



Minnesota Structural Engineers Association

Annual Seminar and Trade Show

May 13, 2025

Vibration and Control of Building Structures

Science Museum of Minnesota

Discovery Hall



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION



AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Minnesota



National Council of Structural Engineers Associations

Schedule of Events

Time	Location	Event
7:30 – 8:15am	Pre-function area	Registration and Breakfast
8:15 - 9:00am	Discovery Hall	MNSEA General Meeting
9:00 – 9:30am	Discovery Hall	Trade Show Exhibitors Introductions
9:30 – 9:45am	Pre- function area	Trade Show and Coffee/Water Break
9:45-10:45am	Discovery Hall	Technical Session 1 Vibration Engineering and Active Vibration Control Paul Reynolds, PhD; CEO of CALMFLOOR, Honorary Professor at University of Exeter, UK.
10:45-11:00am	Discovery Hall and pre-function area	Trade Show and Coffee/Water Break
11:00-12:00pm	Discovery Hall	Technical Session 2 Vibration Serviceability and Measurements: Discussion, Demonstration, Case Studies. Anthony J. Baxter, P.E., Principal at ESI Engineering and Peter G. Olney, P.E., Consulting Engineer at ESI Engineering.
12:00-1:15pm	Discovery Hall and pre-function area	Lunch, Networking and Trade Show
1:15-2:15pm	Discovery Hall	Technical Session 3 Introduction to passive TMDs, base isolation of structures & industrial equipment. Florian Sassmannshausen – Vice President, Building Acoustics at GERB Vibration Control Systems
2:15-3:00pm	Discovery Hall	Closing Remarks and Trade Show
3:00-5:00pm	Elements Café Terrace	Social Hour & Venue Self-exploration



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION



MNSEA General Meeting Agenda

- I. INTRODUCTION – Jerod Rudolf
- II. ACEC MN UPDATE – Jonathan Curry
- III. MNSEA COMMITTEE UPDATES
 - I. Steering Committee – Ricky Kirchner
 - II. SEER Committee – Brad Severson
 - III. YMG – Kyle Kucharski
 - IV. Media Communications – Kerry Rauschendorfer
 - V. Sustainability - Kerry Rauschendorfer
 - VI. MNSEA Membership – Greg McCool
- IV. NCSEA LIAISON UPDATES
 - I. NCSEA Delegate Update – Doug Woolf - Transition
- V. OLD BUSINESS:
 - I. Strategic Plan – Ricky Kirchner
 - II. MNSEA Scholarship Application for NCSEA Summit
- VI. NEW BUSINESS:
 - I. Announcement of 2025-2026 MNSEA Officers
 - I. Past President: Jerod Rudolf
 - II. President: Kevin Vazquez
 - III. Vice President: Phil Cici
 - IV. Secretary: Tanner Swenson
 - II. Year-End Acknowledgments – Jerod Rudolf Doug Woolf
- VII. UPCOMING MNSEA MONTHLY MEETING:
 - I. Tuesday, September 9, 2025 – next monthly meeting



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION



Honoring Our President **Jerod Rudolf, PE**



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION



Honoring our outgoing NCSEA Delegate **Doug Woolf, PE, SE**





Jerod Rudolf, P.E.
Past President
Senior Registered Engineer
TKDA



Kevin Vazquez, P.E.
President
Senior Associate – Structural
The Haskell Company



Phil Cici, P.E.
Vice-President
Project Engineer
BKBM



Tanner Swenson, P.E.
Secretary
Senior Associate
Wiss Janney Elstner, Inc

2025-2026 MNSEA Officers



MINNESOTA STRUCTURAL
ENGINEERS ASSOCIATION



2024-2025 Highlights

18 Social events and site
tours

45 New LinkedIn followers
(362 total)

Site Tours of high-profile
local projects

New K-12 outreach efforts

MNSEA ymg





Chair: Abby Bosell
HGA

Vice Chair: Cassie Pascarella
TKDA

Past Chair: Kyle Kucharski
BKBM Engineers



Digital Media: Evan Engquist
Nelson-Rudie

Student Liaison: Noah Struck
Kimley-Horn

Events: Grant Magnusson
BKBM Engineers



Communications:
Mitchell Muniz
Larson Engineering

Outreach: Nate Williams
Krech Ojard & Associates

Secretary/Treasurer:
Mac Parris
Nelson-Rudie

2nd Responder Training Fall 2024

- Fort Snelling Upper Post Flats
- Simulated damaged neighborhood
- Survey 123 for geolocation and data entry





MN Task Force-1 Structures Specialists:

Brad Severson

John Carroll

Jeff Pfiefer

Tanner Wild

Kerry Rauschendorfer

Jason Graham



MN
SEA

SEER

Rubble Pile Training



MN
SEA

SEER

Demolition Site Training



2022 MNSEA Strategic Plan



MINNESOTA
STRUCTURAL
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www.mn-sea.org

Mission Statement

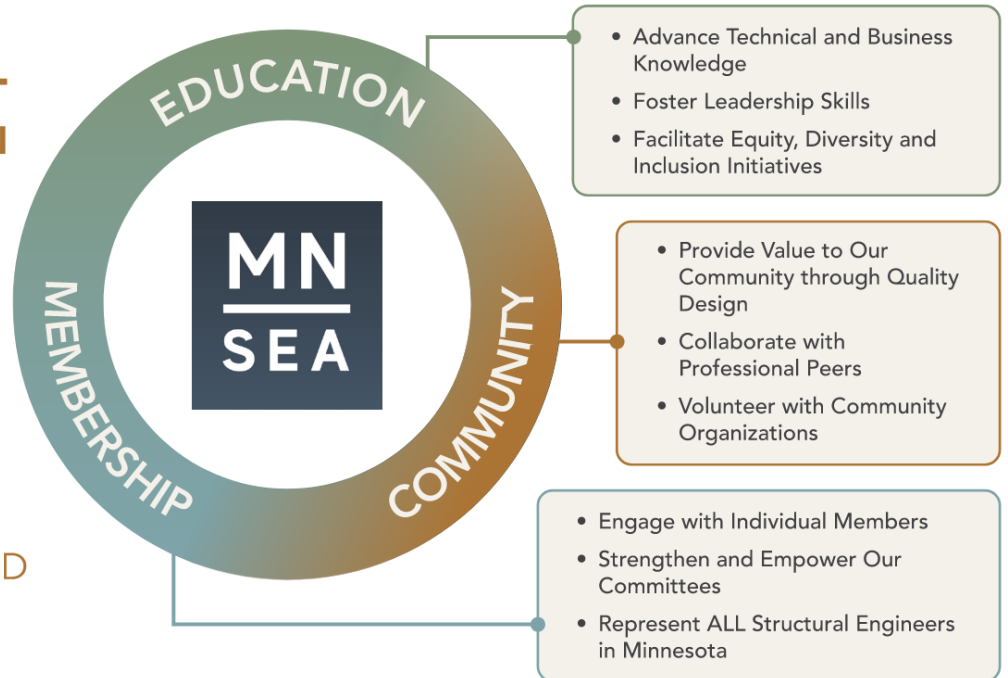
MNSEA represents, educates and unites structural engineers in the state of Minnesota to strengthen, empower, and improve the quality of the structural engineering profession and to help them uphold their duty to the public

2022 STRATEGIC PLAN

We take ACTION through our Committees:

- Steering Committee
- Young Member Group (YMG)
- Structural Engineering Emergency Response (SEER)
- Structural Engineering Engagement and Equity (SE3)

THE **STRENGTH** BEHIND
THE BEAUTY



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION

Thank you to our sponsors!

Primary Sponsor



Social Hour Sponsor



Lunch Sponsor



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2025 ANNUAL SEMINAR & TRADE SHOW

Booth No.	Exhibitor/Company Name	Representative	
		Name	Email
1	BAILEY Metal Products Limited/COMSLAB (***)	Dan Van Gaegeldonk	dvangageldonk@bmp-group.com
2	Vulcraft of Nebraska (**)	Dave Henley	dhenley@vulcraft-ne.com
3	ATLAS Tube (*)	Bradlee Fletcher	bradlee.fletcher@atlastube.com
4	Lindapter International	Luke Kurrle	luke.kurrle@lindapter.com
5	Subsurface Constructors, Inc.	Gary Hahn	Gary.Hahn@subsurfaceconstructors.com
6	DeWalt	Vinay Damam	vinay.damam@dewalt.com
7	Peikko Usa	Colin Butler	colin.butler@peikko.com
8	CY-CON	Bradley Westerberg	bwesterberg@cy-con.com
9	Menard	Dragos Petre	dragos.petre@menardusa.com
10	Simpson Strong-Tie	Dillon Rudd	drudrud@strongtie.com
11	Wells Concrete	Gary Pooley	gary.pooley@wellsconcrete.com
12	Engineered Supply	Eric McElrath	EMcElrath@engineeredsupply.com
13	Engineered Supply	Arlen Grant	agrant@engineeredsupply.com
14	New Millennium	Steve Martin	steve.martin@newmill.com
15	Abrafoast/Blind Bolt	Tyler Wurster	tyler@abrafast.com
16	Atlas Foundation	Phil Baumer	phil.baumer@atlasfoundation.com
17	Ground Improvement	Noah Brown	nbrown@groundimprovementeng.com
18	Vector Construction Technologies	Nick Drews	nbrown@groundimprovementeng.com
19	MOLIN Concrete Products	Alex Wolf	alex.wolf@Molin.com
20	Engineered Vibration Solutions /CALMFLOOR	Paul Reynolds	p.reynolds@calmfloor.com
21	GERB USA	Florian Sassmannshausen	Florian@gerbusa.com

(***)

Primary Sponsor

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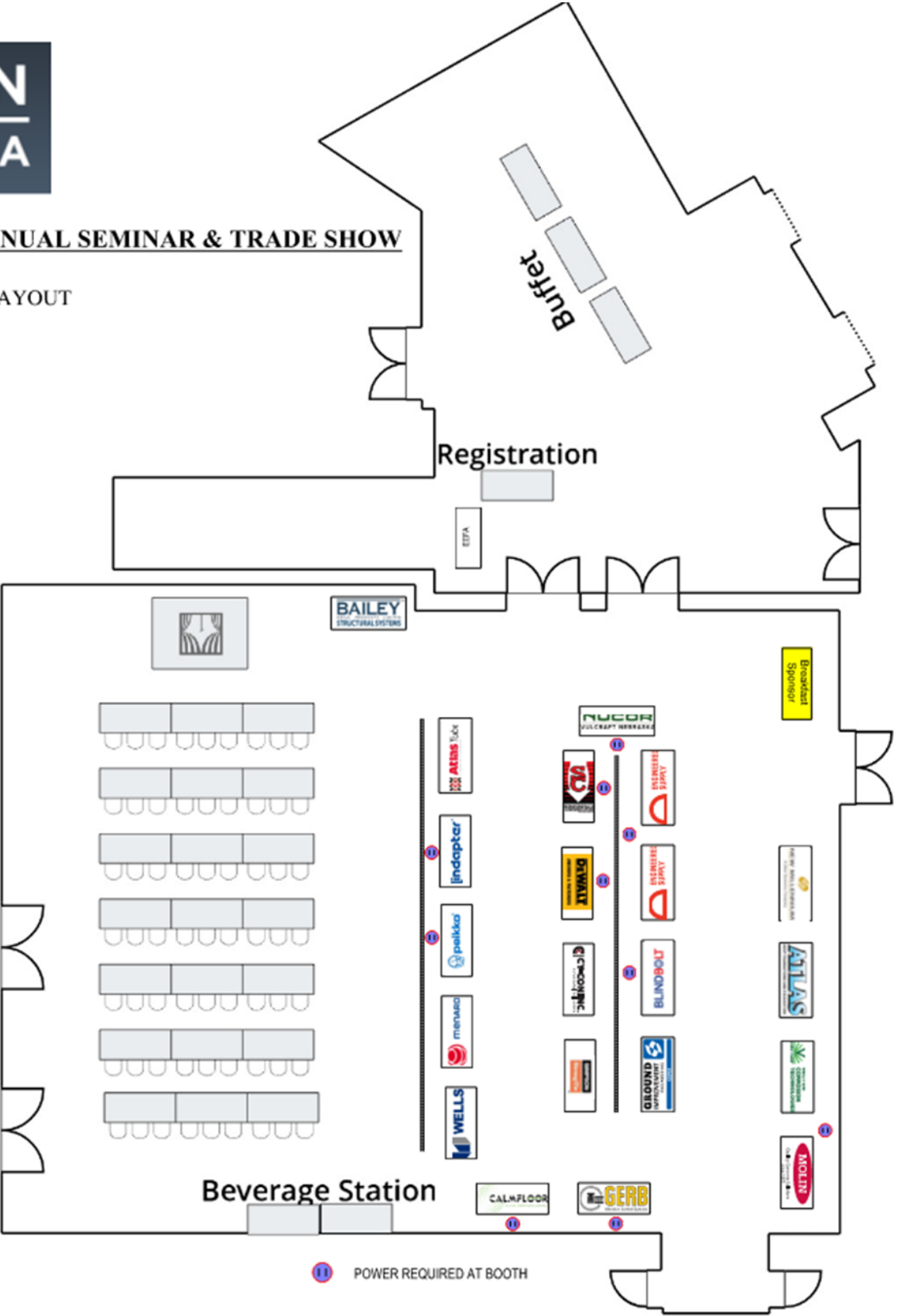
Lunch Sponsor

Exhibit Hall Layout



2025 ANNUAL SEMINAR & TRADE SHOW

EVENT LAYOUT

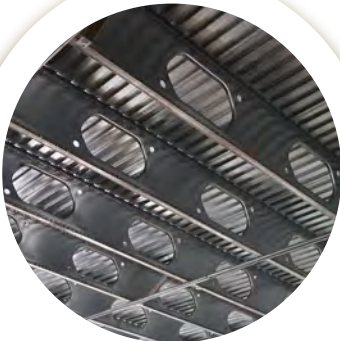


TOTALJOIST®

by BAILEY® (formerly iSpan)

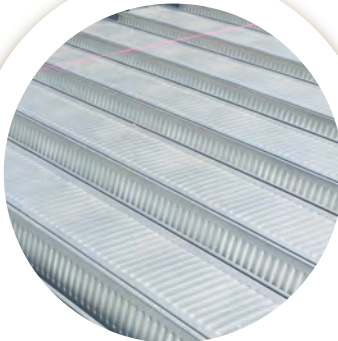
THE MOST ACCOMODATING JOIST FOR FLOORING.

TotalJoist® is an easy to install cold-formed steel floor joist that offers a robust, simplified framing solution compared to traditional wood or steel joists. The proprietary design allows TotalJoist® to be installed similar to wood I-joists. With the superior strength and structural integrity of steel, TotalJoist® is the most accommodating joist in the floor framing industry.



COMPOSITE TOTALJOIST®

Composite TotalJoist® dramatically increases design and building options while also delivering a durable, high quality flooring system.



COMSLAB® CS210

COMSLAB® is a combination of deep steel decking and a concrete cover slab that have cured together and bonded structurally as one element. This construction technique results in significant cost savings and is ideal for fast track construction; especially in tight working spaces.

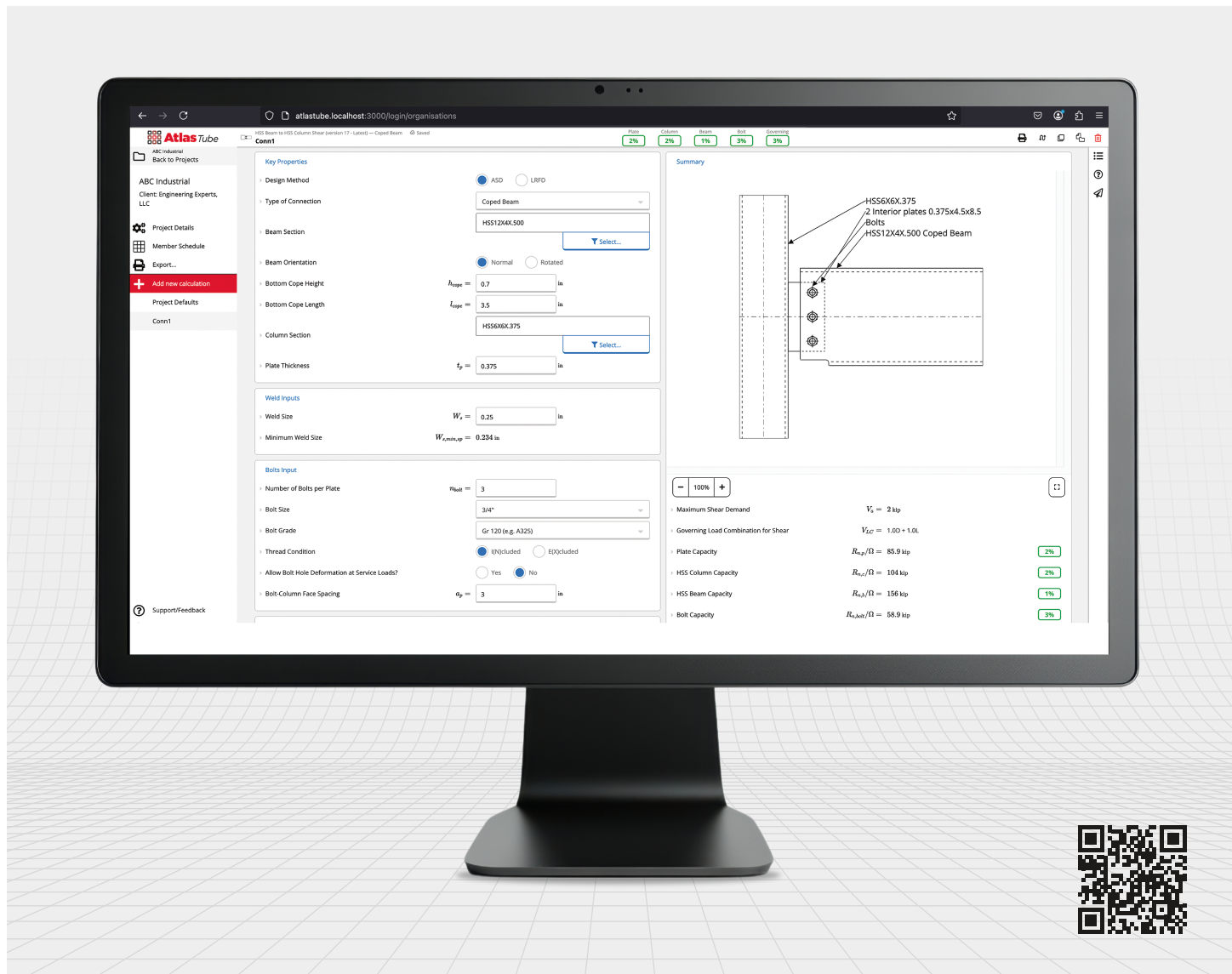


COMSLAB® CS120

Our lighter than precast system provides fast and easy installation. With this construction technique results in significant cost savings.

INTRODUCING ATLAS TUBE'S HSS CONNECTIONS HUB™

Complimentary tools and expert support for engineers, fabricators
and detailers looking to better leverage the advantages of HSS.



Discover the HSS Connections Hub — an online resource that enables more efficient design of fabrication-friendly HSS connections.

- Download typical HSS connection details (PDF, CAD, RVT)
- Perform utilization checks in real time with corresponding calculators
- Create and share designs with your project team
- Eliminate the need for time-consuming spreadsheets



Learn more and sample three typical HSS connections. Create an HSS Connections Hub account to access the full suite of typical HSS details and connection calculators.
atlastube.com/hub-mnsea

DOVETAIL DECK

NEXT LEVEL FLOOR SOLUTIONS

Transform the way you think about multi-story interior spaces with the next generation in Dovetail deck. Our re-engineered Dovetail product line includes a new 30" wide, 2" deep profile, updated sidelap configurations, and a robust anchoring solution.

Discover how Dovetail deck enables you to create larger and brighter unobstructed interior spaces with a modern industrial look. Not only does it save time and reduce project costs, future modifications are easier than ever when using the new PinTail™ Anchors.

BUILD SMARTER WITH DOVETAIL DECK

- › Improved unshored clear span capability
- › Faster installation
- › Consistent panel-to-panel gaps
- › Flexible multi-story design
- › Renovations made easy
- › Manufactured with sustainable steel

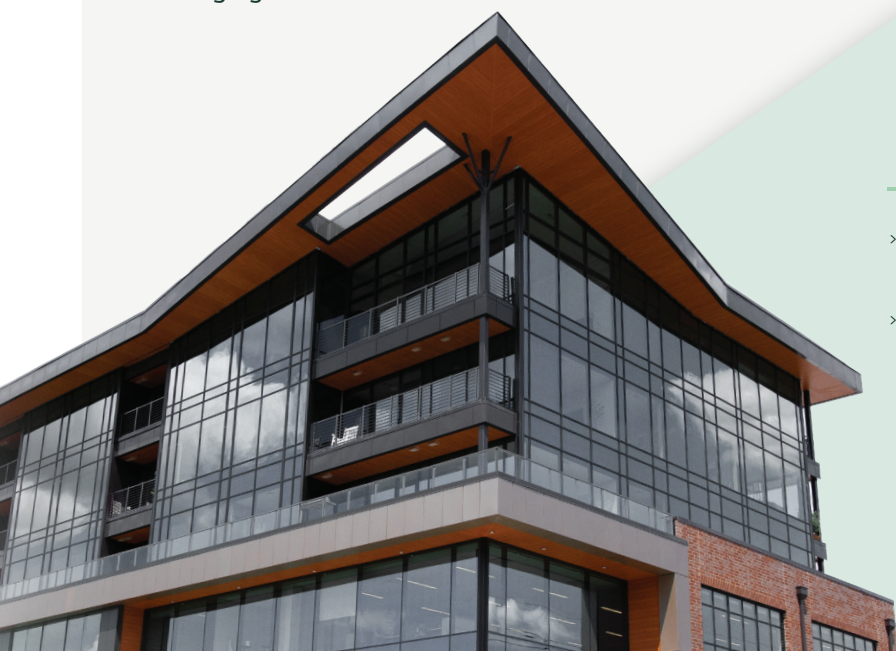
RENOVATIONS MADE EASY WITH PINTAIL™ ANCHORS:

Future-proof your project with our innovative PinTail™ Anchors that work exclusively with our next generation Dovetail deck. This solution offers unparalleled flexibility for all your below-deck needs.

PinTail™ Anchors are the only Dovetail deck anchors in the market capable of meeting lateral bracing and hanging demands.

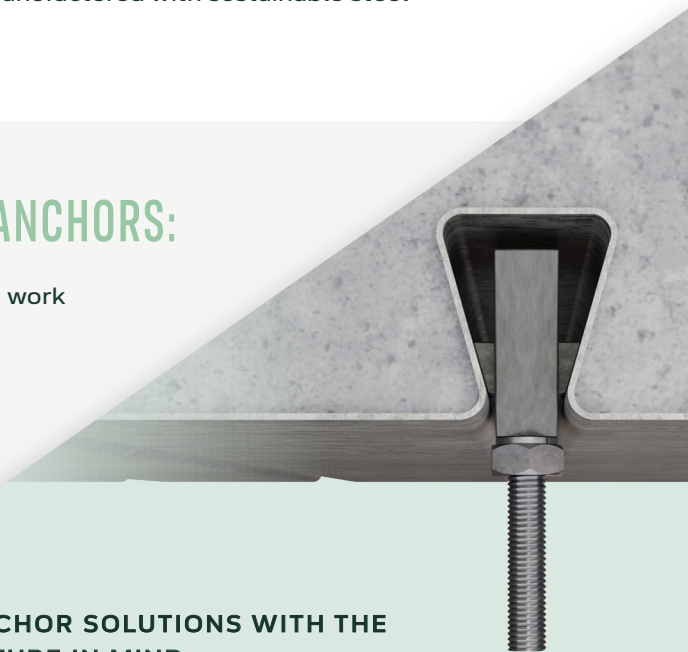
ANCHOR SOLUTIONS WITH THE FUTURE IN MIND

- › Install quickly in Dovetail deck to hang or brace mechanical, electrical, plumbing, and more
- › Relocate anchors with minimal effort, no drilling required



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2025 Annual Seminar & Trade Show

Vibration and Control of Building Structures



Over the years, vibration serviceability has been a high-profile issue on projects like the Millennium Bridge in England and several stadium grandstands in Europe. There are many less known vibration problems on office floors, monumental staircases and in manufacturing facilities throughout the U.S. Locally in Minnesota, many MNSEA members have noticed footfall vibration on floors at the Mall of America, and there was a wind-induced vibration failure of the Martin Olav Sabo Suspension Bridge (Midtown Greenway). This observed performance failures and MNSEA's strategic goal to advance technical knowledge are the motivation for this year's seminar topic.

SESSION 1: Vibration Engineering and Active Vibration Control of Floors

Paul Reynolds, PhD: CEO of CALMFLOOR, Honorary Professor at University of Exeter, UK

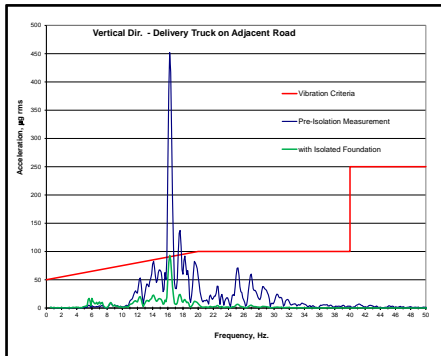
Innovative technologies for controlling building floor vibrations provide significant advantages over traditional methods throughout a building's lifecycle. Modern floor designs often prioritize vibration serviceability, and advanced vibration control solutions can reduce both construction costs and the carbon footprint of new buildings. For existing buildings, these technologies offer a cost-effective and non-disruptive way to resolve vibration issues without requiring extensive structural modifications. They also enable upgrades to accommodate more sensitive uses, such as converting office or commercial spaces into laboratories, healthcare facilities, or residential properties. This presentation offers a concise introduction to vibration engineering in buildings, focusing on the concept of active mass damping and its practical application to building floors. Several global case studies illustrate the successful deployment of this technology.



SESSION 2 – Vibration Serviceability and Measurements: Discussion, Demonstration, Case Studies.

Anthony J. Baxter, P.E., Principal at ESI Engineering

Peter G. Olney, P.E., Consulting Engineer at ESI Engineering



Vibration serviceability refers to the ability of a structure to function as intended without causing annoyance to its occupants or compromising the performance of sensitive equipment. It is an important design issue for buildings where human comfort is a priority, such as office buildings, hospitals, and residential structures. It is critical for buildings with sensitive laboratories, operating rooms, and equipment, such as high magnification microscopes, MRIs, and microelectronic fabrication tools. Understanding the vibration requirements is part of the challenge. Analysis during design and measurements of vibration levels can also be challenging. In this presentation, we will discuss the breadth of vibration serviceability, considerations for the structural engineer, measurements, and several project examples.

SESSION 3 – Introduction to passive TMDs, base isolation of structures & industrial equipment.

Florian Sassmannshausen – Vice President, Building Acoustics at GERB Vibration Control Systems

Tuned Mass Dampers (TMDs) and vibration isolators, though often hidden from view, play a crucial role in the performance of buildings and structures, impacting human comfort, acoustic comfort, or protecting vibration-sensitive equipment. Tuned mass dampers are essential for minimizing motion in tall and slender buildings, towers, long-span bridges, monumental staircases, and floors. Vibration isolators, on the other hand, protect vibration- or noise-sensitive spaces by reducing vibration transmission within mixed-use buildings, shield buildings from rail-induced vibration, or protect foundations and adjacencies from extreme vibrations from industrial equipment.

Established in 1908, GERB stands at the forefront of vibration control technology, offering tailored solutions for architectural, structural, and heavy industrial applications. This session will explore common challenges posed by vibrations in structures and delve into advanced engineering solutions that empower structural engineers in performance-based design, ensuring human comfort in buildings and structures.





MNSEA

Minnesota Structural Engineers Association

SEMINAR AND TRADE SHOW – MAY 13, 2025

Paul Reynolds, PhD: CEO of CALMFLOOR, Honorary Professor at University of Exeter, UK

Paul Reynolds is the CEO of CALMFLOOR, a company dedicated to commercializing innovative Active Mass Damping (AMD) technology for controlling vibrations in building floors. Prior to this, he spent over 15 years as an academic at the Universities of Sheffield and Exeter, where he led pioneering research in vibration control and serviceability and published over 150 papers in this field. Paul has also been a trusted consultant to the industry, contributing to dynamic testing and monitoring projects, including several UK sports stadiums, and providing solutions for high-profile challenges such as the London Millennium Bridge vibration issue. He currently holds an Honorary Professorship at the University of Exeter.



Anthony J. Baxter, P.E. – Principal at ESI Engineering

Tony Baxter has been principal at ESI Engineering since 2012. He has 36 years of experience, with 25 of those years at ESI, specializing in building and equipment vibration and noise control. Sensitive hospitals, laboratories and microelectronics facilities are his speciality, including requirements for structural design. He has used modal analysis and other techniques to solve critical vibration related issues. His experience in vibration and noise analysis includes mechanical equipment vibration isolation, HVAC noise control, isolation system design, development of unique solutions, and troubleshooting. Tony has a passion for finding simple solutions to complex problems. He has published papers on Tuned Mass Dampers to control vibration in buildings and on predicting ground vibration from equipment foundations. Tony has a B.S. degree in Mechanical Engineering from Iowa State.

Peter G. Olney, P.E. – Consulting Engineer at ESI Engineering

Peter Olney joined ESI in the Summer of 2021 and serves as a Consulting Engineer in Structural Dynamics and Design. Peter holds a B.S. degree in Civil Engineering from the Illinois Institute of Technology in Chicago, IL. He has a M.S. degree in Natural Hazards and Risks in Structural Engineering from the Bauhaus-Universität Weimar in Germany where he also was a research associate for GRK 1462: Evaluation of Coupled Numerical and Experimental Partial Models in Structural Engineering. As part of the research group, Peter presented conference papers around the world related to the design of monitoring systems for structures. Peter has experience with vibration measurement systems, as well as design of building and industrial structures. He is a licensed civil engineer in Minnesota and Oregon.



Florian Sassmannshausen – Vice President, Building Acoustics at GERB Vibration Control Systems, Inc.



Florian is the Vice President at GERB Vibration Control Systems and specializes in building vibration and acoustics. With 15 years of experience, he has successfully overseen the design and implementation of vibration mitigation solutions across a broad spectrum of global projects. Florian's expertise allows him to approach complex, technically demanding challenges with innovative, out-of-the-box thinking. Typical projects encompass building base vibration isolation, floating floors to protect vibration-sensitive areas, noise mitigation in mixed-use developments, discrete isolation of beams and columns, and the retrofitting of existing structures, rooftop helipads, and buildings.

"It's all springs and dampers," – but with the unique challenge to balance structural integrity with minimal displacement, while delivering exceptional isolation performance through elasticity – two seemingly opposing objectives. Collaborating with a talented team of structural, civil, and mechanical engineers at GERB, Florian helps drive forward the company's legacy. Founded in 1908 in Berlin, GERB is a world-renowned leader in vibration isolation and vibration control engineering and manufacturing.



MINNESOTA STRUCTURAL ENGINEERS ASSOCIATION



AMERICAN COUNCIL OF ENGINEERING COMPANIES
of Minnesota

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www.acecmn.org

Certificate of Attendance

For The Following ACEC/MN Educational Program:

Vibration and Control of Building Structures

Vibration Engineering and Active Vibration Control of Floors
Vibration Serviceability and Measurements: Discussion, Demonstration, Case studies
Introduction to Passive TMDs, Base Isolation of Structures & Industrial Equipment
(MNSEA Annual Seminar & Trade Show)

Presenters:

Paulo Reynolds, PhD / Anthony Baxter, P.E. / Peter Olney, P.E./ Florian Sassmannshausen

Presented: 5/13/2025
Location: Science Museum of Minnesota, St. Paul, Minnesota

3.0 Professional Development Hours (PDH)
0.3 Continuing Education Units (CEU)

[] - I attended the entire 3 hour seminar.
[] - I attended _____ hours of this seminar.

To the best of our knowledge, this educational program meets the requirements of the Board of AELSLAGID for continuing education. ACEC/MN makes no warranty, directly or indirectly, that this program meets the standard established by the Board of AELSLAGID for continuing education.

Note: This certificate was distributed at the end of the educational program and only to those who were in attendance for the entire program. If there are any questions regarding this certificate, or if confirmation is needed to verify the authenticity of this document, please contact the ACEC/MN office.



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