

Commercial

# Mass Timber

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6 Commercial Projects  
that Pencil Out

We go above and beyond  
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# Tree-economically sound projects.

Remote work forever changed American office culture, and it is more incumbent than ever on employers wanting to bring people into the office full time to provide a welcoming, invigorating work environment to stimulate and inspire their employees. Directors from two of the country's biggest developers, Hines and Howard Hughes Holdings, recently told the National Association of Real Estate Editors that mass timber is boosting their business in the commercial sector—with faster construction, higher lease rates in depressed commercial markets, and even higher rent premiums that help both their portfolios and their pocketbooks. By exploring these six projects, learn how—in a still lagging sector—mass timber can be the differentiator your commercial space needs to build a welcoming, biophilic work environment that can contribute to tenant retention, employee wellness, and your bottom line.



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## Project Details

**Project Name:** Bremer Banks

**Location:** Fargo & Minot, North Dakota

**Architect:** [Snow Kreilich Architects](#)

**Developer:** Bremer Bank

**Structural Engineer:** [Studio NYL](#)

**General Contractor:** [Roers](#) (Fargo),  
[Craft Builders](#) (Minot)

**Timber Products:** [Glulam](#)

**Size:** 30,000 sq. ft. (Fargo),  
7,500 sq. ft. (Minot)

**Photo Credit:** Corey Gaffer

## Bank Designs Link Community and Local Context With Wood Construction

When Minneapolis-based architecture firm Snow Kreilich Architects was brought in to create a “playbook” for regional Bremer Bank’s new and remodeled facilities, the team wanted to emphasize the bank’s focus on trust and relationships.

The bank has more than three dozen branches in communities throughout Minnesota, Wisconsin, Iowa, and the Dakotas, and Snow Kreilich emphasized local touches. “So, a [branch] in a South Dakota bank would be very different than [a branch] in Wisconsin based on [the] community,” says Snow Kreilich Associate Principal Tyson McElvain. The use of wood isn’t required by the playbook, but its thoughtful deployment is central to this regional approach in two North Dakota branches also designed by Snow Kreilich.



### Bremer Bank | Fargo

In Fargo, the firm was tasked with a major interior renovation of a 30,000-square-foot structure built for the bank in the 1980s. Local context provided inspiration. "We found a lot of shelterbelts [in the] landscape," Snow Kreilich Senior Associate Kathryn Van Nelson says. Originally planted to create windbreaks and reduce erosion during the Dust Bowl of the 1930s, these linear plantings of trees or shrubs help protect farms, save energy, and enhance wildlife habitat, according to a publication from the USDA's Natural Resources Conservation Service.

The designers were intrigued by the idea of wooded elements defining space in the landscape and wanted to explore it on a building scale. Within the bank, they connected the two floors with large openings and introduced a Douglas Fir glulam screen to stitch the two floors together. The screens create discrete zones, with one side of the metaphoric shelterbelt being more customer-focused and open and the other side containing private offices and workspaces.

"We were looking for an element that could be that tall," Van Nelson says of the 24-foot-tall screen.

**"We ended up with this raw glulam piece that we staggered in size to give a little bit of depth to this screen and a little bit more screening functionality."**

—Kathryn Van Nelson, Senior Associate | Snow Kreilich

"It was a careful balance of the detailing bracket where we connected it at the base, the top, and then one hidden steel plate within the member," Van Nelson says. Each fin is about one and a half by seven inches deep and 24 feet high. "We tried to keep them as discreet as possible," she adds.







### Bremer Bank | Minot

For a new construction project a short distance southwest of downtown Minot, Snow Kreilich's designers crafted a single-story 7,500-square-foot mass timber framed structure that holds its own in the vast landscape of the Dakotas' Drift Prairie region. The architects again looked to the history of design in the area for inspiration. "The landscape of Minot is unique," Van Nelson says. "It's quite hilly in a very distinct landform." A century ago, significant wooden-structure trestle bridges were built across the river. "We thought, what an opportunity to reference that and bring wood back into some of the structures that make up this city," she says.

The 168-foot-by-49-foot mass timber structure runs east-west on the site with an open interior that rises 24 feet above ground level. A partial mezzanine creates more intimate private spaces along the north side of the building. The overall structure is quite simple: Two dozen 10-3/8-inch-by-24-inch glulam columns support 10-3/8-inch-by-33-inch glulam beams spanning 46 feet, 8 inches to evoke the railroad trestles of the late 19th century.

Van Nelson notes that the Minot branch has a significant cantilever, almost eight feet, at the east and west ends of the roof structure. Maintaining the thin 3-1/2-inch expression of the GLT roof across this span wasn't easy.

**"It was a collaborative effort between our structural engineers and Western Archrib, the supplier."**

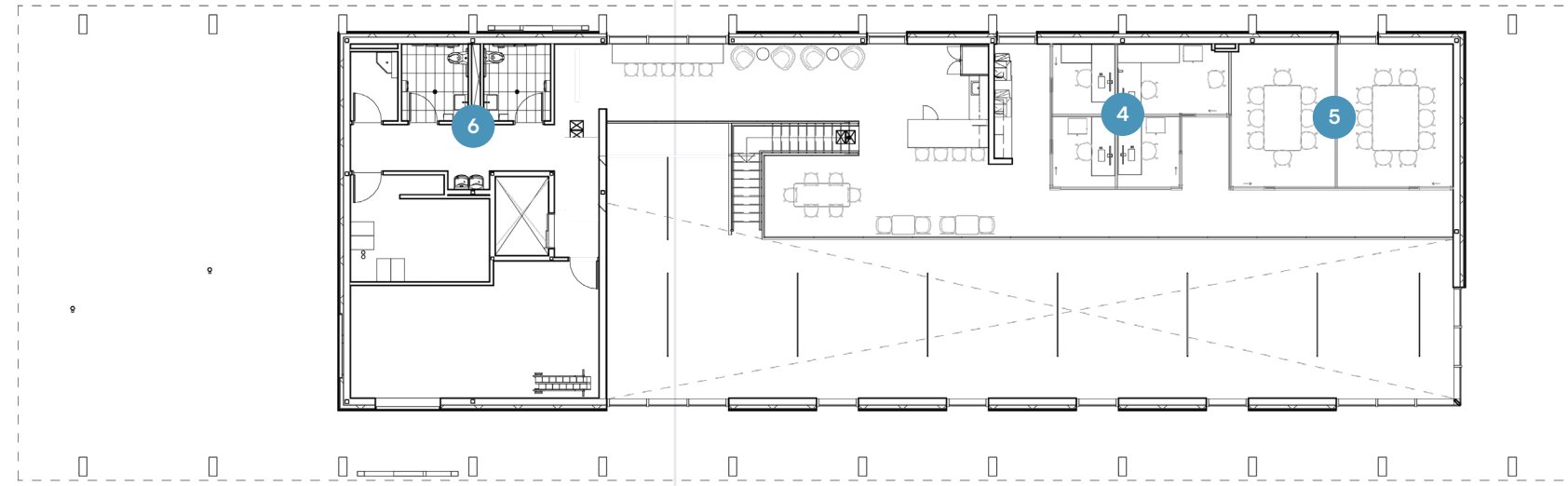
*—Kathryn Van Nelson, Senior Associate | Snow Kreilich*

With these two dramatically different banks in North Dakota, the Snow Kreilich architects displayed the local notes they emphasized in their design playbook while demonstrating the metaphoric power possible with contemporary wood design. ■

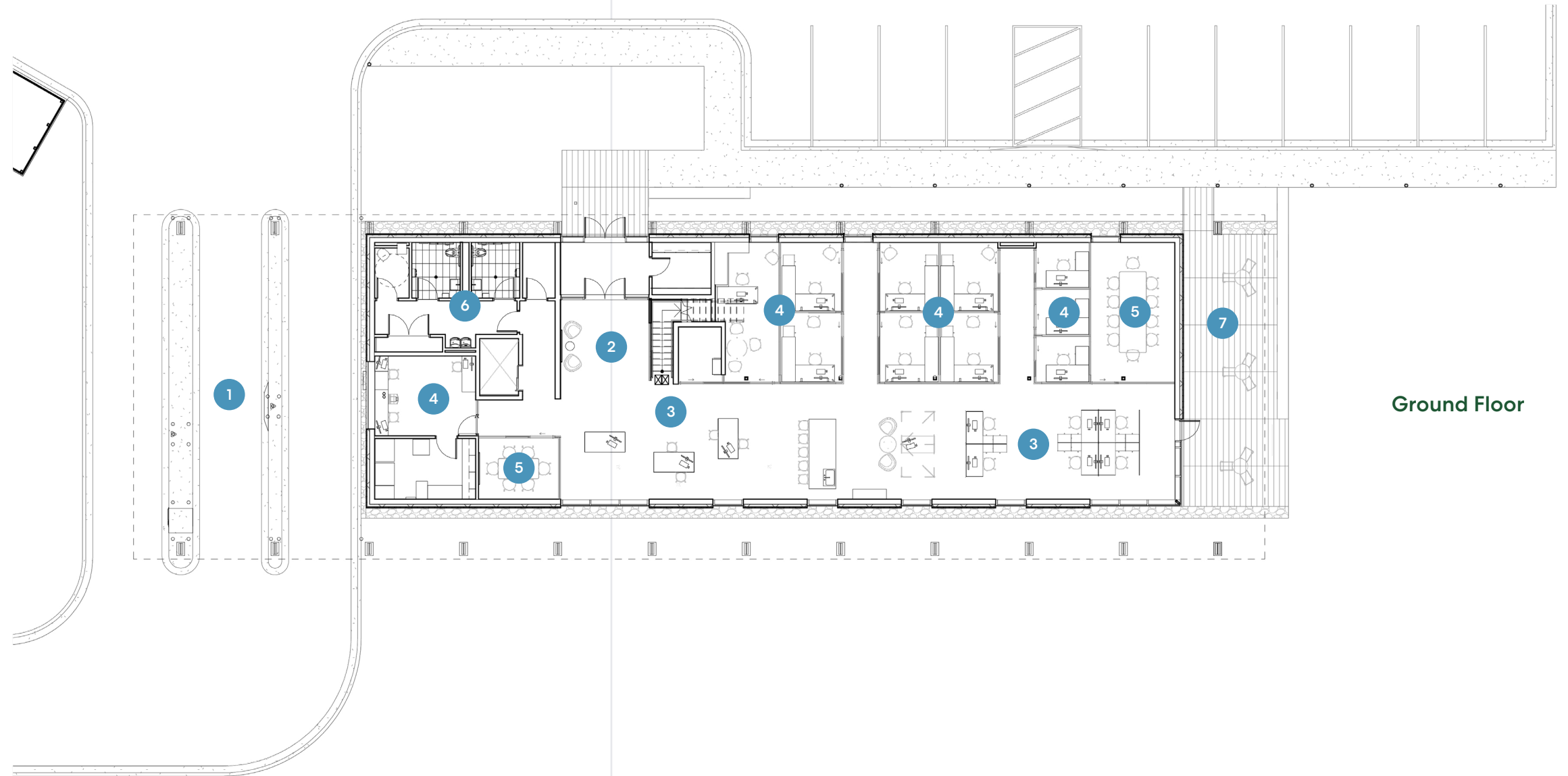


# Bremer Bank | Minot

- 1 Drive Through
- 2 Lobby
- 3 Work Stations
- 4 Private Office
- 5 Meeting Room
- 6 Restroom
- 7 Patio



Mezzanine



Ground Floor





# 2

## Amazon HQ2

### Project Details

**Project Name:** Amazon HQ2

**Location:** Arlington, Virginia

**Architect:** ZGF

**Developer:** Amazon

**Structural Engineer:** Thornton Tomasetti

**General Contractor:** Clark Construction

**Timber Products:** [Mass Timber](#) |  
[CLT](#) | [Glulam](#)

**Size:** 2.1 million sq. ft.

**Photo Credit:** Magda Biernat

### Amazon's HQ2 Creates Community While Crunching Carbon

Featuring a light-filled mass timber event center, Amazon's new corporate campus ushers in ambitious environmental aspirations for the online juggernaut.

When the world's largest e-commerce company set out to build a second headquarters in Arlington, Virginia, the design team's mantra was: "Create a mixed-use, biophilic-designed community, not a conventional corporate campus," says ZGF principal Brian Earle. "All while moving the company closer to its pledge to reach net-zero carbon emissions by 2040." The result is a sustainable corporate campus that showcases mass timber, cuts carbon, boosts greenspace—and is fast-becoming a favorite neighborhood hub for both Amazon employees and Arlington residents, alike.





## Natural Connections: Biophilic Haven Cultivates Community

The 2.1-million-square-foot development infuses biophilic design principles throughout its publicly accessible atriums and lush greenspaces and into its two new 22-story office buildings (dubbed Merlin and Jasper), retail spaces, and other civic amenities.

“Corporate and community uses are interwoven—and bringing nature inside and connecting occupants to surrounding parks and greenery was a central focus of the project,” Earle says.

Symmetrical entry pavilions for each tower feature operable garage doors, creating a seamless indoor-outdoor lobby experience. These lobbies not only usher thousands of Amazon staff to work each day but also welcome community use. Neighbors are invited to order a coffee at the donut kiosk, take a call from the lobbies’ lounge seating, or immerse themselves in one of many art installations.

Common areas and lobbies showcase an abundance of biophilic elements, greenery and nature-inspired materials. Beyond the event center’s mass timber, wood finishes, stairs, ceilings, cladding, installations, and design elements are featured throughout. An exhibition space, Amazon Visitor’s Landing (AVL), is located on the Merlin building’s ground floor and features an undulating plywood wall inspired by the banks of the Potomac River that runs just north of the campus.

Amazon also funded the renovation and expansion of the adjacent Met Park, which features an inviting children’s garden and play area; a dog run; public art commissions by Nekisha Durrett, Iñigo Manglano-Ovalle, and Aurora Robson; as well as more than 50,000 plants, including 160 native species, selected to attract local pollinators. To make practical use of the gardens, the Amazon Horticulture team is working with a local organization, Love and Carrots, to grow, produce, and deliver fresh veggies to a local nonprofit, Kitchen of Purpose.

Along with offices, the development includes 50,000 square feet of retail space, which includes 14 local small businesses, including minority- and women-owned businesses, and a new interactive venue where visitors can learn about the company’s history.





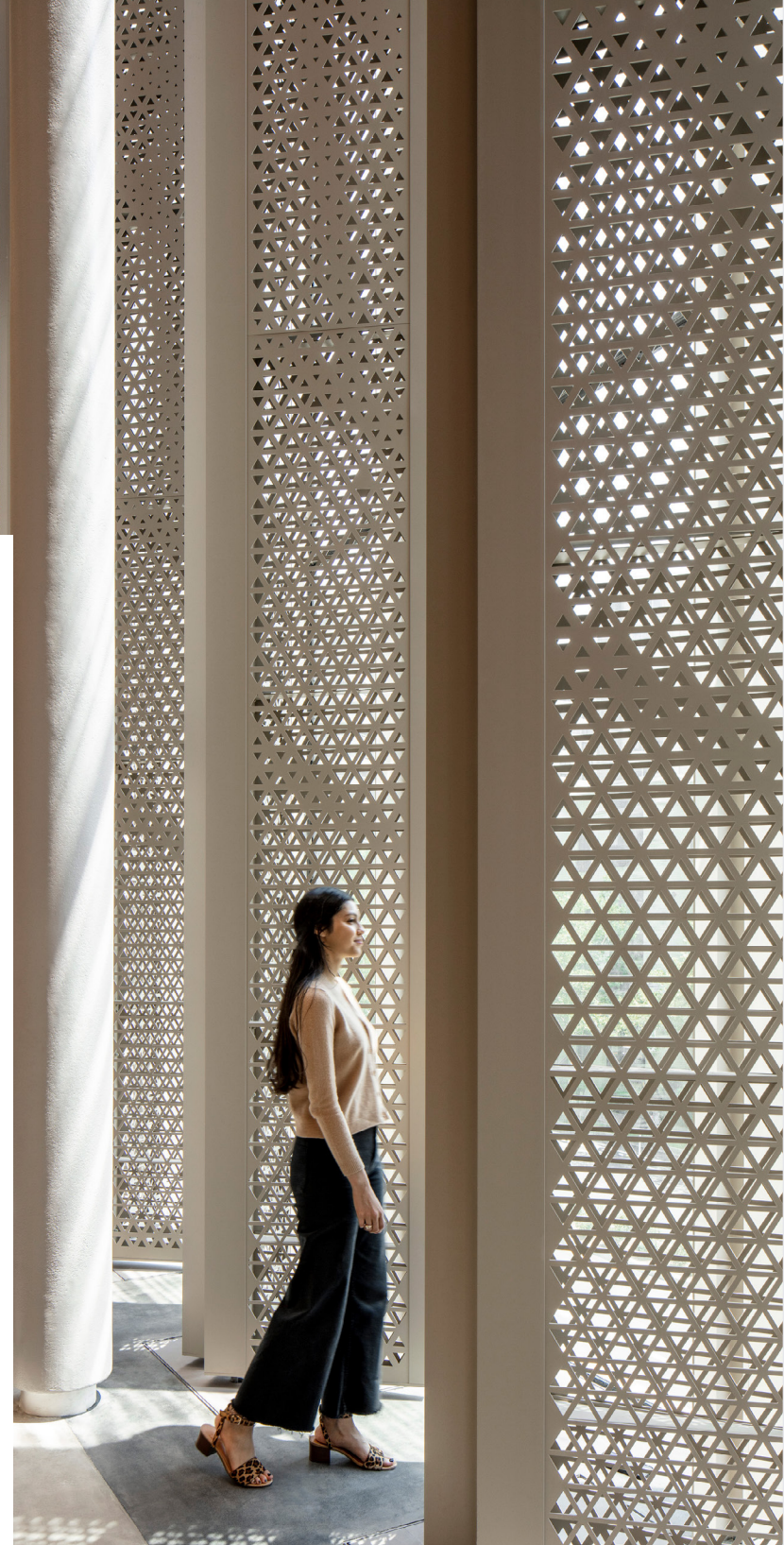
## Mass Timber for the Masses: A Multipurpose Hub for Community and Corporate Events

A big part of giving back to the community is the Event Center at Metropolitan Park, which sits in the podium of the Jasper tower, outside the main tower footprint at the southwest corner of the site. The flexible 35-foot high mass timber space is not only used for corporate meetings, but is also available to Arlington residents for community use and civic events. "Because the roof of the venue is more than 20-feet above the floor, it does not have to be fire rated like the rest of the building, which allows us to expose and celebrate the wood," Earle explains.

Illuminated by natural light and using warm, organic materials, the venue features cross-laminated timber (CLT) roof panels supported by ten glued-laminated timber (glulam) beams. The beams span nearly 80 feet and support the center's sawtooth skylight structure and vegetated roof. That massive span allows the interior to be column-free and completely flexible—it can accommodate up to 700 people for programs ranging from career fairs and all-hands meetings to art performances and neighborhood gatherings. Inspired by a butterfly's wings, kinetic shutters automatically rotate with the sun's path, maximizing views out while reducing glare and heat gain. The timber ceiling will also support rigging, acoustical baffles, and other stage equipment.

The timber-framed event space itself features expansive south-facing glazing with views out to greenery and nearby parks. But with the flick of a switch, the mechanical shutters can be shut to transform it into a black box theater when needed.

Earle and ZGF are no stranger to timber: The firm has made it a central part of its practice, with mass timber projects in its portfolio including Portland, Oregon's new airport expansion and Google's Spruce Goose offices near Los Angeles.



**"From consulting with Amazon staff, we learned that some of their previous meeting spaces lacked sunlight and felt cold. As a result, they saw a drop-off in attentiveness and attendance. So, we conceived of this multipurpose space as one that could draw in lots of sunlight—in fact it can be lit entirely without artificial lighting—and we offered added warmth through the use of mass timber and biophilic elements."**

—Brian Earle, Principal | ZGF

## Drawing on Regional Craftsmanship: Mass Timber Goes Up in a Few Weeks

The project wasn't without its initial challenges. With construction happening in the midst of a global pandemic, the original mass timber crew—to be supplied by fabricator StructureCraft—was unable to travel to the site.

As a result, the project's general contractor Clark Construction turned to a local Virginia-based group to take on the erection of the long-span glulam structure. Falling Acorn, a group of timber craftsmen more often focused on sustainable residential construction of small-footprint houses, turned out to be well-qualified for the job.

"It was great that we could source the timber erectors local to the region, and I was surprised at how fast it went up," says John Swagart, Vice-President at Clark Construction. "The other major benefit to using mass timber like this is that you're working with a finished product that looks great, nothing else to be done once installed. For steel and concrete you have other elements of work you have to do."

And speed of construction was key: Along with a mandate to shrink carbon, Earle said that keeping the project on track, and completing it on time, was a must for the online B2C giant. "One thing we are seeing, as demonstrated by Falling Acorn's work on this project, is that mass timber installations often go faster and easier than expected, and we often overestimate how long it's going to take," Earle says. "We had accounted for three weeks, as a contingency, but the structure went up in just over a week—much quicker than we'd planned."

Looking back, Earle says the unexpected personnel change was serendipitous—and served as a great case study for the speed and ease of mass timber construction. "It gave us the opportunity to expand industry knowledge in the region, including with local installers, and carve a path for its broader adoption in the future." ■

[Take the Tour](#)



# 3 Mississippi Workshop

## Project Details

**Project Name:** Mississippi Workshop

**Location:** Portland, Oregon

**Architect:** [Waechter Architecture](#)

**Developer:** [Waechter Architecture](#)

**Structural Engineer:** [KPFF Consulting Engineers](#)

**General Contractor:** [Waechter Architecture](#); [Owen Gabbert, LLC](#); [Cutwater PDX](#)

**Timber Products:** [CLT](#) | [Glulam](#)

**Size:** 9,550 sq. ft.

**Photo Credit:** Lara Swimmer

## Portland Firm's All-Wood HQ Shows Beauty and Versatility of Mass Timber

When Portland, Oregon-based architect Ben Waechter acquired the property that would become his firm's office on Mississippi Avenue more than a decade ago, it was not a foregone conclusion that he would be building in mass timber.

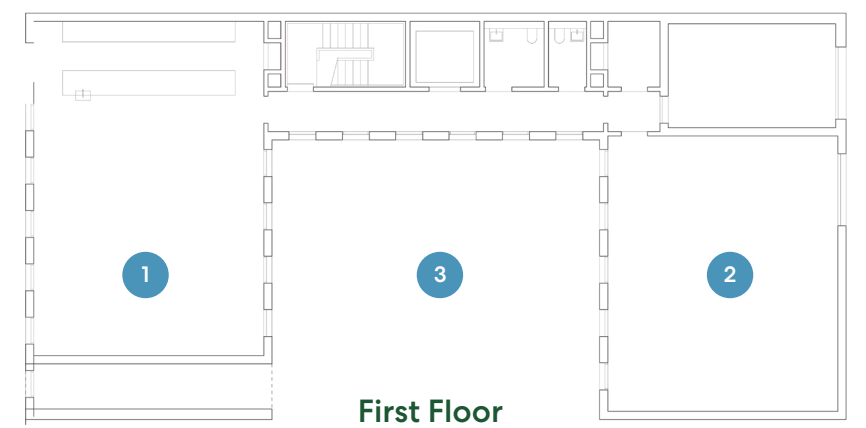
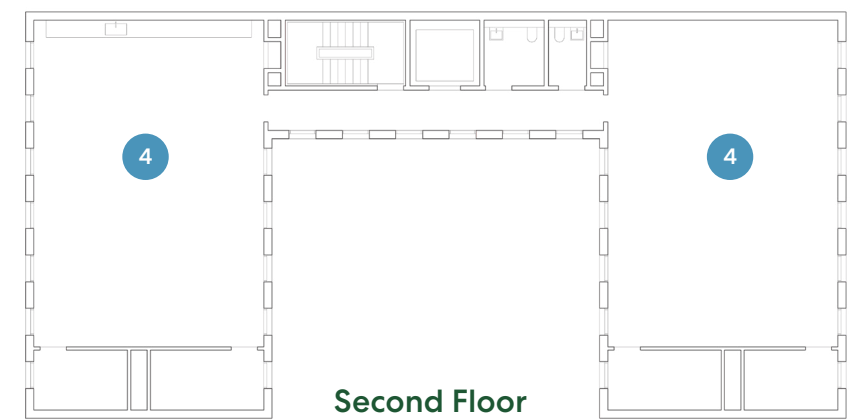
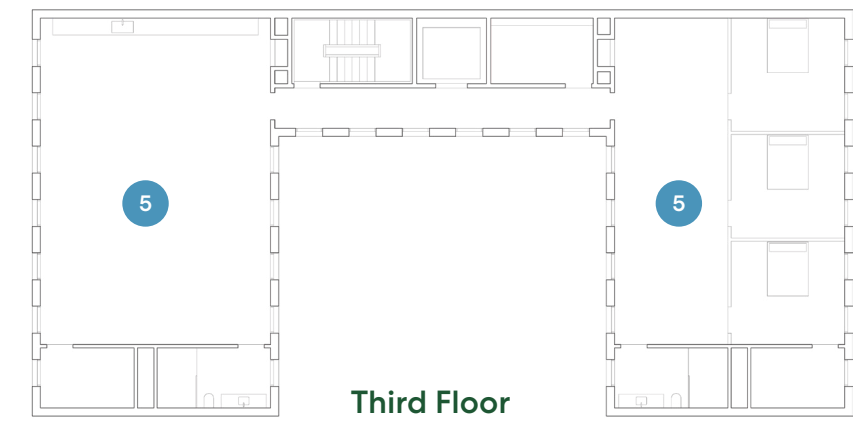






### Mississippi Workshop

- 1 Coffee Shop
- 2 Workshop
- 3 Courtyard
- 4 Waechter Architects Office
- 5 Ben Waechter Residence





"I really wanted to do a building out of a single material," Waechter says. "Our first interest was trying to find a material that's as simple and as few layers as possible."

For the initial project studies, that material was autoclaved aerated concrete (AAC). "When we started getting serious, we realized that [concrete] is not an expertise of the Pacific Northwest," he says. "There was a lot of energy around CLT, and mass timber can be a carbon sink, so it's much more environmentally sensitive than the concrete products."

The building that he recently completed, and that his firm now occupies, functions as a demonstration project for Waechter Architecture and contemporary mass timber construction.

Dubbed the Mississippi Workshop for its location in Portland's hipster-vibed Mississippi Avenue district, the three-story-tall, 9,550-square-foot structure is configured for maximum flexibility over time. Built on an infill site, the building is C-shaped in plan and wraps a public, open-air courtyard at the building's center. The identical east and west wings are connected by a narrow wing that contains the building's services—stairs, elevator, and rest rooms. Each of the six suites (3 east, 3 west) have 30-foot-long clear span glulam beams resting on CLT bearing walls. Each suite is outfitted with stub-ins for a future kitchen on the north wall and future bathroom to the south.



The floors are concrete topping slabs and the exterior is sheathed in corrugated weathering steel, the only building components that aren't wood. The decision to thoroughly embrace wood on the interior, with no additional finishes or fireproofing, has a powerful effect: In certain spaces, the effect isn't just visual, but the warm smell of the wood is palpable, according to Waechter.



**“The whole thing came as a kit of parts from the factory.”**

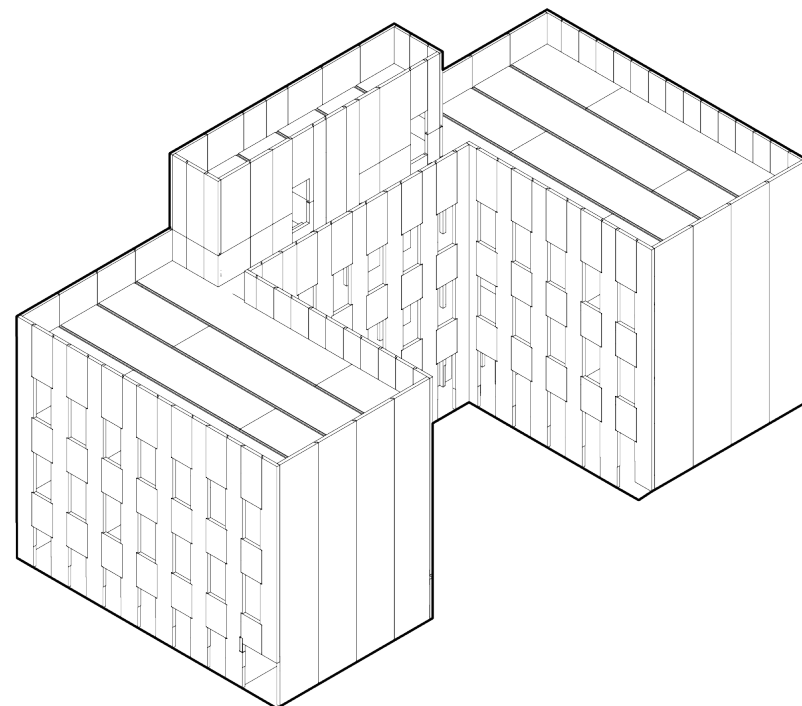
— Ben Waechter, Architect | Waechter

Acting as the general contractor as well as the architect, his firm collaborated with mass timber supplier KLH.

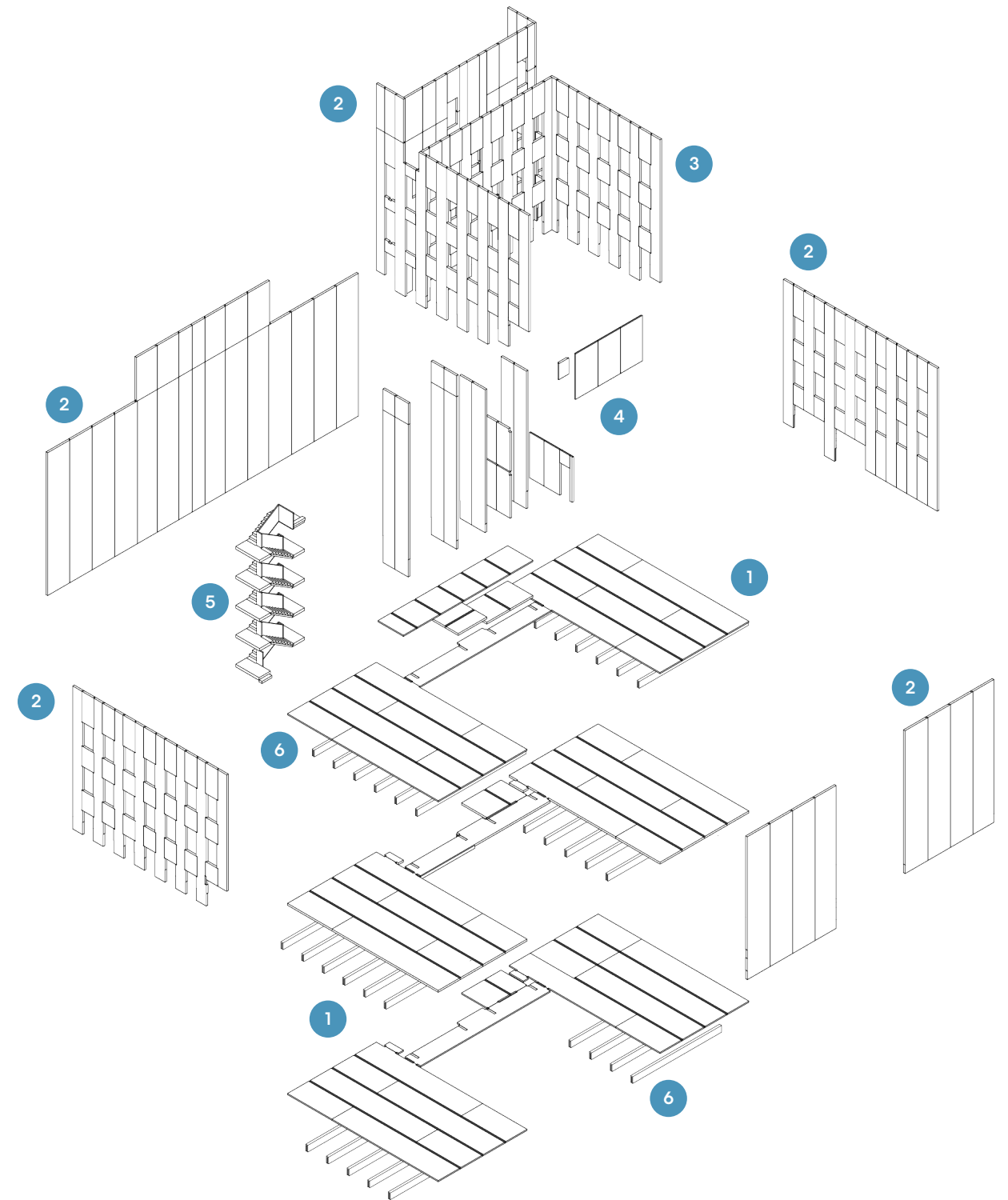
“They provided the wall panels, floor panels, glulam beams, and stair components; even our elevator core is made out of CLT.”

## Mississippi Workshop

- 1 CLT Floor Panels
- 2 CLT Exterior Wall Panels
- 3 CLT Courtyard Exterior Wall Panels
- 4 CLT Interior Wall Panels
- 5 CLT Stair
- 6 Glulam Beams



## Building Assembly



Each material was chosen for its ability to patina. "They potentially get better with time instead of the first day being the best day," Waechter says. "They're materials that can get dinged up and still look good."

The concrete topping slab conceals most of the mechanical systems in the building (fire protection is a notable exception, as its pipes run near the ceilings and pierce the glulam beams). Heating and cooling is accomplished via a hydronic system fed by a rooftop heat pump. All power and data runs within the concrete topping slab, as well.

The exterior walls are made from five-ply CLT panels with an applied weather barrier, with four inches of rock wool insulation sandwiched between it and the metal cladding. The building was built using tilt-up construction methods with 45-foot-tall CLT wall panels. "They go from the foundation up to the parapet as a single panel," Waechter says.

The building is already demonstrating its flexibility: A coffee shop occupies the front unit on the ground level while Waechter Architects uses the rear ground-level unit as a workshop. Both units on the second floor comprise the firm's office space. And Waechter has configured the entire top level as his home.

The project should continue to yield results that can be used elsewhere. With the support of a Wood Innovations Grant from the USDA Forest Service and matching funds from the Softwood Lumber Board, Waechter Architecture will document the project for a case study. "[It] is part post occupancy analysis of the Mississippi building and part speculation on all the other ways to do an all-mass-timber building," Waechter says. The analysis will share details, including acoustic, thermal and air quality testing conducted by the University of Oregon. ■

Step Inside →



# 4 80 M Street

## Project Details

**Project Name:** 80 M Street

**Location:** Washington, D.C.

**Architect:** [Hickok Cole](#)

**Developer:** [Columbia Property Trust](#)

**Structural Engineer:** [Arup](#)

**General Contractor:** [James G. Davis Construction](#)

**Timber Products:** [Mass Timber, CLT](#)

**Size:** 108,000 sq. ft.

**Photo Credit:** [Hickok Cole](#)



## First Mass Timber Overbuild Differentiates in D.C.

As vacant parcels become harder to find in densifying urban centers and business districts, developers are looking at vertical expansion through overbuild construction.

In addition to generating incremental income with new tenant space, overbuilds can modernize existing structures within evolving neighborhoods, including design upgrades and new space configurations. Overbuilds also can incorporate carbon-friendly building techniques and materials, bringing historical structures into the next century of green building standards.

Like most major metropolitan locales, density tends to rule real estate investments in Washington D.C.'s Capitol Riverfront neighborhood. In addition to land scarcity, the city's building codes limit structural height to 130 feet, compelling builders to make the most of every foot.

Office space, however, has become commoditized and homogeneous in this historic Navy Yard community, driven in part by the dominant legal, government and compliance sectors that have historically opted for more traditional building designs. For developer Columbia Property Trust, this presented an opportunity to differentiate their latest overbuild project, 80 M Street.





## Building Up and Standing Out

Originally built in 2001, 80 M Street was among the first office buildings in what would eventually become the Capitol Riverfront District. In 2016, the building underwent a \$3 million renovation and landed WeWork as a major tenant. At a current height of 90 feet (seven stories), 80 M Street was a perfect candidate for vertical expansion, but also needed to appear unique in the District's crowded commercial market. To accomplish both goals, architect Hickok Cole chose mass timber for their 100,000-sf overbuild — a first of its kind for the city and the design team.

"We've seen buildings across the market trying to differentiate with bigger, better amenities like rooftop decks, gyms, conference centers, lounges," said Pat Keeley, senior vice president at Columbia Property Trust. "Now that most buildings have those amenities, we're looking for the next level to stand out."

"We wanted to bring something new to the market — something that would set the space apart," said Thomas Corrado, senior associate and senior project designer, Hickok Cole. "We're a concrete city, so we wanted to see how we could introduce mass timber into the D.C. marketplace as a viable building system."



## Quality Over Quantity

Despite the traditional drive for density, 80 M Street will measure just shy of DC's allowable height limit of 130 feet, with fewer floors and higher-than-average vertical depth. "The decision for this design," Wright says, "was a strategic one."

"Columbia recognized the increased marketability of having 16 feet floor-to-floor with mass timber instead of 9.5 feet floor-to-floor with concrete," said Wright. As a consequence of the taller ceilings, the overbuild's depth of light penetration is extended by almost 200% compared to a typical office space. "They left some density on the table to do it, but they believe there is payback there."

"Developers are starting to see that it's not always about density," said Corrado. "We're going to have to start putting different spaces out there for people to live in and to work in, and I think timber goes a long way in doing what steel and concrete just can't deliver."

"If you squeeze as many floors into 130 feet of height as you can, that's probably an equation for a horrible investment strategy," added Keeley. "Creating engaging places where people want to work and live or socialize — that's the key. And mass timber is something that helps you create that kind of environment."

## Weighing the Options

The design team's decision to use mass timber was driven by a number of factors — chief among them was timber's light weight. According to Corrado, the existing building could not handle the load of a traditional concrete overbuild. "We would have had to beef up the existing structure below, which would have been extremely expensive and disruptive to the tenants," explained Corrado.

Timber's light weight also proved advantageous by allowing the team to deliver the project faster as well, with less impact to the occupied building. The team built an innovative interstitial layer using steel, thereby providing Hickok Cole the opportunity to work from a clean slate, which is not traditionally seen with mass timber, and to incorporate Type IVC construction on top of Type IA.

"The use of Type IVC construction with some components of Type IVB construction was a unique hybrid approach," said Jason Wright, associate principal and senior project manager, Hickok Cole. "If we had to cover up a percentage of the timber as required by IVB, we would have lost that market value."

"People are going to be impressed with the attention to detail," said Patrick Cotter, director, Davis Construction. "The level to which all of the other trades have been integrated with the timber and how everything comes together is going to be impressive."



Once completed, the overbuild will add two full floors of trophy class office space atop the existing 286,000-square-foot building, as well as an occupied penthouse level and rooftop terrace for social space. The existing lobby will also be redesigned to incorporate new wood elements and upgraded amenities.

Other design highlights include exposed CLT ceilings and an abundance of connected outdoor spaces that will add nearly 4,000 square feet of outdoor amenity space atop the building. Glulam will be used for the beams, columns, arches and trusses; CLT will be used for the walls, floors and ceiling. Adding to the timber aesthetic are wood products from a variety of species including Douglas Fir, Spruce Pine Fir, Southern Yellow Pine and Hern Fir and Alaska Yellow Cedar.

### Bio-feeling Good (and Green)

To create this engaging environment, Hickok Cole incorporated biophilic design principles. Exterior terraces, increased daylighting and exposed timber complement the surrounding neighborhood's waterfront access, walkable streets and public green space. Keeley expects these factors to "help drive office leasing demand."

On the sustainability front, Wright noted that D.C. is one of the most progressive cities when it comes to energy codes and green building.

Local officials, including the mayor, were eager to see the potential of a mass timber design, and Hickok Cole found value in sharing the carbon benefits of building with wood with municipal stakeholders.

**"A lot of people don't understand how new forest growth sequesters more carbon, and how sustainable cutting and regrowing by the timber industry actually sequesters more carbon than old growth forests."**

—Jason Wright, Associate Principal + Project Manager | Hickok Cole

"Being able to tell those stories helped us push this project forward with the zoning administrators," Wright says. Per the project's application, mass timber is capable of achieving a total carbon footprint equal to one-third of similarly sized concrete and steel buildings.

In addition to mass timber, the team incorporated Variable refrigerant flow (VRF), solar panels and high performing glass. They are pursuing well-building certification and LEED silver accreditation.

### Upward and Onward

Current construction timelines estimate 80 M Street's completion by mid-2022. In the meantime, Columbia is optimistic about the potential of the new addition.

"In addition to amenities like conference and fitness facilities, we're going to have something that's special and unique," continued Keeley. "That has already resonated with a large tenant that has pre-leased more than 50 percent of the space. We're confident in a post-Covid world that the best product will continue to do well, and that 80 M will represent the best product in the market."

With this foundational project underway in the District, Hickok Cole anticipates increased interest in mass timber construction across their markets.

"We are at a point where we are having a discussion about timber from the get-go," said Corrado. "We see the potential and we are introducing timber from day one. As more [timber projects] get done, it will show the owners a clear path from design to shovel in the ground. We're going to see more of it delivered in all of our markets." ■



# 5 Houston Endowment Headquarters

## Project Details

**Project Name:** Houston Endowment Headquarters

**Location:** Houston, Texas

**Architect:** Kevin Daly Architects  
PRODUCTORA

**Developer:** Houston Endowment

**Structural Engineer:** Arup

**General Contractor:** Bellows Construction

**Timber Products:** CLT

**Size:** 31,718 sq. ft.

**Photo Credit:** Elizabeth Lawrence Knox

## Light, nimble mass timber-and-steel design cuts structural costs by 50%

Houston Endowment's headquarters dispels any myth that mass timber can't be sleek, high-tech, and thoroughly modern.

Featuring a gleaming white exterior; a bold hybrid structure; and an open, airy interior, the endowment's new home—the result of an international design competition—stands in stark contrast to the organization's former dark wood-paneled offices on the 64th floor of the Pei Cobb Freed & Partners–designed JPMorgan Chase Tower in downtown Houston.

"We wanted to go back to this early modern principle of machined-engineered wood as an understated design element," says Kevin Daly, a lead designer on the project and founding principal of Los Angeles–based Kevin Daly Architecture (KDA).

"Rather than rustic, it actually provides a very Scandinavian-like contemporary design—a warm but modern, spare feel," he says. "So you could say the inspiration for the project was a little bit more of an Alvar Aalto stool than it was a tree stump."







## A Biophilic Interface with the Community

Located between the neighborhoods of Montrose and Houston Heights on the banks of Houston's Buffalo Bayou, the Houston Endowment's two-story, 30,000-square-foot facility offers an accessible public face for the nearly 90-year-old philanthropic foundation, which provides funding for arts and culture, parks and green spaces, and public education throughout the region.

Completed in 2022 and designed in collaboration with Mexico City-based studio Productora, the building is designed as an asymmetrical sequence of framed boxes, clad in white scalloped surfaces and a perforated canopy that provides shade to a series of outdoor terraces.

The building's configuration grew out of the endowment's need to be more visible and offer informal opportunities for staff and stakeholders to meet.

"Early in the process, we identified that what this organization needs is a front door to welcome people in, and the organizations they work with, and then a back porch that allows them to look out over the city and have more informal conversations with the groups they work with," Daly says. "So there was this front door, back porch idea that really makes the most out of the site."

Inside the building, occupants are greeted by a double-height light-filled atrium. The building's biophilic design relies on exposed mass timber, expansive glazing, views of nature and access to outdoor spaces. It is subtle, understated—and it works.

**"When you're in the midst of the Houston biome, it already is biophilic, so we were really just interested in a very clean and spare interior that looks outward."**

—Kevin Daly, Founding Principal | Kevin Daly Architecture

The nearly all-white interior is modern and museum-like, the walls showcasing the Houston Endowment's permanent art collection. Meeting rooms feature the warmth of panelized white oak, a nice counterpoint to the achromatic common spaces.



## Going Hybrid: Getting the Most Out of Structural Materials

The \$21.5 million project features an innovative combined steel and cross-laminated timber (CLT) structure that befits the Houston Endowment's founder, Jesse H. Jones, who got his start in timber and started the South Texas Lumber Company before moving into real estate, banking, and politics.

The structural solution—a first for Houston, Texas—features three-ply CLT decking supported by steel columns and beams. The entire building is enshrouded by a 40-foot-tall aluminum canopy with perforated louvers that provide much-needed protection from inclement weather and the hot Texas sun. The hybrid timber-steel design plays to the strength of each material—the timber slabs provide a strong low-carbon alternative to concrete while the steel columns and beams offer added flexibility and stability. But it's a solution that came out of the project site's unique design challenges.

"We initially conceptualized the project as a concrete building, using a concrete frame and concrete slabs," Daly says. "But this proved to be problematic. It was too heavy for the soil conditions and it came in way over budget. It was also a very tight site with no room for the heavy machinery necessary for concrete construction. We were really kind of concerned and began to look at and test out a lot of different options."

This led Daly and his team, in collaboration with John Hand, a structural engineer at Arup, to explore the possibility of a lightweight mass timber design.

"The cost driver when it came to using concrete on the project was its heavy weight combined with poor soil conditions, a narrow site unable to accommodate heavy equipment and very little room for staging," Hand says. "So all those factors, along with supply chain challenges, really made the structural costs of concrete out of reach."

No stranger to sustainable construction, Hand has spearheaded some of Arup's first mass timber projects across the U.S. Drawing on this expertise, the team set out to troubleshoot a range of structural options.

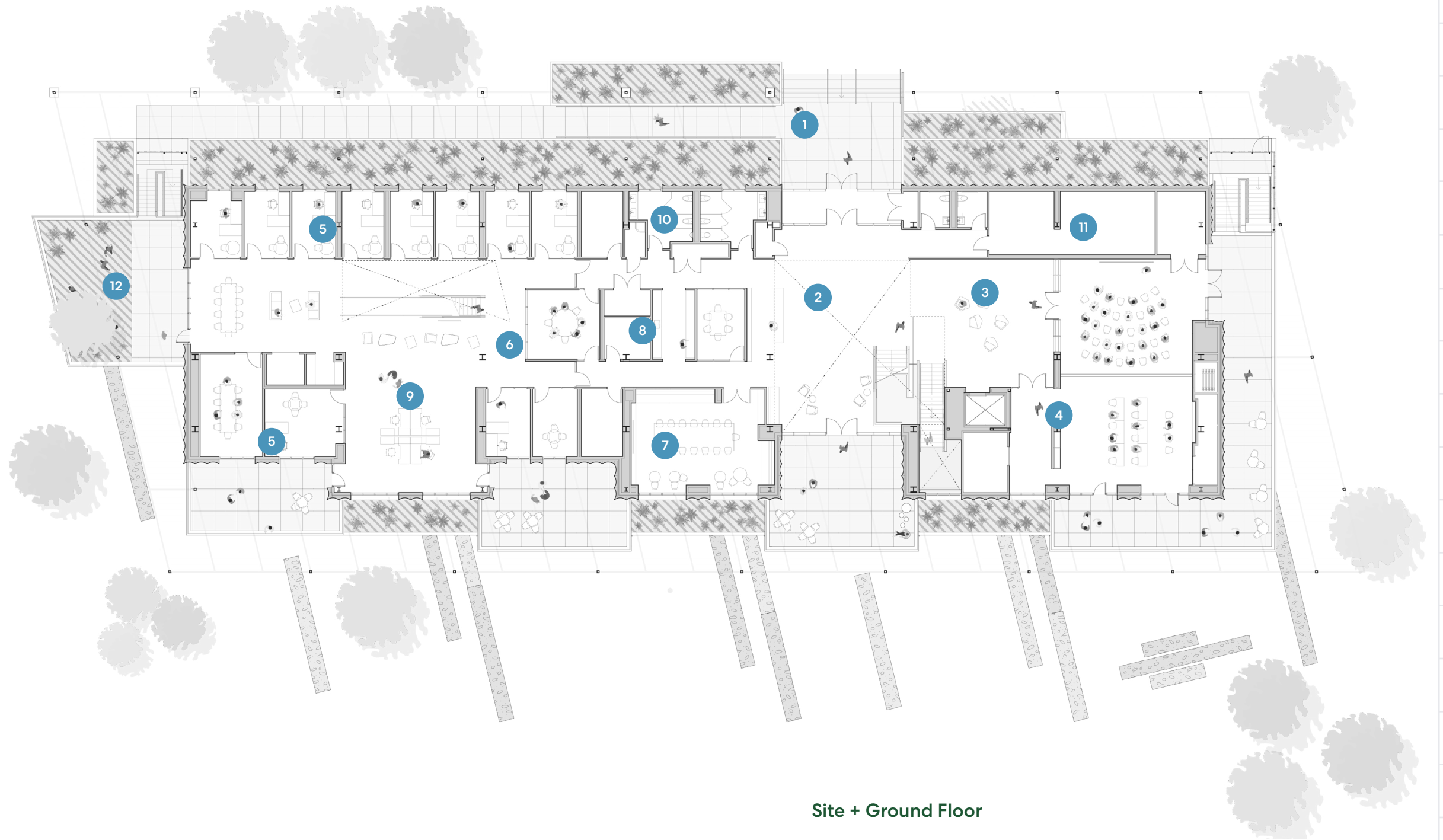
"Given my experience, I already had a good understanding of mass timber's capacity when it came to scaling, spans, and loads," Hand says. "We definitely looked at a bunch of options—but it was pretty clear that a mass timber approach was viable and really got the project back on track from a structural cost standpoint."

Arup's recommended hybrid approach cut the project's structural cost in half and helped speed the construction timeline using smaller mobile cranes that would not have been possible with concrete construction.



## Houston Endowment Headquarters

- 1 Main Entry
- 2 Main Lobby
- 3 Gallery
- 4 Engagement Space
- 5 Offices
- 6 Conference Room
- 7 Boardroom
- 8 Kitchen
- 9 Open Office / Break-Out Space
- 10 Restroom
- 11 MEP
- 12 Terrace



Site + Ground Floor



## Play It Cool: A Climate-Conscious Near Net-Zero Design

Mass timber is just one sustainable component in the design of this near-net-zero building, which reflects the foundation's commitment to addressing the impacts of climate change. (Other efforts include helping to fund a Center for Environmental and Climate Justice at Texas Southern University as well as bringing climate experts together to address recent flooding in the region.)

But the building's use of mass timber also serves as a showcase for other construction and design professionals considering it as a way to reduce both carbon footprint and project costs.

"For another project we're working on, we shared photos of Houston Endowment and we were able to show the contractor that it could save up to two months of construction time," Hand says. "Once that was understood it was a no-brainer—the contractor is now a convert, pushing for mass timber on that project."

Hand adds: "People often have the misconception that mass timber is expensive, but in many cases, as we've seen firsthand, it can save money and time, substantially, while looking great and offering the carbon benefits of wood." ■

Step Inside





### Project Details

**Project Name:** Outpost

**Location:** Hood River, Oregon

**Architect:** Skylab

**Developer:** Key Development

**Structural Engineer:** VALAR  
Consulting Engineering

**General Contractor:** Celilo Construction

**Timber Products:** Glulam, Decking

**Size:** 30,000 sq. ft. (phase one)

**Photo Credit:** Stephen A. Miller

## Outpost Brings Modern Mass Timber Design to Industrial Waterfront

The marriage of light industrial, commercial and multi-family mixed-use developments is gaining traction across the United States as developers seek to maximize land use and revitalize historically industrial neighborhoods.





According to a recent article on CNBC.com, “while office vacancies have soared as employers prepare for a distributed workforce, the industrial market is hotter than ever due to a pandemic-fueled surge in e-commerce. Vacancy rates in industrial buildings are near a record low, and new warehouses can’t get built quickly enough to meet the needs of makers and manufacturers.” This positive disruption is prompting elevated, versatile building designs that combine creative maker spaces with community-driven retail and flexible co-working accommodations.

Outpost in Hood River, Oregon, is a direct reflection of the latest CRE trends. The phased, mixed-use commercial project from Key Development merges recreation, retail and work environments “to foster and reinforce a sense of community.”

The waterfront site, formerly home to an abandoned EXPO center and largely underutilized by the public, is now a recreational area coexisting with new commercial and communal spaces. It is also the first mass timber project constructed under new mixed-use zoning guidelines in Hood River.

“The most recent decade of industrial uses are perhaps sexier to the general public with things like brewing, coffee-roasting and soft-goods prototyping,” shared Claudia Munk-von Flotow. “We’re using architecture and site planning to showcase these industries. The result is symbiosis between industrial and retail.”

What makes Outpost unique is its inverted and exposed industrial design – moving traditional street-level retail to a shared second floor experience where tenants and guests can mingle with makers and retailers while enjoying waterfront views from an elevated vantage point.

Outpost’s two 15,000-square-foot, three-story buildings are joined by a central public plaza that includes a central elevator, outdoor fireplace and partially-covered pavilion offering communal seating. Skylab designed the buildings with a double-height observation deck and generous outdoor connections, providing visual access to the day-to-day activities of the industrial areas.

“We’re seeing this convergence of processes and activities that previously were separated or decentralized,” said Grubb. “Now everyone is in the same house, making and enjoying things together. I think people are thirsty for the authenticity of that experience.”



The outdoor plaza serves as a critical community hub for building occupants and guests, playing host to lunch gatherings at the Ferment Brewing Company, socially distanced meetings for CENTRL office tenants, and outdoor fitness from the local yoga studios, even spurring new business development.

“The porch concept has served as a mixing space for people who live, work and visit Outpost. We created a place for people to really experience the waterfront and all it has to offer,” continued Brent Grubb. A shared elevator and amenities, combined with the natural daylighting of the courtyard, also served as cost-saving strategies for Skylab.

## Local Adaptation

Another differentiator of Outpost is its emphasis on locally-sourced timber. The buildings are constructed almost exclusively from wood, including glulam beams and exposed Douglas fir decking.

A multifaceted façade incorporates naturally-finished, clear-sealed cedar on the ground floor and stained cedar cladding on the upper two floors. Custom, industrial-size operable wood-framed windows from Sierra Pacific further differentiate the property and enhance its voyeuristic retail experience.

Outpost's unique façade was designed to demonstrate how various wood species can live together harmoniously, serving as a metaphor for the property's diverse tenant base. The industrial-grade finishes and durability of wood also provide protection from the harsh waterfront elements, Grubb shared.

**“Our goal was to use as much wood as possible. That shift has been driven by sustainability, by cost and by the beauty of wood itself.”**

—Brent Grubb, Principal |  
Skylab Architecture

Inside, the simple, glulam beam structure provides flexibility to reconfigure the space as tenants cycle in and out – a benefit of mass timber's modular qualities that is critical for Key Development as they seek to maintain long-term occupancy for a wide range of tenants.

According to Munk von-Flotow, mass timber accommodates interior redesigns more efficiently, making it easier to find replacement tenants with zero tenant-improvement dollars and premium lease rates.

“If you're trying to build a sustainable building, it should be one that can accommodate a range of uses over time, and adapt to real estate and business trends,” said Munk-von Flotow. “The beauty of the wood-framed building is that it can accommodate a range of uses and very little as required to make the next round of users.”

## Prototypical Design

For both Skylab and Key Development, Outpost represents a new prototype of wood structure that can redefine industrial commercial buildings as warm and sustainable spaces that engage people and elevate the process of making.

“We tried, in a sense, to use a humble approach with standard materials and conventional systems, but at an elevated level,” explained Grubb. “As a palette, it's pretty accessible for other locations and other developers to use a similar approach. We are moving from a history of a working industrial waterfront to a waterfront where people can engage directly with makers. I think that's the nexus of a lot of cities going forward.”

“We are balancing the needs of various constituents in this space and there is certainly a lot of potential to replicate and evolve this prototype,” added Munk-von Flotow.

“We're creating wood buildings because there are environmental, economic, and local industry benefits, but in the end, a wood building feels good inside, and that's what people want. That's what allows for the adaptation of uses over time — through pandemics, through recessions, business closures, etc. — and that's the kind of the sweet spot that we have found here.”

Phase two of the Outpost project would include two additional buildings to complete a 60,000 total-square-foot building complex. This part of the project is currently on hold pending permitting and other factors. ■





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