2025 AIA Fellowship

Candidate	Stephen J. Cavanaugh
Organization	DLR Group
Location	Highland Park, Illinois
Chapter	AIA Illinois; AIA Chicago

Category of Nomination

Object 2 (Practice Management, Technical Advancement) > Practice (Technical Advancement)

Summary Statement

Forging a path toward carbon neutrality, Steve Cavanaugh pioneered the use of mass timber for large-scale structures. His innovation, technical leadership, and advocacy advance architecture by reducing the environmental impact of building construction.

Education

University of Illinois, Urbana-Champaign, 1981-1985, BSAS Architectural Studies

Licensed in:

Illinois

Employment

DLR Group, 2007-present
Goettsch Partners, 1999-2007
Jahn/, 1989-1999
Castro-Buchel Architects and Planners, 1985-1989

DLRGROUP

520 Nicollet Mall, Suite 200
Minneapolis, MN 55402

October 9, 2024

Mr. Carl D'Silva, FAIA
2025 Jury of Fellows, Chair
The American Institute of Architects
1735 New York Avenue NW
Washington, D.C. 20006-5292

RE: **Stephen (Steve) J. Cavanaugh, AIA**

Dear Mr. D'Silva,

Steve Cavanaugh is an unassuming and humble architect who shuns attention, yet his tenacity, professional passion, and technical expertise in carving out a new practice area focusing on heavy timber design and construction merits recognition. In 2016, Steve led the team that executed the first large-scale, speculative office building constructed with mass timber in North America. By researching and mastering the technical details, as well as managing costs to make the project competitive in the office development market, Steve made the case to the global developer Hines (a client he brought to the firm) that building a high-rise with mass timber was possible, structurally and financially, and environmentally preferable to steel and concrete.

The seven-story T3 North Loop building in Minneapolis attracted national media attention and became a model for the structural and financial viability of mass timber towers. It also led to an enduring and productive relationship with Hines. As the founder and leader of our mass timber design practice, Steve has grown this work from zero to nearly 3 million square feet across the U.S. and Canada. His efforts have led to the completion of seven mass timber office buildings that have reduced the amount of carbon entering the atmosphere by 27,635 metric tons.

His work exemplifies the ideals of Fellowship and the AIA Framework for Design Excellence, as well as helps move the AIA toward meeting its Architecture 2030 commitments to reduce the carbon footprint of building construction. His determination to expand the use of mass timber to other industries led him to pursue and win a grant from the U.S. Forest Service to document the design barriers, concerns, and opportunities commonly referenced by the design and construction community as heavy timber is considered for use.

Steve has shown a deep commitment to encouraging sustainable building practices on this planet we share, and he freely shares his knowledge. He has become a respected authority on mass timber buildings on a national scale, as evidenced by his speaking engagements, 24 design awards, and dozens of publications covering his work. He's also spent thousands of hours mentoring younger designers, giving them responsibility on projects so they can gain experience to extend and multiply the efforts of the architecture profession to reach carbon neutrality.

I am proud to sponsor Stephen J. Cavanaugh, AIA, for elevation to Fellow of the American Institute of Architects.

Sincerely,

Griff Davenport, FAIA
Managing Principal, Chair of the Board

1

SUMMARY OF ACHIEVEMENTS

Stephen J. Cavanaugh, AIA, LEED AP
2025 AIA Fellowship Application | Object 2: Practice – Technical Advancement

Forging a path toward carbon neutrality, Steve Cavanaugh pioneered the use of mass timber for large-scale structures. His innovation, technical leadership, and advocacy advance architecture by reducing the environmental impact of building construction.

Stephen (Steve) J. Cavanaugh has been the principal in charge of the design of more than 1 million sf of completed mass timber (also known as engineered wood) buildings in North America. With another 2 million sf of mass timber projects currently in design or construction, Steve is leading the way for other architects to deploy this climate-friendly alternative to conventional building methods. To date, his 7 built projects have reduced the amount of carbon entering the earth's atmosphere by 27,635 metric tons, which is equivalent to taking more than 7,000 cars off the road for a year. Yet, North American forests can grow the amount of wood used in these completed projects in 1 hour and 18 minutes. Steve has:

PIONEERED LARGE-SCALE MASS TIMBER DESIGN

Supporting AIA climate imperatives

Steve led the team that introduced the first large-scale, mass timber office building in North America. The 7-story, 224,000-sf T3 North Loop building in Minneapolis, completed in 2016, was widely published and paved the way for other architects to deploy this alternative to concrete and steel in large, commercial applications. As a speculative office building with a tight budget, it became a model for financial viability within a market unfamiliar with this carbon-reducing construction methodology.

Steve's extensive research into building codes and safety testing laid the groundwork for how mass timber could be used as a structural system for multi-story buildings in the U.S., and he continues to refine the technical design elements of mass timber with each new project.

LED RESEARCH TO ADVANCE MASS TIMBER USE

Expanding to other building types

Based on Steve's efforts to expand the use of mass timber into other building typologies, he led a team that won a $250,000 Wood Innovations Grant from the U.S. Forest Service in 2020 to explore the viability of mass timber systems for hotel construction. Working with the University of Minnesota, his team designed an economical, code-compliant, constructable prototype and then evaluated it for acoustics, systems integration, aesthetics, human experience, and cost.

This research project resulted in a public, open-source, 174-page publication that presented a case for a mass timber hotel as cost competitive, durable, and faster to build than traditional steel and concrete. The findings, which Steve presented at the Environmental Design Research Association International Conference in Mexico City in 2023, have led to academic partnerships and participation with an environmental think tank.

SHARED PROFESSIONAL AND TECHNICAL KNOWLEDGE

Educating and mentoring others

Steve actively shares lessons learned about mass timber with his professional peers, university students, and even middle school students through his volunteer work. He has given AIA-accredited presentations, as well as webinars to trade associations such as Think Wood. His numerous speaking engagements include serving as a keynote panelist at the 2024 International Mass Timber Conference, which attracted an audience of 2,000 people.

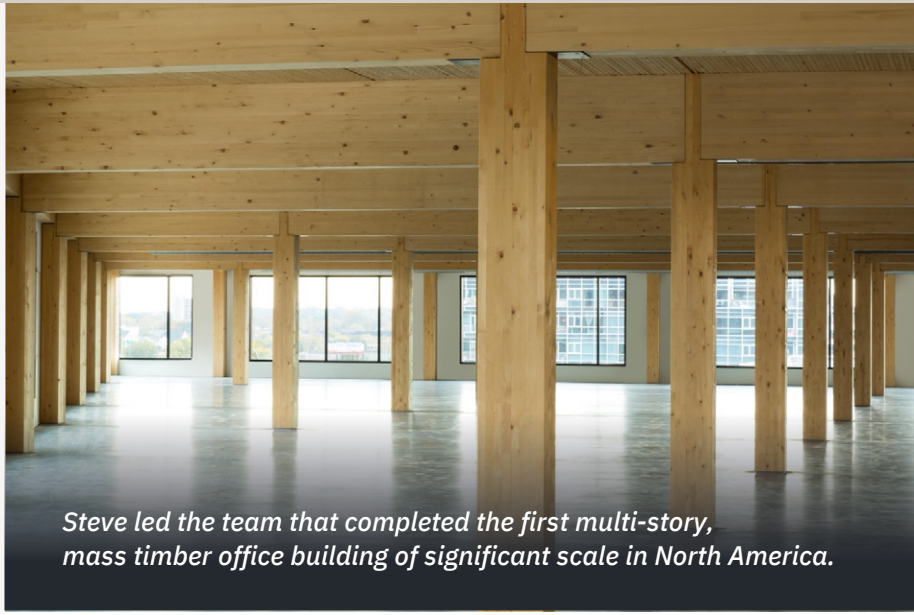
The result of his research, *Mass Timber Innovation: The Hospitality Prototype*, is being used to teach design students at the University of Arkansas Fay Jones School of Architecture and Design this fall.

In addition to leading DLR Group design studios in Chicago and Minneapolis, Steve mentors a core team of 12 architects and 4 interior designers focused on mass timber.

As North Central Region Design Leader for DLR Group, Steve leads two multi-disciplinary studios in Chicago and Minneapolis, and he serves nationally as the mass timber expert for the 1,700-member firm.

Previously, Steve worked with renowned Chicago architects on significant office, hotel, and mixed-use projects. His work with Helmut Jahn ignited his interest in sustainable design that blended beauty with technical precision. His international work exposed him to the more rigorous European environmental standards and informed his enduring focus on how the practice of architecture affects the planet.

Steve has spent his 38-year career designing complex, technically challenging building projects. His hands-on approach and attention to detail have resulted in many award-winning projects and repeat clients.



Steve led the team that completed the first multi-story, mass timber office building of significant scale in North America.

EDUCATION

1985
University of Illinois Urbana-Champaign
School of Architecture
Bachelor of Science
Architectural Studies

QUALIFICATIONS

2004
LEED Accredited Professional
U.S. Green Building Council

1987
Licensed Architect
State of Illinois

PROFESSIONAL ROLES

2006 – Present
DLR Group
Chicago, Illinois
Principal | Design Leader
North Central Region

1999 – 2006
Goettsch Partners
Senior Associate | Project Designer

1989 – 1999
Jahn/ (Murphy/Jahn)
Senior Project Architect

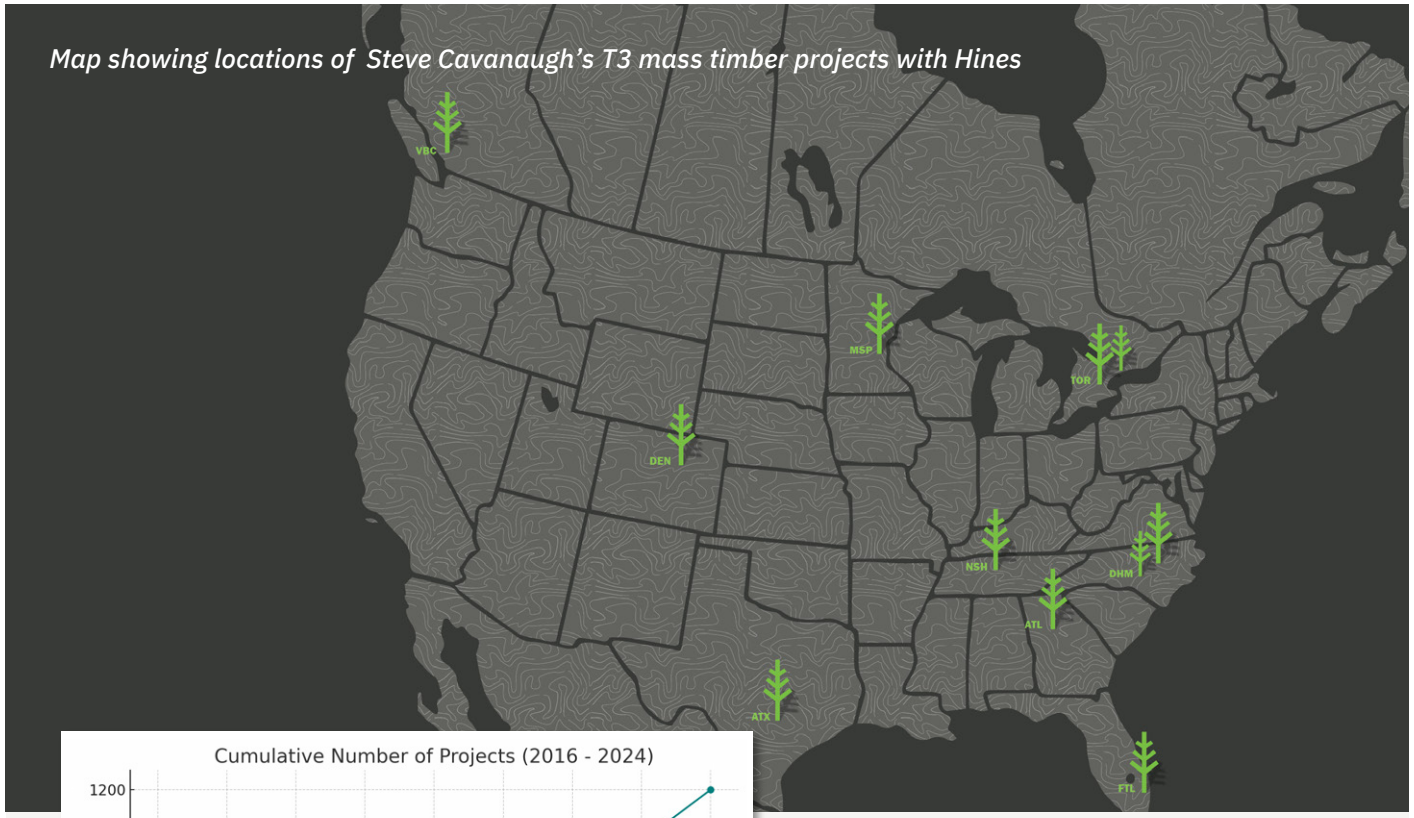
1985 – 1989
Castro-Buchel Architects and Planners
Job Captain

PROFESSIONAL AFFLIATIONS

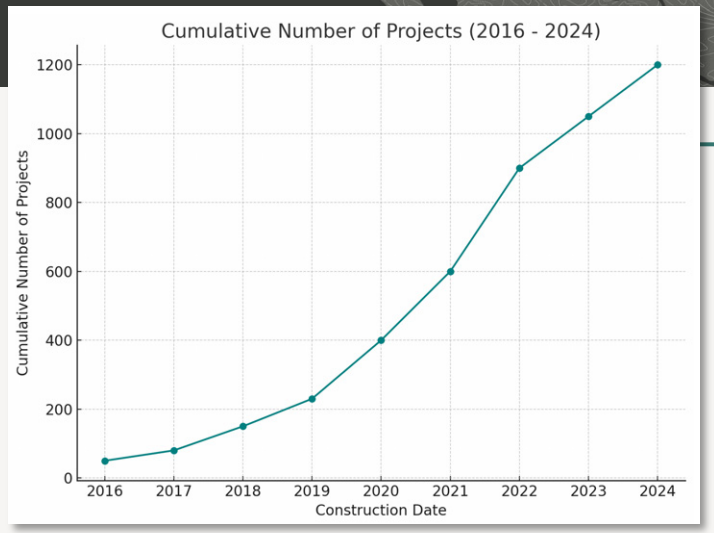
1990 – Present
American Institute of Architects
Chicago Chapter

"Steve was able to bring the technical side on all facets of how mass timber had been used historically as a structural system and identify how we could bring modern mass timber to bear in a large-scale commercial configuration."

Steve Luthman, CEO, Midwest & Southeast Regions and Canada, Hines



Map showing locations of Steve Cavanaugh's T3 mass timber projects with Hines



"Early adopters like Steve usually pave the way for others and lead to more mass timber projects across North America."

Jean-Marc Dubois, Director Business Development, Nordic Structures

This chart, adapted from WoodWorks, shows the significant growth in U.S. mass timber projects since 2016, when Steve and team introduced the first 200,000+ sf mass timber office building.

WHY MASS TIMBER?

As the research that led to Architecture 2030 revealed, the built environment accounts for 42% of annual global carbon dioxide (CO2) emissions. Of that total, embodied carbon (from the manufacturing of building materials) accounts for 15%. Utilizing a renewable wood structure can reduce the embodied carbon of a building by up to 85%.

Through his work, Steve validates that it is economically feasible for developers to choose mass timber over concrete and steel as the structure for large-scale projects, delivering a measurable way to mitigate climate change.

WHAT DOES "T3" MEAN?

Steve helped the global real estate developer Hines create the T3 concept – Timber, Transit, and Technology. The T3 office buildings feature the natural benefits of wood surroundings, are placed in urban areas that optimize public transit, and are equipped for today's connected workplaces.

T3 North Loop*
Minneapolis, MN | 2016

Steve led the collaborative effort to design the first large-scale, multi-story, mass timber office building in North America. His client, Hines, wanted a building with modern amenities that had the appeal of an old loft building. Steve made the case for using wood columns, beams, and floor joists at a scale never done before. This required him to educate his client and negotiate with city code officials who had never permitted such a project.

Working with suppliers, fabricators, and engineers, Steve led the optimization of the wood structural system that made the project feasible. This project created interest across the U.S., was widely published, and received 12 design awards.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Architect, Client Leader & Principal In Charge
Size: 224,000 sf | 7 stories
Design Firm: Michael Green Architecture
Certifications: LEED Gold Certified

AIA Chicago Distinguished Buildings Award, 2018

T3 West Midtown*
Atlanta, GA | 2020

Steve's second mass timber office project was also the first to be built in Atlanta. This required Steve to conduct a similar education process for the City of Atlanta code and fire department officials, focusing on fire and life safety.

Building on lessons learned from Minneapolis, Steve optimized the building's timber structural frame by using a symmetric braced-frame lateral system, instead of a concrete core. This change shaved 3 months off the construction timeline, which saved costs. The building exterior featured blackened steel to harken back to the site's history as a steel mill.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Technical Architect, Client Leader & Principal In Charge
Size: 254,000 sf | 7 stories
Design Firm: Hartshorne Plunkard Architecture
Certifications: LEED Silver Certified, Wired Certified Platinum

AIA Chicago Distinguished Buildings Award, 2021

T3 Sterling Road*
Toronto, Ontario, Canada | 2024

With this mass timber project, Steve and his team assumed the role of both Design Architect and Architect of Record. The plans called for a pair of office buildings of 6 and 8 stories.

At the time, Toronto building codes limited unprotected mass timber structures to 6 stories. The only way to get the 8-story building permitted was to use an "alternative compliance path." Using fire science and fire test reports, along with unique design strategies, Steve educated the Toronto city code officials, and the project was permitted with 8 stories of unprotected, exposed timber.

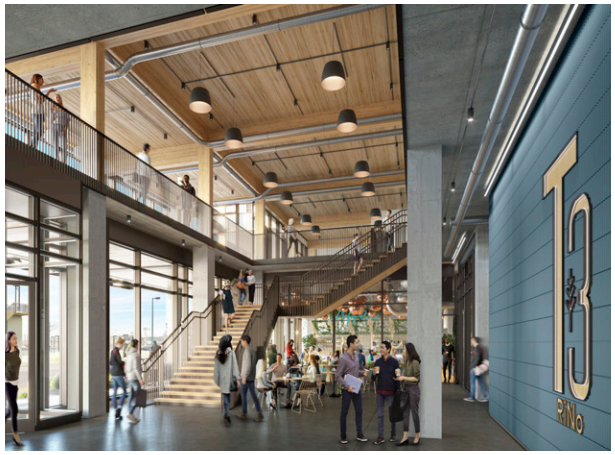
Architecture Firm of Record: DLR Group
Role of Candidate: Lead Design Architect, Client Leader & Principal In Charge
Size: 303,910 sf total | 6 stories & 8 stories
Design Firm: DLR Group
Certifications: Pending LEED Gold and WELL Building certification

T3 ATX Eastside*
Austin, TX | 2023

Texas has no shortage of sunshine and high temperatures. When designing this mass timber office structure, Steve studied the path of the sun and planned perforated metal sunscreen blades for the west façade. This innovation mitigated solar heat gain and glare to reduce energy bills without sacrificing the building's daylight or city views.

The north façade employed low-iron glass in front of the timber structural frame so the exposed wood would be visible from the exterior. This office building also featured 15 modern loft residential units for the first time, demonstrating another use for renewable mass timber.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer, Chief Technical Architect & Principal In Charge
Size: 92,000 sf office & 12,000 sf residential | 3 stories
Design Firm: DLR Group
Certifications: Wired Certified Platinum; pending LEED Gold & WELL Gold Building Certification



T3 RiNo | River North Arts District
Denver, CO | 2024

To make the tallest multi-story, mass timber office building in Denver work, zoning ordinances required an incremental reduction in area with each 2-story increment in height. To solve for this design challenge, Steve introduced private outdoor terraces on upper floors. Exposed timber beams and columns on the exterior balconies used a more robust wood, Alaskan yellow cedar, to withstand the elements.

To allow for ground-floor retail, Steve and the team opted to use flat-plate concrete rather than timber, eliminating beams and challenges associated with dropped ceilings in the heavy timber code.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 380,650 sf | 6 stories
Design Firm: Pickard Chilton
Certifications: Wired Certified Platinum, WELL Building Certified; pending LEED Gold Certification

T3 Wedgewood-Houston | The Finery*
Nashville, TN | 2024

Built south of downtown Nashville in a new mixed-use development, this mass timber office building features ground-level retail and a design that complements the converted factories and warehouse buildings in the neighborhood.

Steve's close coordination with the City of Nashville on code adherence allowed an extra floor of office space – critical to helping the owner achieve their proforma – and set the stage for a smooth permitting process.

Architecture Firm of Record: DLR Group
Role of Candidate: Client Leader & Principal In Charge
Size: 282,970 sf | 7 stories
Design Firm: Hastings Architecture
Certifications: LEED Gold Certified, WELL Silver Building Certified

T3 FAT Village
Fort Lauderdale, FL | Expected 2025

The first of two planned mass timber office buildings, this project will anchor the mixed-use FAT (Food+Art+Technology) Village in Fort Lauderdale, providing creative office space within a modern urban lifestyle hub.

As Lead Project Designer, Steve was determined to further innovate a mass timber solution. This project features a 2-way mass timber floor system that Steve conceptualized as a method for reducing wood fiber volume. This idea was ultimately proven to work structurally and acoustically, and it will be implemented on the project, which is under construction now.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 189,800 sf | 6 stories
Design Firm: DLR Group

T3 Mount Pleasant
Vancouver, B.C., Canada | Expected 2025

In designing this office tower, Steve needed to incorporate an existing heritage building that connects to the mass timber structure and reflects the eclectic Vancouver neighborhood.

Steve's extensive knowledge of Canada's building codes and alternative compliance pathways from his work on the Toronto project paved the way for creating an 11-story structure, Steve's tallest mass timber office project yet.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 309,000 sf | 11 stories
Design Firm: DLR Group

T3 American Tobacco
Durham, NC | Expected 2025

This pair of heavy timber office buildings will anchor a 1.2 million sf mixed-use development with multifamily housing, retail, entertainment, and restaurants.

Leveraging Steve's deep experience in innovating mass timber, developer Hines placed Steve in the role of Principal in Charge and Architect of Record for this project. In this capacity, Steve was able to share timber knowledge with the associated design partner and help advance mass timber solutions in the industry.

Architecture Firm of Record: DLR Group
Role of Candidate: Principal In Charge
Size: 144,400 sf | 6 stories
and 235,450 sf | 7 stories
Design Firm: Dwell Design Studio

Harbor Bay Ninth & High Student Housing*
Columbus, OH | Expected Fall 2025

This project to build student housing at Ohio State University is a result of Steve's relentless push to bring timber to more project types. This will be DLR Group's first project to be permitted through the revised 2024 IBC Type IV-B section, which allows up to 12 unprotected timber floors.

Steve wants this project to help the industry adopt timber superstructures at an accelerated pace – mainly because this is a project type that represents very tight margins for investors due to very tight budgets. This project has the potential to change the affordability conversation around mass timber. The project is within budget and currently in the contract documents phase.

Architecture Firm of Record: DLR Group
Role of Candidate: Mass Timber Design Expert
Size: 252,000 sf | 13 stories | 184 apartments
Design Firm: DLR Group

T3 at the Mercantile
Omaha, NE | Design In Progress

This project is part of the redevelopment of the former ConAgra campus site adjacent to downtown Omaha and the historic Old Market district. The project represents a different approach for Omaha, which has experienced sprawl to the west of the city. The 6-story mass timber office building adds wellness-oriented features and amenities, acting as a catalyst for a return to in-person workplaces and sustainable urbanism.

Steve is investigating a hybrid structural system for a potential research lab tenant that has stringent vibration criteria.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 189,800 sf | 6 stories
Design Firm: DLR Group

The Aplin Center at Texas A&M
College Station, TX | Design In Progress

This first-of-its-kind heavy timber educational building will bring college students in hospitality, retail, and food product development programs together for hands-on collaboration and experiential learning. Supported by an $80 million gift from Buc-ee's founder Beaver Aplin III, Texas A&M University wanted a design and material that would reflect the building's unique purpose.

Steve's work to build the DLR Group mass timber portfolio led to this opportunity, and the firm's experience in higher education and hospitality completed the team.

Architecture Firm of Record: DLR Group
Role of Candidate: Mass Timber Design Expert
Size: 189,800 sf | 3 stories
Design Firm: Pickard Chilton

Steve has designed 22 office buildings, 21 hotels, and many other project types over the course of his 38-year career.

He intentionally selected projects to highlight in this application that showcase his focus on sustainable design to reduce the impact of the built environment. His work on these earlier projects influenced his move into the practice of mass timber building design.

Adjustable Forms, Inc. Headquarters
Lombard, IL | 2013

This cast-in-place concrete contractor wanted the expansion and renovation of their existing facility to showcase their work. The project employs a minimalist aesthetic that highlights the texture of concrete, celebrating the material, while optimizing sustainability and energy use.

A high-performance rain screen / zinc sunshade system was used along the street façade to provide an abstract representation of the steel forms used to pour concrete. On the interior, daylighting is optimized with skylights and continuous perimeter glazing that protects from sun and glare.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer
Size: 8,000 sf office building and 12,145 sf warehouse
Design Firm: DLR Group
Certifications: LEED Certified

AIA Chicago Distinguished Buildings Award, 2015

Engine Company 16 Fire House
Chicago, IL | 2012

Steve designed this Chicago fire station with a rigorous focus on energy efficiency, including a clerestory to optimize daylighting, a geothermal loop heat pump, a green roof, and a water retention system to repurpose water for washing fire trucks. These choices achieved a 52% reduction in energy use as compared to baseline, providing operation cost savings of $20,000+ annually.

This was the first LEED Platinum firehouse in Illinois. This project became a prototype for how future Chicago fire stations would be built and stands, to this day, as the Public Building Commission / Chicago Fire Department's prototypical fire station.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer
Size: 20,000 sf
Design Firm: DLR Group
Certifications: LEED Platinum Certified

Patterson Technology Center
Effingham, IL | 2011

Patterson Companies, Inc. provides software, equipment, and supplies for the healthcare industry. Steve designed the new technology building envelope as a high-performance, fiber-cement rain screen. The building tucks into the natural slope of the site with bioswales to capture stormwater run-off.

Steve's sustainable design strategies enabled the project to earn LEED Silver certification, including building materials made of recycled content, occupancy sensors and daylight controls on light fixtures, and low-flow plumbing fixtures.

Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer
Size: 100,000 sf | 3 stories
Design Firm: DLR Group
Certifications: LEED Silver Certified

Metea Valley High School
Aurora, IL | 2009

Steve's first project at DLR Group provided an opportunity to inject his knowledge of sustainable design into a project that had already been designed conceptually when he took it over. The fast-growing school district needed to accommodate 3,000 high school students and create a flexible learning environment.

Steve untangled the sprawling plan into a simple, straightforward layout of corridors, introducing open courtyards and connected with covered pedestrian bridges. Steve's changes improved access to daylight throughout the school, simplified wayfinding, and minimized energy-use intensity.

Architecture Firm of Record: DLR Group
Role of Candidate: Office Design Director
Size: 464,200 sf
Design Firm: DLR Group

111 South Wacker Drive Tower
Chicago, IL | 2005

The exterior of this blue-glass high rise is constructed with an aluminum and glass curtainwall system that emphasizes the verticality and structural expression of the building. The building is unique for the parking garage taking up the first few floors and the parking ramp creating the dramatic ceiling of the lobby.

Steve was the second member of Goettsch Partners to become a LEED-accredited professional in 2004. He helped design and detail the sustainable features required to achieve the U.S. Building Green Council's first-ever LEED-CS Gold certified project.

Architecture Firm of Record: Goettsch Partners
Role of Candidate: Project Designer
Size: 1.4 million sf | 53 stories
Design Firm: Goettsch Partners
Certifications: LEED-CS Gold Certified

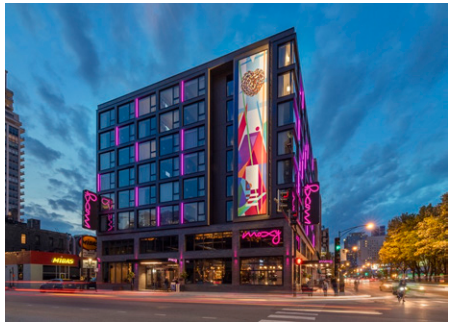
AIA Chicago Distinguished Buildings Award, 2006

Marriott Moxy Hotel
Portland, OR | 2021

The Moxy brand targets trendy, younger travelers. Steve created the hotel's design to respect its place within the urban fabric of Portland's West End neighborhood. The tight site (7,500 sf) and 4-foot grade change made for a design challenge for the ground floor, but Steve found a way to incorporate local food stalls and a bar into the lobby, in a neighborhood cherished for its food carts. The geometry of the brick façade design used shifting textures and tones to invoke the irregular patterns of rainfall.

Steve's hospitality portfolio led to his Wood Innovations Grant proposal (Exhibit 7), which was written during the design of this Moxy Hotel.

Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 72,710 sf | 12 stories | 197 guestrooms



Marriott Moxy Hotel
Chicago, IL | 2018

Located on a prominent corner in Chicago's gallery district, the hotel design incorporated a 6-story fine art installation into the façade.

This project was one of the first Marriott Moxy hotels to be built, and the project is a study in efficiency that would be referenced as part of the Wood Innovation Grant study of guest room modularity.

The building's super-compact design makes best use of an unprecedented 180 sf standard guestroom, in an industry that typically requires 325-375 sf per room.

Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer & Principal In Charge
Size: 60,200 sf | 8 stories | 156 guestrooms

JW Marriott Hotel
Minneapolis, MN | 2015

This luxury hotel was designed and built as part of an expansion and reinvigoration of the Mall of America, 20 years after it first opened.

The 15-story hotel tower is adjacent to the retail entrance to the shopping center and features a massive 16,400 sf ballroom.

This project utilized a design-build delivery method, and the cost model was a window wall system. Steve designed the enclosure to improve energy performance by 24% while providing the owner with a high-performing, fiber-cement rain screen system that doubled the enclosure's assembly R-value.

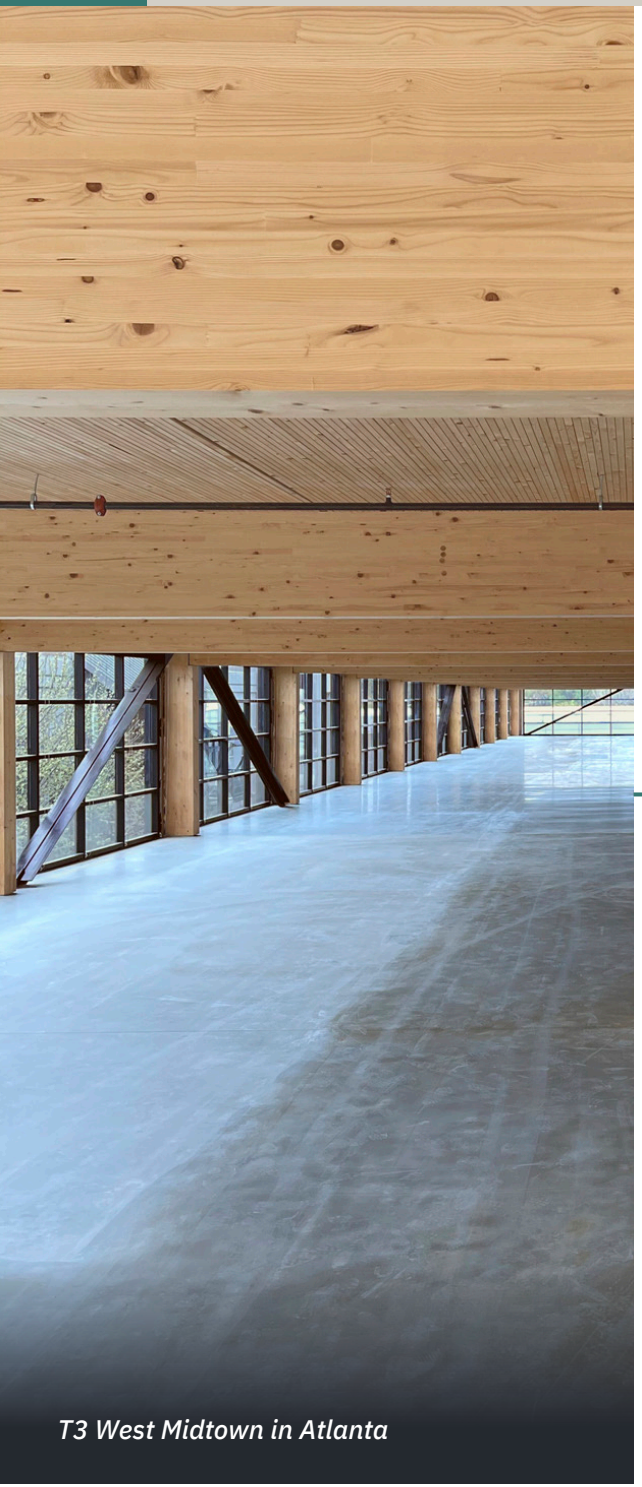
Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer
Size: 303,000 sf | 15 stories | 342 guestrooms

JW Marriott Hotel
Grand Rapids, MI | 2007

Developed along the bank of the Grand River to support the city's convention and tourism business, this 24-story luxury hotel is connected to the nearby city convention center.

The tower features an elliptical form with a curved façade to optimize guestroom views and mitigate peak cooling loads. The river-facing slot in the façade gives all guests a glimpse of the river regardless of the orientation of their room. Steve designed the full-height elevator lobby atrium to move fresh make-up air through the tower with a natural stack effect, saving energy.

Design Firm & Architecture Firm of Record: Goettsch Partners
Role of Candidate: Project Designer
Size: 350,000 sf | 24 stories | 330 guestrooms



T3 West Midtown in Atlanta

DESIGN JURY SERVICE

2024
University of Arkansas
Fay Jones School of Architecture and Design
– Timber Studio guest lecturer and studio reviews

2023
University of Kansas
School of Architecture
– Dirt Works Studio guest critic

2020
Illinois Institute of Technology
College of Architecture
– ARCH 418 Design Studio Final Juries guest juror

2016
AIA Wisconsin
– Chapter Design Awards juror

2014–2015
Illinois Institute of Technology
College of Architecture
– ARCH 418 Design Studio Final Juries guest juror

2013
Virginia Tech
School of Architecture
– Chicago Studio program portfolio reviewer

"After serving as architect-of-record on the largest wood structure constructed in modern U.S. history, DLR Group principal Stephen Cavanaugh and his team are continuing that model in other cities."

***Architect* Magazine, April 30, 2018**

NATIONAL AWARDS

2023
Responsible Disruptors
Metropolis Magazine – honors architecture and design projects that use innovation as a force for good
– Mass Timber Hotel Prototype

2022
Best Project Award
Marriott Connect
– Moxy Hotel, Portland, OR

2021
Wood Design & Building Awards
Canadian Wood Council Award
– T3 West Midtown, Atlanta, GA

2018
Association of Licensed Architects Design Awards
Silver Award
– T3 North Loop, Minneapolis, MN

2017
Environmental Leadership Award
Azure Magazine AZ Awards
– T3 North Loop, Minneapolis, MN

2017
U.S. Wood Design Award
Wood Innovation Network
– T3 North Loop, Minneapolis, MN

2017
International Wood Design Award
WoodWorks
– T3 North Loop, Minneapolis, MN

2016
Wood Design & Building Awards
Canadian Wood Council Citation Award
– T3 North Loop, Minneapolis, MN

2012
Association of Licensed Architects Design Awards
Don Erickson Presidential Award & Silver Award, Commercial Category
– Patterson Technology Center, Effingham, IL

2010
Association of Licensed Architects Design Awards
Don Erickson Presidential Award
– Metea Valley High School, Aurora, IL

NATIONAL GRANT

2021
Wood Innovations Grant
U.S. Forest Service / USDA
– Research grant used to create *Mass Timber Innovation: The Hospitality Prototype* report

AIA AWARDS

2021
AIA Chicago Chapter
Distinguished Building Award
– T3 West Midtown, Atlanta, GA

2018
AIA Chicago Chapter
Distinguished Building Award
– T3 North Loop, Minneapolis, MN

2015
AIA Chicago Chapter
Distinguished Building Award
– Adjustable Forms, Inc. Headquarters, Lombard, IL

2007
AIA Chicago Chapter
Distinguished Building Award
– Charles Square Center, Prague, Czech Republic

2006
AIA Chicago Chapter
Distinguished Building Award
– 111 South Wacker Drive Tower, Chicago, IL

"Steve's work has been a key factor in getting mass timber going here in the U.S., and his upcoming work will be a key part of us moving into more building types."

Steve Marshall, Mass Timber Strategist

Mass timber construction on T3 ATX Eastside in Austin

LOCAL AWARDS

Commercial Real Estate Awards
Austin Business Journal
Best New Office Building, 2024
– T3 ATX Eastside, Austin, TX

Exceptional Merit for Sustainable Design Award
Development of Excellence Awards
Atlanta Regional Commission, 2019
– T3 West Midtown, Atlanta, GA

Outstanding Building of the Year
(For excellence in operations: 100,000-249,999 sf category)
Building Owners and Managers Association (BOMA), Greater Minneapolis, 2019
– T3 North Loop, Minneapolis, MN

2017
Innovative Project of the Year
CoreNet Midwest Chapter
– T3 North Loop, Minneapolis, MN

2017
Top Projects of 2016
Finance & Commerce
– T3 North Loop, Minneapolis, MN

2017
Award of Excellence
NAIOP Minnesota
– T3 North Loop, Minneapolis, MN

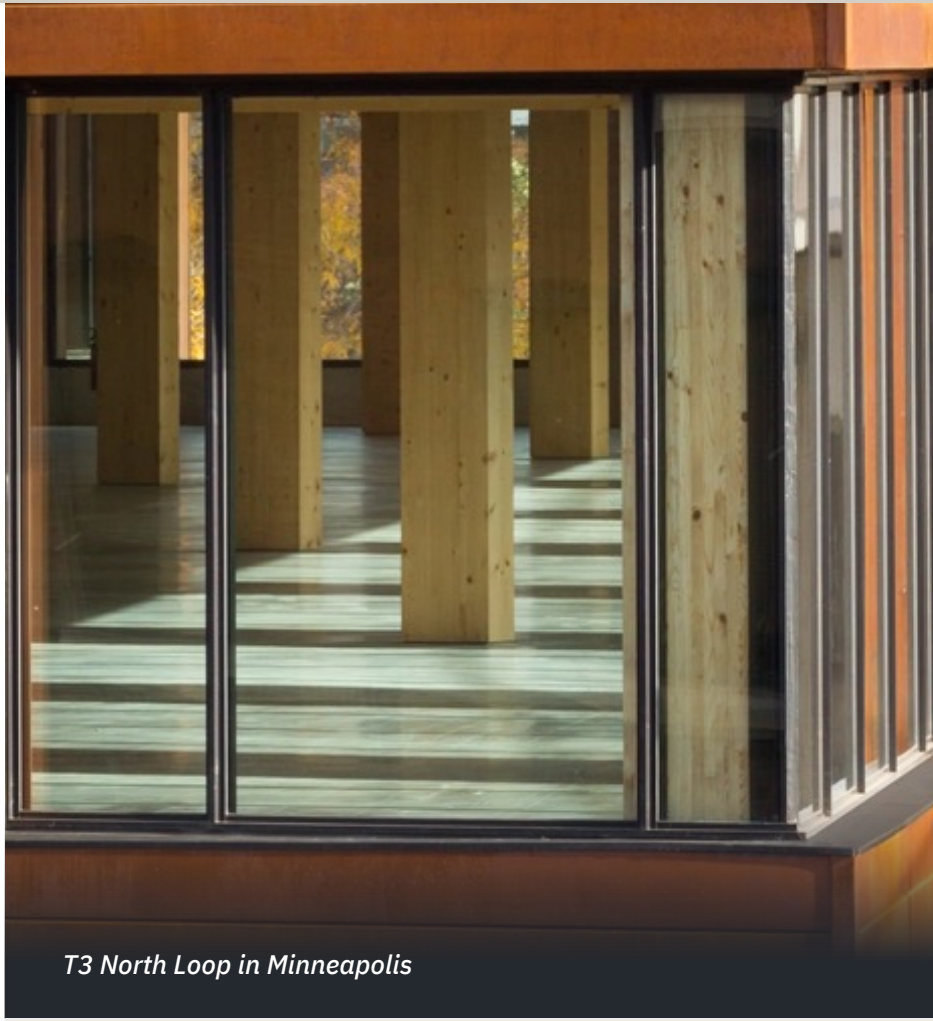
2017
Award of Excellence
Green/Sustainable Project of the Year
Minnesota Construction Association
– T3 North Loop, Minneapolis, MN

2012
ALA Presidential Award
Association of Licensed Architects
– Patterson Technology Center, Effingham, IL

2010
Building Team Award
Chicago Building Congress
– Metea Valley High School, Aurora, IL

INTERNATIONAL AWARDS

2002
Deutscher Stahlbau Award
Recognizing top project in Germany with a steel structure
– Cologne Bonn Airport Terminal 2, Germany (Murphy/Jahn)



T3 North Loop in Minneapolis

"You want an architect who understands the client and is able to think like an owner. Steve Cavanaugh has a keen understanding of how things go together, what they cost, and an ability to get a project built."

Warren Strovel, Executive Vice President of Operations, Friedman Properties

ARTICLES ABOUT STEVE'S WORK

"T3 ATX Eastside's Mass Timber Experience: Differentiating Office Projects with Mass Timber," Video Interview, *Think Wood*, April 5, 2024

"The future of mass timber construction will depend on codes, costs, and climate change," *Building Design+Construction*, Feb. 21, 2024

"RiNo office building made out of wood on track to be completed this year," *Denver Post*, April 25, 2023

"T3 by MGA is an office building constructed from trees killed by bugs," ***Dezeen*** (Amy Peacock), March 24, 2023

"The 2023 Responsible Disruptors Making an Impact in Tech," *Metropolis Magazine*, Feb. 16, 2023

"Finding a Future for Mass Timber in Hospitality," *Metropolis Magazine*, Feb. 14, 2023

"Office buildings without an environmental strategy are becoming obsolete, one leader says," *Atlanta Business Chronicle*, Feb. 6, 2023

"2022 Readers' Choice Awards: The Top Hotels in Chicago," *Conde Nast Traveler*, Oct. 3, 2022

"Heavy timber office and boutique residential building breaks ground in Austin," *Building Design+ Construction*, March 8, 2022

"Hines Breaks Ground for T3 Sterling Road Office Complex," *Urban Toronto*, June 17, 2021

"North Shore architects who worked for Helmut Jahn remember a visionary whose talents influenced their own approaches," ***Chicago Tribune*** (Daniel I. Dorfman), May 18, 2021

"Is Wood the Building Material of the Future?" *Metropolis Magazine*, May 17, 2021

"Mass Timber: Shattering the Myth of Code Exceptions," *Arch Daily*, May 12, 2021

"A Minneapolis office building made of wood – not steel – leads a nationwide trend," *The Minnesota Star Tribune*, Oct. 13, 2020

"As Concerns Over Climate Change Rise, More Developers Turn to Wood," ***The New York Times*** (Keith Schneider), Sept. 22, 2020

"DLR Group Awarded Wood Innovations Grant from the U.S. Forest Service," *Informed Infrastructure*, May 20, 2020

"Moxy tops out debut Portland hotel," *Sleeper Magazine*, March 27, 2020

"T3 Atlanta" Project, *Architect Magazine*, Dec. 16, 2019

"In Midtown, a wood-frame office building rises," *The Atlanta Journal-Constitution*, April 13, 2019

"Technology, Transportation and Tall Timber Top of the List for Tenants," *Think Wood*, Feb. 14, 2019

"Carbon Sequestering and Becoming Carbon-Neutral," *Architectural Products*, Dec. 14, 2018

"How to Design Commercially Viable Mass Timber Buildings," *Think Wood*, April 30, 2018

Timber on the Rise, Part 6: "How to Design Commercially Viable Mass Timber Buildings," ***Architect Magazine***, ArchitectChat's podcast series, April 30, 2018

"A Wooden Skeleton in XXL: T3 Office Building in Minneapolis," *Detail Magazine* (Germany), Dec. 21, 2017

"Southern Exposure: T3 Minneapolis, Minnesota," *Canadian Architect Magazine,* Nov. 16, 2017

"Top Projects of 2016: T3," *Finance & Commerce*, July 17, 2017

Cover Story: "Big Timber: The Rise of T3" | Online story: "A New Mass-Timber, Transit-Connected, Technology-Rich Office Building Fits Minneapolis' Warehouse District to a T," AIA Minnesota ***Architecture MN*** (John Reinan), May/June 2017

ARTICLES ABOUT STEVE'S WORK (cont.)

"T3 Office in Minneapolis Is Another Step Forward for Timber Construction," *Urban Land Magazine*, April 20, 2017

"A New Timber Tower Opens in Minneapolis," *Green Building Advisor*, Dec. 9, 2016

"Timber! America's Largest Wood Framed Building Opens in Minneapolis," *Architizer*, Dec. 2016

"A walk in the woods of T3 timber building," *Finance & Commerce* (Hank Long), Nov, 30, 2016

"Largest mass timber building in U.S. opens tomorrow in Minneapolis," *The Architect's Newspaper* (Olivia Martin), Nov. 29, 2016

"Inside T3, the first mass timber building in the US," *Construction Dive* (Kim Slowey), Nov. 10, 2016

"T3 Becomes the First Modern Tall Wood Building in the U.S," *Architect Magazine* (Blaine Brownell), Nov. 8, 2016

"Engine Company 16 Fire House," *ArchDaily*, Aug. 11, 2014

ARTICLES BY STEVE

"Unlocking the Potential of Mass Timber: 5 Lessons from T3 Projects," DLRGroup.com, Idea Article, Aug. 5, 2024

"Mass Timber Innovation: The Hospitality Prototype," DLRGroup.com, Idea Article, April 5, 2023 (see Exhibit 7)

"Growing Mass Timber Design," DLRGroup.com, Idea Article, July 29, 2021

PUBLISHED WORK

Mass Timber Innovation: The Hospitality Prototype
Wood Innovations Grant Research Project, 2023

BOOK CREDITS

Birkhauser Goettsch Partners Monograph
2007 – project design credits

Helmut Jahn: Airports & Archineering
1995 & 1999 – project credits

"Steve and his team have far more experience than any other architecture firm out there in the mass timber realm."

Michael Horvath, Vice President of Conceptual Construction, Hines

T3 West Midtown in Atlanta

SPEAKING ENGAGEMENTS

Chicago Build 2024 Expo
"Sustainable Architecture: Strategies for Reducing Environmental Impact," Panel Speaker, Chicago, IL, Oct. 23, 2024

Great Lakes Open Source Mass Timber Collaborative Convening
Think Tank – *Steve to represent mass timber design and construction from the architect perspective*
Michigan State University, East Lansing, MI, Oct. 22, 2024

AIA Austin Design Excellence Conference
"Integrating Sustainability into a Core and Shell Office Space with Mass Timber," Austin, TX, Aug. 15, 2024 *(AIA-approved 1.5 hour LU/HSW continuing ed credit)*

International Mass Timber Conference 2024
"Developers and the Mass Timber Ecosystem: Where Do We Go From Here?" Keynote Panel, Portland, OR, March 26-28, 2024

Environmental Design Research Association (EDRA) International Conference
"Mass Timber for the Masses," Mexico City, June 20-23, 2023

University of Kansas School of Architecture + Design
Fall Lecture Series
"Mass Timber Work," Sept. 15, 2023

National Association of Real Estate Investment Managers Architecture & Engineering Meeting
"Case Study Review: Timber-Framed Construction," Austin, TX, Sept. 28-30, 2021

Metropolis Magazine Think Tank Webinar / Panel Discussion
"Working with Timber: New Possibilities for Design, Construction and Sustainability," April 2021

University of Wisconsin / USDA / U.S. Forest Service
Forest Products Laboratory
"Timber Superstructure Realized: T3 Minneapolis," Mass Timber Research Needs Assessment Workshop, Fall 2019

Architectural Record
Wood Structures Academy
"Innovative Architectural Design Strategies Using Wood," Continuing Education Center: Engineering + Mechanical Systems Webinar, June 2019
(AIA-approved 1 hour LU/HSW continuing ed credit)

Building Design+Construction
Accelerate Live! Innovation Conference
"The Future of Mass Timber," Chicago, IL, May 2018

***Think Wood:* Wood Structures Academy Interview/Webcast**
"Innovative Design Strategies Using Wood," May 2017

Building Design+Construction
Accelerate Live! Innovation Conference
"The First Mass Timber Office Building," Chicago, IL, May 2017

3 EXHIBITS

T3 North Loop in Minneapolis

T3 North Loop
Minneapolis, MN

T3 West Midtown
Atlanta, GA

T3 Sterling Road
Toronto, Ontario, Canada

T3 ATX Eastside
Austin, TX

T3 Wedgewood-Houston
Nashville, TN

Harbor Bay Ninth & High Student Housing
Columbus, OH

Wood Innovations Grant from U.S. Forest Service – *Mass Timber Innovation: The Hospitality Prototype*

Sharing Professional & Technical Knowledge

T3 North Loop

Location: Minneapolis, MN
Completion: 2016
Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Architect, Client Leader, Principal In Charge
Design Firm: Michael Green Architecture
Size: 224,000 sf | 7 stories

SYNOPSIS

Around 2013, technology was transforming workplace design in the U.S. Hines sought Steve's expertise with designing a new office building that would attract tenants the way the firm's renovated loft spaces did and retain them with modern amenities. Steve conceived the idea of using mass timber to create loft-like spaces. With this building, Steve and Hines created the "T3" concept – Timber, Transit, Technology – featuring an exposed timber work environment with easy access to light rail, bike trails, and a pedestrian skyway system; and robust, high-speed internet connectivity.

CHALLENGE

Mass timber had never been used in a project of this size; thus, the building required a permit for a construction type that had never been reviewed by the City of Minneapolis code officials. Additionally, the structural system had to be optimized for cost savings, and timber subcontractors had to be identified and vetted in a market without any experience in such a project.

Selected Awards:

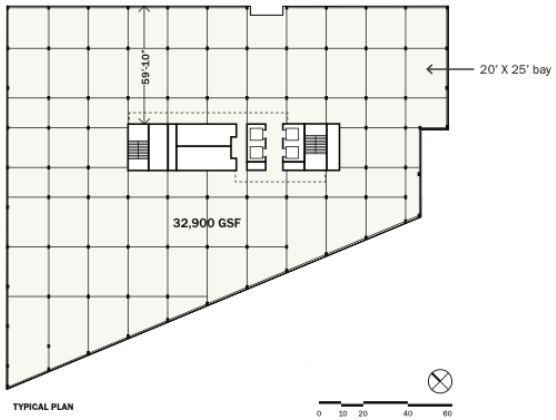
- Distinguished Building Award, AIA Chicago Chapter, 2018
- International Wood Design Award, WoodWorks, 2017
- U.S. Wood Design Award, Wood Innovation Network, 2017
- Environmental Leadership Award, *Azure Magazine* AZ Awards, 2017
- Canadian Wood Council Award, Wood Design & Building Awards, 2016

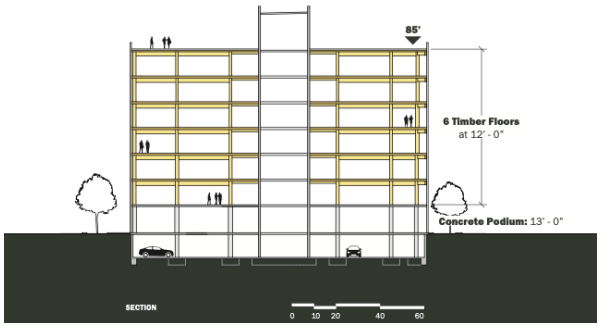
Selected Publications:

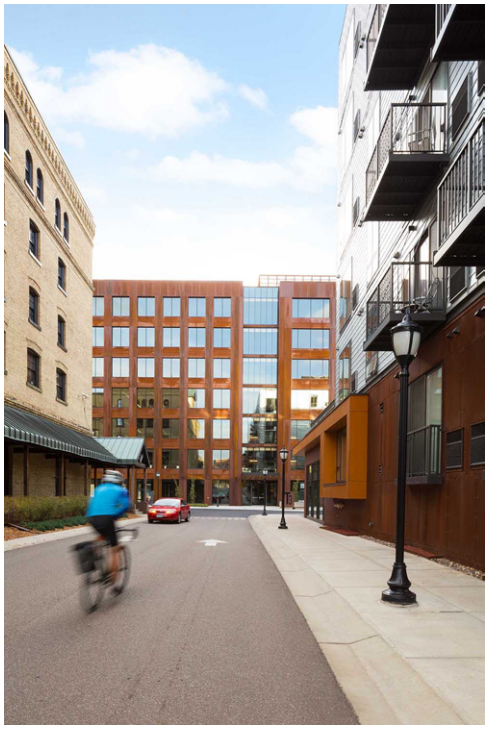
- *Architect Magazine*: "T3 Becomes the First Modern Tall Wood Building in the U.S.," Nov. 8, 2016
- Cover Story AIA Minnesota *Architecture MN Magazine*: "Big Timber: The Rise of T3," May/June 2017

Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which included leading essential research into mass timber construction and serving as lead project architect.

— Scott Boyle, AIA, LEED AP, Project Manager, DLR Group







CARBON REDUCTION IMPACT

148,947 Cubic Feet
Total volume of timber superstructure

14 Minutes
Time it takes for North American forests to grow this amount of wood

6,001 Metric Tons
4,327 tons of carbon stored
1,674 tons of emissions avoided

1,269 Cars
Emissions reduction equal to removal of this number of cars for a year

RESPONSE

Steve's responsibility was to deliver a fully integrated mass timber project on time and within a developer's budget. With virtually no precedent for a timber project of this scale, Steve researched suppliers of engineered lumber, including nail-laminated timber, dowel-laminated timber, cross-laminated timber, and glue-laminated timber. During this time, Steve exchanged sketches and ideas with fabricators to begin to understand a true path to optimization.

It was Steve's focused research, advocacy, and knowledge-sharing that gave Hines the confidence to move forward with the project. Next, Steve led the engagement with the City of Minneapolis officials to educate them on the fire safety and building height implications, leading to city approval for this first-of-its-kind mass timber project.

OUTCOMES

- The mass timber structural frame was completed in just 9.5 weeks, approx. 30% faster than concrete and steel construction. Construction speed, quieter construction sites, and minimized disruption within urban areas were all discovered advantages to building with wood.
- The T3 North Loop building sold in 2019 for a record-high price per sf for an office asset in Minneapolis. This fact reinforced the vision that a beautiful, sustainable office building had measurable monetary value and could lead to wider adoption of commercial mass timber structures.

Certifications:

- This project also advanced the profession by putting more focus on carbon reduction. T3 North Loop earned **LEED Gold certification** but was not awarded any LEED points for measured embodied carbon reduction as there was no such category in 2016. It wasn't until 2019 that the USGBC began tracking this key metric with LEED V4.1's "Building Lifecycle Impact Reduction" category.

T3 West Midtown

Location: Atlanta, GA
Completion: 2020
Architecture Firm of Record: DLR Group
Role of Candidate: Lead Technical Architect, Client Leader, Principal In Charge
Design Firm: Hartshorne Plunkard Architecture
Size: 254,000 sf | 7 stories

SYNOPSIS

Based on the success of the T3 North Loop office building in Minneapolis (Exhibit 1) and the industry's growing focus on carbon emission mitigation, Hines turned to Steve for a second T3 office building in Atlanta.

CHALLENGE

General contractors, being unfamiliar with timber sourcing and erection, were adding a premium cost to offset the perceived risk of mass timber. To get the project launched, Steve spearheaded a "lessons learned" effort and employed a variety of technical design innovations to advance the quality, aesthetics, and value of this second, large-scale timber structure.

Selected Awards:

- Distinguished Building Award, AIA Chicago Chapter, 2021
- Canadian Wood Council Award, Wood Design & Building Awards, 2021
- Exceptional Merit for Sustainable Design Award, Atlanta Regional Commission, 2019

Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which included leading the project technically, spearheading engagement with code officials, and serving as client leader.

— Charles McDaniel, AIA, Senior Project Architect, DLR Group

"T3 uses the only structural material that comes from a renewable resource. With timber beams, it has the desirable aesthetic of an old warehouse, but solves all the problems of energy efficiency, acoustics, and light. No one has done anything like this."

Bob Pfefferle, Project Development Director, Hines

CARBON REDUCTION IMPACT

162,391 Cubic Feet
Total volume of timber superstructure

13 Minutes
Time it takes for North American forests to grow this amount of wood

2,555 Metric Tons
4,093 tons of carbon stored
1,584 tons of emissions avoided

1,200 Cars
Emissions reduction equal to removal of this number of cars for a year

RESPONSE

Steve was determined to lead the profession toward renewable mass timber and carbon emission reduction by making this second venture even better than the first. Like the first project, Steve met with Atlanta city code and fire department officials during schematic design to lead the conversations with respect to fire and life safety.

By actively working with the structural engineering team, Steve was able to eliminate concrete from the shear core and employed a lighter-weight, hybrid steel and timber braced-frame concept. With all the wood exposed on the project, a zone with a shallower structural depth was established that ringed the service core to accommodate MEP/FP pathways cleanly.

OUTCOMES

- First mass timber office building to be constructed in Atlanta.
- Project fully constructed in 15.5 months, 3 months faster than T3 North Loop in Minneapolis.
- Timber braced-frame lateral system eliminated concrete shear core.
- First use of an adhesive-free, dowel-laminated timber (DLT) floor slab system in the U.S.
- Full systems integration to exposed timber frame, including upturned timber beam details for MEP/FP pathways.
- Inset balconies provide private outdoor space for tenants, accomplished with dropped DLT slabs, whose wood undersides are exposed to the exterior.

Certifications:

- LEED Silver Certified
- Wired Certified Platinum *(first new development in Atlanta to earn this distinction)*

T3 Sterling Road

Location: Toronto, Ontario, Canada
Completion: 2024
Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Lead Design Architect, Client Leader, Principal In Charge
Size: 303,910 sf total | 2 buildings: 6 stories and 8 stories

SYNOPSIS

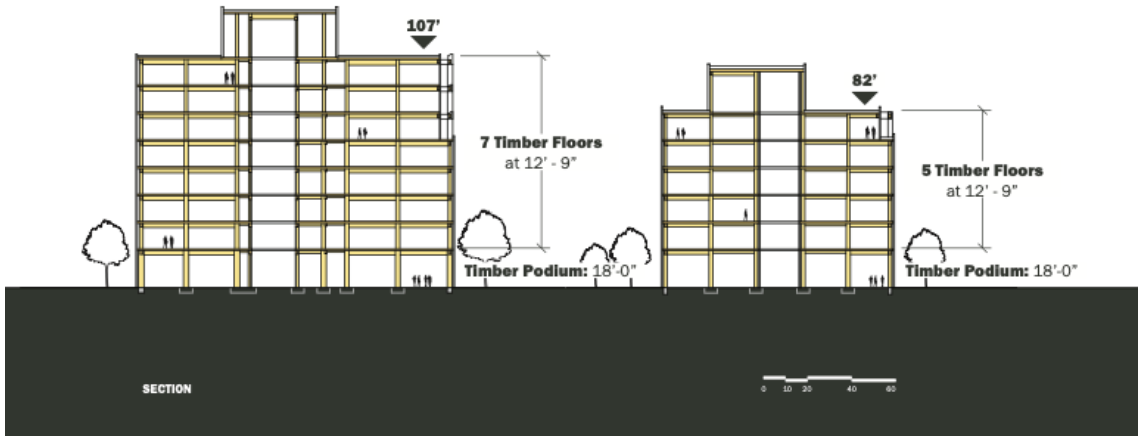
The two-building composition links Sterling Road to the West Toronto Rail Path adjacent to the Toronto Museum of Contemporary Art. The ground floor plans were carefully designed to include retail and "social workplace" amenities, as well as bicycle end-of-trip facilities. The two buildings feature shared rooftop terraces with views of downtown Toronto and private terraces on every floor. Steve designed the building facades to incorporate delicately proportioned metal details, with a buttress detail at the zoning-required building step-backs. This was the first project that Hines trusted DLR Group with both design firm and architect of record responsibilities.

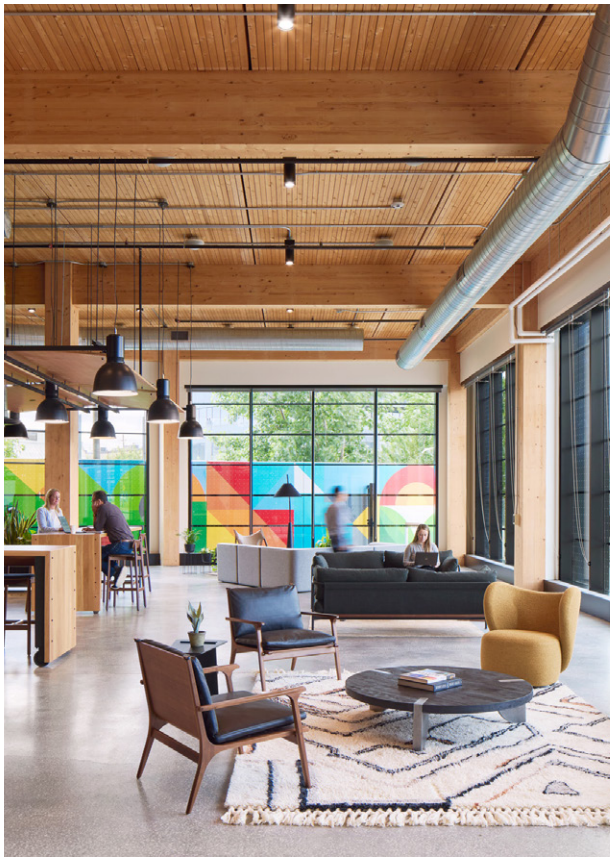
CHALLENGE

One major design challenge was to deliver an all-exposed mass timber project that exceeded the limits of Toronto's building codes for this material. The city had approved density that allowed for an 8-story building on the west parcel, but the building codes limited unprotected mass timber structures to 6 stories. To get the project permitted, Steve had to forge an "alternative compliance path." He had to demonstrate life safety compliance, utilizing fire science, fire test reports, and design strategies to prove that the project was permittable and safe.

Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which included leading the design of the project, engaging with code officials, and serving as client leader.

— Kevin Curran, AIA, LEED AP, Project Manager, DLR Group





CARBON REDUCTION IMPACT

248,856 Cubic Feet
Total volume of timber superstructure

19 Minutes
Time it takes for North American forests to grow this amount of wood

8,262 Metric Tons
5,957 tons of carbon stored
2,305 tons of emissions avoided

1,746 Cars
Emissions reduction equal to removal of this number of cars for a year

RESPONSE

The winning strategy was to fully conceal core elements, such as the fire exit stairs, and to design the exposed timber connections so their structural integrity would remain intact during a fire event. This was accomplished by designing the connections to be buried within the beams and columns, inboard of the "char layer" that develops during a fire. The timber code prescribes minimum member sizes for this reason: a large wood beam or post will develop a protective char layer as it burns and maintain its structural integrity for some time inboard of this layer before it collapses. Ingenuity was required to develop "buried" connections that were easily constructable and economical.

Steve pushed the boundaries of timber construction by exceeding the code limitations on height / number of stories. He bridged code language with testing data and science to get the project built. This project now is an exemplary real-world case study that has reinforced the evolution of the timber codes to higher, unprotected structures.

OUTCOMES

- This project provides a real-world case study that code officials can reference as they advance code language to support more mass timber use. Subsequent versions of the ICC model codes have thus allowed taller timber buildings to be constructed "as of right."
- All 8 stories of the second building are framed in mass timber; there is no concrete podium.
- T3 Sterling Road is Steve's largest and tallest built mass timber office building project to date.
- Steve has been interviewed by *Canadian Architect Magazine* for a feature to be published Dec. 2024.

Certifications:

- Designed to achieve LEED Gold and WELL Building certification (pending).

T3 ATX Eastside

Location: Austin, TX
Completion: 2023
Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Lead Project Designer, Chief Technical Architect, Client Leader, Principal In Charge
Size: 92,000 sf office & 12,000 sf residential | 3 stories

SYNOPSIS

The design of T3 ATX Eastside embraces the notion of an urban population who wants an integrated work/life experience, and it was Steve's first mass timber design project to incorporate both residential and office space.

CHALLENGE

The first challenge was to efficiently integrate residential units into a timber superstructure. A typical multi-family project is designed from the inside out, and the building takes the form of the prescribed apartment unit layouts. In this case, the units were designed as an adaptation of the optimized timber grid, analogous to a turn-of-the-century industrial loft retrofit.

Another challenge was to deliver maximum daylight and view potential while being responsible from an energy-use standpoint. The primary views from this East Austin location were to the west, toward the Austin skyline.

Awards:

- Best New Office Building, *Austin Business Journal,* Commercial Real Estate Awards, 2024

Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which included leading the design and technical aspects of the project and serving as client leader.

— Kevin Curran, AIA, LEED AP, Project Manager, DLR Group

CARBON REDUCTION IMPACT

94,439 Cubic Feet
Total volume of timber superstructure

7 Minutes
Time it takes for North American forests to grow this amount of wood

4,488 Metric Tons
3,236 tons of carbon stored
1,252 tons of emissions avoided

698 Cars
Emissions reduction equal to removal of this number of cars for a year

RESPONSE

While playing the role of Principal in Charge and Lead Technical Architect on previous T3 projects, Steve was able to connect with the client and advocate for his approach to mass timber design focused on biophilia, wellness, carbon reduction, and building performance.

Steve achieved a holistic approach to this building design, combining the biophilic benefits of wood for occupant wellness with a commitment to reducing the carbon impact and energy-use intensity of the project. Steve orchestrated an optimization study for a fixed, vertical sunshade system on the west façade that allowed unimpeded views while cutting glare and solar heat gain, shaving 63% off the peak cooling load (see photo p. 28).

The project incorporated features that enhance and support occupant wellness, such as access to outdoor space, fitness space and communicating stairs, low emitting materials and ingredient transparency for interior materials. Steve designed one of the necessary fire exit stairs in the building with roof access, a skylight above, and a hidden rolling fire shutter at the ground floor to integrate it seamlessly into the lobby and encourage use (see photo p. 28).

OUTCOMES

- First of Steve's mass timber buildings with residential units, creating a precedent-setting case study for the industry.
- Featured project at AIA Austin Design Excellence Conference in Aug. 2024.

Certifications:

- Project is pursuing and on track to receive WELL v2 Core Gold certification and is LEED v4 BD+C Core and Shell Gold Pre-Certified, with the final submission complete and pending.
- Wired Certified Platinum

Vertical sunshade system on west façade

Daylighting in fire exit stairwell

T3 Wedgewood-Houston

Location: Nashville, TN
Completion: 2024
Architecture Firm of Record: DLR Group
Role of Candidate: Client Leader, Principal In Charge
Design Firm: Hastings Architecture
Size: 282,970 sf | 7 stories

SYNOPSIS

This mass timber office building is part of a mixed-use development south of downtown Nashville called “The Finery,” which is an urban tapestry of uses, experiences, and construction methodologies. This collection of old and new buildings and outdoor spaces creates a vibrant community for work and play.

CHALLENGE

Under Nashville building code, mass timber buildings were limited to 85 feet in height. To make this speculative office building profitable, the client needed at least 5 floors of office space on top of 2 floors of parking and lobby space. Normally this would be possible to achieve in 85 feet, but the sloping site made it difficult. The building design came in at 91 feet from the lowest point to the highest point.

Declaration of Responsibility: I have personal knowledge of the nominee’s responsibility for this exhibit, which included leading the technical aspects of the project and serving as client leader.

— Kevin Curran, AIA, LEED AP, Project Manager, DLR Group

CARBON REDUCTION IMPACT

147,873 Cubic Feet
Total volume of timber superstructure

11 Minutes
Time it takes for North American forests to grow this amount of wood

4,908 Metric Tons
3,539 tons of carbon stored
1,369 tons of emissions avoided

1,038 Cars
Emissions reduction equal to removal of this number of cars for a year

RESPONSE

Steve worked closely with the City of Nashville code officials to justify the additional height needed. Without his expertise to educate the code board and build a case for the exception, the building would have been limited to 4 stories. His expertise set the stage for a smooth permitting process.

To accommodate a concrete parking garage on the first 2 floors of the building, the team utilized a “true composite” solution at longer-span bays, which also created the podium for the mass timber floors. This solution maintained the simplicity of a 2-way system for the office floors by giving the concrete topping slab a structural role in these locations.

By structurally knitting together the timber and concrete slabs, the challenge was met without increasing floor-to-floor height or introducing purlins that could obstruct views.

OUTCOMES

- The client achieved their proforma with the building due to Steve’s close coordination with the city on code adherence.

Certifications:

- LEED Gold Certified and WELL Silver Building Certified

Harbor Bay Ninth & High Student Housing

Location: Columbus, OH (near Ohio State University)
Completion: Expected Fall 2025
Design Firm & Architecture Firm of Record: DLR Group
Role of Candidate: Mass Timber Design Expert
Size: 252,000 sf | 13 stories | 184 apartments

SYNOPSIS

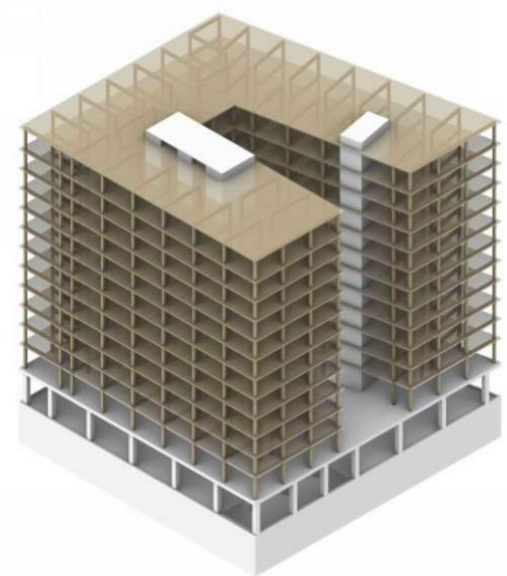
Ohio State University needed additional off-campus student housing to accommodate a growing student population. Harbor Bay Ventures, a private owner/developer, committed to deliver a project that had enough density to achieve financial viability while meeting the university's requirements. Columbus, Ohio, has a Climate Action Plan and appreciated the benefit of building with mass timber. The city approved the needed density, in part because of the mass timber component.

CHALLENGE

Building a 13-story residential tower required creating an ultra-optimized timber framing concept that could erase the perceived industry cost premium for a tight margin building type. Steve and the team relied heavily on the affiliated structural engineer, Josh Dortzbach of Forefront Structural Engineers. First learning of Josh's proprietary timber optimization approach ("Interstice") at the 2023 International Mass Timber Conference, Steve and the team leveraged this skill to push forward an integrative solution that favored a "front-loaded" deep dive into timber at the pre-design phase.

Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which includes serving as our firm's mass timber design expert. It was Steve's expertise that brought the client to engage with DLR Group.

— Cameron Jacobson, AIA, LEED AP, Senior Project Architect, DLR Group



RESPONSE

It was Steve's expertise and deep portfolio in timber that influenced the client to engage DLR Group for this unique project. This is a project where Steve is not actively engaged throughout, but rather serves as a mass timber design expert and advisor. It speaks to Steve's drive to expand his impact across different building types and launch a new group of timber experts within his firm.

Based on similar studies led by Steve on the T3 office building projects, the team explored options for optimizing the structure for feasibility and affordability. Spans were pushed and pulled for efficiency and deck thickness options were vetted for both fiber volume and ease of assembly.

These various approaches were then vetted through the lens of suppliers and fabricators. This process was pushed forward in the project design timeline, based on lessons learned at buy-out and bid on previous timber projects using a design-bid-build timeline.

OUTCOMES

- This will be the first high-rise mass timber student housing project in the U.S. The 13-story building will include 184 apartments, ranging from one-bedroom studios to four-bedroom units.
- The intended outcome is to illustrate the carbon emission reduction realities of large-scale, commercial mass timber construction for residential, while demonstrating to the more than 500 academic residents the environmental and wellness benefits of living in a mass timber building.

Mass Timber Innovation: The Hospitality Prototype

Project: Research funded by a Wood Innovations Grant and publication, available online

Completion: 2023

Organizations Involved: DLR Group and University of Minnesota collaboration under Wood Innovations Grant from U.S. Forest Service / USDA

Role of Candidate: Director of Design, Principal In Charge

SYNOPSIS

Through his ongoing work in mass timber, Steve became aware of a U.S. Forest Service grant aimed at promoting the commercial use of wood through innovation. To expand knowledge of timber systems and application to multiple building types, Steve conceived a research project focused on breaking down the barriers to its adoption for hotel projects.

The focus on hotels came for several reasons: 1) It was the most prevalent project type being designed in Steve's office, 2) Steve had deep experience in the project type, 3) The industry had projected to build over 1,100 new hotels in the next year, which if built with mass timber, had the potential to avoid over 1.5 million metric tons of carbon emissions. Recognizing that multi-family projects and hotels are kindred spirits structurally, Steve understood that lessons learned regarding cost, acoustics, and fire safety would translate to that project type as well.

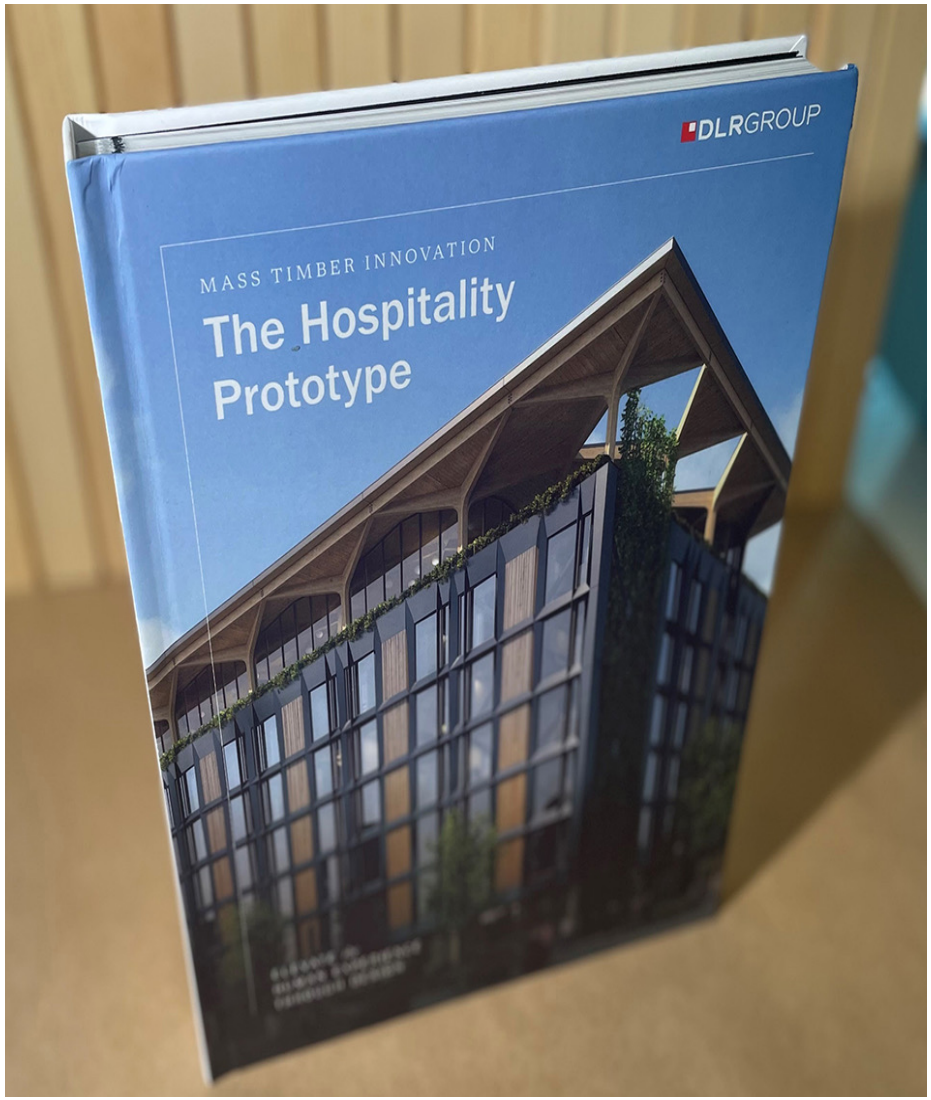
Through outreach and collaboration with the University of Minnesota, the proposal was submitted, and in 2020, Steve's team was awarded a $250,000 Wood Innovations Grant, which was 1 of 35 selected from 103 submissions.

Awards:

- Responsible Disruptors Award, *Metropolis Magazine*, 2023

Publications:

- *Metropolis Magazine*, "Finding a Future for Mass Timber in Hospitality," Feb. 14, 2023
- *Informed Infrastructure*, "DLR Group Awarded Wood Innovations Grant from the U.S. Forest Service," May 20, 2020



"Steve and the team created a model of a hotel, but also a model of study with data behind it that is much more than just a thought experiment. It's a hotel that could be built starting next week."

B. Sanborn, Design Research Leader, DLR Group

CHALLENGE

The challenge of the research was to identify barriers to the adoption of mass timber for hotel construction and to explore solutions to those barriers.

RESPONSE

Steve conceived the idea, won the research grant, led the design of the prototype, and directed a 2-year research project, culminating in a 174-page, open-source publication to validate the use of carbon-reducing mass timber systems for hotel construction.

PROCESS

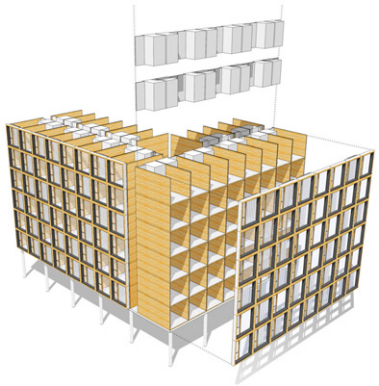
To make the research as meaningful and realistic as possible, Steve pulled in industry experts representing a variety of perspectives, all fluent in hotel design and construction. Dubbed “collaboratories,” these interdisciplinary conversations led to 3 primary areas of focus: fire safety, acoustic control, and cost.

Regarding **fire safety**, the decision was made to design the prototype hotel to follow all the rules of the model ICC / IBC building codes. The fire science of mass timber char layers had already been well researched and tested. During the research project, the IBC released a draft type IV section that was bolstered by the RISE test in Sweden where a 7-ply CLT plank was fire tested to a rating exceeding 3 hours. This led to the encapsulation language being removed for the type IV-B category in the 2024 IBC.

Acoustically, it was discovered that CLT products do not perform well for sound transmission, which is a critical design driver for hotel construction. The aesthetic quality of the wood was important to preserve for its emotional and psychological benefits. The research identified solutions that met hotel brand acoustic design standards while keeping the wood decks and beams exposed to view.

"It was impressive to see Steve take on the mass timber question for the hospitality industry because there is huge potential impact across the globe. Steve worked to overcome the level of complexity, and he was unphased by the challenge."

Jacob Mans, Associate Professor, Architecture, University of Minnesota



Declaration of Responsibility: I have personal knowledge of the nominee's responsibility for this exhibit, which included conceiving the research idea and leading design of the prototype.

— B. Sanborn, AIA Allied, EDAC, Design Research Leader, DLR Group

To address the **cost issue**, multiple framing ideas were explored and vetted for quantity of material and ease of erection. This study involved identifying applicable case studies (if they existed), and then creating a consistent, hotel-friendly dimensional framework so that the framing options could be compared against one another accurately. The idea was to optimize the timber frame for hotel use, so that an accurate cost model could be created.

OUTCOMES

- By engaging the University of Minnesota, Steve encouraged timber design in academia as well as pushed the idea forward in professional design and construction.
- This research project resulted in a public, open-source, 174-page publication that presented a case for a mass timber hotel as cost competitive, durable, and faster to build than traditional steel and concrete alternatives.
- This resource has been downloaded more than 300 times, to date, and "mass timber" is the top search term on DLR Group's website.
- Steve presented this research at the 2023 Environmental Design Research Association International Conference.
- *Mass Timber Innovation: The Hospitality Prototype* is required reading on the syllabus of Associate Professor Jennifer Webb's Timber Design Studio at the University of Arkansas Fay Jones School of Architecture and Design for the Fall 2024 semester. Steve has lectured in the class and is scheduled to participate in design reviews as the semester progresses.
- This project has led to DLR Group partnering with Knology, a social science think tank, and joining the REACTS consortium at the University of Oregon, a collection of researchers and designers focusing on mass timber research, to further advance the use of this renewable, carbon-reducing building material.

Sharing Professional & Technical Knowledge

Service to society: Knowledge sharing to educate peers in the AEC industry on the use of mass timber; to mentor architects; and to encourage students to pursue architecture-related careers.

Completion: Ongoing

Role of Candidate: Mass Timber Expert – Presenter, Panelist, Mentor

SYNOPSIS

During the last 8 years of leading large-scale mass timber building projects, Steve has been a vocal advocate for expanding the use of timber construction. His extensive research into building codes, fire safety, and engineered wood materials has made him a valued authority nationally.

His real-world experience of convincing developers that mass timber buildings are financially viable, guiding timber projects through approval by city code officials, and steering buildings from design to completion has given him credible technical expertise that few other U.S. architects hold.

"I selected Stephen as a panelist because I knew that he would delve into the compelling 'Why' behind large-scale mass timber development and its impact on the built environment.

"His contributions were thoughtful, candid, and inspiring. His expertise was invaluable for showcasing bold vision put into practice to hopefully inspire others to make investments for a more sustainable future."

Andrea Newton, Executive Director, Urban Land Institute
(Moderator for keynote panel at International Mass Timber Conference)

Steve Cavanaugh speaking on keynote panel at the International Mass Timber Conference 2024

KNOWLEDGE SHARING

Building Code & Fire Officials

In nearly every city where Steve has worked on a mass timber building, it has been the first, largest, or tallest project of its kind. This has required Steve's active efforts to educate city code and fire officials about the structural details and safety of mass timber. He uses his expertise to bridge code language with testing data and science. Several of his projects (Exhibits 3 & 4) provide case studies to reinforce the continued evolution of timber building codes.

AIA-Accredited Webinars

Steve has co-presented at webinars for AIA continuing education credits focused on his mass timber office projects in Minneapolis and Austin. Steve speaks about the embodied carbon benefits of mass timber vs. concrete and steel structures, and lessons learned in taking mass timber buildings from design through construction.

In-Demand Speaker

Steve has been a featured speaker at a dozen industry conferences focused on mass timber and sustainable design, as well as for university lecture programs. Recent highlights include speaking at the Environmental Design Research Association International Conference in Mexico City, where he presented the timber hotel prototype (Exhibit 7), and serving on the keynote panel of the International Mass Timber Conference in Portland before an audience of 2,000 attendees.

MENTORING

Spark Mentorship Program

Spark is a career exploration program that exposes middle school students from under-served neighborhoods to AEC careers. For 2 years (2018-2019), Steve volunteered in Chicago with Spark to educate students about the profession. He created mock architecture projects for them to complete and offered critiques.

Mentoring Young Professionals

In his Chicago office, Steve mentors a core team of 12 architects and 4 interior designers focused on mass timber. He shares early-stage design sketches and leads informal gatherings to exchange ideas and talk about projects. Steve entrusts his team with responsibility so they can learn how the design and technical aspects of mass timber work together.

"Steve consistently places me in front of clients and gives me opportunities to demonstrate my skills and to interact with experts to help me learn. He is constantly sharing his knowledge about architecture so I can have the tools I need to be successful."

Bobby Larson, AIA,
Senior Associate, DLR Group

Declaration of Responsibility:

I have personal knowledge of the nominee's responsibility for this exhibit, which includes speaking at presentations, lectures, panels, and academic critiques. I am acutely aware of Steve's role as a studio mentor and thought leader with respect to mass timber.

— Kate Yurko, AIA, LEED AP, North Central Region Leader, DLR Group