student teams with projects that apply computing and manufacturing principles to how buildings are created and constructed.

When COVID-19 hit, Doyle looked for an immediate way to help. She started by testing 3D face shield prototypes for healthcare workers alongside eight undergraduate architecture students. Nick Peterson, a friend of Doyle's and the Community Outreach Coordinator for the Alliant Energy Digital Manufacturing Lab at ISU, saw photos posted on CCL social media accounts and reached out to collaborate. The result? Nearly 2,000 face shields created for use by 63 medical facilities across the state, all within the timeframe of a couple months.

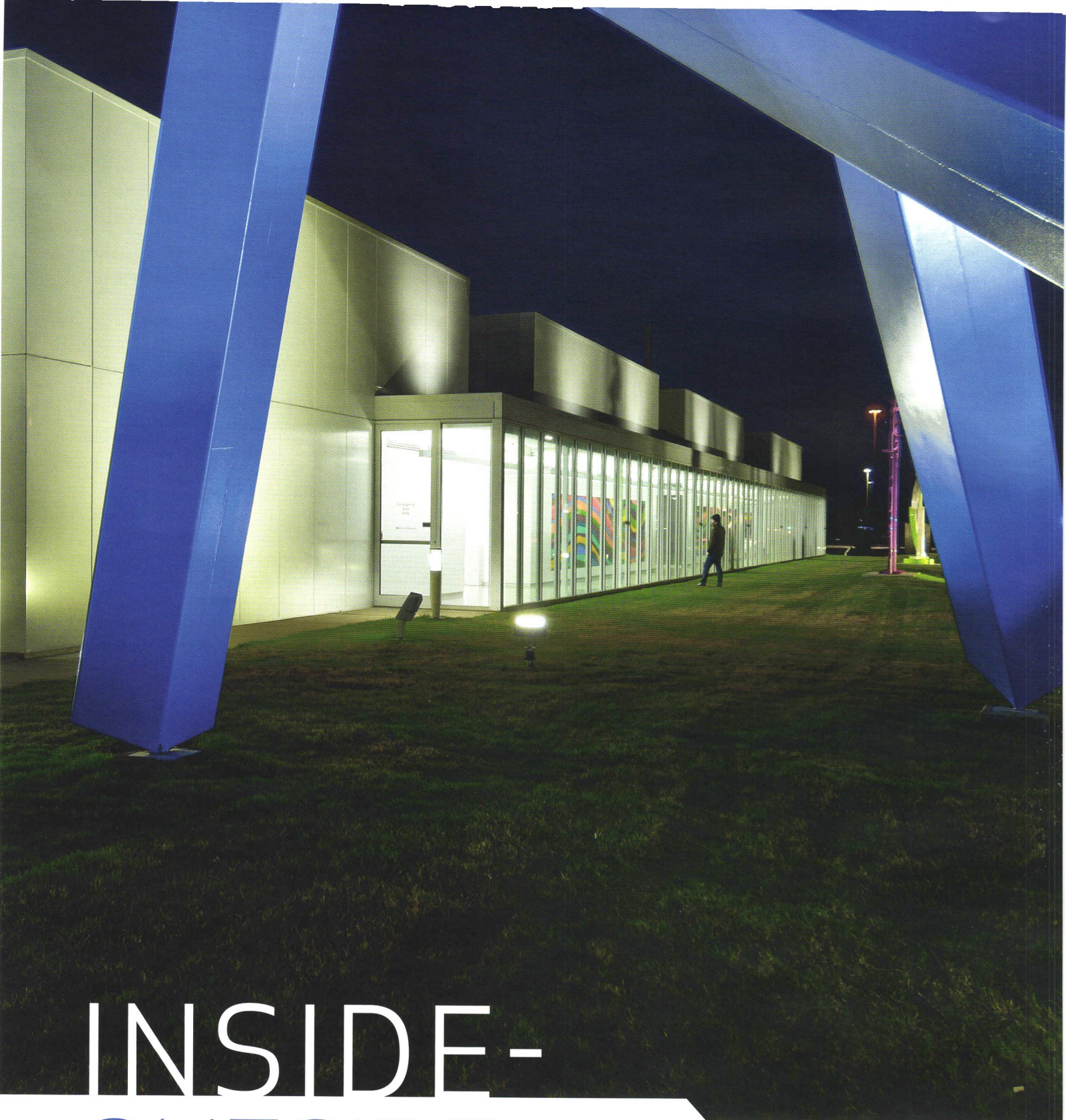
Wearing masks on rotating shifts, the small team 3D-printed the top and bottom segments of each face shield. They created a physically distanced assembly line to put parts together and add clear plastic covers and elastic bands to secure around the wearer's head. Early recipients provided feedback, which allowed the prototype to evolve for comfort and safety—and gave Doyle and her students a chance to practice fast adaptability.

"Just when we had found the best design, a new one would come along," explains Tyler Beers, a student on the project and research assistant for the lab. "In the end, we had to adjust to get the best output for those using the shields every day. I learned not to get too attached to the idea of doing things a certain way."

That was intentional, notes Doyle. "I put the project in motion and got the materials we needed, but the students were the ones showing up to make the shields," she says. "We didn't even know how long we'd be doing this work—I thought maybe we'd try it for a week or two. Instead, I found myself searching for rolls of elastic sold on the internet while being amazed by the energy of our students, who wanted to help in this moment when we really had no idea what would happen next. Then we started receiving notes from alumni and people who work in the medical field thanking us for dedicating our time and resources to this kind of project, and it was clear we were making a difference."

While the CCL doesn't have a specific COVID-19-related initiative next on deck, Doyle continues to look for opportunities to establish different university, industry, and community partnerships, especially in places where design doesn't always reach.

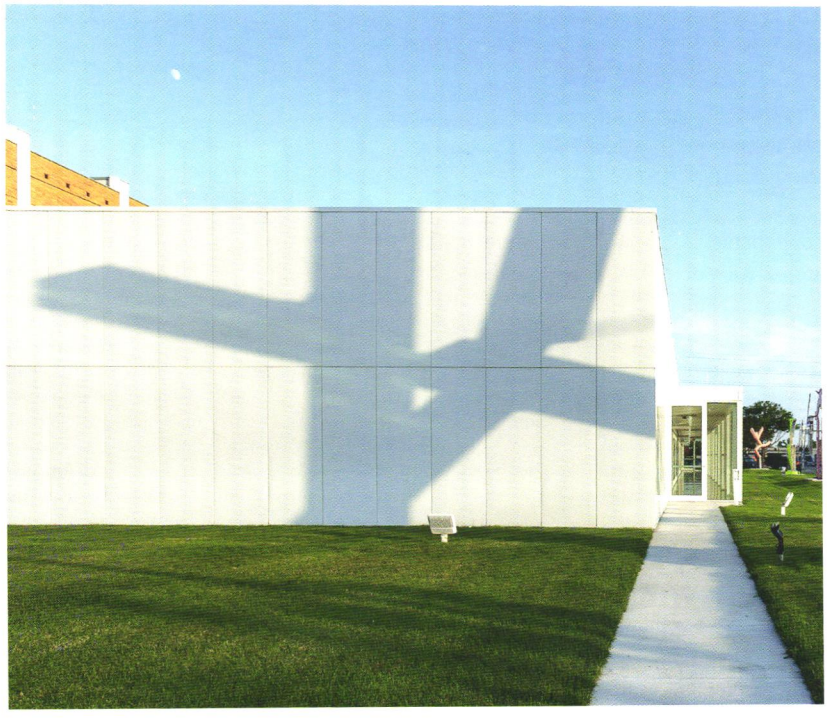
"I don't think anyone expected a pandemic, but any crisis brings into stark relief the need to rethink how we teach, talk, and think about the world," says Doyle. "Design is something that's always changing in response to the environment around it. You have to figure out how to navigate challenges, work with large amounts of unclear information, and also pivot for unexpected emerging ideas. Sometimes we get caught up in the concept of things being linear, but tangents are where you learn."

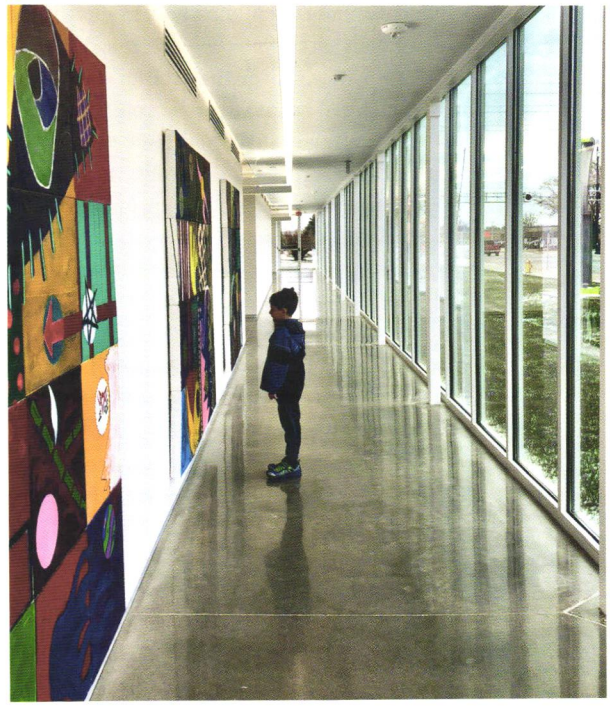


INSIDE-OUTSIDE

Less is more in the minimalist, accessible design of the Gilchrist Learning Center in Sioux City

WORDS : KELLY ROBERSON **IMAGES** : CHADD GOOSMANN, AURORA PHOTOGRAPHY; JUSTIN MEYER, PHOTOGRAPHY BY MEYER **ARCHITECT** : PLAN ARCHITECTURE





Rarely are architects asked to make a building look good—but not too good. But such was the request from the Sioux City Art Center to PLaN Architecture for its new Gilchrist Learning Center.

The center needed a new building—utilitarian, budget conscious, and nothing flashy—to free up space and manage traffic in its main facility. "The studios were on the second floor of the museum, but they needed to manage who came in and out of the building and thought they might increase access if they separated the studios into a standalone building," says Nathan Kalaher, AIA, partner at PLaN Architecture.

Of course, doing so would not only increase the access to studio space, but would free up valuable wall space in the center, which could be repurposed as galleries. That, in turn, would help the center reduce operations costs within the museum. "Practically speaking, we just wanted a standalone building that would give us space for all of our classes and workshops," says Todd Behrens, director of the Sioux City Art Center.

Even so, the restrained request didn't mean the center wanted to abandon creative design. The stretch of land, intended as the learning center's site, was also to house a sculpture garden, so not only did the learning center have to relate to the program inside the existing center, but to the sculpture garden as well. "As part of the art center, and with its location in such close proximity to our existing facility, along a major downtown street, the design needed to be strong and unique," says Behrens.

To do that, PLaN Architecture developed a building with reciprocal views between the sculpture garden and the interior gallery. Its design, detached 50 feet from the main building, would leave its ego at the door and instead act as a canvas itself for viewers both inside and out.

The building's budget was minimal—just $195 per square foot—and the site dictated a long, narrow structure with a fair amount of envelope, which Kalaher notes is where a lot of the cost ends up in any design. In addition, the site had been previously developed, which meant some of that budget would have to go to remediate the subgrade about 20 feet down.

The learning center is a highly organized, repetitive series of four exterior cube-like volumes that are economical without being tedious. The uniform white envelope serves as a backdrop for the outdoor sculptures, and repeating the same details in same-size volumes reduces costs. Finishes are spartan—sturdy but not overcomplicated, says Kalaher—to be resilient and cost-conscious.

Opposite: Sculptures will continue to fill up the space between the new learning center and the existing museum. **Top Left:** The architects repeated the forms and materials to focus on design rigor and minimize project costs. **Top Right:** A long hallway offers display space and lets in natural light. **Bottom:** The narrow site included space for not just the building but also for the museum's collection of sculptures.

But to dismiss the building for its simplicity would be to dismiss its distinctiveness. Even the shift from daytime to nighttime creates a shadow play on the exterior surfaces, and the center can use the material palette to project onto the surface after the sun sets. "We really got rid of this mindset that you have to go nuts on creating cool details," says Kalaher. "It was really about getting down to the basics of constructing four volumes."

The building's interior is divided into two studios, one that is more classroom-like and one that's dedicated to ceramics. Each of the studios can be further divided if needed. PLaN made strategic use of spendy windows, utilizing them in the circulation spaces to boost duality, too—looking into the building from the outside, and looking into the studios from the inside. "We've started referring to this as the Drive-By Gallery," says Behrens. "We have completed two group projects for the space so far and are looking forward to gearing up again once we can gather in groups safely."

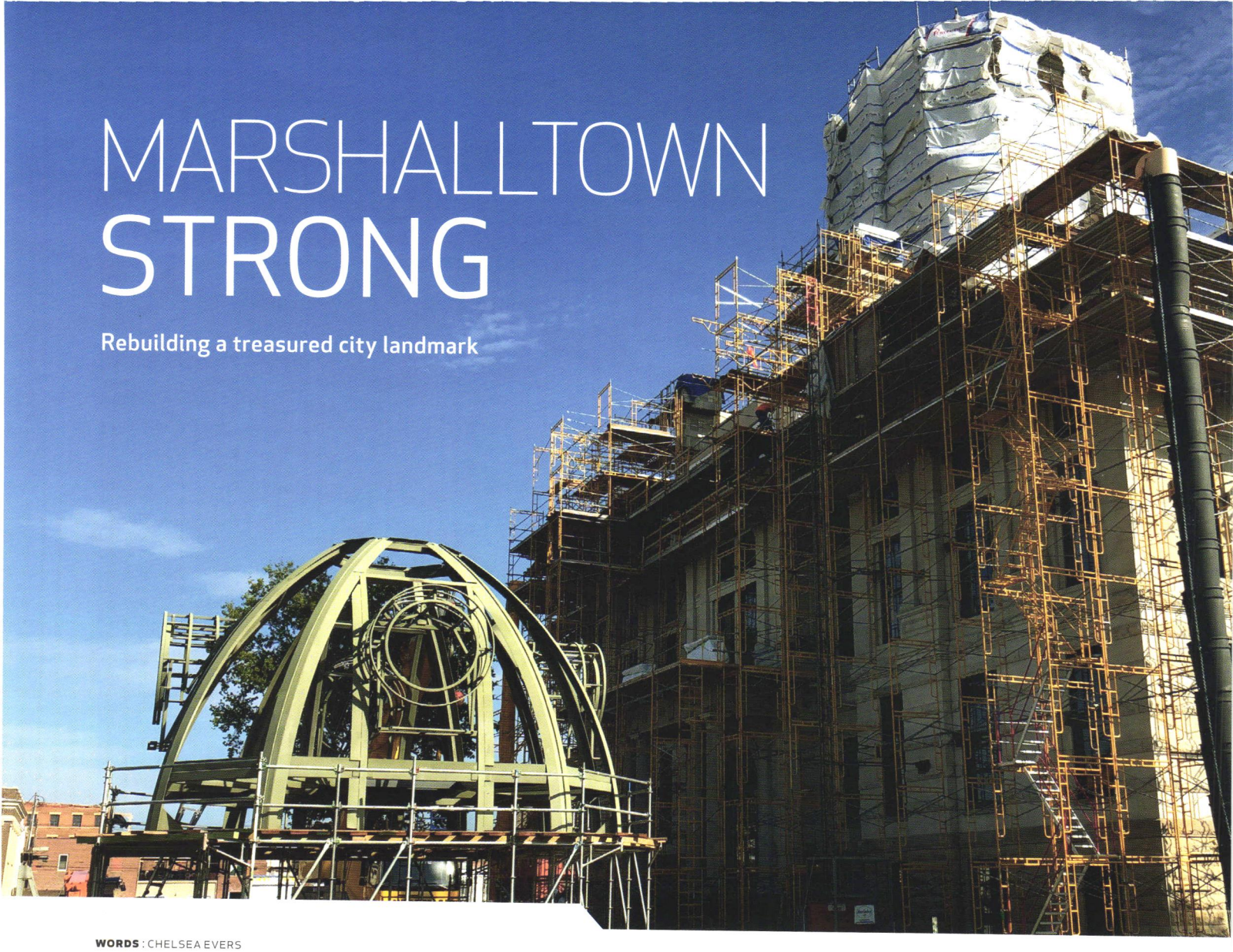
The firm cast its design ego aside, says Kalaher, reusing beat-up cabinetry from the original studio spaces ("in reality, these things are meant to get beat up anyway," he says) and relying on cast concrete floors and repaintable, tackable walls.

Even as the building waits for its exterior setting to be complete—sculptures are continuing to be added—it offers a sculptural form with purposeful homogeneity. "A lot of the uniqueness of the project gets lost in how simple it is," says Kalaher. "It was a challenge all around. It's too easy to be too cool, but this space has gotten a lot of positive feedback when you see it in real life."

Top: Expansive glass gives an inside-outside view to the displays of artwork completed in the building. **Middle:** A stripped-down interior studio space offers the perfect blank canvas for adults and kids to participate in learning activities. **Bottom:** Box-like forms supply a neutral, visually soothing facade as a counterpoint to the separate museum building.

MARSHALLTOWN STRONG

Rebuilding a treasured city landmark



WORDS : CHELSEA EVERS
IMAGES : COURTESY OF OPN ARCHITECTS & PERFECTION PROPERTY MANAGERS
ARCHITECT : OPN ARCHITECTS

In July 2018, an EF3 tornado hit Marshalltown, Iowa, causing extensive damage to the downtown area. While the storm was a grave tragedy—homes, businesses, and vehicles were destroyed—OPN Architects, the firm responsible for the restoration of the severely damaged Marshall County Courthouse, saw an opportunity to restore the city's past.

Thanks to a history of working on the courthouse, the OPN team had a lot of background on the building and knew it was in need of several updates. And while the tornado was devastating—it tore off the top of the courthouse dome, which broke several structures and a chimney as it fell to the ground—it also presented an opportunity to bring the courthouse into the 21st century. "Our first thought was that we could do some selective replacements," says OPN associate Scott Allen, AIA. "It took about a week before we realized there wasn't a way to do it. There was too much damage."

The destruction included a gaping hole on top of the dome, several structural scars, three sprinkler line breaks, and 7,000 to 10,000 gallons of water flooding the building. "At first we didn't realize the extent of the damage," says Allen, who estimates that 65 percent of the floor plan was damaged by the storm. "We were concerned about fire damage because we had these high intense light fixtures that create an incredible amount of heat—if they swung around and hit a wood member, it could complicate the matter even more."

To assess the destruction, OPN had the building 3D scanned, then laid the scan over a pre-storm building plan. The results showed just how powerful the tornado was. "We viewed the building's dome in slices to see how badly it was contorted," says OPN job captain Jimi Peters, AIA. "It was pulled over several feet in the corners."

Peters says seeing the extent of the damage on the courthouse dome was a big turning point for both his team and county officials. "The dome was built from wood timbers that were cracked and twisted sideways," he says. "We realized we were going to have to pull the dome down entirely."

What followed was the creation of a 10-phase plan to restore the dome to its former glory. But because it was built in 1883, the original

"We were able to really reset the clock for this courthouse."

– JIMI PETERS, AIA

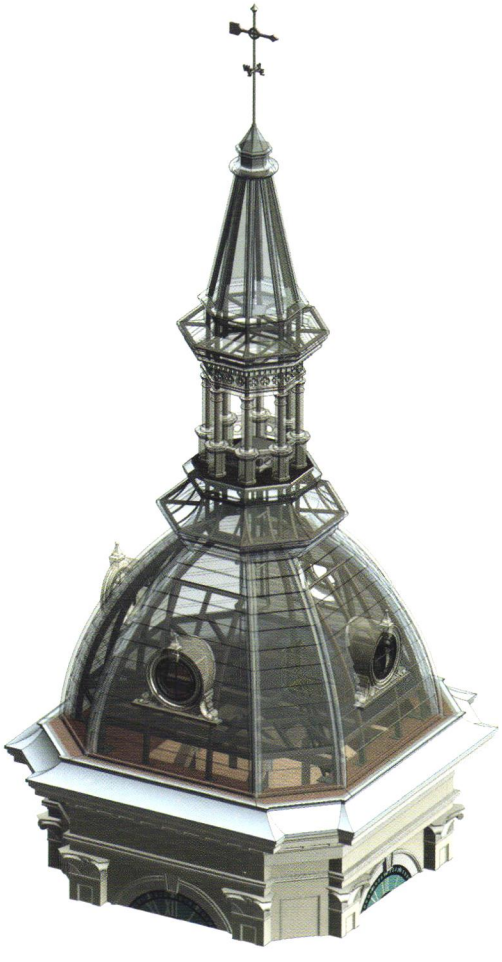
dome was crafted from timber beams and copper cladding—neither of which are ideal choices in modern architecture. "Code nowadays doesn't allow us to build with wood at that height," says Peters. "And copper detailing is hard to waterproof—there are about a million different places the building could be leaking because of all the detail."

The team wanted to preserve the appearance of the copper exterior, but they knew they couldn't depend on copper alone to be the only line of defense against the elements. So instead of creating an exact replica of the original dome, they came up with a steel-frame system that would have a lot better chance surviving a tornado. Using a 3D-printed slotted steel clip system, the team installed overlapping painted copper panels that lock into place and direct rainwater downward. Next, the dome's inner shell—crafted from a smooth steel paneling—was coated in a waterproof resin that catches any residual moisture that sneaks past the copper exterior. "Think of it like a raincoat," says Allen. "Any water that hits it rolls off and finds its way out of the building."

While the team didn't have to completely rework the dome's structure—they could have simply replaced the exterior with more sheet metal or tin—they saw an opportunity to both pay homage to the building's past and reinforce it in preparation for future inclement weather. "We used the same material [as the original design], but with a better system," says Peters. "The coolest thing for me was the opportunity to develop a method we could then use on other projects in the future." Indeed, OPN has used the same weatherproofing technique in several other client projects, including both the Webster County and Madison County courthouses.

The success of this new technique was a win for the team, but Peters says it was the spirit of locals that kept him motivated to restore the courthouse to its former glory. Though they endured a catastrophe, the residents of Marshalltown banded together—even printing merchandise with an illustration of the courthouse and the phrase "Marshalltown Strong"—to rebuild their city. "Nobody wishes the storm would have happened, but there are some good things that came out of this tragedy," says Peters. "We were able to really reset the clock for this courthouse."

Opposite: Built in the late 19th century, the Marshall County Courthouse was in need of repairs even before the tornado hit. After the storm, OPN saw an opportunity to restore it to its former glory. **Top:** Because the distance from the top of the dome to the finial stood 47 feet tall, replacing it meant assembling it on the ground and lifting it atop the dome with a crane. **Bottom:** The EF3 tornado left a gaping hole in the top of the dome, which the OPN team ultimately decided to rebuild to modern building codes.



Top left: A model of the dome's 3D-printed clip-and-panel system shows how OPN's weatherproofing solution—used in several other projects since the courthouse—directs rainwater out of the building. **Top right:** Damage to the top of the dome revealed its original timber-beam construction, which was deemed a fire hazard and replaced with steel beams. **Bottom right:** The team finally lifted the building's new dome into place. Events will be held for the future installation of the spire and refurbished clock. **Above:** An architectural drawing of the replacement dome shows a steel and copper construction, built to withstand future inclement weather.

ROOM WITH A VIEW

Renovating a historic 1950s home in one of San Francisco's storied neighborhoods

WORDS : ABBY GILMAN **IMAGES** : PAUL CROSBY **ARCHITECT** : SUBSTANCE

It's not every day a firm gets a call to renovate a private architectural gem in the heart of a city known for its unique design. It's even rarer that a designer gets two gos at the same project. So when Substance had the opportunity to renovate a private residence in the heart of San Francisco, it was a clear and resounding "yes."

Situated on the north face of Twin Peaks, this private residence—dubbed MC38—has a near-complete panoramic view of the city and bay. The 1950s-era home, designed by renowned Frank Lloyd Wright associate Aaron Green, had undergone various piecemeal updates and one extensive renovation over the past seven decades. The one thing that has remained the same throughout the changes is a focus on that view.

"We updated virtually every finish material. Only the amazing view of San Francisco remained the same," says Jessica Terrill, AIA, architect at Substance and lead designer on the project.

The client has lived in the home for more than a decade and had previously completed a full renovation of the home in 2003 (on which Paul Mankins, FAIA, principal at Substance, had worked while at HLKB).

"The previous renovation had been immaculately maintained, so it looked new, but the owners wanted a change," says Mankins, who served as principal-in-charge for Substance. "The previous renovation was darker and the lower-level plan was less accommodating. This re-renovation aspired to change the lower level to better support the way they lived in the house and brighten the interior while maintaining access to the incredible view."

San Francisco has strict regulations for obtaining a building permit, and it can commonly take up to two years to have a design approved. "There is also a fundamental belief in the rights of neighbors to object to alterations," says Mankins. To avoid possible delays, the team opted to keep changes to the exterior minor,

Opposite: The clean lines and classic materials of this 1950s-era home were strengthened by keeping an existing brick wall while adding a new exterior tile wall to match the interior wood finishes. **Top Left:** The private living quarters on the lower level were refigured to create a natural flow while preserving views. **Top Right:** Private utility spaces, such as restrooms and closets, were tucked into the south side of the home, allowing the more public living areas to retain views. **Bottom:** Located adjacent to Golden Gate Park, the severe site slope allows the back of the house a spectacular view several stories above its neighbors.

instead focusing on a total renovation of the interior spaces.

To lighten and open up the home, the team knew they wanted to strip the structure back to its original design. To understand what that original design was—and to weed out what were later additions and renovations—the team dug into archives.

"We were able to glean many of the original design elements from [historical] photos and field measurements," says Mankins. "The upper level was a little easier to understand. The lower level had been altered to the point where understanding the original organization and finishes was difficult."

All agreed the original design had a strong logic and organization that made sense for today's living. They just needed to reinforce and clarify it. The interior was stripped back to the studs, every finish removed. A simple, narrow material palette—wood, glass, steel, brick, and concrete—allowed the team to let the original organization shine through while retaining unique, delineated living spaces.

Lines were kept clean and modern, allowing the material choices to mark spaces. "We were looking to create a very limited material palette that was deployed in a very consistent fashion," says Mankins. "This material was drawn from the original images of the home and reinterpreted."

Public spaces—kitchen, dining, living—were kept on the street level and open up to the northern views of the city; service areas—bathrooms, garage, dressing rooms—were nestled into the southern side of the home, so as not to disrupt any views. The private spaces, including guest rooms, were reorganized on the lower level of the home.

Upon entering the front door, guests are immediately greeted by a minimal hallway that draws the eyes to a teaser of the skyline view. The brick material is an extension of that used on the exterior of the garage, and acts as an anchor for the southeastern corner of the home. To the west, the wooden walls create a second block of spaces, including the kitchen, powder room, and guest bathroom and dressing area. The steel beams across the main floor, stair handrails, and various finish details are an extension of the northern wall of windows.

"The limited palette tends to unify the home and allow the spaces to flow together rather than read as independent spaces," says Mankins.

One of the more major updates to the home was a reimagining of the stair from a switchback to a single run. "The stairs were a feat of design, engineering, and installation," says Terrill. "It created a very clear division between the brick and wood halves of the home and made the lower level circulation core more open and porous."

"It is a re-renovation of a project that was award-winning before, so there was some pressure to improve an already recognized house," says Mankins. The result—thanks in large part to Stroub, the residential building partner for the project, who built "precisely as we intended it," says Mankins—is an ode to the home's past that will serve it into the future.

Top: Once a switchback, the team refigured the stairs to be a single run, creating a more minimal design. **Bottom:** Materials separate spaces in the otherwise open floor plan. Brick and steel denote the western half, while clean wood characterizes the eastern half.

Opposite: The patterned scrim on the upper levels of Miesblock echo the massing of its Miesian neighbor to the right. **Top:** Miesblock uses the same 40-inch module as the plaza and facade of the Diocese Building. **Bottom:** The scrim effect from the steel I-beams to the left are echoed in Miesblock's narrow-paneled facade.

MIESBLOCK DIALOGUE

BNIM responds to a formidable neighbor with innovation

WORDS : ANDREW RYAN GLEESON
IMAGES : NICK MERRICK, HALL + MERRICK
ARCHITECT : BNIM

Situated directly to the west of the famed modern architect Mies van der Rohe's Catholic Diocese Building—originally the Home Federal Savings and Loan Association finished in 1962—the three-story speculative commercial project in downtown Des Moines known as Miesblock is close enough to warrant a dialogue between the structures. BNIM embraced this potentially intimidating proximity. "We sought to strike a balance between material integration and innovation," says Jeff Shaffer, AIA, associate principal at BNIM.

Several parameters necessitated a creative response to the materiality and detailing of the Miesblock enclosure: program requirements, a frugal budget, and a desire for energy efficiency discouraged an all-glass facade. Instead, BNIM worked with a 40-inch module to create a flexible kit-of-parts, which alternated between precast concrete panels, metal panels, and glass. This module is the same one used by Mies, and creates a direct alignment between the plaza paving and facades of the Catholic Diocese Building with Miesblock. The kit-of-parts allows for maximum flexibility of program. For example, the kitchen on the ground floor required less windows, while the upper level office spaces called for more. Precast panels were polished on the inside to save on interior renovation costs. The panels' dark coloration more closely matched the color palette of the Miesblock and its neighbor.

Kevin Nordmeyer, AIA, lead principal architect at BNIM, noticed an unintended but happy connection

Top: Two stairs were designed in dialogue on the west side of Miesblock.
Bottom: Upper-level office space shows off dramatic biophilic light qualities from the external scrim.

between the finish of the precast panels and the Mies project next door. "When the blinds of the diocese building are closed, the color of the window very nearly matches the finished color of the precast panels," Nordmeyer says. This illustrates well how materials continue to surprise after project completion. Additional black mullions and trim finishes were color-matched with the specific black that Mies preferred, a color the Catholic diocese generously shared with BNIM during the concurrent refurbishing of their building.

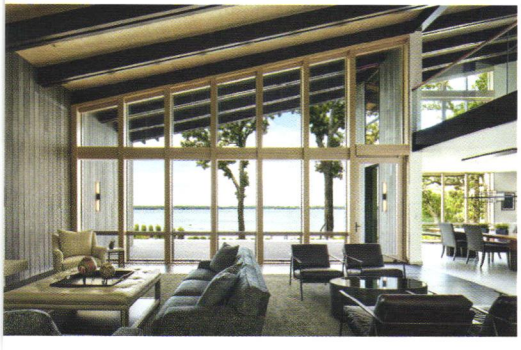
However, the most striking material feature of Miesblock is the perforated panel scrim, which covers the top two-thirds of the southern facade, and a portion on the east and west. Like all well-designed elements, the scrim balances beauty with function. On the mostly glass upper-level office spaces, it acts as a sun-shading device, bolstering energy efficiency. Additionally, the screen is intended to mimic the psychologically beneficial biophilic qualities of dappled light through trees. Locating the scrim on the upper two levels of Miesblock also references the proportional massing of its neighbor without sacrificing much-needed leasable square footage, a feature Shaffer says is "a response to scale and proportion without directly copying." To maintain the protruding massing of the screened panels to the south, BNIM secured the air rights of the adjacent sidewalk.

The white-painted aluminum panels, manufactured by Industrial Louvers Inc., were initially designed with a generic perforation dot pattern (the team chose aluminum early on for its flexibility, durability, cost, and sustainably responsible high rate of recycled content). The client, Nelson Construction, suggested that the perforations fold in a cultural callback to Mies by stamping images of the three cities where the Bauhaus operated: Dessau, Weimar, and Berlin (Mies was director of the Bauhaus from 1930-1933). BNIM scoured countless historic maps of the cities, arriving on ones that included topographic information. Through in-house laser-cut chipboard models and full-scale mock-ups, BNIM worked closely with the manufacturer to perfect the size and spacing of the perforations in order to maintain the legibility of the pattern without obstructing views outside. Industrial Louvers produced 144 unique panels using only four different-sized perforations to create the complex marbling quality visible in the city-map patterns. The finished panels are not overburdened by their source material, and maintain a playful degree of abstraction, simultaneously evoking stone, water, or geography.

The mock-up was essential in designing the minimalist frame that held up the panels—it revealed that the white-painted frame interfered with the visibility of the perforation patterns on the exterior. To fix this, BNIM specified the armature be painted black—another example of how surprising material lessons are learned through direct experience with a full-scale mock-up.

A close working relationship between architect and manufacturer allowed for this sensitivity in the design of the facade, and kept Miesblock within the spirit of Mies's words: "Each material has its specific characteristics that one must get to know in order to work with it. We expect nothing from materials in themselves, but only from the right use of them."

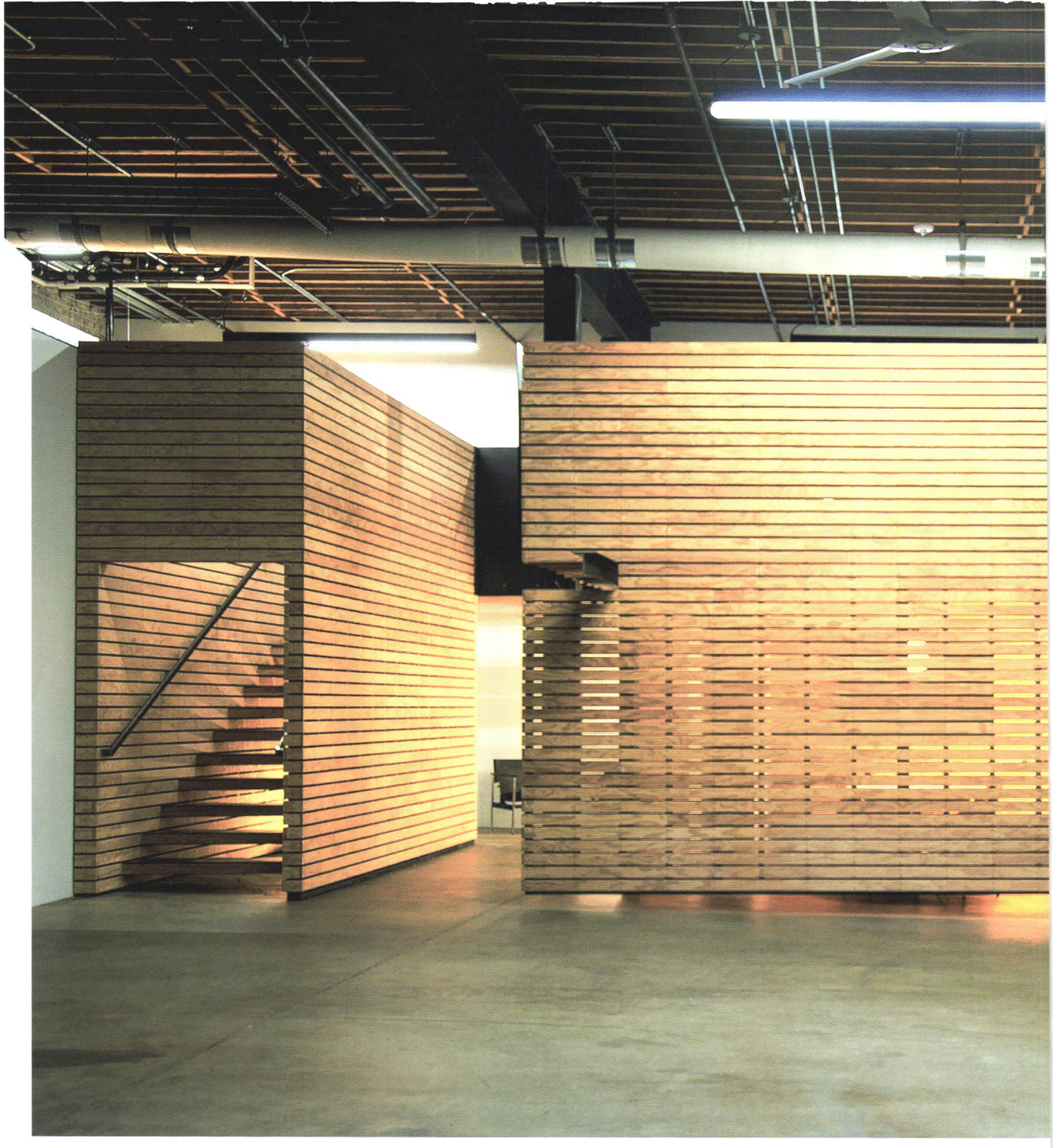
ELEMENTAL DESIGN



LAKESHORE HOUSE

substancearchitecture

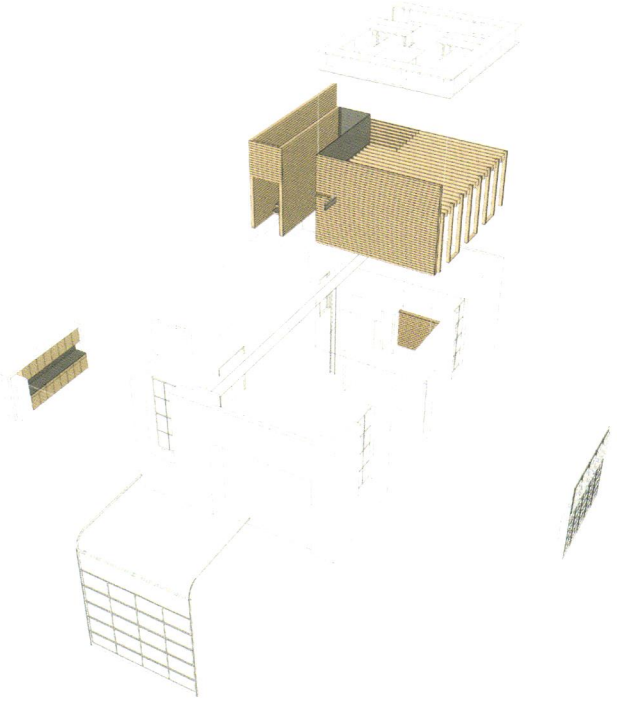
DES MOINES IOWA



IN THE DETAILS

Creative solutions and craftsmanship transform a maintenance space into a functional and beautiful home to Studio MELEE

WORDS : LEAH WALTERS **IMAGES** : TAYLOR DANGER **ARCHITECT** : STUDIO MELEE



When Curtis Ehler, AIA, co-founder and principal at Studio MELEE, first walked through the garage on the rear side of 1312 Locust Street in Des Moines, it was a dumping ground and maintenance space for the building's owner. Spare appliances sat idle, rolls of carpet and a menagerie of building supplies took up the floor space, and ladders leaning against the wall made use of the 19-foot ceiling height.

Ehler and his team were on a time-sensitive mission to find a new workshop and studio space. Despite first impressions, this space had a lot of appeal; it was downtown, full of raw, historic character, and, frankly, non-leasable—it wasn't tenant-friendly and the owners, whom Studio MELLE had previously worked with on this building, didn't see the value in it.

"We could see past all the cars and signs and barrels stored in here, and see the parts and pieces we'd keep," Ehler says. Like the exposed joists and pipes, concrete floors, and the square-headed bolts left in the walls from bygone days.

And so the firm (two years old and five designers strong at the time) found itself with a new home and an ambitious project ahead.

"In many ways we were trying to figure ourselves out at the time.

Top Left: Beneath the mezzanine, a cribbed wall encloses a conference room and hovers above the sloped concrete floor. **Top right:** The lofted level houses a traditional office and studio space. **Bottom right:** Studio MELEE maximized a modest footprint by adding a mezzanine and took advantage of downtown views by installing a new glass overhead door.

We were asking ourselves questions we'd never asked before about how we wanted to work," says Ehler. "It was like designing with a lot of cooks in the kitchen, but there was an ability for us to come around a single idea and execute around that."

They were working with a lean budget and small footprint, but needed to accommodate both a traditional office space and a workshop where the team could fabricate physical details and mock-ups. Ehler described their approach as a farmer's mentality: How can you solve a problem with what you have?

To maximize the space, the designers conceived a simple mezzanine to house workstations. The black steel structure and stairwell were cribbed in plywood to create privacy, while allowing the space to remain open. The fir planks are a warm, natural contrast to the otherwise industrial and gritty shell.

"Our guardrails are just plywood and bent pieces of steel. There's not much to them, but they're put together in such a craft-driven way,"says Ehler. "The execution of it wasn't just in a cool detail or material, it was actually in the connection and the phasing of the timing."

Beneath the mezzanine, the cribbing encloses a conference room. As if by magic, the wall—supported by the structure above it—floats over a sloped concrete floor.

As easy as it would have been to fix, the uneven floor is one of the details the designers let be.

They took a more aggressive approach when they moved the garage door, which originally opened to an alley. A new glass overhead door was installed on the adjacent wall to face the city's picturesque sculpture park. The existing opening was infilled and fitted with shelving to become the studio's materials library.

Studio MELEE tapped local professionals and tradesmen to collaborate on woodwork and steel fabrication, but firm members put in much of the labor themselves, pitching in to help install the cribbing, steel railing, carpet, and cabinetry. Together they knocked the project out in less than six months within a budget of $60,000.

That feat is impressive in its own right, but the success of the project is measured just as much by the marriage of old and new elements.

Ehler says his favorite details in the workspace are "the gas pipes that are still on the ceiling and the square-headed bolts nobody uses anymore that are still exposed on the walls."

"There's a level of acceptance to the elements," Ehler says, "It didn't all have to be perfectly cleaned or defined. It didn't all need the wax polish on it, it could just be the way it is."

Top: A materials library now fills the original garage door opening.
Bottom: The gritty, exposed elements of the original space work in harmony with the warm wood and sharp lines of the new structure.

project credits

Collected

A Collaborative Renovation | 08

Architect: RDG Planning & Design
General Contractor: Graham Construction
Mechanical: Air-Con Mechanical
Electrical: Baker Electric, Inc.
Interior Finishes: Armstrong; 1st Interiors, Inc.
Lighting: AES Lighting Group; Integrated Sales; JTH Lighting; Lighting Solutions, NRG Sales
Flooring: Ideal Floors: InterfaceFLOR; Mannington; Shaw
Signage: Beeline and Blue
Glass & Doors: Two Rivers Glass & Door, Inc.; Walsh Door & Security
Office Furnishings: Koch Office Group; Workspace
Photographer: IRIS22 Productions

Features

Gilchrist Learning Center | 20

Location: Sioux City, Iowa
Architect: PLaN Architecture
Contractor: H&R Construction
Civil Engineer: True Engineering
MEP Engineer: West Plains Engineering
Structural Engineer: Performance Engineering
Photographer: Chadd Goosmann, Aurora Photography; Justin Meyer, Photography by Meyer

Marshall County Courthouse Restoration | 24

Location: Marshalltown, Iowa
Architect: OPN Architects
Contractor: Perfection Property Restoration
Sheet Metal Fabrication: Renaissance Roofing, Inc.
Steel Fabrication: Johnson Machine Works
Photographer: OPN Architects; Perfection Property Managers

MC38 Residence | 28

Location: San Francisco, Calif.
Architect: Substance
Contractor: Stroub Construction
Local Architect and Expediter: Acanthus Architecture & Design
Local Structural Engineer: Monte Stott & Associates
Structural Engineer: IMEG
Photographer: Paul Crosby

Miesblock | 32

Location: Des Moines, Iowa
Architect: BNIM
Contractor and Owner: Nelson Construction & Development - Des Moines
Civil Engineer: Snyder & Associates
Landscape Architect: Genus Landscape Architects
MEP Engineer: The Baker Group
Structural Engineer: Raker Rhodes Engineering
Photographer: Nick Merrick, Hall + Merrick

Studio MELEE Design Studio & Workshop | 36

Location: Des Moines, Iowa
Architect: Studio MELEE
Contractor: Jared Jones Construction
MEPS Engineer: KCL Engineering
Structural Engineer: Raker-Rhodes Engineering
Photographer: Taylor Danger

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Iowa Center for Architecture
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Virtual is the new normal

COMMUNICATION METHODS ARE CHANGING. But that hasn't stopped this "hometown" Iowa-based team from effectively communicating and collaborating on the Iowa City High School Additions and Renovations project located in Iowa City, IA.

IOWA CITY HIGH SCHOOL ADDITIONS AND RENOVATIONS PROJECT TEAM

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Licensed Architect
BLDD Architects
Role on Project Team:
Project Architect

Frank Hayes
Project Manager
Miron Construction Co, Inc
Role on Project Team:
General Contractor

Todd Cyrulik AIA
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Kristi Ortega
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MPC Enterprises Inc.
Role on Project Team:
Precaster

Jean Underwood AIA, NCARB, LEED AP O+M - Sr. Associate
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Andy Sederquist PE
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Tyler Theisen
Project Manager
Cedar Valley Steel
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PCI MIDWEST
A Chapter of
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Concrete Institute

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