

# **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**

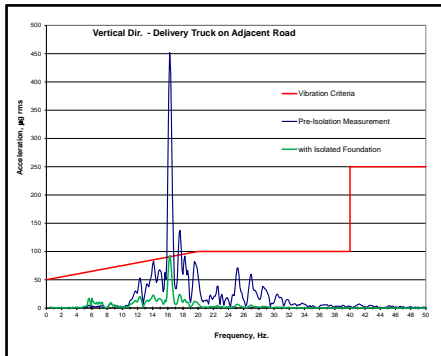
Innovative technologies for controlling building floor vibrations provide significant advantages over traditional methods throughout a building's lifecycle. Modern floor designs often prioritize vibration serviceability, and advanced vibration control solutions can reduce both construction costs and 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

## ANNUAL SEMINAR AND TRADE SHOW – MAY 13, 2025

### AGENDA:

7:30 a.m.-8:15 a.m.	Registration, Breakfast & Trade Show	11:15 a.m.-12:15 p.m.	Technical Session 2
8:15 a.m.-9:00 a.m.	MNSEA General Meeting	12:15 p.m.-1:15 p.m.	Lunch, Networking and Trade Show
9:00 a.m.-9:30 a.m.	Trade Show Exhibitors Introductions	1:15 p.m.-2:15 p.m.	Technical Session 3
9:30 a.m.-9:45 a.m.	Trade Show and Coffee/Water break	2:15 p.m.-3:00 p.m.	Closing remarks and Trade Show
9:45 a.m.-10:45 a.m.	Technical Session 1	3:00 p.m.-5:00 p.m.	Social Hour & Venue Exploration
10:45 a.m.-11:15 p.m.	Trade Show and Coffee Break		

### LOCATION:

[Science Museum of Minnesota](#) – 120 W. Kellogg Blvd., Saint Paul, MN 55102. Room: Discovery Hall.

### COST:

<u>Early Registration (Before March 14<sup>th</sup>)</u>		<u>Standard Registration (After March 14<sup>th</sup>)</u>	
MNSEA or SEAWI members:	\$130	MNSEA or SEAWI members:	\$150
General Attendees (non-members)	\$180	General Attendees (non-members)	\$200
MNSEA/SEAWI Young Members (30 and under)	\$80	MNSEA/SEAWI Young Members (30 and under)	\$100
Students	\$45	Students	\$65

Fee Includes: General Meeting, Educational Sessions, Trade Show Access, Continental breakfast, Lunch, Beverages, one parking pass, and a Social Hour Drink.

### REGISTRATION:

Online Registration Link - [2025 MNSEA Annual Seminar & Trade Show - RSVP](#)

Registration Refund – 7 days minimum cancellation required. After that, cancellations fees will be applicable.

### CONTINUING EDUCATION:

The seminar will provide 3.0 PDH/0.3 CEU credits. Certificates will be distributed at the end of the seminar.

### SPONSORS:

This year we are offering an opportunity for Special Sponsorships! THANK YOU TO OUR SPONSORS!



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**TRADE SHOW:**

A trade show with up to 20 exhibitors from across industry will occur on breaks between educational sessions and during the social hour following the sessions. Exhibitors will provide updates to attendees on their products and services. Exhibitors are excited to answer questions and provide solutions to every-day engineering challenges.

List of Currently Registered Exhibitors:

<b>Company</b>	<b>Website Link</b>
• NUCOR - VULCRAFT	• <a href="#">NUCOR Vulcraft</a>
• ATLAS Tube	• <a href="#">Steel HSS   Atlas Tube</a>
• Lindapter International	• <a href="#">Lindapter</a>
• SUBSURFACE Constructors	• <a href="#">Subsurface Constructors</a>
• DeWALT	• <a href="#">DEWALT®</a>
• Peikko USA	• <a href="#">Peikko USA</a>
• CY-CON Inc.	• <a href="#">CY-CON</a>
• Menard	• <a href="#">Menard USA</a>
• CALMFLOOR	• <a href="#">CALMFLOOR</a>
• ESI	• <a href="#">ESI Engineering</a>
• <b>Your Company</b>	• <b><a href="#">Your website</a></b>
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If you have any questions about this seminar, please contact Kevin Vazquez at 651-352-9643 or [Kevin.Vazquez@Haskell.com](mailto:Kevin.Vazquez@Haskell.com)



# 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.