

2024  
NSPE-WI (WSPE)  
Virtual Discovery  
Conference

*“Celebrating 80  
Years of  
Engineering  
Excellence”*

**MARCH 19 - APRIL 25, 2024**



# VIRTUAL CONFERENCE SCHEDULE: March & April 2024

No.	Engineer Discipline	Date	Time (CST)	PDH	Speaker	Presentation Title
1a	Ethics	Tues, March 19, 2024	12:00-1:30 PM	1.5	Rebecca Bowman	Ethics Case Study- "Michigan's Cascading Dams"
1b	Critical Thinking	Thurs, March 21, 2024	12:00-1:00 PM	1.0	John Droz	Fixing K-12 Education
2a	Chemical Engr.	Tues., March 26, 2024	12:00-1:00 PM	1.0	Donn C. Thompson	Top Ten Ways to Reduce Concrete's Carbon Footprint
2b	Electronics	Thurs. March 28, 2024	12:00-1:00 PM	1.0	David Winks	Electromagnetic Pulse (EMP)
3a	Engr Soft Skills	Tues. April 02, 2024	12:00-1:00 PM	1.0	Knudt Flor	Do Some of Today's Engineering Graduates Lack Vital Soft Skills?
3b	Civil	Thurs April 04, 2024	12:00-1:00 PM	1.0	Fred Groth	Levy Hall Structural Design Challenges
Total PDH's				6.5		

**Please circle PDH hour noting course you attended along with initial under.** Conference organizers recommend that in addition to this brochure, retain any session handouts or personal notes. DSPS rules indicate that they can request this information to confirm attendance and content of PDH sessions in case of audit.

*By my signature, I attest that I attended the above circled PDH hour marked sessions in their entirety and qualify for the PDH's assigned.*

Printed Name: \_\_\_\_\_

Total PDH's Earned for Sessions Attended \_\_\_\_\_

Signature: \_\_\_\_\_

## VIRTUAL CONFERENCE SCHEDULE: April 2024

No.	Engineer Discipline	Date	Time (CST)	PDH	Speaker	Presentation Title
4a	Civil	Tues. April 09, 2024	12:00-1:00 PM	1.0	Paul Dineen	UW-Madison Computer Data and Information Sciences (CDIS) Building
4b	Bio-Medical	Thurs. April 11, 2024	12:00-1:00 PM	<u>1.0</u>	Dr. Dennis Bahr	Pulse Oximeters
5a	Civil	Tues, April 16 2024	12:00-1:00 PM	1.0	Barry Larson	Lone Rock Design-Build Project
5b	Systems	Thurs., April 18, 2024	12:00-1:00 PM	1.0	Irina Ragozin Dan Green	Levy Hall Mechanical and Electrical "Pushing Boundaries of Controlled Environments"
6a	Civil	Tues., April 23, 2024	12:00-1:00 PM	1.0	Nate Helbach	"Mass Timber Structural Comparison: Baker's Place Case Study"
6b	Ethics	Thurs., April 25, 2024	12:00-1:30 PM	1.5	Rebecca Bowman	Ethics Case Study: "East Ohio Fire of 1944"
Total PDH's:				6.5		

**Please circle PDH hour noting course you attended along with initial under.** Conference organizers recommend that in addition to this brochure, retain any session handouts or personal notes. DSPS rules indicate that they can request this information to confirm attendance and content of PDH sessions in case of audit.

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Printed Name: \_\_\_\_\_

Total PDH's Earned for Sessions Attended \_\_\_\_\_

Signature: \_\_\_\_\_

## Virtual Session No. 1a

(1.5 PDH)

**Tuesday, March 19, 2024, 12:00 – 1:30 PM CST**

**Speakers:** Rebecca A. Bowman, Esq., P.E., D.F.E.  
**Representing:** National Society of Professional Engineers  
**Topic:** Ethics Case Study- “Michigan’s Cascading Dams”

The presentation will review the timeline and context of a cascading 3-dam failure. Participants will have the opportunity to identify points and tasks on the timeline through which the cascading failure could have been preventable. Those “points of prevention” will be examined from the perspectives of the parties involved. Strategies to avoid similar issues in the future will be reviewed.

## Virtual Session No. 1b

(1 PDH)

**Thursday, March 21, 2024 12:00-1:00 PM CST**

**Speakers:** John Droz  
**Topic:** Fixing K-12 Education

The National Generation Science Standards are now available. This presentation will examine some of the concerns and offer ideas on what needs to be done to improve or revise these standards. We, as engineers, along with science teachers and other engineering organizations, need to get involved in what is being recommended and how to move in a better direction.”

## Virtual Session No. 2a

(1.0 PDH)

**Tuesday, March 26, 2024 12:00 – 1:00 CST**

- Speakers:** Donn C. Thompson, AIA, LEED AP BD+C
- Representing:** Wisconsin Ready Mixed Concrete Association/National Ready Mixed Concrete Association
- Topic:** Top Ten Ways to Reduce Concrete's Carbon Footprint

This presentation will discuss how design and construction teams can implement ten simple strategies to reduce concrete's carbon footprint today. The recommendations are listed broadly in order of priority, but not in order of impact reduction. All are important and should be implemented. In addition, the strategies are meant to achieve a lower carbon footprint without impacting other desired performance capabilities for the concrete.

## Virtual Session No. 2b

(1.0 PDH)

**Thursday, March 28, 2024 12:00 – 1:00 PM CST**

- Speakers:** David Winks
- Representing:** Advanced Technology and Infragard
- Topic:** Electromagnetic Pulse (EMP)

What an Electromagnetic Pulse (EMP) is, what are the risks, and what are the possible solutions.

## Virtual Session No. 3a

(1.0 PDH)

**Tuesday, April 02, 2024 12:00 – 1:00 PM CST**

**Speaker:** Knudt Flor  
**Representing:** College of Charleston  
**Topic:** Do Some of Today's Engineering Graduates Lack Vital Soft Skills?

A discussion on the need for today and tomorrow's engineers to have a more well-rounded skill set, especially global and cultural fluency, as informed by the traditional liberal arts, so that they are better able to perform on international teams and in an environment of fast-changing technology.

## Virtual Session No. 3b

(1.0 PDH)

**Thursday, April 04, 2024 12:00 – 1:00 PM CST**

**Speaker:** Fred Groth  
**Representing:** GRAEF  
**Topic:** Levy Hall Structural Challenges

The project creates a new unified home for the Department of History and nine other ethnic studies departments, programs, and centers within the College of Letters and Sciences (L&S) by consolidating and co-locating spaces currently spread across eight facilities including replacing the aging Mosse Humanities Building.

The project program really drove the design. This presentation will review how the following structural challenges were solved:

- Large open classrooms on the two lower floors with no columns in these classrooms
- Five-story building needed to limit total height so that building did classify as non-high rise construction but provide adequate space for MEP
- Site sloped 12 feet from north to south
- Green roofs needed to be implemented to meet Madison's and DFD's new runoff reductions
- Design of monumental stairs that are thin with long spans and still not be bouncy
- Tight site with strict vibration criteria during construction as residential houses are within 5 feet of our building.

## Virtual Session No. 4a

(1 PDH)

**Tuesday, April 09, 2024 12:00 – 1:00 PM CST**

**Speaker:** Paul Dineen  
**Representing:** Thornton Tomasetti  
**Topic:** UW-Madison Computer Data and Information Sciences (CDIS) Building

For the University of Wisconsin – Computer Data and Information Sciences (CDIS) project, the emphasis is on innovation and collaboration, and that begins with the design team. Thornton Tomasetti provided structural design, construction engineering, and vibration consulting services to Kahler Slater, LMN Architects, and J.H. Findorff for the nearly 350,000-square-foot, eight-story building housing the computer sciences, statistics, school and data sciences departments.

The project features seven unique monumental stair structures that wrap around the full-height interior atrium and is crowned by an intricate glass skylight. Located above an existing subgrade structure, the building's engineering challenges include intersecting full-height trusses and built-up plate girder systems to integrate structural function with architectural vision. More than 60 column transfers create column-free spaces across auditoriums, laboratories, and wellness spaces. Additional coordination with MEP engineers and contractors resulted in over 450 beam web penetrations to optimize architectural ceiling depths while maintaining structural efficiency.

## Virtual Session No. 4b

(1 PDH)

**Thursday, April 11, 2024 12:00 – 1:00 PM CST**

**Speaker:** Dr. Dennis Bahr  
**Representing:** Biomedical Engineering Dept, University of Wisconsin-Madison  
**Topic:** Pulse Oximeters

The object of this talk is the clinical pulse oximeter, which is an electronic device that is used to non-invasively measure the peripheral arterial blood oxygen saturation level (SpO<sub>2</sub>). There will be a discussion of the early history, how the device functions, and how the device is used today. A new algorithm will also be briefly discussed, called the Discrete Period Transform, which was developed to make these measurements quickly and accurately.



## Virtual Session No. 5a

(1 PDH)

**Tuesday, April 16, 2024 12:00 – 1:00 PM CST**

**Speaker:** Barry Larson

**Representing:** HNTB

**Topic:** Lone Rock Design-Build Project

Discuss progress and experiences on the current WIS 130/133 Lone Rock Wisconsin River Bridges Design-Build project.

## Virtual Session No. 5b

(1.5 PDH)

**Thursday, April 18, 2024 12:00 – 1:00 PM CST**

**Speaker:** Irina Ragozin & Dan Green

**Representing:** Mead and Hunt

**Topic:** Levy Hall Mechanical and Electrical “Pushing Boundaries of Controlled Environments”

The mechanical portion of session will cover HVAC air distribution system regarding designing for flexibility and expandability, review the importance of indoor air quality (IAQ), underfloor air distribution benefits, and the acoustical challenges on this project.

The electrical portion of session will cover electrical distribution system regarding designing for flexibility and expandability and architects desire for clean exposed ceilings and how that was achieved. Also will review other key elements in designing the electrical system including the secret to success, lighting design and lighting controls and what is the key to successful design.

## Virtual Session No. 6a

(1.5 PDH)

**Tuesday, April 23, 2024 12:00 – 1:00 PM CST**

**Speaker:** Nate Helbach  
**Representing:** The Neutral Project  
**Topic:** Mass Timber Structural Comparison: Bakers Place Case Study

Bakers Place is Madison, Wisconsin's first mass timber development, located at 849 E Washington Avenue and with plans to open in early 2025. The building features a partial historical restoration of the original Gardner Baking Co. building, as well as a mass timber structure that steps up to 14 stories. This mixed-use building will have 204 apartment units and retail space on the ground floor that houses a café, bakery, and office space. The building will be roughly 303,156 square feet.

This presentation will highlight the analysis that was conducted to compare the benefits of the Bakers Place Hybrid Mass Timber structure to more traditional building methods. The Case Study evaluates four building options, the actual structure (hybrid mass timber) compared to concrete, steel, and fully mass timber structures. These structural options were evaluated based on carbon footprint, scheduling efficiency, and monetary cost. This presentation will highlight the details of each structural model and associated benefits, as well as a justification for our hybrid approach.

## Virtual Session No. 6b

(1.5 PDH)

**Thursday, April 25, 2024 12:00 – 1:30 PM CST**

**Speaker:** Rebecca A. Bowman, Esq., P.E., D.F.E.  
**Representing:** National Society of Professional Engineers  
**Topic:** Ethics Case Study: East Ohio Fire of 1944

The presentation will review the timeline and context of the ripple effects of the explosion of liquid natural gas Storage Tank No. 4 in Cleveland. Participants will have the opportunity to identify (geographic) points of the disaster at which interventions could have prevented the explosion and its consequences. Strategies which have avoided similar issues since 1944 will be reviewed, as well as opportunities for further improvements.